



CIRENCESTER SCIENCE AND TECHNOLOGY SOCIETY

2006 New Year - edition Number 4

Notes from the Editors desk

What a great success our balloon debate turned out to be. Sir Isaac Newton survived the day with Isambard Brunel coming a close second. Congratulations to all that took part. Thank you Palmer for coming up with the idea and organising the Chairman Marcus Moore who dealt with the speakers in a most entertaining way.

I was intrigued to read that some work has started on the use of water jets for surgical cutting operations and is particularly suitable for the cutting of bone, minimising the trauma to surrounding tissues. Many of you will know that water jets have been used for some years now for the precision cutting of steel and other metals. It is very suitable for profiling complex shapes and needs only a small slot to be cut of the order of half a millimetre wide. It is fascinating how techniques can develop laterally to have applications in all kinds of disciplines well away from where they started.

We do not seem to have heard anything more about the fate of Professor Colin Pillinger's Beagle space craft I mentioned in the last issue of the Newsletter. But it does prompt me to note that he hitched a lift on a Russian rocket.

Quietly and in the background the Russians are making headway with simpler but more robust launchers. Their reliability and safety appears to excel that of the Americans. To put it bluntly the Russians have lost 4 cosmonauts in 110 Soyuz flights against the Americans losing 14 astronauts in the more sophisticated Space shuttle.

As usual it is politics which are a major constraint on the International space programme. President Bush has announced the Shuttles retirement by 2010 and a replacement by the Crew Exploration Vehicle. However the European Space Agency sees little hope of progress here because NASA is not allowed to share advanced technology with other countries. It maybe therefore any European effort will go towards Russia and the new Soyuz to be known as the Clipper.

Last week we heard a report that already global warming may have progressed so far as to be irreversible. And as a result Bluebells may not cope with a 2 degree rise. But like many I am in the dark due mainly to the many differing interest groups speaking on the subject. Please can we find someone who could speak objectively on energy sources for the future.

SCIENCE AND TECHNOLOGY SOCIETY COMMITTEE

Chairman:	Dr Geoff Richards	01285-651972
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Treasurer:	Tony Gordon	01666-504993
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Committee members:	Dr Andrea Tales	01285 650 637
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Newsletter Editor:	Bunny Lees-Smith	01666 577275

Happenings – Society Meeting times and dates

At the Royal Agriculture College

10th May – Engineering the Eden Project – A lecture by Martin Jones of SKM; Anthony Hunts - 7.30pm.

At the Royal Agriculture College

14th June – Radon in our homes: What are the risks? Dr Colin Muirhead of Health Protection Agency - 7.30p

Happenings - Visits

At Bristol Sewerage Works

16th May 2006 – a visit and tour. A coach trip to cost £5 a head.

Contact Dr Geoff Richards on 01285-651972

At The Royal Agricultural College, Cirencester.

4th July 2006 - A visit to the College to see and hear what work is going on in agricultural science and in the practical application at Harnhill Farm.

Contact Prof Palmer Newbould on 01285 644270

At the RSA London

5th July 2006 – a visit to the Annual Exhibition. A coach trip to cost £10 a head.

Contact Prof. Roy Postlethwaite on 01285885345

Other Happenings - Watch the CSTS website for further details.

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SCIENCE AND THE ARTS AT THE HEART OF THINGS

The Tree of Life exhibition

At a luncheon meeting in London a couple of years ago I found myself seated next to a retired pathologist called Geoffrey Farrer-Brown. The name was familiar and, by the time desert was served, the reason became clear. The man's father, as Director of the Nuffield Foundation, had crossed my sights when it funded me on a 12 month sabbatical in the USA in 1959/1960. An immediate rapport with Geoffrey was established. It emerged that, since retiring, he had set up a charitable trust called: "A Picture of Health". Comprising four distinct exhibitions, its object is: "to use art as a means of relieving the distress and hardship experienced by patients suffering from serious diseases and help inform them, their friends and carers about the illness and its treatment".

One of the exhibitions, called "**The Tree of Life**", deals with the beauty of the heart and its blood supply. Sponsored by our Society and hosted by the Corinium Museum in an attempt to encourage the association of science and the arts in Cirencester, this exhibition will be on display in the Museum during October to December 2006. On 4th October 2006 Dr Farrer-Brown will give an orienting lecture in the Museum at a private launch attended by the British Heart Foundation.

Along with Dr Farrer-Brown's own research illustrations on the vessels and chambers of the heart in health and disease, the exhibition encompasses examples of water colour and oil paintings; mosaics, quilt and mixed media; woodcut print, enamel, metal and glass works; ceramics, wood and stone sculpture; and fibre optic lights in which the overall theme is interpreted by eleven artists and four children. The exhibition has already been displayed at many venues around this country and abroad to great delight and acclaim.

Society members are requested to offer their services as stewards during the three-month duration of the exhibition. In so doing they will join existing museum volunteers for two-hour sessions at mutually convenient times.

Now it was recently reported in the "British Medical Journal" that: "Coronary heart disease remains the leading cause of death in men and women worldwide, and cardiovascular deaths exceed the

number of deaths from all cancers combined. In the United Kingdom coronary heart disease causes almost 114,000 deaths a year". Accordingly the following Society lectures, supportive of the exhibition, have also been arranged:

8th November 2006: Hugh C. Watkins, Professor of Cardiovascular Medicine at Oxford University:

“Fighting a Family Curse; Inherited Sudden Death Syndromes”.

