

litmus paper

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TODAY'S HIGHLIGHTS



Frank Burnet and Kathy Sykes
How Was It For You?
4.15–5.15 pm/Pillar Room

Harry Witchel and Andy Bass
Body Language
6.45–7.45 pm/Pillar Room

David Pybus
The Science of Perfume
7.45–9 pm/Drawing Room

Animal minds over matter

by Rebekah Cane

“Can we get inside animal minds?” was the big question posed by *New Scientist* yesterday to four leading experts on the inner worlds of wildlife. Having asserted that anthropomorphism is something to be avoided – “it’s not very scientific” said Jeremy Webb, editor of *New Scientist* – we were introduced to Betty, the New Caledonian crow with amazing abilities in tool use; sheep that can recognize faces, experience attraction and are happy to make friendly humans into honorary sheep; chimps that can perceive others’ points of view; and talking fish.

The common link appears to be that the more complex a social structure the creature inhabits, the higher its intelligence, explaining why “the little guys” underwater are capable of learning and why crows are not bird-brains. It’s worth bearing in mind that we tend to use things that humans are good at as a benchmark for high intelligence, which makes any research into animal mentality a contentious issue.



My family or other animals?

Talking of contentious issues, the Animal Experimentation: Good, Bad or Necessary Evil debate skipped through the most emotive issues of the moral linking of animals and humans before settling on a developing argument between hawks and doves.

Described by Richard Ryder as a “human chauvinist”, Tony Gilland from the Institute of Ideas spoke abrasively of wanting to “live in a world where we live... worlds apart from animals”, whilst David Thomas, chair of the RSPCA but here in his own capacity, gave disturbing examples – from strokes induced in marmosets in the name of

research to Nazi experiments. “Animal experiments self-evidently fail the empathy test,” he said. Colin Blakemore, head of the MRC, took a more measured line in the debate: “We should be working – vigorously – to minimise animal use... but we shouldn’t feel guilty,” he told us.

The main issue raised by Ryder, author of *Painism: a Modern Morality* and originator of speciesism as a concept was “Why are scientists ignoring Darwin’s theory of evolution?” We are all descended from a common ancestor, he said; a fact avoided by scientists who are otherwise avowed Darwinists.

The debate never got as ugly as the police presence implied it might, but much was missed out or neatly avoided. Vivisection remains an issue that cuts society down the middle; the way we view animals and our place in the natural order were neatly encapsulated in these two events.

For the record, animal experimentation was voted a necessary evil in a straw poll last night.

Degrees of separation

by Iain Price

Mark Lythgoe, the street-smart neurophysiologist, set out to expose whether we are born artists or scientists. He began by exploring the “sensual temper” of art houses and science labs.

Mark split the two camps of scientists and artists into “empathisers” and “systemisers”. His research shows that your best chance of finding a scientific empathiser is your cat’s vet, but don’t expect computer techies or lawyers to feel your nightmares with you. He suggested these differences are essentially due to the classic wrestle of nature versus nurture in the brain; one that is predominately influenced by the sex hormones and defines our potential to develop into scientists or artists.



Street cred: all in the head?

That’s not to say that the two sexes can’t show one another their worlds. Mark demonstrated how optical illusions in art can be explained by conflicts in learned neural wiring.

But he left us wondering whether Carol Vorderman is really just the exception to the rule – or can we all transcend the barrier between the artist and scientist within us?

Space base racer

by Jon Andriessen

Mark Kelly walked into a packed out Pillar Room yesterday wearing the coolest boiler suit you’ve ever seen. You see, Kelly isn’t a plumber or Kwik-Fit fitter; he’s a spaceman with nearly five million space miles to his name, and the company logo on his chest reads NASA.

In 2001, Kelly piloted the space shuttle *Endeavor* on a mission to the International Space Station and to pass the time made a “home movie” of the trek, from lift-off to touchdown. Eager to share the experience, he revealed a less-than-top secret or two, such as the bars, strapping and vacuum pumps needed for a trip to the toilet – “something you do very carefully” – and the emergency landing programme called “De-Orbit Manager” kept on an IBM Thinkpad



Ground control to Commander Kelly.

in case of a crisis.

Kelly’s real talent was the way in which, faced with an audience of all ages, he managed to make the adults feel like children and children feel like adults. Entirely engaging, never patronising and always informative, this was a truly memorable event that left us all dreaming in flights of fancy. Roll on the age of space tourism.

