The Space-sci Sherlocks Deduce

1 kg rocket	starting speed: $0\frac{m}{s}$	final speed: **12** $\frac{m}{s}$
2 kg rocket	starting speed: $0\frac{m}{s}$	final speed: **6** $\frac{m}{s}$
3 kg rocket	starting speed: $0\frac{m}{s}$	final speed: **4** $\frac{m}{s}$

Why Fuel Causes Motion

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. They stop to explore an asteroid, perform rocket experiments, and deduce how fuel impulse produces motion.
—Excerpted from *Murdered Energy Mysteries*, Part 1, Chapter 4, by Du-Ane Du, (Amazon, Kindle, ebook 2018, paperback 2021).

Dear Grandma Aaret,

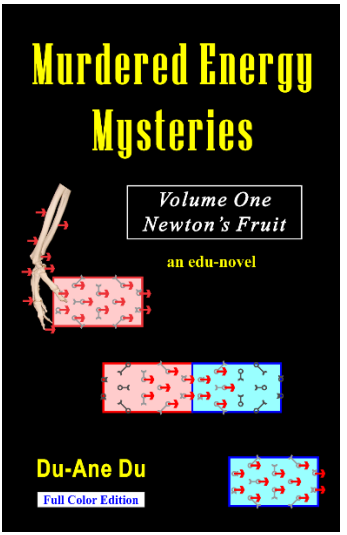
Today we did a bunch of experiments looking at the impulse [momentum transfer] caused by different amounts of rocket fuel.

Hectii and Pico did most of the experiments. The rocket fuel they used came in 12 g packets, and they found that one packet of fuel always causes the same amount of impulse, regardless of the size of the rocket.

During our experiments, when they used three packets of fuel, the rockets always experienced 36 kgm/s, 36 ρ, or 36 momentums of impulse. If we used six packets of fuel the rockets experienced 72 ρ of impulse. If we could have used ten packets of fuel, then the rockets would have experienced 120 ρ of impulse. If we used one packet of fuel, and we threw the rockets before we hit the launch button—guess what! The packet of fuel always produced 12 ρ, 12 kgm/s, or 12 momentums of impulse.

Daddy said, fuel impulse is how NASA controls the flight path of its rockets. In fact, if Daddy needs to change the direction of our spaceship, he can fire small rocket-engines located on the sides of our spaceship. Each tiny burst of fuel produces a specific amount of impulse.

Excerpted from:



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Back to our experiments. If we had changed the type of fuel, then it would have given us different results—but always consistent results. A fuel packet that causes 200 ρ (200 kgm/s) of impulse with a large rocket should produce 200 momentums of impulse with every rocket it's used with.

Look, here is a homework chart that Pico made from one of their experiments:

