



## Bulletin Issue 6 May 2011

### Editorial

As we come towards the end of another very successful season it is appropriate that we offer a grateful vote of thanks to Jo Newbould for organising such a varied and interesting programme.

### Members

We welcome the following members who have joined the Society since the previous Bulletin: Peter Scott, David Losack, Amanda and Martin Egerton, David Whitley, David Batchelor, Michael Cheeseman, Jane Gunner, Lynn Davies, Elizabeth and James Denley, Meg Blumson, Peter Adams, Geoffry Chapman, Tony Wood, William Gardiner, Conrad Jones, Kevin Keeley, Cate Luck, Berenice Williams, Brian Wells (rejoin), Martin Cook, David McKirgan, Patricia Lynskey, Anthony and Betty Bellamy.

### Forthcoming Events

The tenth Times Cheltenham Science Festival will take place on 9 – 13 June 2010. As usual, the programme covers an impressive range of topics: details can be found on [cheltenhamfestivals.com](http://cheltenhamfestivals.com). There are events linked to ten or X and on Sunday 12 June, Brian Henderson, Science Editor of The Times will chair “A Decade in Science” when four speakers will argue the case for the greatest scientific advances of the last decade and the next.

Professor Brian Cox is again teaming up with comedian Robin Ince to continue their irreverent look at the world according to science with “The Caged Monkeys” returning to Radio 4 on 30 May. This follows a successful UK tour version at a range of venues across the country. Episodes from the previous series are available on [www.bbc.co.uk/podcasts/series/timc](http://www.bbc.co.uk/podcasts/series/timc).

## News/Comments

The Bristol & Bath Science Park (S-Park) will soon welcome its first occupants. The National Composites building should be completed in May. The Innovation Centre and Forum should be complete by the end of the summer and it has been announced that it will be one of the first of the Government's Technology Innovation Centres.

The Committee recently agreed to donate a prize to the Cirencester Science Academy and last month Professor Chris Gaskell presented Amr Taha with the prize for Commitment in the Scientific Field



Despite coming to Cirencester College with not especially distinguished GCSE results, Amr attained A grades in his AS results for Biology, Chemistry and PE, and is predicted A\*s for his A levels. He has shown tremendous dedication and hard work throughout his time at College, and the Science Faculty staff are delighted that his commitment has paid off with an offer from Glasgow University to study dentistry. He is an outstanding, yet modest, student, and is a superb ambassador for the College.

## Visit Reports

On the 22 March 2011 Fifteen members visited Renshaw at NewMills, Wootton under Edge. The factory is surrounded by very attractive gardens, better kept, than many of Gloucester's great country houses. Renshaw are world leaders in precision measurement, industrial meteorology and spectroscopy. The manufacturing equipment seen in the factory utilised very

leading edge technology. Computers seemed to outnumber workers. It was good to see the end products ready for export, with “Made in U.K.” on them. Of last years sales of £97 million, £93 were exported. The collective opinion of our members was “that if there were a couple more firms like Renishaw the U.K. would have no balance of payment problems.”

On the 3 May 2011 twenty-one members visited The Morgan Car factory in Malvern. The few machine tools to be seen only exist elsewhere in museums. Hammers, saws, screwdrivers, scissors and a very talented loyal work force make the cars by hand. Aluminium and ash (grown in Lincolnshire) come in at one end, and fourteen bespoke cars emerge at the other end each week. If you want one, you will have to wait two years, and pay a very substantial deposit up front!!

The Company is a third generation family firm, has never borrowed from the bank, and has never made anyone redundant.

In the afternoon we went on to Weston's Cider Factory at Much Marcle. This is another very successful and remarkable third generation family firm. The vast oak cider vats built by Granddad in 1884 were still very much in use. A few of our members asked many learned questions. The rest of us suspected they intended to improve their own production.

## **A Cautionary Tale**

Following the final success last year by Simon Singh to win his appeal against the libel charges made by the British Chiropractic Association, the following article, published last year, highlights the potential dangers that still face scientists when they publish data.

Come on scientists, stand up and fight! From where I’m sitting it looks as if we are under attack from those who not only want to question the importance of scientific evidence but also to cast doubt on our scientific skills, and our personal and professional integrity. In the year of the 350th anniversary of the Royal Society we must defend the importance of scientific evidence and stand up for science.