Science fact and science fiction



Rita Carter will be *Writing Science* at the Festival this evening.

by Ann Lingard

On Sunday evening, science writers Rita Carter, Richard Dawkins and John Gribbin will discuss what makes good science writing – whether it is the use of metaphor, simile, drama, personal stories, or perhaps even simple, uncluttered English written with passion and enthusiasm. There has been a dramatic increase in the number of books and articles written about “real” science – that is, science in the non-fiction realm – making the ideas, discoveries and dilemmas of science accessible to non-scientists.

But what of science in fiction? The science-fiction/fantasy genre uses scientific developments and futuristic possibilities as the basis for a story; there are many extremely good writers using intelligent and intriguing themes in good, thought-provoking stories.

Surprisingly, poets have recently seized on science as a new source of ideas for what is very often the written equivalent of “conceptual art”, in that the poem does not seek to explain but rather to record the impact of an idea, an image, a smell or a theory on the poetic consciousness and emotions.

And then there is the novelist’s use of science. This is lagging far behind, although there are some notable exceptions. There are all too few novels in which non-scientist authors portray scientists as “normal people”, or make use of the wealth of places, images and language that a life in science entails. It’s time for fiction writers to take up the challenge!

Ann Lingard’s latest novel is *Seaside Pleasures* (published by Littoralis Press, 2003).

Everything must start somewhere

by Brenda Read-Brown

The beginning of everything was not an event for absolute beginners; audience members with no prior knowledge of the subjects under discussion could have been lost in the mists of mitochondrial DNA, plate tectonics and trilobites.

Stephen Oppenheimer raced through his theory that all human beings outside Africa are descended from one group of 200 or so individuals who left their continent about 85 000 years ago. Evidence to support this idea comes mostly from DNA studies, but it is also backed up by volcanic and meteorological history – for instance, our ancestors could only leave Africa when the Sahara was green – and the discovery of early artwork. Necklaces go back a long way.

Trilobites are Richard Fortey’s passion, and his enthusiasm for the way these small creatures can be used as markers of continental movement was obvious – we could almost share his glee at the fact that the trilobites of western Newfoundland are closely related to those found in Wales. The mighty tides of time swept us through his



Are we all out of Africa? Current theories suggest we could well be.

talk, forming and breaking supercontinents along the way over hundreds of millions of years.

These speakers could and did outline their theories concisely and gave good replies to questions ranging from the age of the Malverns and the changeability of skin colour to the motivation of the earliest settlers in Australia (on their gap year, was the suggestion from chair Timandra Harkness). Unfortunately, they both used illustrative slides that were overly complex and could not be grasped at speed from the back of the room. Sometimes enthusiasm just isn’t quite enough.

Humane remains

by Sharon Kean

When Robert Winston concluded that “We scientists may be clever, but we are not always intelligent,” one has to hope that humanity’s desire to improve itself will involve more than just science.

In the ensuing debate about the role of science in our society, journalist Bryan Appleyard reassured everyone that there had to be something more to being human than science, because “If there wasn’t then it wouldn’t be worth it!” Unfortunately he did not seem to have any explanation for what this something else might be. Neither did anyone else in the room.

Whilst Appleyard negatively asserted that we use science in an attempt to escape the “human condition”, Winston keenly reminded him of the good things that science has done for us: for instance, life expectancy has increased enormously, and we naturally strive to improve ourselves and beat our inherent human weaknesses. The paradox underlying this is that whilst this aim is very human, remaining human must involve retaining both our good and bad aspects. Or so Appleyard believes.

Is it possible to improve humans? And at what point should we stop? These questions were at the core of an entertaining debate, but unfortunately there remains no answer.



ROBOT WARS: The gently camp Pfizer robot, Oscar, looked set to meet his end yesterday when a rogue protestor from another planet slipped past heavy security to terrorise all and sundry in Cheltenham Town Hall. The alpha male Dalek – clearly surrounded by too many Doctors to cope – accosted Oscar with brutal, limited vocabulary. Oscar survived but could afterwards be heard muttering “Exterminate? Exterminate?” rather petulantly. AH

THE DROID

Fish expert Dr Culum Brown on perceived scales of animal intelligence: “It used to be God at the top, but He’s gone now.” In a puff of logic, The Droid presumes.

In his event yesterday astronaut Mark Kelly was asked by an inquisitive child whether space went on for ever – and if it didn’t, what came after that? “I’ve no idea,” Kelly replied, looking somewhat perplexed.