

Time Will Tell

This essay is about TIME, DURATION and MOTION. I venture to argue that our current theory of TIME is wrong, that duration is impossible and that MOTION is everything. I will explain that there is no such concept as TIME that has a unique "dimension" or defines "duration". That TIME is just a misinterpretation of our attempts to describe simple motion.

In theory, TIME is considered a fundamental property of the universe, without being rigorously defined. As a "given" property of existence it is not properly scrutinized in its function. Length, mass, and TIME have been rendered relative and not absolute by Einstein. This paper seeks to explain that TIME is not some ethereal property, but rather it is just a defined metric like length and mass. In fact, time is simply the metric of motion. And the limit of motion is also the limit of time.

The abundance of motions in our daily lives, many of which are routine and sequential, while others appear random and unrelated, cause us to believe that all of these motions should be related to each other through some universal property that envelopes all of Creation. And that such a property would be separate from our scientific calculations regarding such motions. This need arises from the concepts of rest and duration, as will be explained further on.

So we build an instrument to do the simple task of demonstrating a standard uniform motion, and we cause this instrument to record its accruing motion in some manner, which we calibrate to mimic the Earth's rotation. Since this instrument accomplishes no other task, but to move uniformly, we call it a clock and say it is measuring time. We then declare this TIME, that we claim to be measuring, to be a universal property of nature and a separate dimension. We are violating Occam's razor, because we are inventing a TIME concept that is unnecessary and confusing. Our motion-clock is not measuring Time; rather it is measuring Motion, its own Motion. That is why it confuses us, we are taught to think that it is measuring something separate from its own internal motion.

The construction and use of clocks does not give evidence that "Time" or "Duration" exists. Clock motions only suggest that relatively uniform motions exist and may be used to relate other uniform motions and many non-uniform motions to each other, through their relationship with our uniform clock motion. After all, we use standard lengths to measure and compare all other lengths, and we use standard masses to measure and compare all other masses. Likewise, we use standard motions to measure and compare all other motions. We do not use clocks to measure indefinable concepts.

We have to be taught that the Sun does not rise in the East and set in the West, it is the Earth that rotates. And the Sun does not move annually amongst the stars and galaxies, it is the Earth that revolves about the Sun. Time is as erroneous as our common mis-perceptions of the Sun and stars. Our sense of time is partly a presumption of existence without continuous motion (duration), from the days when the Earth was thought to be stationary. As uniform cyclic motions occur and re-occur we regulate our own motions to them, being insufficiently aware that here on Earth it is only the Earth's rotation and revolution motions which define our days and years.

Because we move in a relatively uniform manner when we walk, or ride in a car, train, ship or plane; we are motion-clocks and we are constantly translating our relatively uniform motion into comparisons with all of the relatively uniform motions going on around us. All of these motion-clocks create an illusion of connectedness for our activities, as well as rest, which is so powerful it begged for a name. We call it time and thereby limit our knowledge and understanding of what is. Though everything is connected to everything else via the interaction of motions, we do not correctly comprehend the relationship of motions defining and quantifying other motions. The universe is simpler than we are describing because of the complications created by the application of the fictitious concept of TIME.

The concepts of "past" and "future" are just mental constructions associated with memory. The past is memories of a continuum of motion, sequentially related to the motions of the present. The future is an expectation of the continuance of motions that will become the present and connect with the past. The separation between past and future is the smallest increment of change that can be recorded in any motion. We can surmise that only the present exists and we can make our perception of the present as thin as we feel comfortable doing.

There are no absolute metrics in our universe. We know that length and mass are relative to frames of reference, but even more fundamentally, we do not know the length or mass of any object in an absolute sense. We can only know them in a relative sense. Every measured quantity is relative to a finite standard

that is defined but not measurable; such that by definition, a Standard Metric is simply one (1) unit of Mass or Length or Motion.

Consider the standard meter and kilogram, by which we calibrate our instruments to measure and weigh all that surrounds us. The meter was initially defined as the distance between two marks on a metal rod kept in France. What is not obvious is that although any length may be measured to great accuracy as parts of, or multiples of, this standard meter; we do not know, nor can we ever know, how long a meter is. We have created an unknown and random length, and defined it to be one meter. We have not and cannot measure it in an absolute sense. Since it is not possible to know the absolute length of the standard meter, it is not possible to know the absolute lengths or distances of objects and places in the Universe. WE determine how finite something is by comparing it with our defined unit of finite length.

Similarly for mass. We have taken a finite lump of earth and defined it to be one (1) unit of mass, which we call the standard kilogram. Through balance scales we can create duplicates, as well as measure the relative mass of all objects. But we must understand that we do not know, nor can we know, the mass of the standard kilogram. Similar to length, we can measure relative mass to a great accuracy, but we cannot measure any mass in an absolute sense, because the mass of our standard kilogram is unknown, outside of our definition (one kilogram).

