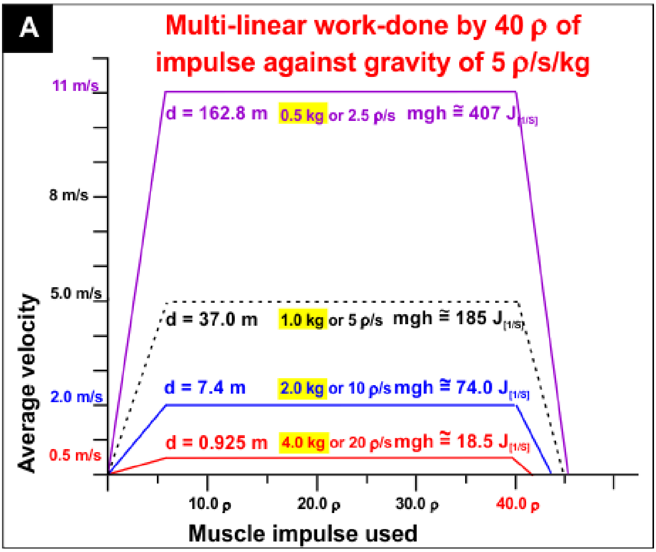
Deductions of the Space-sci Sherlocks



Work Done Is Expanded Impulse

Professor Du-Ane Du

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

Three sisters, Pico, Hectii, and Tera, the "Space-sci Sherlocks," are traveling through the Asteroid Belt. At the Gravity Spa, they perform lifting experiments in different gravity fields, and discover that work done is an expansion of impulse used.

—Excerpted from *Murdered Energy Mysteries*, Epilogue (Part 2B), Chapter 2, by Du-Ane Du, (Amazon, Kindle, ebook 2018, paperback 2021).

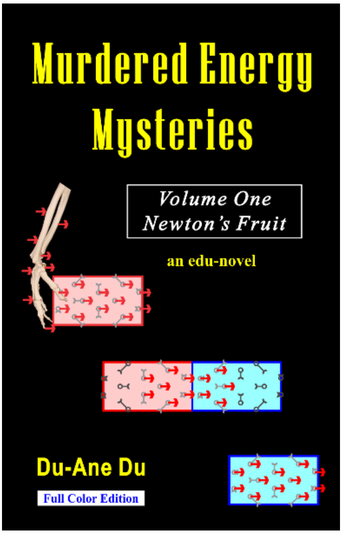
Hi Grandma Aaret,

Pico just walked by with a huge piece of cake and a glass of milk. I'll try to write a few notes before I eat a much lighter bedtime snack. The three of us had a very interesting day.

The exercise machines in the elevator-room we used today were a bit boring until Pico started doing experiments with a brick-lifting machine. It all began when Chip asked the question, "How much multi-linear work-done can you accomplish with exactly 40 ρ of muscle-impulse?"

Sounds simple, right? But the truth is, the answer depends on how much mass the object has and how fast you move it. For example, if I want to burn some body fat, then I need to lift heavier weights slower. If I want to accomplish a lot of work-done, then I lift lighter weights as fast as possible.

Excerpted from:



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You see, it's all about **Pico's fact #1 of work-impulse expansion**—yes, I wrote *Pico's Fact!* Here, multi-linear work is defined as the amount of work (*force*)(*distance*) that it takes to move an object from one stationary position to another.

Pico's fact tells us, the amount of multi-linear work-done is a scalar expansion of the amount of impulse used, and the variable of scalar expansion is the average speed at which the work was done.

If I wrote Pico's fact #1 of work-impulse expansion as an equation, it would look like this:

$$\textit{work-done}_{[1/S]} \cong (\textit{speed})(\textit{impulse used})$$

$$(\textit{work})\left(\frac{1}{\textit{speed}}\right) \cong (\textit{impulse used})$$

$$\boldsymbol{\underline{F}d_{speed} \equiv s(im\Delta\rho)}$$

I think it's interesting to look at the units involved. In that case the equations become:

$$(\rho/s)(m) \equiv (\rho)(m/s) \cong \textit{joules}_{[IC]}$$

Isn't it interesting how the "per second" idea moved from one unit to the other? And isn't it also interesting that Pico's fact produces the unit of multi-linear work-joules$_{[IC]}$—just like the work equations do!

