

Ingenious, Improbable, and Irreplaceable Science: from A to Z

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Acoustics and Alligators

When I was eleven and at summer sleepaway camp, my cabin mates and I snagged a helium balloon and passed it around the circle surreptitiously, giggling when our voices all came out sounding like Mickey Mouse, and hiding the balloon so that no counselor would see it and tell us that it was "bad for our vocal chords." Inhaling helium and trying to sound like the highest soprano at the opera is a right of passage for young humans; but what happens to other animals' voices when they inhale helium? In 2015, a group of biology researchers put a female Chinese alligator in an airtight chamber filled with helium and oxygen, and coaxed it into bellowing. Imagine that, the rippling tenor of an alligator's bellow, like the sound of revving engine, but shifted up an octave or two, like the alligator was sucking on a giant helium balloon.

Being both a solid and a liquid

In 2014, physicist Marc-Antoine Fardin wrote a paper on fluid dynamics. Not the fluid dynamics of a fluid, but of cats, which I suppose are a fluid, if you are to believe his paper. The paper, titled "On the rheology of cats," (rheology being the study of the deformation and flow of matter), is rife with photos of cats, squished into different containers that one is likely to find a cat in, like sinks, bowls, baskets, gutters, and jars, perfectly form fitting, like a liquid. He defines various equations and relations that one can use to describe the rheology of *Felis catus*, and concludes that "cats are proving to be a rich model system for rheological research, both in the linear and nonlinear regimes." He submitted the paper to the Rheology Bulletin journal.

I certainly find this quite funny, and I would hope that you do too. We are not alone: In 2017, Marc-Antoine Fardin won an award for this research. It is hard to imagine what kind of award one could win for such obviously farcical research (though research nonetheless), but indeed he did win an award, an Ig Nobel Prize in Physics. An Ig Nobel Prize, awarded by The Annals Improbable Research, in a gloriously funny ceremony at Harvard every year, for research in all topics, from Physics to Peace to Literature to Economics to...

Cotton, Polyester, and Wool

...Reproduction. Ahmed Shafik won the 2016 Ig Nobel prize in the category of reproduction, for studying how different textiles: cotton, polyester, and wool, affected the sex lives of rats when worn as pants by the male rats. He found that polyester in particular created an electric field when rubbed against skin or fur that made the sperm inactive. A year later, he tested polyester on human males, and found that after wearing a polyester sling on the scrotum for about 140 days, there were no sperm left in the men's ejaculate.

The Ig Nobel Prizes began at MIT in 1991, in the name of "Ignatius Nobel," a fictional relative of Alfred Nobel, the prizes of whom the Ig Nobels subvert. Every year in September, academics, comedians, and spectators gather at Harvard University to celebrate real research achievements that make you laugh before you think. Helium breathing alligators, cats as fluids, azoospermic rats... research that may not be the most important in the world, but still, it makes you chuckle, it makes you wonder, it makes you

Dream

In our wildest dreams, we hope to understand the science that researchers do, to peek under the hood of the expansive academic machine and realize that this research is relatable. We hope that perhaps, it is possible to learn about cutting edge science in 24/7: Twenty-four seconds and seven words. At every Ig Nobel ceremony, a handful of lecturers try to explain their research in under 24 seconds, and then again in 7 words.

Emergency Bras

During the 2020 Ig Nobel Awards, Elena Bodnar gave her 24/7 lecture on a device she had developed: The Emergency Bra. With a glaringly magenta padded bra in hand, she described in 24 seconds the Emergency Bra as: "a personal protective garment with the primary function to support the breasts. It can quickly and easily transform into two face masks to decrease the inhalation of harmful particles in case of an emergency. During pandemics, such as COVID, it also serves the additional function of protecting others by reducing exposure to the respiratory secretions of the mask wearer when standard PPE is not readily available." In 7 words (though actually 8, as the 24/7 lecturers often deviate from the strict guidelines of the mini-talk): "Emergency bra masks protect others. Care. Wear. Share."

Firefly Sex

While there seems to be no real penalty for going over 7 words, there certainly is strict enforcement of the 24 second limit. When Sara Lewis quickly rattled off her expose on why some fireflies have more sex than others at the 2015 Awards, she came in just under the limit. The referee, decked in the appropriate yellow and black striped jersey, gym shorts and knee socks, blew the whistle in her ear just as her last words were ushered from her mouth. Because you see, the Ig Nobels must take *some* things seriously. Her seven words were: "Female fireflies favor fancy food-filled flashers."

Genuity

noun. authenticity; the quality of being true and real. Synonymous to genuineness, except it sounds better.

While there are many things that the Ig Nobels do not take seriously, here is one that they do: Genuity. These achievements are all *real*. Real research, authentic results, genuine events.

Genuity is not a real word. However, *Ingenuity* is. Prefixes like 'in' 'ig' 'im' and 'irr' often indicate that a word has the opposite meaning to the word stem. But for the Ig Nobel Prizes, and the irreplaceable achievements they award, they are not the opposite of noble or genuine, but rather a subversal, an ingenious (*adj.* clever, original, inventive) subversal.

Huh?

The Ig Nobels are designed to make you say, 'huh?' And luckily, thanks to a group of linguists who won the 2015 Ig Nobel in Literature, we know that 'huh?' and its equivalents exist in every human language.

Improbable Ice Cream

The Ig Nobel Prizes are organized by the magazine *Annals of Improbable Research*, which releases six issues every year filled with, you guessed it, improbable research. The most recent issue is about ice cream: ice cream cryptography, interdependent ice cream cones, the environmental impact of chocolate vs. vanilla, and so on.

