Laws to Perception based on Notions of Motions

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A recouching and re-presentation of the concepts of motion, as espoused and published by Dewey B. Larson, especially in his book, *The Neglected Facts of Science*.

Introduction

To date, current physics and its adherents have not shown any real depth of analysis into all the theoretically possible types of motion and their concomitant manifestations. So here begins a step-by-step investigation.

Analysis

Generally, we think and believe, by default, that motion is solely a spatial phenomenon, since we see an object move in continuous displacement in space, during a time interval, which, itself, is a continuous displacement in time. So to be necessarily pedantic and erudite, we can assert that the object has undergone both a motion in space and a motion in time. Usually we do not think of the motion in time to be important enough to label as such, but for the purpose of this analysis, it is just as logical to think of it as motion. Perhaps a contributive factor in our giving more credit to motion as being a spatial phenomenon is that we see that space has three aspects, which we label dimensions, and an observed motion travels along one of those dimensions, while the other dimensions are there to behold as being available for the motion, should there be a divergence from the given path. However, since our only apparent awareness of time is as a scalar, we assume, by default, there is no need to investigate the possibility of other aspects of time, of which only one aspect, singly, is observable to us. If we find that there are other aspects to time, then clearly we are only moving along one of those temporal dimensions, hence, those phenomena, which utilize two or three dimensions of time, could not be wholly observable to us, but only their manifestation in the one time dimension that we co-occupy.

Further, we have the habit of affixing a spatial framework to some spatial location, so that, relative to the framework, we can say that an object is stationary in space. This is merely a fiction, created by humans, since there is no absolute framework possible, in which any object is eternally stationary. It certainly suits man's purpose to consider a stationary framework and/or entity in the local environment, but we must never forget that there is no absolute zero when considering space or time "locations."

The human disposition and environment bespeaks a spatial bias, therefore he can easily imagine (and witness) an object appearing stationary in space, while moving through time, such as the house, in which he lives, aging with each passing hour. He does not think that this is motion in time, nevertheless this is exactly what it is. The same human cannot envisage an example of an entity being stationary in time, let alone moving in space simultaneously. There is good reason for this, since the very make-up of mankind precludes this type of direct observation.

However, because of the intelligence of the human mind, many abstract thoughts may be given serious consideration, without a concomitant visual image. The inertia of the philosophers to discard this "need for image" is what has slowed down our progress toward excellence in our paradigm for the physical universe.

There is the Principle of Duality applied in several areas, including scientific/mathematical research, which serves us well. A vast amount of researched knowledge, therefore, does not have to be duplicated, due to this Principle of Duality.

In Projective Geometry, for instance, we can have a theorem applying to a pencil of lines in a plane and reapply that theorem to a pencil of points in a plane.

Even the common expression “What is good for the goose is good for the gander” is an instance of applying the principle. Of course we could misapply it, so we must be particularly meticulous and discriminating in its application.

The Principle of Duality states that, whereby, for each proposition, another is obtained simply by the interchange of certain key words and such other changes in notation and language as are necessary to render the statement meaningful. It will be shown in this discourse, how this principle applies in matters of time and space.

Motions (Spatial and Temporal)

Let us start again, with the idea of a physical universe, at such a high level of abstraction, that we cannot picture it, but merely understand the underlying significance, and then deduce a lower level of abstraction from it. This hypothetical universe will be examined and eventually compared with, the physical universe, which we inhabit.

Since there is no such thing as an absolute stationary state in space or in time, let alone space-time (whatever one means by space-time), then we have to give serious consideration to what avenue of approach is left to reflect upon. It seems that we must start with perpetual motion as a background (or setting) rather than a supposed empty void, whose very emptiness precludes any contends) “magically” appearing. The perpetuity of the motion has to be assumed as a fundamental “building block” of this paradigm.

The definition of motion is the next problem with which to deal. Rather than fall into the usual default of associating motion with some object that moves, we have paved the way in this analysis, to allow for motion to subsume a background role.