Anyway, we did a lot of experiments to test and see if Pico's fact is true at different gravities, different force-rates, and different velocities. Here's one example:

When the gravity in the elevator room was down to 5.0 ρ/s/kg, we tested four different masses, 4.0 kg, 2.0 kg, 1.0 kg, and 0.5 kg. In all four experiments, we used an initial contact force-rate of 30 ρ/s for 0.2 s. The heaviest mass achieved a lift speed of only 0.5 m/s, while the lightest mass achieved a lift speed of 11 m/s.

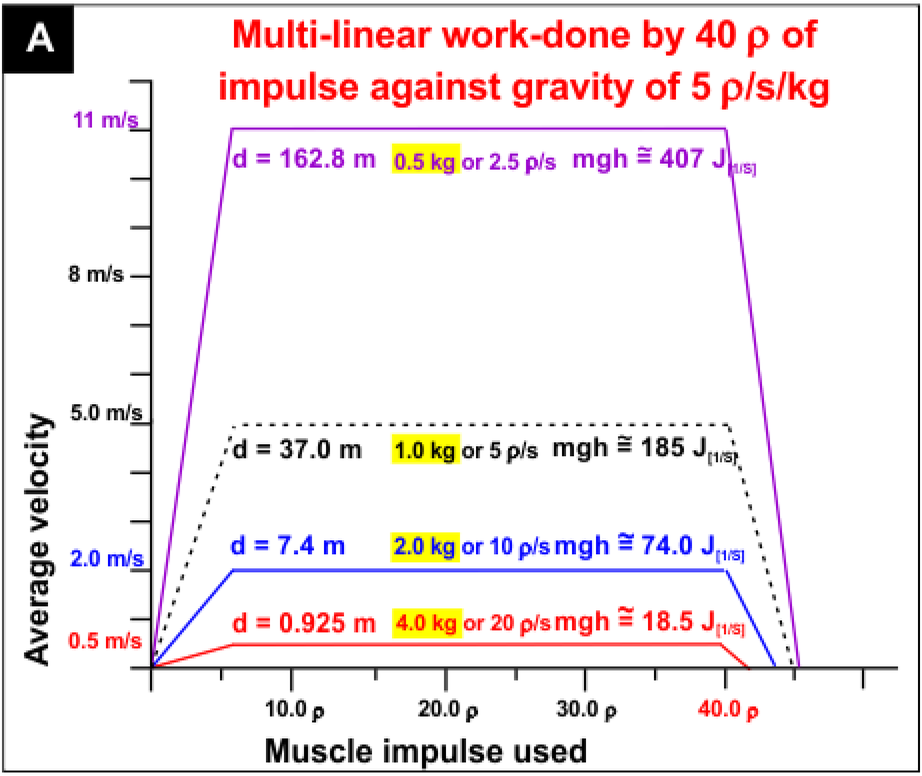
The heaviest mass had a grav- ρ-wreceiving rate [whole-receiving rate, or weight-force] of 20 ρ/s, or 20 N, while the lightest mass had a wreceiving rate of 2.5 ρ/s, or 2.5 N.

Hectii thinks the ρ-wreceiving rate [whole-receiving rate, or weight-force] may be a very important part of the puzzle. This is because, to keep the object moving upward at a constant speed, our force-rate pulling on the rope must be the same as the wreceiving rate of the bricks.

Since the heaviest mass had a higher wreceiving rate, it used up our muscle-impulse much faster than the lighter mass did. That meant, we were able to accomplish a lot more work when lifting the lighter masses.

(You see, in our experiments, we were limited to 40 ρ of muscle-impulse with each lift. The computer tracked the amount of impulse we were using. During each of the experiments, when we reached our 40 ρ limit, we stopped lifting and allowed the weight to coast to a stop. Coasting to a stop was important, because multi-linear work only occurs when the starting and ending speeds are zero.)

Here, look at the velocity-time graph that Chip made for this experiment:



You can see at the bottom corner, that the heaviest mass (small red box) only moved about 0.93 m, while the lightest mass (large purple box) traveled about 160 m. (Chip rounded off the numbers, so I'm going to round too.)

Notice that the amount of work done is different every time. When we lifted the red 4.0 kg mass, we did 18.5 $J_{[\frac{1\,\rho}{0.4625\,J}]}$ of work, but when we lifted the purple 0.5 kg mass, we did 407 $J_{[\frac{1\,\rho}{10.175\,J}]}$ of work.