We certainly have a sense of length with respect to our Standard Meter and a sense of mass with respect to our Standard Kilogram, and we constantly use these senses to estimate relative displacements and masses in our environment. But standards are for comparison only, any two or more displacements, or masses, or motions are compared to the appropriate standard and then arithmetically related to each other. It is not necessary to know absolute lengths or masses, because we only measure things to know the relative differences between objects of length or mass. Similarly for motions, we compare motions and changes in motion in a relative sense of change, and not in any absolute sense. There are no absolute scales of measure.

I am not saying that we are in error to define a standard length and mass, or that our standards lack precision in our earthly environment. Obviously we comprehend the function and applications of these standards in our societies, for the purposes of comparing relative size. The unhappy consequence of defining any fundamental characteristic is that we may only quantify it as an identity to itself. The standard meter is ONE meter, the standard kilogram is ONE kilogram. It would make no sense to try to measure a standard by a copy of itself or any other defined standard. They are not comparable to anything that could quantify them in an absolute sense.

Likewise for time, we define our days in terms of the motion of the rotating Earth, while we know nothing in an absolute sense about the Earth's rotation. But then we also define time to be some universal property separate from the unknowable motion of our rotating Earth. In our calculations involving TIME as motion we use the comparable motion of the Earth's rotation camouflaged in clocks, while in our descriptive verbiage about Time we use some confusing ideas that suggest a universal property or dimension.

Our current notion of time is a miss-interpretation of motion as a measuring devise for phenomena that we believe is different from motion. To believe that our clocks can do anything but move in a uniform manner, or measure anything but their own motions, is to ignore the limitations of our construction. We have chosen the Earth's rotation to be our most fundamental clock to fulfill the social need of quantifying day, night and our activities. The Earth's rotation motion is easily converted into a portion or multiple of any other uniform motion, and it can be used to measure random motions, or to measure the apparent duration of objects while they appear not to move.

Consider the story about the clock-maker and the factory foreman. Each day the factory foreman would pass the clock-maker's store and set his watch to read the same as those showing in the window, so that he might start and stop the workers at the correct time. Little did he know that the clock-maker would check and reset his clocks each day when the noon whistle blew at the factory. The motions of their respective clocks were relevant to their labors and repose, but their clock motions were completely irrelevant to any perception of a universal dimension that we want to call time. If either the foreman's clock or the clock-maker's window clock were operating faster or slower than the Earth's rotation, it would become apparent to the community that the factory was beginning work earlier and earlier, with respect to the Earth's rotation, if these clocks were fast; or later and later if they were slow. A simple Sundial would have to be used, along with its seasonal correction formula, to re-calibrate (synchronize) the community's clocks back to simulating the Earth's rotation motion.

Motion only relates to motion. As relativity has shown, the verification of the quantity of motion of our clocks and the uniformity of that motion is limited to comparison with a chosen motion which cannot be calibrated in and of itself. Clock-makers are only privy to other error-prone motion-clocks to calibrate their clocks. The current use of atomic clocks or pulsars in space to obtain more uniform motion than the Earth's rotation, allows us to relate motions more accurately, but such precision does not create a dimension of time, it only provides a more consistent standard of motion for use in science. Even our atomic clocks are adjusted to remain in sync with the Earth's slowly changing rotations. The more accurate motion-clock is changed to mimic the less accurate but unalterable standard motion-clock.

In science we use the concept of time to relate motions, displacements, and the forces which cause them, in a sequential manner with varying intervals of time(?) between events(?). There is no clock anywhere, no matter how crude or sophisticated, which is not simply some uniform motion and nothing else. So what we call Time is just motion, and not something separate from motion. Motion exists, time as a dimension does not. Science measures motion, whether it be astronomical, atomic, biological, or geological; and science uses motion clocks to measure, catalogue, and relate all of these other motions. But science does not use any dimension of time, or concept of something "passing" to permit the false-concept of duration to be measured. Duration is the mother of the concept of universal time. But duration is also a myth. Nothing is at rest in any knowable reference frame and therefore nothing could enjoy duration. Change is omnipresent and omnipotent. To understand motion and change is to be omniscient.

An analogy which helps me understand our miss-perception regarding time goes as follows. Objects in a totally darkened room can be said to have no shadow, or as some would argue, to be totally enclosed in shadow. When we illuminate an object in the room with a light, such as a flashlight, our object reveals its shape to us for the part that is illuminated. It also illuminates a portion of the floor and/or walls and/or ceiling around our object, such that our object casts a shadow against that background, of a shape that is directly or by perspective the same shape as the illuminated portion of our object. This shadow is not real, it is not part of our object, it does not tell us anything about our object. It only tells us something about the walls and floor and ceiling, and it would not even appear to our sight if it were not for the presence of the floor and walls and ceiling. Our current notion of time is very much like this type of shadow. Because we use standard uniform motions to compare a myriad of activities and events going on around us, and because these uniform motions are continuous, such that they allow the measure of any and all events and activities before and after the event being studied. These extraneous activities are like the floor and walls and ceiling in our darkened room, they give a backdrop against which a shadow appears while our events being measured are happening. It is this shadow that we have come to call time. But like other shadows, it does not exist, and is therefore not a part of our happenings. If we had no seemingly static objects or extraneous events going on in our laboratories, surrounding our experiments and our lives, there would be no backdrop of seemingly static and extraneous clutter to reflect the spurious relationship of our uniform motion clock to that clutter. Without that background, an event is only measurable by another event (motion of our clock), and no sense of duration (Time) could be established for any part of that system.