You will have noticed that space and time are aspects of motion, whether the motion takes place in space or in time, since we merely relate how many units of spatial displacement are associated with a number of units of time displacement, such as 60 miles in 2 hours, telling us that there was a motion and that it had an average speed of 30 miles per hour. We do not need to know what entity did the moving, nor what mass was involved.

Now we can discuss the units of space and time. Since we know from our experience that there is discreteness in matter, despite early philosophers believing it to be continuous, so let us assume, for this hypothetical universe, that both time and space are discrete, and therefore they have basic units. This merely means that there is a particular finite speed defined for the association of one space unit with one time unit, which we shall call unit speed. This unit speed is known to us as the speed of light in a vacuum.

By going to a higher level of abstraction, we can say that motion may exist, free from any alleged entity that moves and free from any association of spatial or temporal backgrounds for that motion. In other words, we do not need to “hang” a reference frame for the benefit of our understanding. So the foregoing will serve as our definition of motion and the physical universe. We will now see what can be

derived from it.

This motion, being devoid of reference frames, can be assumed to be omni-directional, whatever that means at that level of abstraction. An alternative name for it is scalar motion. However, if we "hang" a spatial reference frame, as we humans are wont to do, we have to consider the various possibilities that would be "observable." It seems that there would be nothing to observe of this background motion, from the human point of view. We have to observe some entity, being the creatures we are. So do we give up at this point or do we look for some, as yet, over-looked alternative?

It seems that continuity of this background motion is an inherent property to be expected, and being spatial creatures we think of linear translational motion this way or that way, neither of which shows up as a manifestation in our spatial framework. However, consider a linear oscillation, this way *and* that way, and how we may or may not become aware of it. The expressions "this way" and "that way" are another way of saying "expanding or contracting" or "receding or approaching."

Since a linear oscillation is a continuous happening, it may well be a feasible entity within the general background motion, and its size may be a variable, whose magnitude is determined by chance and the usual laws of probability.

There cannot be an oscillation at unit speed, because we always have an association of one time unit with one space unit, which gives us unit speed, and this would not allow a direction reversal within a given unit, therefore no oscillation. Where we have one space unit traversed twice because of a direction reversal at the end of the space unit, yet because it is still associated with one time unit then the manifested speed of oscillation is twice unit speed, and is not directly observable in a spatial framework.

However, if we consider having a time unit traversed twice by a direction reversal at the end of the time unit, because it is associated with one space unit, then the manifestation of this is an oscillation at half unit speed and is directly observable within a spatial framework.

Whether these will all be observable by human beings is to be determined. Whether they will manifest in the same type of entity is also to be determined.

As well as these linear oscillations, there are further considerations to compound the alternatives. Any such linear oscillation is capable of participating in the "this way or that way" background motion, in other words, it may enter into an expansion or contraction (recession or approach). This clearly means that if we consider any two such oscillatory entities A and B, they are either growing farther apart or coming closer together in general, and we do not need to hang a spatial reference frame on that pair, since that same frame would be useless to determine what happens with a third entity, C, in relation to A and B respectively, since we may seem to expect a contraction where there is, in fact, an expansion in this latter case.

So this type of generalized expansion and contraction can manifest itself to us as a motion, completely independent of any motions that are superimposed on the entities, when referred to a reference frame.

So we now have considered the original linear oscillations participating in a planar expansion (e.g. radiation) or contraction (e.g. gravitation) and included in that is an oscillation within that plane. This latter oscillation compounds with the initial oscillation to create a doubly-oscillating entity, which is still able to participate in the general background motion linearly (e.g. as above).

This doubly-oscillating entity may enter into an expansion or contraction or another oscillation, which will make it a triply-oscillating entity, which is now precluded from participation in the background

motion. This type of entity should be more easily observable to humans, since it is not recessing this way or that way from other entities, including the observer (perhaps matter, pre-matter, latent or nascent matter).