Isn't it interesting how Chip has automatically altered the [IC] impulse coefficient for this experiment? That's because:

$$[IC] = \left[\frac{1\,\rho}{1\,J}\right] = \left[\frac{1\,s}{1\,m}\right] = \left[\frac{1}{speed}\right]$$
$$\frac{1}{[IC]} = \frac{1}{[\rho/J]} = \frac{1}{[s/m]} = [speed]$$

You see, Grandma, the impulse coefficient hasn't really changed, it's just been… sort of flipped over to emphasize the speed involved in the experiment. It's strange to think that ρ/J is a type of speed, but that's what it is!

Back to our experiment. By now it should be obvious that multi-linear work-done involves multi-linear work-joules$_{[IC]}$—which are somewhat different from multi-parabolic kinetic-joules$_{[IC]}$. And it's also obvious that mass and speed are somehow involved. Lower mass means a higher acceleration, and a higher acceleration means a faster average speed.

Now we needed to test Pico's premise that the joules$_{[IC]}$ unit should include a base indicating the inverse speed/productivity-multiplier involved—J$_{[IC]}$, J$_{[\rho/J]}$, J$_{[s/m]}$, J$_{[1/speed]}$, or J$_{[1/productivity]}$. To do this, we make a table where we divide the amount of work by the speed.

Check out the column on the far right, if the answers are around 40 ρ of muscle-impulse, then Pico's fact is true:

H	**Is multi-linear work-done actually a scalar expansion of impulse used?**		
Mass	**Work$_{1/s}$**	$\boldsymbol{Work\left(\frac{time}{distance}\right) =}$	**40 ρ used**
0.5 kg	$407\,J_{[\frac{1\,\rho}{10.175\,J}]}$	$407\ \rho m/s(\frac{16.0\,s}{162.8\,m})$	**= 40.0 ρ**
1.0 kg	$185.0\,J_{[\frac{1\,\rho}{4.625\,J}]}$	$185\ \rho m/s(\frac{8.0\,s}{37.0\,m})$	**= 40.0 ρ**
2.0 kg	$74.0\,J_{[\frac{1\,\rho}{1.85\,J}]}$	$74\ \rho m/s(\frac{4.0\,s}{7.4\,m})$	**= 40.0 ρ**
4.0 kg	$18.5\,J_{[\frac{1\,\rho}{0.4625\,J}]}$	$18.5\ \rho m/s(\frac{2.0\,s}{0.925\,m})$	**= 40.0 ρ**
* Remember, $[\frac{1\,\rho}{1\,J}] = [\frac{1\,s}{1\,m}] = [\frac{1}{speed}] = [IC] = [\frac{1}{productivity}]$			

I'm guessing you decided that Pico's fact is true, work *is* a scalar expansion of impulse, and the variable of scalar expansion is the average speed at which the work was done!

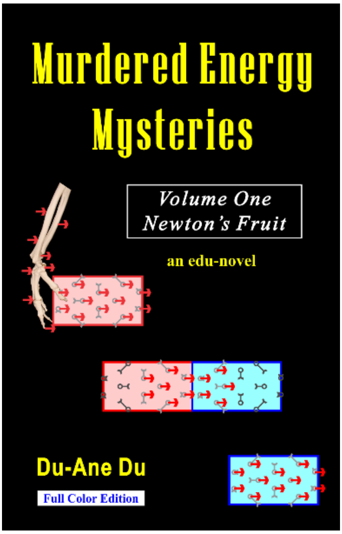
And, if you will look at the inverse-speed subscript after the joules$_{[IC]}$ symbol—$J_{[IC]}$, $J_{[\rho/J]}$, $J_{[s/m]}$, $J_{[1/speed]}$, or $J_{[1/productivity]}$, you can see that Chip always noted the average inverse speed whenever he recorded how much work was done. I asked Chip why? He said, scientific best practice holds that the inverse speed/productivity-multiplier should always be recorded any time you calculate multi-linear work-done. The inverse speed/ productivity data can then be used to calculate the amount of impulse used—based on Pico's fact!!

(Chip says that recording the impulse coefficient [IC] is also important because it tells the reader how big the joule units are. Apparently joules units come in different sizes, and that affects comparisons, addition, etc.)

CONCLUSION: More research needs to be done into the relationship between mechanical energy and other theoretical forms of energy. Many common beliefs may actually be philosophical myths.

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.)



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