Of all of the machines we build, clocks are somewhat of a paradox. Because they do nothing but move uniformly, which allows us to more rigidly synchronize or coordinate our individual and collective activities. But clocks do not feed, clothe, or shelter anyone; they do not design, build, or manufacture anything. They are unable to control their own motions and therefore they are unable to guarantee that what they tell us is valid. They are very much the metronome in the orchestra of life, but they do not add any sound to the music of our social inter-actions. Because clocks are so important in helping us coordinate our social activities, we confuse ourselves about what they actually represent, and then attribute qualities to them that are non-existent. Clocks operate in our societies by convention and by construction, not by discovery. Their mundane service is admirable, but other attributes are illusion born of confusion.

If a clock errs by moving faster or slower than other clocks it does not admit error or proclaim truth, it only expresses its accruing motion. If it becomes un-synchronized in its motion with respect to other clocks that remain synchronized to each other and the Earth, then we assume it to be in error because it is reporting a different Earth-Sun relationship than other clocks.

We measure the Earth-Sun relationship astronomically so that we might adjust and synchronize our clocks to accurately inform us about the Earth's motion with respect to the Sun and stars. But we mistakenly ignore the simplicity of planetary rotation and create an illusion of objects that appear to be at rest (duration), which we define by inventing an illusion of "time" and , and mistakenly give it the attribute of dimension. Day and night and the regulation of our activities have to do with the motion of the Earth

with respect to the Sun, no matter what that motion is. All clocks must synchronize to the Earth's contemporary motion or fail to be useful on Earth, demonstrating that they only measure and express the Earth's rotations and nothing else.

The catch-22 of motion is that it can only be quantified as a multiple of some other motion. Any single motion by itself is unknowable, because it is incomparable. Rather than creating a dimension of TIME, we have only established the Earth's rotation as our standard metric of motion. Our confusion regarding time is that we have always considered the Earth's motion as absolute and known with respect to a declared time period, such is not the case. We do not know how fast the Earth rotates.

To demonstrate this proposition, consider that the Earth at 8,000 miles diameter has a circumference of 25,000 miles. We define a DAY to be one rotation of the Earth with respect to the Sun, and we divide the DAY into twenty-four equal rotation periods that we call HOURS. That is, a point on the equator will move a distance of 25,000 miles per rotation, or 1042 miles of rotation per hour of rotation. By using a day to represent a defined Time-value, as well as a motion value, we confuse ourselves into believing that we can determine the Earth's rotational velocity. When stating the velocity of the Earth's rotation we use hours as our time increment and miles as our displacement increment, giving us the currently accepted (25,000 miles / 24 hours) or (1042 miles / hour) as a velocity. Although we are most comfortable in common usage to state velocities in miles per hour, or kilometers per hour, it is more difficult to understand the limitation of such usage when applied to the Earth's rotation.

Let me simplify the (1042 miles / hour) by multiplying it by (24 divided by 24); this gives us our (25,000 miles / 24 hours), or (25,000 miles / day). However, by definition, 25,000 miles equals ONE rotation or ONE day, giving us an identity relationship for the velocity of rotation as (one day / day) or (25,000 miles / 25,000 miles); both of which are the identity (1), which is why the Earth is our metric motion. All we are saying is that the Earth rotates once when it rotates once; in essence we are saying nothing. We certainly are not declaring any sort of velocity. 1042 miles per hour is itself an identity (1042 miles / 1042 miles), because one hour equals 1/24 of the circumference of Earth, which is 1042 miles. The earth rotates, but we will never know how fast it rotates. Its motion is (1).

Certainly the Earth's rotation motion is finite, and certainly there are both faster and slower motions surrounding us, but these facts do not allow us to state any absolute values about the Earth's rotation. A Day is one unit of standard motion (by definition); an Hour is 1/24th of a unit of standard motion; a Minute is 1/60th of an hour, or 1/1440th of a unit of standard motion; and a Second is 1/60th of a minute, or 1/86400th of a unit of standard motion.

The terms Day, Hour, Minute, and Second are increments of the Earth's rotation motion, and not units of fictitious Time. Such units have no meaning or definition outside of their context relative to motion, specifically the Earth's motion. To attribute any qualities to clocks, other than simple uniform motion, is to violate Occam's razor.

Some things move more than other things; and it is from our perception of unequal motions that we derive velocity; wherein we do by convention relate all motions to our contrived clock motion and thereby derive velocities to describe the activities of the Universe which surrounds us.

