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IRREVERENT VIEWS & SATIRICAL NEWS

Relativity, Part 1: Special
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Topic: Blinded by Science

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The year is 1905. You are a zany German, working in a Swiss patent office. You are young, trying to impress women, and without warning, you grow a head of hair that challenges classical physics. All you want are fast women and fast, horseless carriages. Your hair wants to change the world.

This was Albert Einstein's life at the age of 26. He was faced with a choice: cut the wild hair and get back to his life, or let it grow and allow each strand to wander into new dimensions of truth. Einstein made the choice to let his profound hairstyle define his life and, thereby, define a new understanding of nature.

Einstein's exotic hair weaved knowledge into his mind, which he used to create a series of papers now called the *Annus Mirabilis*or "Miracle Year." In these documents are revolutionary ideas on basic physics that are still pretty much incomprehensible to most people 103 years later.

The first of these ideas is the photoelectric effect. Einstein found that the luminous glow created by his hair was emitted in discrete packets of energy called *quanta*. Before this discovery, the infinite divisibility of energy was considered the basis of electromagnetism as understood by Maxwell, who apparently didn't understand jack. Ironically, the idea that energy is discrete became one of the pillars of quantum mechanics, which Einstein often rebuked as "crazier than a straitjacketed Nazi in a French gay bar."

In these papers, Einstein also discussed Brownian motion, for which he created a means of measurement on a relatively large scale. Brownian motion is a concept relating to molecular movements. That last sentence is so laden with potential for scatological abuse that I feel it's best left alone.

The concepts in the *Annus Mirabilis* that had the most immediate and far-reaching consequences for physics are special relativity and the equivalence of matter and energy. One

of the most frequently referenced formulas in science is $E=mc^2$. This formula is only slightly less popular than the punch line to the classic Boudreaux and Thibodaux joke – pi(r) round. Both of these formulas describe the fundamental nature of the universe: one of them finds the circumference of a circle; the other finds the circumference of wasteland we can create when politicians and generals dictate the utility of scientific discoveries.

Contrary to popular belief, Einstein most certainly did not create the nuclear bomb. His contribution to nuclear warfare was much the same as the prehistoric inventor of the wheel's contribution to rush-hour traffic. Einstein's formula gave matter a rest energy, which was distinct from classical potential and kinetic energies.

The rest state of matter turned out to possess a metric ass-load of energy. Under the right circumstances, it was believed that certain elements could be induced to split or combine in ways that might release this energy. In a controlled reaction, the release would be steady and contained.

Of course, most people immediately began considering how immensely wicked it would be if we could start an uncontrolled reaction and drop it on people who mess with us. So, a bunch of people who weren't Einstein set about using Einstein's brilliant ideas to kill lots of people. Seems like, if Einstein was so smart, he would have seen that coming and just kept his mouth shut. All is vanity, but with hair like that, who can blame him?

When the move towards nuclear weapons began, Einstein made his feelings on the subject very clear with his famous quote: "Those who believe in the necessity of nuclear weapons have no penis." Einstein was known to have several penises; each of them was over 10 inches long, and they boasted a collective IQ of 235.

Among Einstein's many ideas and penises, he conjured perhaps his most famous and profound discovery of nature: Special Relativity. His discourse into this subject was titled "On the Electrodynamics of Moving Bodies," which is also the name of a new Cirque du Soleil performance in which several acrobats perform Lorenz transformations in mid-air using gravitational harmonics. If you know what a Lorenz transformation is, you're cool. If you can actually calculate one, I love you. Really.

Classical relativity assumes that all inertial reference frames are subject to identical laws of physics. This means that, if you're standing at the back of a short bus moving at 30mph, and you throw a tub of Boudreaux's Butt Paste® towards the front at 30 mph, the relative speed of the Butt Paste to a stationary observer is 60mph. That all sounds quite reasonable.

Einstein decided that it was entirely too reasonable and there had to be something wrong with it. Special relativity postulates that, while classical relativity holds true at all reasonable speeds, once you start moving at unreasonable speeds, unreasonable things start to happen.

The speed at which the universe becomes completely unreasonable is *c*, the speed of light. If you want to know just how fast light is, look it up; let's just say it's freaking way fast. It is so freaking way fast that it isn't really a speed at all; it is a speed limit. Nothing can travel that fast, except light, because it's special. The specialness of light is not just due to the fact that it can go way fast. Light is special because it is always traveling at the same speed, to any

observer, in any inertial frame of reference. I wish I could do that.

This time, the short bus is cruising at half the speed of light. You shine a Boudreaux's Butt Paste flashlight towards the front of the bus. One might expect a stationary observer to judge the light from the bulb to be traveling at 1.5 times the speed of light. Special relativity states that the light from the bulb is traveling at exactly the speed of light to all observers. From what science can effectively measure, it has been proved time and again that Einstein was right on the money.

Big, unconventional ideas often spring from big, unconventional hair. In one year, Einstein and his hair documented logical and intuitive leaps that dwarf the lifelong efforts of some of the cleanest-cut minds in science. After this astonishing year of revelation, Einstein's hair took about ten years off. He grew dreadlocks, got into Rasta for a while, and then decided that he and his hair had more riddles to solve. Gravity had always been a thorn in Albert Einstein's side. His hair defied it, so he had no choice but to stand with his hair and face the challenge. Together, they battled Newton's Law of Universal Gravitation. Find out who won next time on…something about science…

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