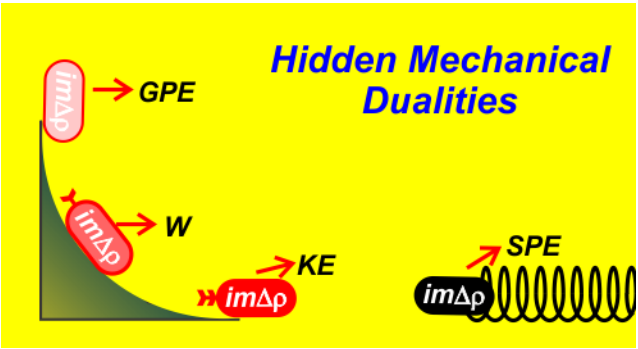


The Earth is Upside Down—Finding Momentum-Perfected Scientific Units

Professor Du-Ane Du

www.Wacky1301SCI.com, *"Looking at serious science, sideways!"*

If the law of conservation for momentum is true, units for gravity, force, work, and KE can be expressed in terms of momentum and momentum-transfer. Momentum-based units produce a richer understanding of what nature is doing and can reduce miscalculations and misunderstandings. —By Du-Ane Du, Author of *Murdered Energy Mysteries*, (Amazon, Kindle, ebook 2018, paperback 2021).

If the north pole of Magnet A always points to the south end of Magnet B, then why do magnets point to the earth's geographic North Pole? Opposites attract, right? So why don't magnets point south?

Or is the earth upside down?

Yes, sort of.

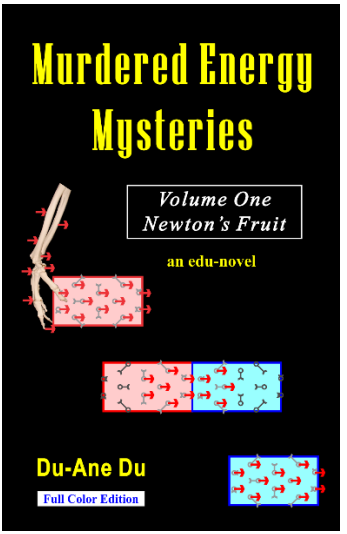
Nature does what nature does, and human beings develop words, terms, and definitions to "explain" what nature is doing. Often the traditional explanations are wrong. With respect to magnets, the "north-seeking" end of the magnet was marked "N" and this tradition means that all magnets are actually labeled backward with respect to the Earth's magnetic field! (But many scientists prefer to say that the Earth's magnetic field is upside down!)

Sometimes the human definitions are not accurate, because the definitions have been influenced by politics and tradition—rather than basing definitions exclusively on scientific observations and mathematical principals.

To make matters worse, for thousands of years, scientific thought was a sub-field of philosophy. Most "modern" concepts such as "force," "work," and "energy" are based on the teachings of Aristotle. Many fundamental concepts were developed during an age when analogies and philosophical arguments were more important than experimentation.

When Aristotle taught that the four elements were "earth, air, fire, water," he was in essence saying there was a law of conservation for solids, a law of conservation for liquids, a law of conservation for gasses, and a law of conservation for fire.

Excerpted from:



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Modern scientists would hold that Aristotle's laws of conservation are misleading.

What about Aristotle's concepts of force, impetus, energy, and work? Is there an easy way to identify which traditional concepts are misleading?

"Follow the mo…" We can discover a great deal by applying the law of conservation for momentum to the scientific units and tracing how momentum is acting within the unit.

Mass, distance, time, and momentum are the most mathematically stable concepts in physics. On Earth, distance is function of geography, and time is a function of the earth's rotation, while mass is a characteristic matter itself. Momentum is the first-order combination of all three, kg*m/s.

For the purpose of this article we will simplify the unit of momentum by using the symbol rho (ρ), where 1 ρ = 1 kgm/s, which is read as "1 momentum is equal to 1 kilogram of mass moving at a speed of 1 m/s. [Recall that

voltage (V) is measured in volts (V) of voltage, similarly momentum (ρ) will be measured in momentums (ρ) of momentum.]

The law of conservation for momentum was proposed in the mid 1600's by Rene Descartes. Basically, he stated that Object A cannot speed up unless another Object B slows down, and Object A cannot slow down unless another Object B speeds up. The amount of momentum in the universe is constant, therefore momentum cannot be created or destroyed.