If we wish to quantify the Earth's rotation-motion by saying it rotates 365.25 times per revolution about the Sun, then a revolution of the Earth would become our unknown motion metric (clock). And the rotation of the Earth would be quantified only in terms of its revolution motion, and nothing else. So on and so on. We can never know how fast the earth rotates except in comparison with other things that rotate or revolve. We know that the Earth revolves once for each 365.25 rotations, but we do not know how fast it revolves separate from that or other relationships. Similarly for all of our motors and other machines, their speed of operation is relative to other motions only, and ultimately relative to a motion whose speed is unknowable. For us the Earth's rotation speed is that great unknown, for which we have substituted a false dimension we call time.

This understanding forces us to examine the physical units we use to measure motion, force, etc. in a new way. Consider that velocity, which in the old system is feet per second, becomes feet per foot, or rather a pure number ratio in the motion system. This is also exactly what it should be, since we can only measure one motion and displacement by referencing some other motion and displacement; any value we compute to relate a specific motion to a baseline motion will obviously be a unitless ratio. Knowing a position of ourselves or any object when a clock position is recorded, and then calculating the change in our position (displacement), while noting the change in displacement of our clock allows us to calculate average velocities. Our velocity is totally relative to the velocity of accruing displacement of our clock.

If we were living on Mars and wished to communicate with Earth, we would need to operate two different motion-clocks. One to regulate our activities on Mars, by synchronizing our Martian clock to the rotation of Mars, and another to synchronize with Earth's rotation, to be able to schedule communications with Earth. Both clocks would be limited to mimicking their reference planet's rotation. Also, Martian seconds, hours, days and years would represent different amounts of motion than Earth seconds, hours, days and years.

We are not isolated or outside the order and workings of the universe, but rather connected to everything, within a hierarchy of motion. Whatever is, has its motion first perceptible as sub-particles, which combine in motions that produce atomic particles. These atomic particles combine via motions to produce atoms, which combine to form molecules, which further combine to form large groups of molecules that form rocks and planets. These planets form a hierarchy of motion systems, wherein moons are held by planets, which are held by stars, which form clusters, which are held by galaxies, that seem to also congregate in clusters. All of this (fractal?) nesting of motion is accomplished by four central forces.

The motions of rotation and revolution of sub-atomic particles is converted to rotational (internal) and orbital (external) motions of the atomic systems they form. When atoms combine to form molecules, part of their motions are converted to changing their internal and external motions. What we call energy is just transferable motion. What we call acceleration is motion being transferred, such that any acceleration of one part of a system must have an equivalent deceleration of another part of that same system associated with it. What we call momentum is just uniform motion, the proper Rest State of matter. What we call force is a source of motion, to be distributed to masses that are available to receive a change in their internal or external motion. When a force acts, the source of motion loses the same amount of motion that the object acted upon gains. It is motion above all else that is conserved.

The immense amount of motion in the sub-atomic world, which increases as we probe deeper, is not available to our macro-scopic senses. We therefore use our illusion of time to facilitate our attempts to understand changes due to uncomprehended motions, whose actions and consequences are absorbed and defined, by that illusion.

We further make incorrect observations of things around us as being unchanging, i.e., having duration. We tend to view our Universe as being mostly at rest, and therefore having duration, such as must occur for objects at rest to continue in existence. This mistake also requires the illusion of time to define the amount (length) of duration that appears to be occurring. For the un-educated, duration is a holy relic, worshipped everywhere, while change (aging) is despised. But for science the continuum of change is all there is, and duration is naught. A scientist may believe in duration at home among family and friends, but professionally science can easily disprove duration for all things.

For any clock we choose to be our primary device to permit us to relate other motions, its own motions can only be measured as the continually increasing displacement (distance) covered by its moving parts. For example, with the Earth as our clock, a point on the equator moves through approximately 25,000 miles of rotation, before it repeats itself. While an atomic clock vibrates with a wavelength which is a measurable distance and finite frequency, which is always a multiple of any and all other uniform motions (accrued displacements). Therefore the correct unit to use for motion-clocks is not seconds, which are fictitious, but LENGTH which is a measurable displacement, that allows motion to quantify itself by relating relative changes in displacement; and which accrues as our clock continues to move. Motion is all that exists and length is the only proper dimension to measure (quantify) motion. The use of clocks requires that we must declare the changing displacement of our clock-motion in order to make the accruing displacements of other motions comparable. We must be able to compare length with length in order to compare motion with motion.

When we describe position and motion we use units of displacement, velocity, and changing velocity. We currently use a time unit that is treated separate from displacement. However, in the system I am proposing all position changes of ourselves and all that surrounds us must be relative to our chosen clock displacement, in the unit LENGTH. Since displacement is just a number representing length, we must choose the same unit of displacement to use for our clock and the motions we wish to measure. For example, if we convert our current Earth clocks to units of Earth motion, keeping the familiar notation of 60 seconds per minute, 60 minutes per hour and 24 hours per rotation; then one hour represents a displacement of 1042 miles of rotation, one minute represents a displacement of 17.39 miles of rotation, and one second represents a displacement of .289 miles of rotation, at the equator of course.