Further, to all the above possibilities, there is the probability of rotation of any or all of those entities cited above. Also, a special type of rotational motion is worth giving serious consideration to, namely oscillatory rotation, where it is the exact counterpart to linear oscillation (perhaps charge). This is at a constant speed, whether linear or rotational, so there is no need to consider acceleration or deceleration or stationary points of these oscillations, merely instantaneous reversals. There is no case for simple harmonic motion in this example, due to the lack of speed variation.

Another point to consider is that the high level of abstraction, which assumes a background motion, and from which, when we hang a spatial reference frame, we have deduced all these possible types of motions, is also equally-probably supportive of a temporal framework. Even though this does not present us with a visual image, it must, of needs, allow for three aspects of time, in which all the various motions, already dealt with in space, can exist in time. They will not necessarily be observable to us, but if they are, they will present themselves in a subtle manner, that we will only recognize by deducing their properties from the mother paradigm.

For instance, radiation from the temporal framework can be received by us in our spatial framework, but in a different manifestation. Since the radiating objects are located in the temporal framework as aggregates, they are dispersed randomly in the spatial framework and therefore are not recognizable as what type of aggregates they are, yet their radiation is received in space at a low intensity and in an isotropic distribution. Current physics refers to it as the remnants of the Big Bang.

Since there will be just as many and varied entities and events, referred to a temporal framework, by the Principle of Duality, we may expect an interchange of time and space, relatively speaking. Therefore radiation at a frequency of unit speed is common to the human spatial observer and the hypothetical temporal observer, but radiation at a frequency of half unit speed in the temporal framework is theoretically twice unit speed in the spatial framework and hence one must calculate its manner of manifestation, since we cannot observe linear speeds greater than unit speed.

Here we have much more than the Principle of Duality, since apart from the interchange of the two words in some of the developments and arguments, there is the actual manifestation of temporal or part-temporal entities to the spatial observer, because space to the spatial observer is time to the temporal observer, so the only commonality to both observers is radiation at unit speed.

Contiguity in a spatial aggregate, in a spatial framework, would be an isotropic distribution in time in a temporal framework. Therefore, the matter constituting a particular “star,” say, in a temporal framework, would manifest itself to a human observer, in his spatial framework, as an isotropic distribution of a background radiation, one atom at a time, which we observe as cosmic rays.

There is no motion, that is isolated in time alone, nor in space alone. All motions are simultaneously in both space and time, since motion is the very background to the physical universe, and both time and space are equally aspects of motion. We do not have the ability to visualize a motion that is simultaneously vectorial in both time and space, and , perhaps, there cannot be such a class of motion. However, there are three other possible classes of motions, namely:

1. Vectorial in space and scalar in time, being the one with which we are most familiar.
2. Vectorial in time and scalar in space, which is not observable to us as is, but probably manifests itself to us in many and various ways; eg., A temporal aggregate reaching its destructive limit

and showering us with cosmic rays.

3. Scalar in both time and space (distributed scalar motion), which may also manifest variously, depending on the types of motions; e.g. charge.

Fields, Forces, and Acceleration

Notwithstanding these entities, the distinction between various types of motion is fundamental to the explanation of all events and all entities. Since motion may exist without a spatial framework attached, we have to consider that we may not readily recognize the presence of this motion when we observe some entities and events unless we carefully assess each for itself.

Starting with gravitation, we are aware of Einstein's Principle of Equivalence. As a particular case, if there are two observers, one uniformly accelerated, with acceleration a, and not in a gravitational field, the other not accelerated, but held in a uniform gravitational field g, the results of mechanical and optical experiments, performed by two observers, will be identical.

Here we have the idea of field, which we must define. It is likened to force, sometimes by using the expression force-field. This brings out the concept of force, which, also, must be defined.

We know from Newton that $F = ma = m\,\Delta v/\Delta t$ where F is the force, m the mass, and a the acceleration, which, in turn is the rate of change of velocity, but overall $F = \Delta(mv)/\Delta t$, the rate of change of momentum, or rate of change of magnitude and/or direction of total motion. Alternatively, we can call force "a quantity of acceleration." This links accelerated motion with a field.

