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TODAY'S HIGHLIGHTS

Brian Aldiss, China Mieville and Rob Grant
Science Fiction
3.45–4.45pm/Town Hall

Mark Lythgoe and Jim Al-Khalili
The Riddle of Einstein's Brain
7.35–8.45 pm/Town Hall

David King and Jonathan Koehler
Climate Change
8.30–9.30 pm/Town Hall

David Puttnam: emotion and film in fields of dream

by Adam Horovitz

"Cinema puts you in a physical, dream-like place," said Dylan Evans at last night's Emotions and Film event. "Human beings have always longed to live in a world of the imagination." Bearing this in mind, it is tricky to discuss emotion in film when only using three clips – but that is the nature of the Festival event. With only an hour to cover the subject, much must be left to the imagination.

Happily, David Puttnam's choice of clips did exactly that, leaving room for some fascinating observations and a burning desire (in this reviewer at least) to further the debate at a later date.

The clips in question were the tongue-biting scene from *Midnight Express*; an unashamedly heart-warming scene from *The Best Years of Our Lives*; and the climactic moment in *Field of Dreams* where

Puttnam: "I'm here, I'm here."

Kevin Costner's character meets his father as a young man.

The brutal scene from *Midnight Express* – setting up the hero's final insanity – received most attention from the audience, taking a good half of the allotted hour. "Where did I go wrong?" asked David Puttnam last night, as he pondered a New York cinema audience's whooping, ecstatic reaction to the scene in which the hero bites off another man's tongue.

"It's a testament to the rest of the film," countered psychologist Ian Penton-Voak. He suggested that people are so on the side of the hero that they are "willing to forgive" anything, even such brutality.

An audience member later questioned why uncomplicatedly positive emotions were not often seen, to which Dylan Evans responded with the story of an experiment in which chimps are shown snippets of horror films and given a lever to press if they want more. Wetting themselves with fear, the chimps keep pressing.

What was made clear was that cinema deals wholly in emotion, whether or not it is the emotion the film-maker expects. Puttnam, who should know, closed by saying: "I think that cinema is unique in allowing the very best in you to shout out 'I'm here, I'm here'." On the whole, last night's event bore this out.

Free the radicals

by Claire Fauset and Olaf Bayer

Yesterday's talk on radical technology opened with a whistle-stop tour of the inventions that have shaped modern life and the societies we live in – from the lavatory to fibre-optic cable.

Adam Hart Davis showed that revolutionary technologies need not be hi-tech: simple developments in sanitation have saved millions of lives. Technology futurist Patrick Andrews used the image of a boulder racing downhill to the critical turning point of around 2015–20, when climate change and peaking fossil-fuel production – together with breakthroughs in nano and gene technology – will trigger huge transformations.

The audience was split: some favoured the simplicity of yester-

year; others were optimistic about the future. Most acknowledged the comforts technology has brought, but were uneasy about the enormity of the changes to come.

Perhaps the challenge is not one of technological innovation, but of how decisions about radical technologies are made. Talks like these generate much-needed public debate, but can they be objective when sponsored by companies whose interests are predominantly commercial?

The prime of a lifetime

by Clare Sturges

Calling all maths nerds! Here's a challenge not to be missed: prove Riemann's theory of prime numbers and you could be the winner of £1 million. How hard can it be?

Many have failed before you, including Oxford professor of maths Marcus Du Sautoy. He dedicated a whole talk (and a book) to their understanding, in the hope that someone will confirm Riemann's hypothesis and rest his weary mind.

Sautoy described primes as, "...the building blocks of numbers, like the physicist's atom or the chemist's periodic table – the heartbeat of maths." They underpin thousands of maths theories.

Riemann proposes that prime numbers can be predicted pretty

accurately and, so far, his theory is right, up to a grand old prime containing 7.8 million digits. But, unlike chemistry and physics, there is no prime number spectroscopy. If *you* can crack prime numbers to infinity, you'll win all that money and also be able to hack into any encrypted data system ... just imagine. Good luck!

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Editors: Jon Andriessen, Adam Horovitz
Roving reporter: Emily Koch
Contact: info@stetpress.co.uk
Production: Clare Sturges
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Art: under the skin of science?

by Bonnie Laverock

Death is something that everyone can relate to. It has fascinated artists and scientists alike for hundreds of years and continues to do so. Recently, it has been used by one man in particular to draw together science and the arts.