We can convert the unit of miles into any other linear measure such as feet or meters to provide consistency with the linear measure of objects that have our attention. If we are walking along a street at

four miles per hour, our motion relative to our Earth-clock is four miles of displacement for us and 1042 miles displacement for a point on the Earth's equator. Four miles per one thousand and forty-two miles, as relative motion can be divided to show that we are moving .00384. Approximately one-third of one percent as fast as the Earth rotates at the equator. The most important fact in this motion relationship is that it is a pure number, without units. Motion is relative only to other motion, so the number that we derive to describe one motion can only be a percentage or multiple of another motion. In our current system four miles per hour is a velocity with units, i.e., miles and hours. In my system four miles per hour is a velocity (.00384) with no units. But it is necessary to identify the unknown uniform motion that we are comparing our own motion to. This is not a unit, but rather a motion relationship identifier. If we identify the Earth's rotation as E.R., then .00384 E.R. identifies this scalar as a velocity relationship to the Earth's motion only.

It is common in science to describe repetitive motion with the term frequency. If we do not wish to use an accruing length of clock displacement to compare and relate motions and calculate velocities, we can declare the rotation of the Earth to have frequency ONE, per rotation distance of 25,000 miles (one day). A revolution about the Sun then has the Earth-frequency of 365.25 (one year), while our 4-mph pedestrian (96 miles per day) has the Earth-frequency of .00384; a car doing 60-mph (1440 miles per day) has the Earth-frequency of .0576; and a satellite doing 17,000-mph (408,000 miles per day) has the Earth-frequency of 16.135. The total motion of an object in displacement can be summed from whatever unit of frequency we choose.

Exploring our units further, with displacement as its usual length unit, mass in kilograms, and velocity as a pure number in the Earth-rotation system; momentum, acceleration, force and energy reveal some interesting units relative to the Earth's motion. With mass being a resistance to change in motion and a reservoir of motion, which can be transferred to other masses. Momentum, as mass times velocity, becomes kilograms times a scalar Earth-rotation number. For a mass moving on Earth its momentum is just a multiple (greater than one) of its rest mass with respect to the Earth. Since any mass moving on the Earth is part of the Earth system, it can only increase its momentum if some other part of the system loses an equivalent amount of momentum (motion). Momentum is relative to our selected clock and the motion reference frame it belongs to. Similarly for forces and acceleration, they are only defined in the reference frame with which they conserve motion.

For science, a more fundamental metric system would be derived from electro-magnetic radiation. If we assume that the velocity of light is the same for all observers, then we may choose a given photon, at a known frequency, to be our metric for length, mass, and motion. The photon's wavelength, in a reference frame at rest, can be our length-metric; its energy can be converted to a mass metric; and its invariable velocity in a vacuum (c) can be divided by its wavelength, giving its frequency, to provide a motion-metric. Even these photon metrics as standards do not proclaim absolute values, they only provide a means to communicate our understanding of the universe via a presumed universal invariant motion.

Conversing with alien societies about our modes and velocities of transportation would first require that we define our clock-motion in terms of a motion that we could both relate too, which would facilitate conversion of our clock-motion into their clock-motion. There is no universal motion or time that any or all planets could be privy to. In deep space all clocks are arbitrary. To devise an instrument to provide a uniform motion, by which we may measure and relate various other motions to each other, is all well and good; but to attach the unit of seconds to the uniform motion, while attaching the unit of length (displacement) to quantify all other motions is very bad science.

Consider two space ships meeting in deep space. Let one be from Earth. Both ships would have some sort of chronometers (uniform motion clocks) to coordinate their activities and responsibilities on each ship. They could even be using the same mechanical, chemical, or atomic materials to build their respective chronometers. But each ship would have intervals of activity directly related to intervals of activity on their home planet. For the Earth-based ship, it would use 24 hour days and 365 day years to catalogue events and accrue records for history. Even in deep space the rotation and revolution motion of the Earth would control the flow of activity on the Earth-based ship. For the other ship, its home planet motion would control its activities and record keeping. And only when each ship could relate the motions of their respective planets could their clocks and calendars be reconciled and their HISTORIES of MOTION meaningful to each other.

The Earth does not rotate in twenty-four hours, by virtue of its creation. Twenty-four hours as a rotation description is superfluous, except to contemporary Earthlings. If we wanted to send a signal into a system of galactic displacement and give it a signature of origin and identity, we would have to refer to the Earth as a planet being third in placement from its central sun. Having one moon whose diameter is one quarter