Effectively, we know Force to be a property of Motion and is not, in itself, an autonomous entity. We may extrapolate from this to say that the alleged "Fundamental Forces of Nature" are necessarily properties of underlying fundamental motions. Since we have not recognized this property of all forces, perhaps these fundamental forces have for their basis some form(s) of the background motion, also called "directionally distributed scalar motions," and if so, these scalar motions are associated with acceleration.

This leaves us to examine Gravitation, Electric Charge, and Magnetic Charge in this new light, since each produces its own "Force."

We can say that a field is the force aspect of a distributed scalar motion, the quantity of acceleration, and it has the same relation to that motion as an ordinary force has to a vectorial motion. The two differ only in that the ordinary force has a specific direction, whereas the force of the field, like the motion, of which it is a property, is directionally distributed.

Summarily, there is only one kind of field, a distributed force, but the nature of the effects, produced by any specific force, depends on the characteristics of the motion, of which the distributed force is a property. This does not entirely solve the problem as to the origin of these forces. For instance, it replaces the question "What is the origin of the gravitational force?" with the question "What is the origin of the gravitational motion?"

Distributed Scalar Motion

Now to an example of the simplest form of distributed scalar motion. Consider a balloon, whose surface is covered in equally spaced dots, and it is being slowly, inflated. At any given moment, all these dots are receding from each other at the same rate. There is no preferred origin and no need for a

framework to give vectorial meaning to these moving dots. It is sufficient to say that they are all participating equally in their recession from each other. If it were floating in a room, an observer of this balloon would agree that all dots were participating in this recession with respect to all other dots.

If the balloon fell to the floor with one dot against a particular mark on the floor, and the balloon were still inflating due to an included gas cylinder, then the same observer would notice that the dot against the floor was no longer moving, and that all other dots were still receding from each other as well as from the "stationary" dot, but there was an undoubted apparent change in its motion. Of course, we know that there was no change in its absolute motion, that we had merely become aware of the effect of an attached reference frame.

So, with this example, we can guess that there are other examples, in which we see an apparently stationary object, yet it may be participating in a distributed scalar motion, nevertheless.

The above example is so simple, that it can be coupled to a reference system for illustrative purposes, since it occupied an identifiable position in that framework. It is an example of a one-dimensional scalar motion. Still there are other possible scalar motions, that cannot be represented in a reference system. We can illustrate this by reference to the one-dimensional example. The only quantitative aspect of scalar motion is its magnitude, which is a number. It may be its speed of expansion or contraction. We can attach a reference frame to this and then give vectorial meaning to it, and we can divide the vector into its three resolutes with respect to the three coordinate axes, should we feel that gives us some better understanding.

Suppose yet, that there is a particular scalar motion that has two magnitudes associated with it, because the entity is concomitantly participating in two mutually exclusive one-dimensional scalar motions. Either one of these can be represented in a reference frame, but not both.

Similarly, we can have a three-dimensional scalar motion, which has three magnitudes, associated thereto. This is even harder to imagine, within our limited mental capacity, but we can apply the Principle of Duality to predict its manifestation to us, as also, with the prior example. Space and time play complementary roles, and consequently there are three aspects of time as well as three aspects of space.

If we investigate their places in the scheme of things, we may work on an example of a large aggregate of matter, which is expanding in time. Our findings can be used to conclude that the large aggregate is contracting in space.

A White Dwarf is an example of a stellar object, which is located in the spatial reference system, but which has components of "cosmic matter," resulting in an object, which expands in time and therefore manifests itself to us as contracting in space. This shows its diameter to be less than that of the original star and we judge it by our experience of "normal" stellar objects and we say that it has a very high density. This is only an apparent observation, since it is made of matter, the like of which we do not have in our local environment, with which to experiment. This properly causes it to deviate from the expected location in the galaxy over the eons and in some cases to leave the galaxy.

