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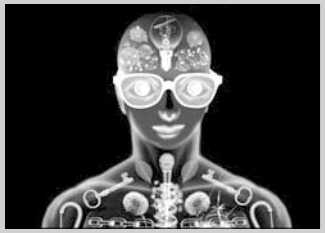
TODAY'S HIGHLIGHTS



Nature's Revenge with Fred Pearce
12–1 pm/Town Hall

Cradle to Grave: Future of the NHS
4–5 pm/Town Hall

Marcus Moore et al Call my Scientific Bluff
6–7 pm/Town Hall

Dr Witchel's Seven Rules of Dating
8–9 pm/Town Hall

We could be superheroes

Helen Jopling

What is the best superpower to have? Being able to scale buildings in spider-like fashion? To move cars with the tip of your finger? Or being able to disappear at an opportune moment?

Finalists from *FameLab* 2006 were reunited in competition for *Science of Superheroes*, this time stating the case of their favourite comic book character and identifying whether they could actually exist, scientifically speaking.

Captain America, a scrawny art student so weak he couldn't join the army, was transformed with a dose of super-serum into a huge, muscular superhuman. Super-serum sounds terribly impressive, but the mysterious veil was lifted by Steve Robertson's explanation of the effect of anabolic steroids and other performance-enhancing drugs on the human body.

Wonder Woman is not only known for her amazing strength and incredible combat skills, but also for her rather handy accessory, a lasso which forces anyone caught by it to tell the truth. Davina Bristow explained how truth serums could in theory be used to depress the central nervous system and interfere with higher cognitive function, suppressing the ability to lie – actually, a rather common effect of alcohol consumption.

Susan Storm, aka the Invisible Woman, was proposed by Jonathan Wood, not only for being particularly attractive, but also for her knowledge of light deflection, allowing her to vanish. Last year scientists did in fact make the first ever invisibility cloak, but objects can currently only disappear in the presence of microwaves rather than visible light.

Superman, the most well known superhero of all, gets credit for being the first of a long line of multi-talented characters. Sadly, even the mathematical equations of Karl Byrne failed to convince that Superman can ever be anything more than fiction.

Ultimately the group, with only Sarah Forbes-Robertson clad in costume, used their favourite superheroes to explain some pure science, from genetic mutations to the refractive index of baby oil. Imagination may carry us to worlds that do not exist, but science is doing its best to keep up.

The prime of Mr Marcus du Sautoy

Helen Williams

The question at the start of Marcus du Sautoy's captivating show about number mysteries was: why did David Beckham choose the number 23 shirt when he moved to Real Madrid? Some argue that he copied basketball player Michael Jordan to encourage Americans to buy his shirt. Mathematicians say it was because it's a prime number, and the more you have in the team, the more successful you will be.

Du Sautoy has experimented with this theory by getting more prime numbers on his Sunday league team's shirts. It worked for a season at least. While amusing, it's clearly not the most scientific example to illustrate the might of the prime. The rest of the talk was far more effective at that.

The essence of family entertainment was captured marvellously as du Sautoy used balloons, costumes, video clips and a chess board to engage the audience in a historical journey about the usefulness of primes.

Did you know that insects such as cicadas use primes to chart their life cycles and avoid predators? Or that the search to find the next biggest prime number has become so intense that Americans are offering $100 000 to the person who finds it? Du Sautoy reckons we should all have a go, just so long as we remember to send him 10% of the winnings!

FameLab favours microwave man

Mimi Mo

As with *Pop Idol*, the finale of *FameLab* was a combination of excitement, talent and nervousness. Nicholas Harrigan, a PhD student in theoretical physics at Imperial College, came out as this year's champion, winning both the panel and the audience votes.

He was described as brave, risk-taking, with huge potential, and very geeky. His demonstration of how a microwave works was like a magic show – the audience were hooked to see what he was going to put in it next – a light bulb? Balloons? A 1980s colour-changing T-shirt? People were on the edge of their seats.

The other contestants gave genuine and passionate snippets of their science too – from proton collision, to how to manipulate your boyfriend into becoming a domestic god. All the nine international *FameLab* winners showed some fine science communication at its best, but what made Harrigan the clear winner was precisely what judge Kathy Sykes emphasised – "content, clarity, charisma".

This last quality set him aside from the rest. If he was a mineralogist, I believe he could talk about rocks like gems too. This "geek" probably couldn't shift his eagerness to share the beauty of simple science with anyone. Now he can do it in the name of *FameLab*. He had my vote from the start.

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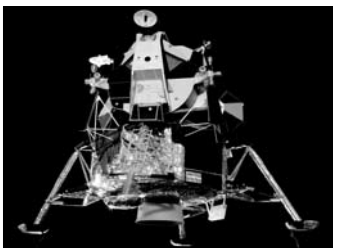
Space: the final frontier

Kate Gardner

The history of 50 years of space travel could have made for a very dry event but it turns out that people love space. They are fascinated by it. The first two speakers at yesterday's *From Sputnik to Sat Nav*, John Zamecki and Maggie Aderin, have built things that are now, or have been, in space and hearing them discuss their work was captivating.