D	**Tera's *Secrets of Murdered Energia* Homework** These experiments always used 1 packet (12 g) of fuel. (But we threw the rockets to make different starting velocities.)			
Mass	**Velocities**		**Calculations**	**Impulse**
m	$v_{initial}$	v_{final}	$im\Delta\rho = mv_f - mv_i$	$im\Delta\rho$ =_?_ ρ or _?_ $\frac{kgm}{s}$
$6\ kg$	$4\frac{m}{s}$	$6\frac{m}{s}$	$(6\ kg)(6\frac{m}{s}) - (6\ kg)(4\frac{m}{s})$	$im\Delta\rho = 12\ \rho$ or $12\ \frac{kgm}{s}$
$6\ kg$	$8\frac{m}{s}$	$10\frac{m}{s}$	$(6\ kg)(10\frac{m}{s}) - (6\ kg)(8\frac{m}{s})$	$im\Delta\rho = 12\ \rho$ or $12\ \frac{kgm}{s}$
$3\ kg$	$6\frac{m}{s}$	$10\frac{m}{s}$	$(3\ kg)(10\frac{m}{s}) - (3\ kg)(6\frac{m}{s})$	$im\Delta\rho = 12\ \rho$ or $12\ \frac{kgm}{s}$
$3\ kg$	$18\frac{m}{s}$	$22\frac{m}{s}$	$(3kg)(22\frac{m}{s}) - (3kg)(18\frac{m}{s})$	$im\Delta\rho =$ ____ ρ or ___ $\frac{kgm}{s}$
$1\ kg$	$15\frac{m}{s}$	$27\frac{m}{s}$	$(1kg)(27\frac{m}{s}) - (1kg)(15\frac{m}{s})$	$im\Delta\rho = 12\ \rho$ or $12\ \frac{kgm}{s}$
$1\ kg$	$30\frac{m}{s}$	$42\frac{m}{s}$	$(1kg)(42\frac{m}{s}) - (1kg)(30\frac{m}{s})$	$im\Delta\rho =$ ____ ρ or ___ $\frac{kgm}{s}$
$1\ kg$	$60\frac{m}{s}$	$72\frac{m}{s}$	$(1kg)(72\frac{m}{s}) - (1kg)(60\frac{m}{s})$	$im\Delta\rho =$ ____ ρ or ___ $\frac{kgm}{s}$
In every case, 1 packet (12 g) of fuel produced _____ρ of impulse/momentum-transfer ($im\Delta\rho$).				

It wasn't hard to fill in the blanks!

Notice, the size of the rocket doesn't matter, the amount of impulse is always determined by the amount of fuel used by the engine. (Although a poorly designed engine can waste some of the impulse stored in the fuel, causing a decrease in the amount of impulse produced.)

Isn't this amazing? Fuel always gives rockets a specific amount of impulse. This relates to the **Cartesian #3 conservation impulse corollary**, which tells us, Object A's motion/momentum will not change unless (1) an impulse transfers momentum from Object B to A, usually causing A to speed up, or (2) the impulse could transfer momentum from Object A to B, usually causing A to slow down, or (3) the impulse could transfer momentum out of a trapped or multidirectional state, usually causing A to speed up, or (4) momentum could be transferred away from A and into a trapped or multidirectional state, usually causing A to slow.

The big question is, where is the momentum coming from? Our current theory is that the momentum-transfer may be trapped inside the fuel—perhaps in spinning electrons, spinning quarks, vibrating electrons, etc. For now, we're calling it **Chemically Bonded Impulse.**

The consistent behavior of fuel impulse is very useful. If you want to increase a rocket's momentum to a specific level, you can calculate exactly the amount of fuel to burn! That's what Daddy does.

The amount of impulse contained in a given brand of fuel is always the same!! If you double the amount of fuel, then you double the impulse that the fuel gives to the rocket. And, it's very easy to determine how much impulse is available in a given brand of fuel—just shoot off a test rocket!

Oh, and one more thing, burning fuel also increases the temperature inside the motor. In fact, chemically bonded impulse obeys the **impulse fact #1 of dual atomic motions**, which tells us, applying an impulse [momentum transfer] to an object can either cause an increase/decrease in the object's invo-atomic s-momentum, or the impulse can increase or decrease the object's exvo-atomic v-momentum, or both.

That's all from here for today.

Tell Grandpa Proge hi for us.

Love always, Your Tera.

* * *

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.)

More information, see:
Murdered Energy Mysteries,
an edu-novel

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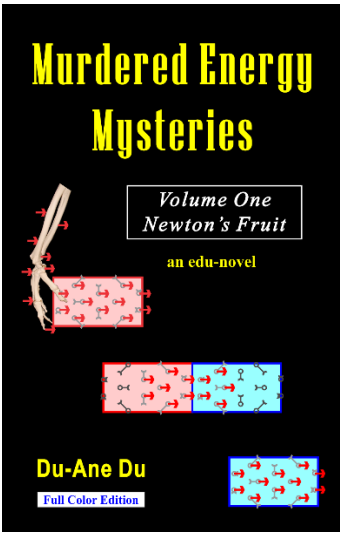

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