29th November 2006: Taliesin Golesworthy, an engineer who designed the stents that are now commonly used in surgery to repair and maintain the patency of blood vessels:

“Design Close to my Heart”.

If members or friends can help as volunteer stewards please could they telephone as soon as possible Prof Roy Postlethwaite on 01285-885345.

The Society is indebted to the Biotechnology and Biological Sciences Research Council and to GlaxoSmithKline for generous financial support. The Society has itself made a substantial donation to this worthy cause.

Roy Postlethwaite

Isambard Kingdom Brunel 200. – News

10th May 2 and 7 pm – The Spirit of Brunel lecture – St Mary Redcliffe –
Admission free – telephone 01179 291487.

‘Steam’ at Swindon will be celebrating Brunel200 throughout the year. It will include a new feature on the ‘Battle of the gauges’ and Brunels office.

4th -5th May The Geological Society – A symposium ‘Brunel’s tunnel – The engineering geology legacy’– at the Natural History Museum. This includes a visit to the Brunel tunnel at Rotherhithe, a walk through the Thames tunnel and a study of the local geology. Contact Alys Johnson 0207 4349944

You can now buy from the Royal Mint specially minted coin sets to celebrate the Brunel 200th year.

1 – 7th July - Trains, Planes and Automobiles – A film event at NMSI Science Museum, Wroughton celebrating 200 years of technological innovation in Swindon. 01793 846 200

Language and the public understanding of Science.

In early Victorian years scientific papers or papers on Natural philosophy were written in everyday English, but as the nineteenth century progressed authors formulated their own nomenclature which was not understood by general readers. This applied to mathematics, chemistry, physics, biology and geology and is a process, which continued and is continuing today.

In 1959 C.P Snow gave the Rede lecture at Cambridge, his title was the "Two Cultures and the scientific revolution", which was published by the Cambridge University Press in a volume entitled "The Two Cultures". Snow said he personally felt at home in both the literary culture and the scientific but they were different and there was a wide gap between them. As a result of this and International society of Literature and Science was founded with sponsorship by the Royal Society, the Royal Society of Literature and the British Academy.

In an effort to bridge the gap the Daily Telegraph offers annual prizes to young scientists to; write short articles explaining scientific work in everyday language. The readers would not understand the science as published in "Nature" or "Science" but the public will appreciate what scientists are doing and why certain investigations are undertaken.

The problem of language is especially relevant to the study of human behaviour. Emotions are written about-widely in literature, a word "The Concise Oxford Dictionary" records as originating in the sixteenth century and replacing the older word passions and is from the French émouvoir to excite. The taxonomy of emotions presents many difficulties and Darwin (1872) wrote only of emotional expression in man and animals. Shand (1869) noted sentiments were groups of emotions dependent on the environment. If one loved a person and something good happened, one was happy, but if something adverse occurred, sadness resulted. A further refinement was suggested by McDougal (1905) who stated moods were a tendency to primary emotion e.g. rage or fear. Much was written in the twentieth century on the limbic system and emotion. Attempts were also made to divide emotions into primary, blended and derived, the latter are not shared with animals, but constructed by cognitive functions.

A current view has been expressed by Carpenter, (2003), who suggests there are two basic emotions in man and animals, arousal and withdrawal. Arousal is associated with "fight or flight" and sympathetic activity, while withdrawal is associated with a range of defensive states.

Other words in common use but difficult to understand scientifically are intelligence and personality. In spite of some excellent science journalists, the language problem remains. Everyday language is excellent for literature and crossword puzzles, but the sciences require their own special languages.

Fred James

From the Editor.

I hope you may find Fred's article somewhat controversial – the idea that there needs to be a second language for the sciences! I therefore invite you to join in a discussion by writing to the newsletter to let us know your views. I promise to publish your contribution to this debate in a future newsletter.

Odd items that hit the editors desk.

Human Genome

A mathematical analysis of the human genome suggests that so-called "junk DNA" might not be so useless after all.

The term junk DNA refers to those portions of the genome which appear to have no specific purpose.

But a team from IBM has identified patterns, or "motifs", that were found both in the junk areas of the genome and those which coded for proteins. The presence of the motifs in junk DNA suggests these portions of the genome may have an important functional role.

The findings are reported in Proceedings of the National Academy of Sciences journal.

Report highlights that plants are changing

The UK's plant species have experienced dramatic changes over the past 18 years in the conditions under which they grow, according to a new report.

Climate change, agricultural practices and human-made habitats have produced challenging environments for Britain's flora, the study shows. Some species (18%) are thriving under the new conditions; others (16%) are in decline; most (66%) remain unaffected.

The Lottery-funded report is called Making it Count for People and Plants.

It is a joint initiative by the Botanical Society of the British Isles (BSBI) and conservation charity Plantlife.

The Editor thanks to the contributors to this issue and would be pleased to hear from anyone who would like to make a contribution themselves. One liners or an article are both very welcome. The next issue will be in the late autumn