As Piers Bizony pointed out, space science has already expanded our minds in ways we may not realise. The audience proved sceptical. The scientists were asked to justify their jobs with such questions as: "Why send humans into space when robots are cheaper?", "What can we learn from the few parts of space we can currently reach?" and, of course, "Is all the money being spent worth it?" The answers were convincing – scientific advancements need to be seen through human eyes to keep future generations interested, and similarly doing what we can, to get as far as we can, now, will build the basis for travelling further when we have the technology to do so.

Space science is not all that costly, it transpires; UK taxpayers contribute just £2 per year. Compared with the vast amounts going toward warfare, that's nothing. There's a simple reason – most of the technology we put up in space these days has a commercial purpose. Scientific research is often combined with these lucrative satellites to the mutual benefit of all concerned.

Most adults in the room were disappointed to hear they probably won't get into space themselves, although the children stood a good chance. Aderin offered her solution: as getting people back to Earth is the harder part of human space travel, she would be more than happy to retire to Mars.

When I get older, losing my hair...

Simon Watt

We'll start with the good news. We are living longer than ever before. "There is no clock ticking inside waiting to kill you," Tom Kirkwood told us. I was pleased; I'm 24 but going grey.

However, "aging is caused by a build-up of mistakes" and boy, our body makes a lot of them. Kirkwood guided us through the errors that drive our inevitable decline, with a mildly acidic wit and an ease of expression that made genetics simple.

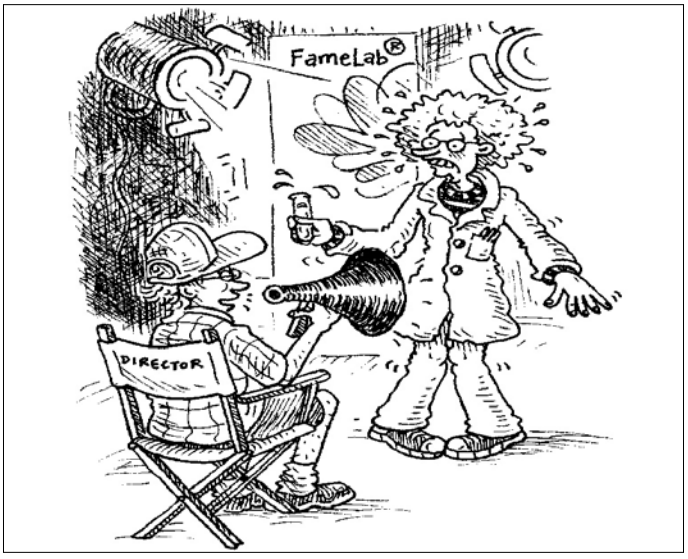
It seems we all looked pretty good as embryos, but "it's all been downhill since then". When growing and repairing, our cells make mistakes only one in a billion times, but this adds up. Ironically, even breathing is bad for us, churning out free radicals that terrorise our DNA.

In spite of this, with the triumphs of medicine and healthier lifestyles, it seems our life spans will still increase. The big question is how our society will cope with our continually aging population. Thought-provoking stuff, which left me feeling older, but definitely a great deal wiser.

THE DROID

Having examined the molecule models at the back of the Town Hall, the Droid has discovered the difference between clean and dirty fuels. Clean fuels look like puppies!

It's that time again when I go back in my closet – unlike Pfizer bot Oscar. Thanks for reading. To find back issues and podcasts, visit stetpress.co.uk.



"Fame, I want to live... Next!" by Gemma Hastilow (gemmahastilow.com)

Adam Hart-Davis, wishing on a star

Peter Wyton

Adam's Guide to the Cosmos, an undisguised trailer for a series shortly to be televised, was fronted by Adam Hart-Davis. He is a man whose shirts make him instantly identifiable. Anyone training a half-decent telescope onto the remotest of the hundred billion stars in a hundred billion galaxies would be able to pick him out, assuming he happened to be up there.

This eccentricity apart, he seems refreshing sensible, in my experience of science programme frontmen. He doesn't gibber when he speaks. He refrains from waving his arms about like a demented octopus. He does not over-emphasise random words. All around me, very young people were listening intently and with obvious interest – to an adult!

As a poet whose knowledge of science is such that I am routinely thrown out of *Slam the Atom!* in the first round, I was startled to find myself able to comprehend his whirlwind tour (starting in Leicester, naturally) of state-of-the-art facilities in remote corners of the planet. All of these contain people and machines slaving away, 24/7, to enhance our knowledge of the puzzling black stuff with the twinkly bits in, which we tend only to look at on Bonfire Night.

Hart-Davis is the kind of chap who is on chatty terms with people who can untwinkle a star using adaptive optics. He has teetered along the rim of a volcano to examine a SuperWASP, which is not a particularly threatening insect but a means of finding more planets per day than you can shake a short stick at. Watch him. Watch this series. I shall, and I'm a moron.