

LITMUS PAPER

The buzz from *The Times* Cheltenham Science Festival – online at cheltenhamfestivals.com/science

Saturday 6 June 2009

On this day in 1971 the USSR launched Soyuz 11 to crew the world's first space station, Salyut 1, after the crew failed to get into the station earlier in the year.

Swine flu: looking behind the mask

Pamela Styles

Should we be worrying about swine flu? Yesterday, in an event chaired by Robert Winston, virologist John Oxford and computer modelling expert Neil Ferguson discussed the current threat of pandemic influenza.

Oxford started with a discussion of the 1918 pandemic flu, which belonged to the same family of influenza viruses as swine flu (H1N1) and killed more people than the First World War. As Oxford pointed out, 99.5% of people around the world survived the 1918 pandemic. He did, however, warn us to “treat influenza with some respect.”

Despite saying that it was “too early to be complacent”, Ferguson reassured the audience by quoting the estimated percentage of fatalities due to swine flu in Mexico – less than 0.4% of those infected.

Antiviral drugs have been stockpiled and are effective against the virus if administered quickly.

This makes it “much less severe than 1918 Spanish flu”. Antiviral drugs have been stockpiled and are effective against the virus if administered quickly. Large quantities of vaccine are also being prepared in the UK.

A popular talking point was the allocation of the limited amount of available vaccine. Should it be administered to children, in which transmission of the disease is highest, or to healthy young adults, who may face the greatest risk of dying? More controversially, it was considered that the vaccine might be given preferentially to



those with important roles in society, such as intelligence. However, the panel and the audience agreed that healthcare workers should be given priority.

Ferguson's concerns about swine flu centred around possible impacts on society, such as

school closures and the burden on healthcare. He also spoke of risk as being something people are comfortable with if they feel they are in control – as in driving a car. Perhaps, he suggested, our fears of pandemic flu are rooted in our apparent lack of control.



Counting down to number fun.

DON'T MISS!

MAGIC NUMBERS

Carol Vorderman meets Dr Maths. 10.30–11.30 a.m., Town Hall, £6.

A POLLUTANT'S TALE

A truly atmospheric experience. 2.30–3.30 p.m., Town Hall, £4.

NOT ROCKET SCIENCE

Science meets comedy. 6.45–7.45 p.m., Town Hall, £7.

YOUR GENETIC FUTURE

Discover the secrets of your genes. 6.45–7.45 p.m., Town Hall, £8.

Celeb scientist: Alice Roberts

Anthropologist and presenter of the BBC's *The Incredible Human Journey*

Are you getting a lot of attention because of the show? I teach medical students and they help to keep your feet on the ground, so I don't feel like a celebrity at work, but it's wonderful to talk about science and to reach so many people.

Tell us about the series. It begins with our origin in Africa about 200,000 years ago and looks at how people got out of Africa. Geneticists now believe that it was a fairly small group of people that left and colonised the world. One thing I hope we've shown in the series is that this is an incredibly dynamic field of science. New discoveries are



coming up all the time – some discoveries that make you rethink all your previous ideas – and it shows how important it is as a scientist to be open-minded. **What do you make of *Ida* – the early primate fossil that's been all over the news recently?** Anything that fills a gap in our understanding, that pins down part of the evolutionary tree, is really important. This fossil from Germany is important because it shows us what some very early primates looked like, which is crucial when you're trying to understand how primates today originated from more ancient ancestors. It's a great fossil and is beautifully preserved.

Mercurial magic

Henry Lau

Chemist Andrea Sella guided a fascinated audience through the history of the element mercury (Hg), “the most beautiful and reviled element”. It is the only metal that is liquid at room temperature and is one of the last transition metals.

Mercury, or quicksilver, owes its liquid properties to its loosely bound electrons, which travel at high speeds, causing relativistic effects and leaving the electrons unavailable for bonding.

Over the years, mercury has been used for many different purposes, from the special effects for the gateway to Hell in Cocteau's

continued overleaf...

sounds
of
science

IOP Publishing

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Whyntie takes all

Nichola Evans

After travelling all over the UK, NESTA FameLab, the “ongoing experiment to find the faces of science for tomorrow” finally arrived last night at *The Times* Cheltenham Science Festival. The finalists had just three minutes each to explain a scientific concept in a way that would wow the judges. The prize: £10,000 and two 3 *Minute Wonder* TV slots on Channel 4.

The weird and wonderful talks kicked off with “The curious case of Belgian malaria” – the story of a man who caught malaria from a mosquito trapped in a friend’s suitcase. A wacky presentation from Andrew Pontzen then addressed the possibility of our



brains popping in and out of existence because of quantum mechanics. And just when we thought it couldn’t get any more bizarre, Alistair Linsell introduced fluorescent monkeys – “possibly the most amazing lighting for a rave ever”.