of the Earth's and whose period of revolution is equal to 27 rotations of the Earth. And that the Earth rotates 365.25 times for each revolution around its solar orbit, and whose diameter is 1% as large as its sun. These and other characteristics of our solar system are true for us and true for astronomers with 100-mile diameter telescopes, looking at us from the other side of the Galaxy. These characteristics would be unique enough for us to be listed in a star chart anywhere in the Galaxy, and have that chart deciphered by any alien explorers that happened upon it. And yet these motions and sizes are only relative to each other. We may be one small piece in a very big puzzle, but we are identifiable, because we can relate a few relative sizes, displacements, and motions that make us statistically unique. And yet we are only relating these motions to each other using arithmetic. Since these motions and positions are changing over millions of cycles, sending our identifying characteristics across the Galaxy by radio could miss-lead explorers who might pass by millions of years hence, and not find a planet to match the description given. There is no universal clock, whose present reading could be attached to our message so that future explorers could locate us by computing our past signature from the current motions and predictable causes of the characteristics associated with Earth and its solar system, when such explorers came upon it. We could certainly help such explorers by also including the rates and directions of change in our characteristic motions that we are able to measure; making us more identifiable as motion goes on. But there still would not be any meaningful aging or "time" information that we could include in any message to others; only more and more relative measurements of current known motions and displacements of planets and stars in our Galactic neighborhood. Understanding the continuum of motion and the causes of motion will allow us to relate to the past and the future.

All is motion. All mass, all energy, all radiation, all vibration, and all particles. Motion within motion. Motion is a more fundamental dimension than space. Things move, inter-action results, and initiates reaction motions. All that we can record and call history are displacements and the relative motions that produced them. Rather than view the material universe as a plethora of particles interacting, we should view it as motion in different forms exchanging motion with other forms. With just four known forces to control the exchange of motion, and all of them being Central Forces, we must explore the possibilities and limitations of motion exchange. Central forces allow rotation about an axis and revolution (orbiting) about a central body; and of course orbiting particles may also rotate. The four central forces may only exchange motion between particles interacting in limited ways, which in the atomic world is quantized. Matter does not have mass or the dimensions of length, breadth, and depth, it has motions.

All is motion, everything else is illusion. The prime attribute of all that is, is that it moves. How it moves creates mass, force, other motions; which provide the theater we call our Universe. The second attribute is that only differences in motion facilitate the exchanging of motion. The third attribute is that how "what is" forms attraction and repulsion, translates the micro-motions of "parts" into the macro-motions of a "system".

Motion is universal, but constrained by fundamental forces to be rotation and revolution of something, within rotation and revolution of other things; up and down the scale of central forces. As there are no straight trajectories in gravitational fields, there are no straight trajectories in electro-magnetic fields and nuclear fields; with correspondingly stronger forces over shorter distances to create the curvatures necessary to maintain rotations and revolutions, and allow motion exchanges.

Relativistic interpretations of high velocity effects of persons and things include our clocks, because our clocks are us and we are our clocks. They are constructs of physical substances that have parts that move with respect to other parts; and clock motion is subject to relativistic changes in the perception and measurement of motion just as all motion is subject to relativistic effects. Relativity and its possible paradoxes of perceived discord in measuring motions in two different reference frames does not imply that persons in different reference frames have more opportunities to accomplish more motions while undergoing relativity transformations. One reference frame does not live longer than another from the standpoint of being able to make more widgets over their lifetime than another. Slowing down, or for that matter speeding up, whole reference frames (motion systems) does not decrease or increase efficiencies. Any system will eventually produce all of the entropy that it is capable of producing; no more, no less.

Clocks are hypothesized to act very un-clock like when they are subjected to acceleration, leading to some funny and erroneous conjectures. Any uniform motion is affected by any and all accelerated motions that the system it belongs to experiences (motion affects motion). In other words acceleration (change of motion) of a reference frame affects the measurement of perceived rest, momentum, and accelerated motion within that reference frame. Since motion is accruing displacement from some reference point, accelerating motion affects the measurement of displacement from that reference point. Which for some

reference frames will lead to the concept called length contraction and motion contraction. But time does not exist; not Universally, not isolated, not incidentally; and therefore time dilation is as much a fantasy as time itself.

Consider that length contraction and time dilation occur in the same direction of motion. I believe a little effort at manipulating some of the formulas of Physics will demonstrate that time dilation is just motion contraction of our clock displacements. Therefore we can dispense with time-travel and much of the relativistic nonsense in vogue in our society. Motion is in one direction, based on the principle of reaction to action, which in a continuum of motion becomes the action that spawns further reactions. It is both absurd and contradictory of the above principle to suppose that we could travel forward or backward in what is called time, and change the actions which had created the past that we came from. Such notions, are not only absurd, they are intellectually demeaning.

Within the framework of Physics, and particularly Dynamics, we are limited to describing positions as relative displacements from a defined center of our frame of reference. For central forces this would be the axis of rotation or the center of gravity. We are further limited in describing motion as relative changes in displacement from a previous position, as a multiple or portion of some defined uniform motion; this we call relative velocity. And with the use of position measurements with respect to our uniform motion clock we may also describe changes in our velocities, which we call acceleration. All of our physics must be derived from relative position, relative motion, and relative change in motion. The unit we are limited to using is Length; for displacement and for changes in motion.