Gunther von Hagens, dubbed the Galileo of anatomy, has created medical dioramas from dead bodies through a process called plastination, claiming that he's "democratising anatomy" by bringing it to a wider public. Von Hagens positions dead bodies in a variety of lifelike poses that show the relation of skin and muscle to bone and ligament.

But is this display of death a waste of bodies that could be used for more pressing medical matters, such as organ donation? Robert Winston thinks so. He questioned both the educational and creative value of von Hagens' work, in which individual body parts are unlabelled and their functions left unclear.

Winston asserted that von Hagens' work is neither that of science nor art because it adds nothing new to either world; plastination was trivial entertainment. Surprisingly, the majority of the audience were more impressed with von Hagens' work: at least 10% of them even showed some interest in having their own bodies plastinated after death.

Sian Ede, who led the discussion, added history to the debate by reminding us of Enlightenment scientist Vesalius, for whom anatomy was theatre – a way of defeating death and demonstrating man's power over life – something that Winston found worrying from an ethical and religious viewpoint.

Von Hagens has certainly become notorious for the controversy generated by his exhibitions, but he claimed this actually helps medical science by raising awareness of the issues surrounding the body and organ donation. The audience agreed, saying they had learned something from his exhibition.

Whether it is counted as art, science or entertainment, von Hagens' plastination technique seems to further our enthralment with life and mortality. It may be considered trivial, but it is certainly not irrelevant.

High-score bores

Games not just for a laugh in the world computer programming.

by Diana van Gent

Computer games may not have a negative impact on individuals, yesterday's Science Café panel argued. Media coverage of computer games is mainly negative, but only 3% of games with extremely violent content are rated "over 19".

Mark Griffiths, Europe's first computer addiction expert, suggested playing games causes no clear negative psycho-social effects. However, the younger a child is exposed, the more likely they are to be affected. A small number of people do become addicted, but this could be related to a predisposition.

Aside from competitive games, software producers are designing more educational applications. Judy Robertson, a computer-game researcher, has been looking at the effects. In workshops where children were motivated and developed in self-specific learning, teachers reported improvements in problem solving and working together.

It seems that parents are worried about the amount of time their children spend on computers, and also discipline – especially when other parents do not impose the same restrictions. It was argued that parents should discuss computer use with their children, rather than banning the computer all together.

In Robertson's study, girls were more into developing non-violent games than boys. Gaming academic Aleks Krotoski, a researcher of the online world, called for more female game producers to transform it.

LIMBS AND THINGS: If you need to practice your eye-exam technique, visit the Discover Zone. This simulator's soft "flesh" makes it easy to raise his eyelids to determine which condition afflicts him, out of a possible 90 settings (altered by changing slides and turning a wheel on his head). What's your diagnosis? EK

Taking time out with tachyons

by Jon Andriessen

It seems we've been looking for a way of travelling through time for years, but if it does ever happen, don't expect it to be in the form of a 1960s police box. Jim Al-Khalili, inspired quantum physicist and adept entertainer, took us on a mind-bending journey through the vague possibilities of temporal vacation.

As Einstein's "general theory of relativity" would have it, it's all possible, as long as you're happy (and able) to approach the speed of light, create a wormhole, find shedloads of "exotic matter" (not the kind you might find under the bed) or discover a way of preventing the infinite examples of paradox, while ensuring the existence of parallel universes ... and all without the aid of a sonic screwdriver.

Whereas time may not be absolutely constant in the realm of physics, the energy and forces needed to create such a vehicle lie somewhere along the thin line between fact and fiction, but in a world where a watched kettle never boils, this event flew by like tachyons on a chill pill – and that, apparently, is very fast indeed!

THE DROID

One of the volunteer cyborgs wandering around the Town Hall clearly needs to acclimatise to his lot. "Not only is it backwards vision, it's backwards tunnel vision," The Droid heard him moan as he gingerly negotiated the corridors.

"Questions always start slowly," said Jim Al-Khalili, inviting Q&As for his talk on time travel, "until you realise that your question is not that stupid and you speed up."