The competition finished with Matthew Baker rhyming about the more unpleasant side-effects of certain strains of *E. coli* in your doner kebab. The clear winner, however, was CERN’s Tom Whyntie. His opening question “How can finding nothing be the

best possible result?” initially puzzled the audience, but Whyntie went on to show how finding nothing isn’t necessarily useless.

“Was spending £5 billion [on the LHC] a waste?” asked Whyntie. “No! If we find nothing, we have it wrong, but this could start a scientific revolution.”

Whyntie was humorous and confident, and won by talking about nothing, but as he reminded us, “We have gained 10 fantastic new communicators, but there is one real winner here – science.”

Mercurial magic (cont)

...continued from front page film *Orphée*, to painters’ pigments and treatments for syphilis.

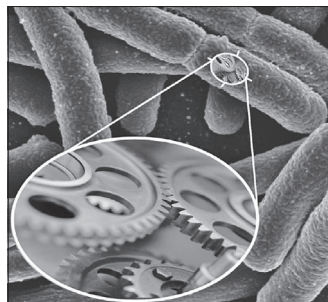
Members of the audience jumped at the opportunity to help out with Sella’s on-stage demonstrations, helping him weigh a litre of mercury against 11 litres of water, as well as creating a vacuum from the weight of a column of mercury.

Sella also recounted his childhood experiences playing in his school’s laboratory, putting his hand into a vat of quicksilver and having to force his hand down into

the dense material.

Mercury is dangerous because it is fat soluble and can build up in the body before forming toxic sulphides, he explained. One of the novel new uses of mercury is a type of telescope that uses a spinning tray of mercury to create a parabolic mirror that can change its focus by adjusting the spin rate.

Sella explained how mercury is extracted from ore, only stumbling when someone in the audience asked him: “Does mercury comes from H G Wells?”



A life less ordinary

Jenny Chapman

Can we design life or aspects of a living system? The exciting, emerging field of synthetic biology covers a wide spectrum of disciplines, from re-engineering DNA and proteins to creating life from scratch.

Social scientist Jane Calvert explained how scientists are trying to engineer the inanimate to create the animate and how future developments know no bounds. Scientists can introduce non-biological amino acids into proteins to confer novel properties and make information-storing macromolecules like DNA. The future might even bring synthetic biological art.

We can’t predict where the field will go but be sure to keep your finger on the synthetic pulse.

FESTIVAL FEED

Add your tweets, follow @cheltfestivals

TimesScience: Heston Blumenthal: I’m no scientist but I know a wobble test

cheltfestivals: Miniature ponies are being mobbed by children in Imperial Gardens... absolutely could only happen at the science fest

blockbusterbuzz: RT @TimesScience: Lyn Evans: LHC to start smashing particles in October, <http://tr.im/npXn>

McrSciFest: Second prize went to alistair linsell at #cheltscifest famelab final £10k and other amazing prizes for the winner

travisthetrot: #followfriday For something to do this weekend @cheltfestivals

twitter.com/cheltfestivals

DIY SCIENCE

Balance a ball on your finger, with James Soper from Science Shows for Schools

1. Take one ball (up to football sized, smooth plastic is best) and one finger. Hold your finger straight and vertical and put the ball on top.
2. When you let go, the ball probably doesn’t stay there too long. Now try spinning the ball as you place it on your finger.
3. The ball becomes much more stable and can stay on your finger for a few seconds or more with practice. This stability is because of the gyroscope effect.

STAR SIGNS with Shaaron Leverment

This constellation has been seen as a Lion by many different civilisations for thousands of years. The ancient Egyptians may even have based the Sphinx on this star sign. In Greek mythology, Leo was a monstrous lion, invulnerable to weapons – swords would break and arrows would bounce off his hide. But the hero Hercules saved the town of Nemea by strangling Leo with his bare hands.

TO FIND LEO TONIGHT: Leo dominates the sky in Spring and you can see him tonight in the south west. His head and mane are outlined by six bright stars like a sickle. At the foot of the sickle, marking the lion’s heart, is the brightest star of Leo, called Regulus. Under Leo’s back paw you may spot a bright dot that is in fact the planet Saturn.



Leo the Lion

Shaaron Leverment is president of the British Association of Planetaria and owner of Explorer Dome, shows for schools. For more details, see www.explorerdome.co.uk.

YOU’VE GOT TO BE KIDDING...

Only 10% of the cells in your body are human – the rest are bacteria.

In 1814, the temperature dropped so low that the River Thames froze and an elephant was led over the ice near Blackfriars bridge.

Despite being a lot smaller than Earth, Mars has more land area.

The Severn Estuary has the world’s second highest tidal range.