A full analysis of the many forms of momentum and momentum-transfer can be found in Du-Ane Du's edu-novel *Murdered Energy Mysteries* (Amazon, Kindle, e-book 2018, paperback 2021.) and in articles archived at www.Wacky1301SCI.com

Gravity: The Newtonian/Aristotelian concept was that gravity is a force. But if gravity were a force, then lighter objects would accelerate downward faster than heavier objects.

Gravity is a "pulling" acceleration behavior which produces weight, and *weight* is a type of force. However, gravity itself is not a force. (Because weight is a force, mathematically expressing gravity in terms of weight-forces is acceptable, even though it is sometimes misleading.)

In the early 1600's Galilei demonstrated that all objects fall at the same accelerating rate. The gravitational constant for earth is 9.8 kgm/s^2.

When an object falls downward, it gains downward momentum. This means, downward momentum is being transferred from the earth to the object (and from the object to the earth). It is therefore possible to express Earth's gravitational constant in terms of momentum transfer, as follows:

$$\mathbf{9.8}\ \frac{\boldsymbol{\rho/s}}{\boldsymbol{kg}} = 9.8\ \frac{(kgm/s)/s}{kg} = 9.8\frac{m/s}{s}$$

In *Murdered Energy Mysteries* this is called the "subatomic gravitational ρ-giving rate" for Earth. And it means, at Earth's surface, the subatomic particles in 1 kilogram of mass receive 9.8ρ of momentum each second. If an object, such as a ball, has no support, the gravitational momentum-transfer causes the ball to accelerate earthward. If the ball is sitting on your hand, the atoms in the ball transfer the [downward gravitational] subatomic momentum to your hand in the form of "weight."

When the gravitational ρ-giving rate is multiplied by an object's total mass, this produces a value that *Murdered Energy Mysteries* refers to as the object's ***W***hole ρ-wreceiving rate, or weight. For a 100 kg person, the whole ρ-wreceiving rate is:

$$(100\ kg)\left(9.8\ \frac{\rho/s}{kg}\right) = \mathbf{980}\ \frac{\boldsymbol{\rho}}{\boldsymbol{s}} = \ 980\ N$$

Forces: A surface force, then is the rate of momentum transfer through an object's surface. Weight usually occurs between the bottom of an object and whatever it is sitting/standing on.

Because surface forces are atomic-level momentum-transfers, surface forces are more clearly expressed in terms of the atomic ρ-transfer rate, where:

$$1\ N = 1\frac{(kgm/s)}{s} = \mathbf{1}\ \frac{\boldsymbol{\rho}}{\boldsymbol{s}}$$

The *Im$\Delta\rho$ - W - KE* trilogy: As long as man has been building things, work done has been an important concept. "It doesn't matter how long it takes, as long as the work gets done," is a very old saying [Unfortunately it is also false, as we shall see!].

When a ρ-transfer rate (force), moves an object from one place to another, three things always occur:

Time always passes,
Distance is always traversed,
Average speed becomes calculatable.

Forces are ρ-transfer rates, so the effect of those ρ-transfer rates should be expressed in terms of momentum behavior, as follows:

Impulse is force times time:

$$impulse = im\Delta\rho = Ft$$
$$\left(1\ \frac{\rho}{s}\right)(1\ s) = \mathbf{1\ \rho} = impulse$$

Impulse, can be thought of as the amount of momentum transferred during the event. This brings up Descartes law of conservation for momentum. Whenever an object is moved from one place to another, the amount of momentum/impulse used should *always* be tracked, to prevent mathematical violations of the law of conservation of momentum.

Work done is force times distance moved. In terms of momentum, work done is:

$$Work\ done = W = Fd$$
$$\left(1\ \frac{\rho}{s}\right)(1\ m) = \mathbf{1\ \rho}\ \frac{\boldsymbol{m}}{\boldsymbol{s}} = (im\Delta\rho)(average\ speed)$$
$$(im\Delta\rho)(average\ speed) = 1\ joule$$

Work done, therefore, is the impulse-used times the average speed. You cannot have work-done without impulse-

used! This reinforces the rule that in every situation, the impulse used should be tracked, so as to ensure an accurate understanding of what is happening.