Using the expanding balloon analogy further, suppose there were two such balloons and they were expanding at different rates, even though this difference is not essential to the example. Imagine that, while floating in the air, they touch and stick together, while still expanding. Picture their point of contact being the dot A on the first balloon and dot A' on the second balloon. With respect to the first balloon, dot A is participating in the recession from all other dots exactly the same as the others, and the same description applies to A' on the second balloon. Since dot A is now also on the second balloon

as is dot A' on the first balloon, they are each also participating in the recession associated with the tangent balloon. So we have two different scalars associated with each dot, and to find a reference frame to describe them both is perhaps nigh impossible.

A New Algebra is Required

There is a rough, if not crude, analogy with tensors. Remember that a vector can be represented in a fixed framework, and one way to define a vector is that it is a scalar with an associated direction. One rung up the ladder is the tensor, which is a scalar, associated with two directions, at least. Because of this extra property, this type of tensor cannot be represented visually in a framework, but it can be represented by a symbol, with subscripts and/or superscripts, and these symbols can be said to belong to an algebra or arrays, whose structure differs both from regular algebra and vector algebra, and therefore the properties and structures of this new algebra can be worked out, and, hence, mathematicians find great use for tensors, and can use them to represent and solve problems.

Another important distinction between vectorial and scalar motion is:

A vector framework allows us to consider one point, particle, aggregate, or whatever you like, and it allows it to have its position and velocity represented completely. If its velocity with respect to each axis is given, then the magnitude of the vectorial resultant can be calculated by the usual method, being the square root of the sum of the squares of the individual magnitudes. This applies in Euclidean space or in the Minkowski space used by Einstein, each of which is purely spatial, even when the time parameter is included, since it is always in the form *ct* which is a spatial term. (Actually, it is implicitly present in the form "*ict*" where "*i*" is the symbol for the imaginary square root of "-1" and the metric is represented by the Pythagorean sum of the squares, of which the term containing the time variable is negative.)

$$s^2 = x^2 + y^2 + z^2 - c^2 t^2$$

A scalar motion needs two such entities, since one alone lacks meaning within the scalar motion concept. The two may be identified as A and B, then we can say that their relative speed is of a particular magnitude and is either recessive (expansive, repulsive) or contractive (attractive [gravitational, electric, or magnetic]). Neither is considered stationary at an arbitrary origin. Here we have to consider motions in time as well as in space, therefore sometimes there is a spatial resultant, which is based on the fact that a temporal motion has an effective spatial manifestation, based on reciprocal relations. This gives us a lead how to combine our scalar motions in those special circumstances.

This new type of scalar motion, likewise, is not representable in a typical framework, since it is a particular type of "scalar," which is completely independent of a vectorial framework, even though the simplest example can by represented in such a reference system. But when we ascend to the double or triple scalar motion, which uses the second and/or third scalar dimension, each of which is independent of the other and cannot be combined, then we need a symbolic form, which will be able to enter into some algebra, yet unknown as such, but, which, hopefully, will have some structure(s) common to an existing algebra, and then we can have a convenient way of dealing with this new area of physical knowledge better than shown previously.

Sensory Perception and a Gedanken Experiment

Consider the apparent realities to a human, who has lost at least one of his acknowledged five senses—

touch, hearing, sight, smell, and taste. He can compensate up to a point, especially with the help of modem technology, which is invented by those who do not lack that missing sense. However, the manifestations of those missing senses are never complete replacements, and the compromise, can miss an important element of the original sense.

Imagine that there are several isolated communities, who all lack just one of the five acknowledged senses and who are not aware of what they are missing, therefore cannot compensate for its full breadth of experience, and their realities are only a subset of all realities.

Those without the sense of smell will compensate with their other senses so well, that their knowledge of the universe will hardly be impaired.

Similarly, those without a sense of taste also will have little disadvantage in their study of the physical universe.

Those without a sense of hearing have the ability to learn much about the universe, in all its domains, and until they are contacted by a hearing person, may never become aware of sound, as such, but merely the vibrations as they manifest themselves through the other senses.