Japan,

the Netherlands, and France, among other countries, have been quite curious about the Ig Nobels. Film makers and TV networks from these countries have created documentaries about the Ig Nobels, which have been quite popular throughout the years. In Japan, a documentary about the Ig Nobels was shown on NHK, Japan's public television network, on Christmas Eve in 2002, which apparently received the largest audience of anything aired on NHK during that entire year.

Karaoke

Speaking of Japan, Daisuke Inoue of Japan won the 2004 Ig Nobel Peace Prize for inventing karaoke, "thereby providing an entirely new way for people to learn to tolerate each other," according to the official Ig Nobel documents. When he attended the awards to accept his prize, he was serenaded on stage by three Nobel Laureates: Dudley Herschback, Richard Roberts, and William Lipscomb.

Laugh

The official motto of the Ig Nobel Prizes is: "Research that makes people laugh... then think."

Materials Science:

The 2020 Materials Science Prize was awarded to a group of archaeologists who published a paper titled, "Experimental Replication Show Knives Manufactured from Frozen Human Feces Do Not Work." When you have picked yourself off the floor from giggling too hard, I hope you consider the why and how of this research. Though, hopefully not enough to try to replicate the experiment.

Noble

The Ig Nobel Prizes are handed out each year by actual Nobel Laureates. As of 2021, only one person, Sir Andre Geim, has been awarded both a Nobel and Ig Nobel prize, for his work on the electromagnetic properties of graphene and magnetically levitating frogs, respectively.

I like to think that the Ig Nobel Prizes are actually quite noble a pursuit. Though, it has not always seemed that way.

Original Ig Nobel Awards

The Ig Nobels did not start out as serious, acclaimed, and well attended as they are now. At the first ceremony in 1991, none of the recipients of the awards attended, and I don't think they would have wanted to. The Science Education Prize was awarded to former Vice President Dan Quayle, for "demonstrating better than anyone else the need for science education," and the Peace Prize was awarded to Edward Teller, the father of the hydrogen bomb, for "his lifelong efforts to change the meaning of peace as we know it." Today, almost all of the recipients choose to accept the awards and attend the event.

Peace

While the awards may have matured slightly, they have not lost their sense of satire over the years. In 2000, the Peace Prize was awarded to the Royal Navy for stopping the use of live cannon shells during trainings, and instead instructing their sailors to instead shout, 'Bang!' In 2020, the Peace Prize was awarded to the governments of India and Pakistan, for 'having their diplomats surreptitiously ring each other's doorbells in the middle of the night, and then run away before anyone had a chance to answer the door.'

Questions

The Improbable Research website boasts a host of frequently asked questions about the awards. I particularly liked, "Are you ridiculing science?"

Redundancy, Again (The Opera)

The ceremony includes an original mini-opera, in four acts, each year, performed by professional opera singers and Nobel Laureates. The 2008 mini-opera, "Redundancy, Again" tells the story of two twin brothers who run a company deciding to fire everyone whose job overlaps in any way with another employee's. When one person quits and the company heads into a tailspin, they must again implement redundancy.

Speaking of Redundancy,

There have been two prizes awarded in fluid dynamics to people who have studied the carrying and spilling of coffee, in 2012 and 2017.

Twins

Even twins themselves find themselves redundant to an extent. The 2017 Cognition Prize was awarded to a group who demonstrated that many identical twins cannot tell the difference between themselves and their twin.

Uniqueness

Despite these ruminations on redundancy, I can say without a doubt that the Ig Nobel prizes are unique. Yes, satire can run through any industry and forum, but there is an irreplaceable excitement to these awards. How many other researchers are exploring topics of similar depth (or shallowness), with a similar lightness of heart, with the inspiration that anything, it seems, can be described with science.

Veterinarians

One can hope that the Ig Nobel Prizes will inspire children and adults alike that science is not so alien, and perhaps that they could take up the mantle themselves. However, one need not go as far as Robert Lopez, a veterinarian, who extracted ear mites from cats and put them in his own ear to observe what happened, for which he received the 1994 Entomology Prize.

Wombats

The 2019 Physics Prize was awarded to a group of researchers who investigated why wombats, the stout and fluffy marsupials, create cubed poop. The same group of researchers also won the 2015 Physics Prize for finding that most mammals empty their bladders in 21 seconds, give or take 13 seconds.

Xerophyte Xanthate

Rich Roberts, a Nobel Laureate, gave a 24/7 lecture in 2002 on Biochemistry: “Biochemistry describes ant acids, beetle biotins, crab kitins, dog DNAs, elk enzymes, frog fats, giraffe genes, hog hormones, ivy introns, jumping genes, krill keratins, lamb lipids, mass mutants, newt nuclei, owl oleates, pig periplasm, quahog quadruplets, rabbit RNA, shrew sugars, tadpole trioses, urchin ureasers, viper venoms, welk warts, xerophyte xanthates, [unknown] yaks, zebra zygotes.”

The alphabet within the alphabet. Like a fractal. A topic on which Benoit Mandelbrot gave a 24/7 lecture on in 2006. The world of science is like fractals. You can keep digging deeper and deeper, in a never ending cycle. But unlike fractals, in science, we continue to discover new things, fun and important things, things that deserve air time and awards and attention.

You

The 2020 Management Prize went to five professional hitmen from Guangxi, China. The first hitman accepted a sum of money to perform a murder, and then subcontracted the task to the second hitman. The second hitman accepted a portion of the original sum and subcontracted the third hitman, and so on. No one ever actually performed the murder.

What will you pass down?

Zoology

The 2011 Physiology Prize awarded a group who submitted their study "No Evidence of Contagious Yawning in the Red-Footed Tortoise," to the Current Zoology Journal. If the Ig Nobels are a yawns or a disease, I certainly hope that they are *quite* contagious.