The first error of motion perception is to believe that there are non-moving objects in any reference frame. That two or more objects can exist in a reference frame and not move with respect to each other, does not define rest, rather it defines equivalent motion and capacity with respect to other reference frames. The condition that we perceive as rest occurs when we establish structures and systems that are treated as if they were a single solid inelastic particle of various immense sizes, as compared to the atomic world. We should avoid the pitfall of attributing qualities and capacities to objects without perceiving the agglomeration of motions, and only motions, that occupy a tiny portion of the atomic volumes that are attributed to all objects. In our universe of central forces there is no rest, or state of rest, or reference frame of rest.

All things move and interact, exchanging motion. Acceleration and deceleration cause a change in velocity and therefore a change in motion, this is the only way energy may transfer and clock motion may dilate; something must undergo a change in motion to exchange what we call energy. Motion is how energy is stored and changes in motion are how energy is transferred; therefore a better definition of energy would be that all forms of energy are only different forms of motion. Force implies that energy will transfer between masses; that relative motion of a mass or interacting masses will change within the central force system that conserves motion.

The exchange of motion, of energy, infers that a force is at work, and therefore accelerations will occur for the bodies involved. Experiment has shown that acceleration will cause time dilation (motion retardation) within the frame of reference of such acceleration. What is important is that accelerations are part of a system, the system which defines the frame of reference, and in which motion is conserved. A body accelerated away from Earth, for example, to any place in the universe is still in the Earth frame of reference if the energy (motion) used throughout its flight was all provided from the Earth system. Motion is conserved within the system, whatever motion is gained by one part is taken from the other parts of that system.

For a body undergoing acceleration, the atomic and molecular motions of all parts of that body are affected. Which for a clock on a spaceship means that its uniform motion is slowed during accelerations. A uniform motion undergoing acceleration will be retarded, because acceleration enhances such motion in the part of its revolution where it moves in the same direction as the acceleration, while it will be retarded when it moves opposite the acceleration. But since the time of retardation will be greater than the time of enhancement, the motion will be slowed and therefore as a clock it will physically slow down. Since all atoms and systems of atoms will be subject to the same effect they will all move less than the parts of the system that are not accelerated.

This is somewhat analogous to the flight-time for aircraft under different wind conditions. In still air, the round trip time between two cities for a flight at constant air-speed is always less than other trips which have a head-wind for the first part of the trip and a tail-wind for the return part. And the greater the wind speed, the longer the flight will take, until at a wind-speed equal to or greater than the air speed of the

aircraft, the flight will never be completed. For time dilation this means that uniform motion is maximized (undisturbed) in inertial reference frames, and retarded in accelerated reference frames.

Our laws of motion and laws of conservation of energy (be it mechanical, chemical, or nuclear), are really subsets of the conservation of motion. We should be pleasantly surprised to be able to account for the conservation of mechanical, chemical, and nuclear energy and any state of action-reaction that translates one form of energy into another, by inferring conservation of motion. Whatever the Universe turns out to be, it should ultimately be revealed to be made of stuff; stuff that moves; with conservation through translation from one state of motion to others. With the possible exception of a force of Universal and/or subordinate will (spirit).

With the absence of a time dimension we must also do away with intervals (of time) and events. Events are our attempts to create subsets of a continuum. Something which is impossible to do with point-precision; simply because uncertainties of position and motion (infinite possibilities) deny us of ever having the opportunity to be precise.

When I say there are no intervals or events, that everything is part of a continuum, I mean to say that there is no beginning or ending of any action. Whatever occurs is prefaced, then acknowledged, then superseded. The subsequent reactions (changes in motion) that follow any action (motion) are not discontinuous. That actions and reactions build until our perception is aware of change and then subside or build until other perceived changes occur; the ebb and flow of activity is without beginning or ending.

As an example, consider an event such as an explosion. This sort of thing would certainly seem to have a beginning and an end, which would lend itself to being an isolated event. Such that two explosions, say one in the morning and one in the afternoon, would be considered to be separated by a definite interval. If the setting for our explosions is in a coal mine, we would find the miners living and moving in a continuum of activity, whose beginning we cannot trace. But in their continuum they are mining coal, and to loosen it they blast it out of the ground. As the miners drill holes for dynamite, fit blasting detonators and the wires to detonate it, we can see that one action leads to another; eventually an electric current is sent through the wires causing the detonators to explode, which causes the dynamite to explode, breaking loose tons of coal. The loose coal is removed and the whole process starts over. For the miners, all of their activities appear to be events separated by different intervals; but this is owing to flaws in our ability to observe and comprehend the relationship of the myriad activities going on around them. To understand these activities as a continuum let's examine, in detail, just the explosion part of these activities. With all of the hardware in place, our foreman gives an order to detonate the dynamite; at which point a worker throws a switch allowing electricity to flow. But none of these acts are instantaneous. As the switch begins to make contact, electrical pressure (voltage) causes atoms at the battery end of the wire to release electrons (building current), that move down the wire away from the switch and the source of electricity. These moving electrons create a voltage pressure on other atoms further down the wire causing a wave of activity, moving electrons, to build and flow into the detonators; whose resistance to electron flow causes them to be captured by the molecules within the detonator, such that chemical reactions take place, building until pressure inside the detonator overcomes the chemical bonds of its casing, causing a rupture to take place, releasing mechanical energy into the molecules of dynamite, which become unstable and react with more chemical action, releasing more mechanical energy to the coal around it, which causes the coal to move a bit while it absorbs the energy released from the dynamite.