A community without a sense of touch is not likely to be human-like, so we omit this consideration.

A blind community will be the worst affected. It probably would not be able to originate a detailed investigation into the microcosmos or macrocosmos without some initial outside help from a sighted person, and even then, the limitations would probably preclude an understanding to compare with that of a sighted scientist.

There are those humans, who believe that we are not limited to the traditional five senses.

After all, the discovery of magnetic materials and their ability to be influenced by the magnetic field of the earth, as well as one another, allowed us to develop instruments, which would manifest the magnetic field to us through our senses of sight and hearing. We believe that some birds, at least, have a sense organ for detecting magnetic fields so it may be present in some or all humans, but not recognized or developed. There are certain technological aids available to us, using magnetic materials, which, when in a pillow, allegedly help us sleep, and which, when affixed to the body, help alleviate some pains. Perhaps, their efficacy can be attributed to the magnetic effect influencing those parts of the body, which react as a sense organ. Perhaps the whole human body is a sense organ to magnetic fields, but it is a subconscious recognition.

Perhaps an electric field also can be detected by some humans or animals, and is, perhaps, intimately linked with the magnetic organ as one composite electromagnetic detector.

Consider, then, that there are other perceptions that a human may be capable of making, at least subconsciously, and perhaps in some specially trained instances can be consciously recognized. Maybe the human brain, itself, can act independently as a sense organ, beyond its ability to receive and interpret the sensory transmissions from the other organs. Some Eastern philosophies allege that the adherents to certain disciplines gain an awareness on a “higher plane of observation and understanding.”

Plato gave us insight into this in “The Allegory of the Cave,” in Book VII of *The Republic* about 2400 years ago, and instead of accepting it, the modem philosophers of science are trying to ignore it implicitly, if not taking the opposite direction, both explicitly and inadvisably.

In effect, Plato likens the whole of the human race to cave-dwellers, who only experience the realities of the Physical Universe by the "shadows on the cave wall." Somehow humans have to be liberated from "the bondage of ignorance," the first step of which is to recognize the existence of higher realities. While some of our apparent realities are, perhaps, already at the highest level, we have to discover those, and separate them from the "shadows," which are merely manifestations at a lower level. Dewey Larson was the first of the cave-dwellers to be released into the sunshine, during which time he ascended the four levels of awareness, from shadows to sensible objects, to science, and finally, to knowledge of the Principle of All Things, the final step in the "liberation from ignorance." He realized that we all saw the physical universe through the dark glasses of social customs and values. Larson had the art of producing vision and our task is to continue with the great enlightenment.

So perhaps all humans are an isolated community, who mostly lack some part of the temporal experience, and as a consequence they make do with what they have, and, in their arrogance, assert that there is nothing missing from their experience of the physical universe. Their paradigm for this "universe" is, therefore, rather stretched, when trying to accommodate all observations. This is the status quo in "Science" today.

The inter-conversion between the time and space aspects of the motions of various entities are commonplace throughout the physical universe, despite their lack of recognition as such by the observers of the disparate phenomena. We have to predict them and then search for their manifestations. Just as Sherlock Holmes could astound Dr. Watson with his deductions about some unknown visitor, based on his cigarette ash droppings, so must we look for, and find, the traces of these entities and events. The nuclear physicists are used to witnessing the annihilation of particles and the creation of others during some experiment, and then coming to some conclusion about what the whole experiment was demonstrating. Likewise, we can find clues about time and space and the various possible motions in either.

We humans should neither be arrogant nor complacent with regard to the 5 or 6 senses, which we believe we have, by making a value judgment on them as being all that are available to us. So our knowledge of the Physical Universe is strictly limited to that, which appears to us in one form or the other. There may be a limit on our potential for comprehension, put in place by the capability and capacity of our brains to interpret the cognitive dissonances, thrust upon us by the space and time interchange(s). The Principle of Duality, in this case, has to be extended to a Principle of both Duality and Reciprocity.