Impulse times average speed is also a way to calculate changes in **kinetic energy**, as can be seen in the following:

$$\Delta KE = \frac{1}{2}mv_2^2 - \frac{1}{2}mv_1^2$$

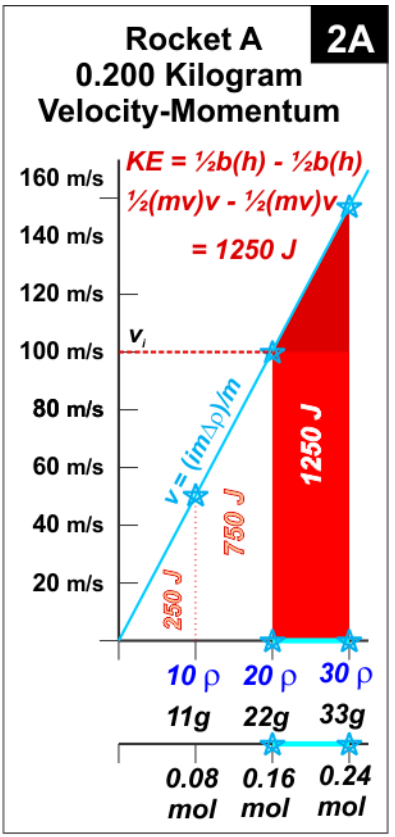
$$\Delta KE = (mv_2 - mv_1)(\frac{1}{2})(v_2 + v_1)$$

$$\Delta KE = (im\Delta\rho)(\frac{v_2 + v_1}{2})$$

$$\boldsymbol{\Delta KE = (im\Delta\rho)(average\ speed)}$$

Conservation of work/KE? It has been shown that work done is dependent on both impulse used and average speed. Thus work done is a measure of "speedy impulse." Change in kinetic energy is also a measure of "speedy impulse."

The relationship between fuel, impulse, speedy-impulse, and kinetic energy can be seen in this velocity-momentum graph of a 0.200 kg black-powder rocket accelerating as its engine burns fuel:



In this graph, the lowest X-axis shows the amount of fuel burning in the 0.200 kg rocket's engines. The fuel amounts are expressed in moles and grams.

Rocket fuel always produces a specific impulse based on the amount of fuel burned. In this case, 11 g always produces 10 ρ of impulse, which is indicated on the X-axis.

There is a direct relationship between grams of fuel and impulse-produced. This phenomena is so consistent that rocket engines can be rated based on the amount of impulse produce, and engine efficiency can be expressed in terms of impulse per gram of fuel.

The Y-axis of the graph is the velocity of the rocket as it accelerates. The area under the line is the work-done on the rocket, and the rocket's change in kinetic-energy. During an acceleration, work-done and kinetic energy always have the same value.

Engineers and other scientists will note that energy/work is the anti-derivative of impulse. This means kinetic

energy and work done are both dependent on the amount of impulse produced by the fuel, *and they are simultaneously dependent on the average speed*.

The average speed is situational, and average speed is not stored in the fuel. Thus the fuel cannot be storing the kinetic energy, and it cannot be storing the work done. Fuel stores impulse/momentum-increase.

Momentum/impulse is always conserved. But average speed cannot be conserved, and varies from situation to situation. If work and kinetic energy are dependent on average speed, then how can there be a "law of conservation" for work/energy?

Is the "law of conservation" for work/energy simply a human concept that doesn't actually occur in nature? For more, visit www.Wacy1301SCI.com or check out the edu-novel, *Murdered Energy Mysteries*.

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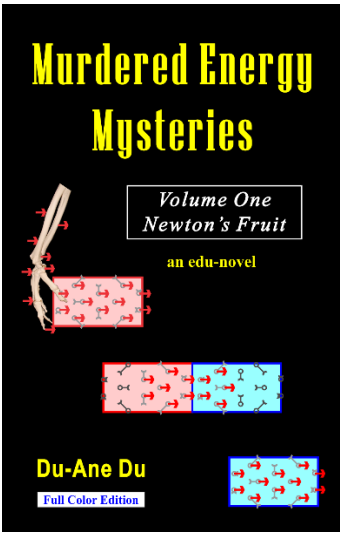

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Murdered Energy Mysteries seeks to increase understanding of the various forms of momentum and momentum transfer, as well as the various forms of energy and energy transfer. The lack of understanding on the part of the scientific community is substantial, and more research needs to be done.

—Du-Ane Du, author of the edu-novel *Murdered Energy Mysteries* (Amazon, Kindle, e-book 2018, paperback 2021.)

More information, visit www.Wacky1301SCI.com

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