My first brush with an audience outside the narrow circles of academia came soon after completing my PhD on the growth of the legs of Amerindian children (the things you used to be able to get funding for!). It turns out that leg length is a sensitive marker of diet and health in early childhood. Later work in England showed that the legs of English boys and girls are now longer than they were 20 years ago, probably because of improved diet and environmental conditions. The great British press loved this story. Lots of photos of long-legged women adorned the newspapers and one national paper even ran a competition to find Britain’s longest legs! This was a good story — easy to understand, straightforward to report and not challenging any pre-existing beliefs.

However, I have recently had a different experience of what can happen when you report scientific evidence. Last year, a team of us from the London School of Hygiene & Tropical Medicine released two systematic reviews on the nutritional quality and nutrition-related health benefits of organically produced foods. The research had been commissioned by the Food Standards Agency and had taken more than a year to complete.

We were not the first people to ask whether there were any differences in nutritional composition or health benefits of foods produced under different production regimens but it became clear that no one had addressed the question systematically. Systematic reviews are an important tool for scientists; unlike ordinary reviews, they are seen as original research and help to provide clarity in areas of uncertainty. The basic underpinning of a systematic review is that the process of conducting the review is pre-specified and that the review itself is as comprehensive as possible within these pre-specified limits. Reviews that are not systematic are much more prone to bias, especially with regards to the selection of papers included for review.

Our systematic reviews found that there was no evidence of any important differences in the nutritional composition of foodstuffs grown using conventional and organic farming methods. There was also no evidence of nutrition-related health benefits from consuming organically produced foods.

The press quickly picked up on the story. The Times ran a front-page headline: “Organic food has no extra health benefits”, the Daily Express added “Official” while, in a wonderfully nuanced piece, the Daily Mail ran: “A cancerous conspiracy to poison your faith in organic food”.

This was initially a tremendously exciting and unprecedented period in my academic career. My ego was certainly flattered! However, the tide of emotion quickly started to turn sour. I became increasingly dismayed at the way in which our data were being used and distorted, especially by those who would benefit from the return of uncertainty to the argument. I was also frustrated that we were being criticised for not including other aspects of organic farming (use of pesticides etc) in our review.

With correspondents only a click away, it will not be surprising to learn that we also received many hundreds of e-mails (it would be very interesting to know what proportion of these correspondents had actually read our reports). My favourite e-mail came from a physician in the US who complained that his wife had “been wasting money for years on organic food” and that at last our “scientific review may finally bring her to her senses”.

Other correspondents were less polite and we received many angry, even vicious e-mails questioning the integrity, independence and ability of the team. These are essential ingredients for a good research team and it is fair to ask these questions but the ferocity of the attack suggested that, by questioning the scientific evidence on the nutrient content of organic food, we had actually questioned something bigger. For the first time, we had drawn into sharp focus the strength of the evidence supporting the widespread belief that organic food is “better” — and many people did not like what they saw. As a Lancet editorial put it: “Eat the emotion but question the evidence”.

Beliefs are important, but so is science and standing up for scientific evidence is crucial. We should not be afraid to report our findings publicly, whether they are merely of academic interest or of a controversial nature. This is our job as scientists.

I expected our reviews to be read with interest but I'm not sure that I fully realised how far I was putting my head above the parapet. I think I've passed through the toughest hours and have emerged stronger and better able to fight for the importance of science in modern life.

**Alan Dangour:** a senior lecturer at the London School of Hygiene & Tropical Medicine

### **Tailpiece**

Two silly jokes and an unusual piece of trivia.

**Question:** Why do chemists call helium, curium and barium the "medical elements"?

**Answer:** Because if you cannot helium or curium you barium.

**Question:** Why did the scarecrow win a Nobel prize?

**Answer:** Because he was outstanding in his field.

In April this year a team of llamas saved thousands of fish from the effects of climate change. These helpful ungulates carried about 25,000 newly hatched vendace, the rarest British freshwater fish, 500 meters up a Lake district mountain so that they could be re-housed in the cooler waters of a high tarn. The llamas were used because of the difficulty of the terrain and to reduce the carbon footprint of the exercise.