The point of my argument is this, all of these actions and reactions, and all of the past which led up to them, or the future which followed them is part of an unintermittible continuum of motion. There is no instant at which we can say electricity is not flowing through the wire and then in a subsequent instant say that electricity is flowing. Similarly for the exploding of the dynamite; there is no instant when it can be said to be exploding, which in a previous instant it was fully intact. Motion is continuous even in the sub-atomic environment, causative and reactive to other motion. Without instantaneous beginnings or endings of any actions or reactions. In our example, chemical motion in a battery is converted into electron motion in a wire, which is converted into chemical motion within molecules in the detonator, which is converted into motion within the explosive, which is converted into moving the coal, such motion is never lost, only transferred to other objects or converted to different motion within an object. The motion stored in the battery, detonator and explosives were summed together and transferred into changing the motion of the Earth, if elevation changes occurred for the coal, and into frictional heat which caused the motions of molecules of air and rock and coal to increase in relative vibration; such increases dissipate throughout many mass systems, and ultimately throughout the universe.

Similarly for intervals between events, since events are part of a continuum and do not have beginnings or endings, there are no intervals that can exist. Two explosions can occur in succession, but there is no interval between them. A continuum cannot be broken into intervals.

It is certainly useful for us to quantify and qualify our activities with mechanical devices like clocks; and to invent events and intervals between events, because our perceptions of when things occur and when they do not occur are limited. But our conventions do not determine what is.

Consider the notion of time-travel, wherein it is postulated that a person could travel back in time and be able to affect events in the past. If this were true today, it would also be true in the future, which forces us to conclude that the probability of interference in the past would become 100% as the future unfolds, altering, and thereby denying, the development of that particular future which gave rise to the alteration. A complete absurdity. Nor does entropy allow us to have lumpy changes in potential and kinetic energies (continuous motions) which would be necessary in such time-travel notions. A continuum dis-allows would be time-travelers the ability to choose a point from which to depart, or to choose a point at which to arrive; because in a continuum departure points and arrival points cannot exist. That is, continuums are devoid of points and therefore devoid of intervals.

All of these arguments follow from the mathematical construction we call a line. We can select any two points on a continuous line, no matter how close, and there will still be an infinite number of other points on that continuous line, in-between those two points. Similarly for the continuum of our activities. If we inspect our actions at two very close instants, there is still an infinite number of other instants that can be inspected, in-between the two we have chosen. There is no beginning or ending of anything. Did our dynamite begin exploding ten years ago, 1 million years ago, 20 billion years ago? Some would argue that since it was not present in the form we recognize as dynamite years ago, it could not begin to explode then. But we are acting and reacting in a continuum and the energy (motion) that was concentrated in the dynamite through our manufacturing and then released, is all energy (motion) that has always been and always will be with us. Since time and instants do not exist, all actions and reactions are a continuing culmination of all of the actions that preceded them, with the possible interference of our conscious will. Energy-motion may exchange position of itself or macro objects in quantum units, but the actions and motions which cause and result from such energy-motion transfers are still a part of the continuum.

We are said to live in a three-dimensional physical universe with time as a fourth dimension, and conjecture of many other dimensions. However, we should not only dispense with time as a dimension, but also in the physics of motion, we can dispense with the second and third dimensions. Since motions of bodies are calculated as center of gravity points moving along central force trajectories described by the sum of singular forces acting upon them. It is certainly useful in many ways to measure our universe in two, three, even four dimensions, since this allows us to compute our macro-motions, without having to sum-in an infinite number of micro-motions. But we need to be cautious not to extrapolate absurdities as realities when using macro interpretations of our derived mathematics and laws of physics.

What we call a space-time continuum should really be called a displacement-motion continuum. Because time is only uniform motion, and space is irrelevant outside of it serving as a backdrop for position and displacement of all that is. The small "space" between the surface molecules of our skin and molecules of air, or the large space between our eyes and the nearest star, does not serve us, physically or intellectually. In the continuum of the motions of all of creation, position and displacement are constantly changing; making space scientifically irrelevant.

I readily admit that my notions about time may have little or no impact on today's science. To measure objects and events occurring around us, using devices which have uniform motion as our source of data to quantify the motions of those objects and events, may not yield any significantly different answers than science is currently producing. But for clarity's sake, we should at least define and understand our measuring devices in the simplest terms of what they really are.

I close by saying, yes I do use clocks, but I perceive their function in a different way; and I ask the readers to examine the devices we use to measure what we call "Time". No clock is anything but uniform motion, and no uniform motion is anything but accruing displacement from the reference point that defines its uniformity. The universe has stuff, and that stuff has presence in the form of motion(s), and such motion undergoes continual transfer. There is no standing still, or being at rest, or resisting change. Thank you for the Earth-turn you have invested in reading this document.