The geometricians of the 19th century expected there to be geometric images in their proofs and resisted the intervention of algebraic proofs, which could avoid these images. Similarly, a philosopher of science expected a visual image for his paradigm for the physical universe, otherwise it was not acceptable. We have had to contend with celestial spheres, geocentricity, and all manner of variants to date. Now we have matured enough to realize that an abstract generalization is not only permissible, but also inevitable.

Energy Sources and Types

Now to a discussion, mostly in overview, on energy sources and types.

When we look at a beaker of fluid, standing on a bench, on an upper floor laboratory, we are "confronted" with several independent sources of energy, whose potential for release is various, according to its energy type.

Firstly, we can knock the beaker over, to have the fluid fall onto a water wheel, whose turning will convert the kinetic energy of the falling fluid into rotational energy of the turning wheel and which may generate an electric current if the wheel is connected to a dynamo. The kinetic energy of the falling fluid arises from the potential energy of the fluid in the beaker, which is determined by the expression mgh, which is an arbitrary figure, depending on the reference frame. If the floor of the laboratory is the origin of the frame, then all the potential energy is alleged to be converted to kinetic energy when it hits the floor. If there is a plug-hole in the floor, then the fluid may be allowed to enter that and fall to the ground floor of the building, where there may be another water wheel. So we can see that potential energy is ultimately an aspect of the gravitational energy, calculated from its distance from the center of the earth.

Notwithstanding the foregoing, the fluid is made up from an aggregate of molecules, all of which participate in thermal activity, which manifests itself as a temperature of the fluid, and if the fluid has a higher temperature than the nearby objects, it will radiate heat, which is a manifestation of its thermal energy, perhaps in the form of infrared electromagnetic waves, which can be received by a collector and converted to electricity. One possible by-product of this electricity could be the building up of electric charges and magnetic charges on parts of the apparatus.

Notwithstanding the previous two paragraphs, the fluid may contain radioactive atoms, which are emitting energetic particles, that display yet another form of energy. In fact, the fluid may be able to enter into a man-made experiment whereby atoms are destroyed, with the concomitant release of vast amounts of energy, based on the calculation from $E = mc^2$.

The gravitational energy is the easiest for us to observe, since our attached spatial framework is obvious. Even though there is ultimately a distributed scalar motion involved, we do not have to think of it as such.

The electric and magnetic charges are so familiar to us, that we can observe and measure them with ease, and once again we do not have to think of them as being generated from distributed scalar motions.

The radioactivity of some elements is a later discovery by mankind, and its observation and measurement is now commonplace, yet there is still much to be understood in that area, since there are always new experiments being devised in an effort to learn more about the structure of atoms. Here is an area, where the idea of distributed scalar motions may be more helpful than present theories.

Conjectures

Now to the consideration that there may be further manifestations of distributed scalar motions:

1. In our own local gravitational environment, as well as in the other two environmental extremes, namely
2. The sub-microscopic world of the atom and its break-down products, and
3. The macroscopic world of cosmology that, previously, have been unrecognized by us and therefore hidden from our purview.

Were we to undertake a search, based on predictions of this theory, we may find some sources of energy, as yet unsuspected, and, if in our environment, still untapped. Certainly they can be found in the outer reaches of the universe, where very large speeds exists, both vectorial and scalar, and the evidence is there to behold. Remember, that the limiting speed, that we understand to be that of light in

a vacuum, *c*, applies in any given vectorial framework to a resultant linear speed, where its resolutes, parallel to the axes, are all less than *c*. However, in the case of these independent scalar motions, which cannot be added vectorially, the limit is *c* for each such scalar motion, so in the cases of a double or triple scalar motion, we have to allow for the possibility of these very high speeds, some of which may be expansive and others contractive, so we have many permutations and combinations to consider as viable possibilities, based on the probabilities of some combinations. These will manifest themselves variously, in the various types of stellar objects and their various energy sources, radiations, temperatures, densities, and recession speeds.

Bibliography

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