Dynamic Chiropractic

HEALTH & WELLNESS / LIFESTYLE

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PHYSICS XVI: MOTION THEORY

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The following example grew out of long discussions with my friend, Dr. David K. MacMurray, who practices in Fullerton, California:

If we were to blow up a balloon with a pure hydrogen gas and we had but one instrument for measuring the number of impacts of hydrogen atoms on the balloon's distended surface one site at a time, we could take these measurements serially, i.e., successively one after another at different sites. Suppose we decide to take 100 site-measurements and each such measurement required 30 seconds to effect and another 30 seconds between each measurement for resetting the instrument, recording and placing it in a different site. The 100 measurements would then require 100 minutes, or one hour and 40 minutes to complete. During that 100 minutes duration the temperature of the hydrogen gas inside the balloon dropped by 50 degrees from the temperature it was when we first started our measurements, or the temperature consistently dropped one degree for every two minutes of measurement period. If the beginning temperature was 100 degrees and the average temperature was 75 degrees, obtained only once from one two-minute period during the total 100 minute interval, what does that average mean? When we arrange the 100 measurements we took from 100 different sites on the balloon's surface from first to last (which because of the steady drop in temperature is the same as arranging them from highest temperature to the least temperature), we found, after we calculated the average number of impacts, that the figure we came up with did not actually occur at any one impact site. In short, the average number of hydrogen atom impacts did not actually occur even once during the time of the 100 measurements we took.

Another example: If we took a car trip to a city 90 miles away from our starting point and it took us 3 hours to make the trip, our average speed was 30 mi/hr. However, in point of fact we lost one-half hour because of a flat tire and another one-half hour when we stopped at McDonald's. We actually only traveled two hours and thus were not traveling on the road for a full hour. So the true average speed is 90 divided by 2 = 45 mi/hr. But, we ran into a great deal of slow traffic at one point of the trip, due to a major accident ahead of us, and during that one-half hour we crept along at about 5 mi/hr. Curiously enough, we found that during the course of our trip we never once drove for any distance at 30 mi/hr or at 45 mi/hr, i.e., our rate of motion during the trip was not constant. Neither "average" speed describes any actual reality of the event; the same is true of the gas temperature and number of site impacts. The average, then, of a number of real events is but an abstraction -- really a fiction in most instances -- of real events, and as a description of reality must be used with due caution.

The statement that "if it exists in the universe it moves," though one of the great generalizations, should be self-evident. But what about the non-motion called "rest"? The fact of the matter is that absolute rest, i.e., the total cessation of all macroscopic and microscopic motion, does not exist in reality. Philosophically, we can go even further with this and say that absolute non-motion (rest) = non-existence; that, in short, if it exists, it moves. More than that: motion is the essential property of matter and/or existence; thus, non-motion = non-existence. This reasoning makes motion (change, alteration) the basis of reality; if it exists, it exhibits motion; if it moves, it exists. But just as absolute non-motion does not exist for anything that exists, so absolute motion does not exist for anything material that exists. Therefore, all rest and all motion are relative -- relative to something else, which logically and ultimately has to be a theoretical absolute motion, but which for convenience sake is called a Frame of Reference.

In the 19th century it was generally accepted that all objects in the universe were in motion. The problem was to find the fixed reference point of "absolute rest" from which "absolute motion" could be determined. The notion upon which Newton's Three Laws of Motion is based is that of absolute rest and motion. To date, scientists have been able to come up with no absolutes, and assuming the existence of an external reality (external to man's mind or perceptions), then the one certain (i.e., absolute) thing we can say about that external reality is that it "constantly changes" (i.e., is exhibiting some kind of motion). Does all of this sound familiar? It should, for we have previously but briefly discussed it in paper #7 of this series.

Something (a body, object, mass) moves from some place to another place, and this movement takes a certain amount of time to accomplish. Something causes the movement to occur, as it cannot occur spontaneously in absolute isolation from every other "thing" in the universe. Now this movement can take one of two forms only -- rectilinear or curvilinear, i.e., movement between two points in a straight line or movement in a curved or circular (angular) line around a central point of rotation. Any movements of a given object have to occur in a spatial context. The object itself "occupies" a certain amount of space (in order to be an object). An object, itself composed of a specific number of component parts called atoms and molecules, assumes a specific form (shape), the range of which is practically limitless. The size of the object can vary from the incredibly minute to the staggeringly gigantic. We can even consider the entire universe itself as one "object" and think about its size and shape. If we decide that the "size" of the universe is infinite in extent, the matter of its total "shape" becomes academic, and whether or not space is bounded likewise is rendered senseless.

Scenario: There is a universe of infinite totally empty space with only one object in it. If we were able to somehow observe that object from "outside" that universe (obviously a physical impossibility), we could tell if that object moved or not, in what direction (straight or curved) and how fast (speed) only by reference to ourselves outside of that universe (or frame of reference) as "stationary observers." But from within that one-object, infinite-spaced universe there would be no way available to us to determine any of these things, unless we lived on that object and even then only if the object changed direction in its movement or changed its speed abruptly enough for our nervous systems to "sense" these changes. If we were born and grew up on that object and it had always moved in the same direction at the same unvarying speed, there would be no way for us to experience the sensations of motion or to deduce from any other kind of evidence that "our" object (including ourselves riding on it) was actually moving through space at a steady rate of speed. We could not tell if the object was stationary (at rest) or in motion.

In the next article we will consider a two-object universe.

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