



## **Bulletin Issue 2**

**May 2009**

### **Editorial**

We are approaching the end of another successful season notable for at least two outstanding lectures and two informal seminars. The first seminar on local waste management is reported below and the second on the economics of climate change took place as this bulletin was going to press and will be reported later.

The book summary by Roy Postlethwaite might be particularly interesting for those wanting to learn more about climate change.

Plans to set up a Members' Forum or Comments page – submitted via the website and readable by members only – are progressing. The committee are also looking at ways to use the website to highlight forthcoming events and/or new publications of interest.

The editor would welcome members' contributions for future bulletins .

### **Members**

We welcome the following members who have joined the Society since January 2009: Steve Baines, Derek Bloxham, Jim and Dierdre Waddell, Bernard Cooper, Richard Tudor and David White (rejoining).

### **Forthcoming Events**

3 – 7 June 2009 – The Times Cheltenham Science Festival. There are again 70+ lectures covering a wide range of topics. If you do not already have a programme, details can be found on [cheltenhamfestivals.com](http://cheltenhamfestivals.com).

The review of last year's Cheltenham Science Festival recently sent out as an e-mail to members provides a good insight for anyone considering attending the event this year.

The last lecture of the season is on 10 June and is "Touch is the New Click "How silicon chip design is enabling consumers to use the latest technology" by David Woolen Of Innovision.

## **Waste Management**

The first of the Society's informal seminars was held in November when Mike Harris, Cotswold Waste Communications Officer introduced the subject of household waste and where it goes once collected. He explained that there were various reasons for the new push for more recycling i.e. reducing the environmental burden, reducing the amount of materials sent to landfill since the two county sites will be full by 2016, but the main one was economic. In 2009 it will cost £45 for each ton of waste sent to landfill and a penalty of £150/ton for every ton over the preset target.

Latest figures show that recycling in the county has increased to 70% - one of the highest figures in the UK. Organic/garden waste is sent to two "in-vessel" composters within the county. Paper and board goes to Asia, glass to Yorkshire, aluminium to Warrington, ferrous metals to South Wales, plastic bottles to Preston, textiles to the Salvation Army and tetrapaks to a specialist recycler in Europe.

A good discussion followed covering a range of subjects including single versus mixed collection, the energy balance for any recycling option, the case for incineration and heat recovery and how best to get the scale/scope of the issue fully understood at government level. We learned that the SRC has now recognised that waste management is an under-researched area so that there is hope.

## **Book Summary**

In recent years, our Society has considered global warming on several occasions. I hope the following summary, by a non-expert, of an important recent contribution will not be thought to be superfluous. If influenza gives cause for current international concern, then this book on global warming should perhaps be required reading for all citizens who hope to leave the world a better place for their children and grandchildren.

**“The Hot Topic”** Gabrielle Walker and Sir David King.  
Bloomsbury Publishing Plc., London, New York and Berlin, 2008 (pp 309).

This book sets out, in reader-friendly language, the scientific basis and consequences of global warming along with technological, economic and political solutions and problems. It establishes a reasoned path between ill-informed doomsters and those in denial.

The world is warming due to the greenhouse effect from man’s burning of fossil fuels, with the production of greenhouse gases (GHGs), mainly long lasting atmospheric carbon dioxide (CO<sub>2</sub>) but also methane and water vapour. These GHGs prevent incoming energy from the sun from escaping back to space as infrared radiation. As CO<sub>2</sub> increases, so do global average temperatures. CO<sub>2</sub> levels are now higher than during the last 650,000 years and the increase since 1970 has been exceptional. At the current very high level of 430 parts per million equivalent (ppm.eq), it is already impossible to prevent, from pre-industrial levels, a further rise in global average temperature of 1.4 °C; and climatic, ecological and environmental consequences are inevitable. There is still time to adapt to these changes but, unless further constrained, CO<sub>2</sub> levels will rise to 550 ppm.eq by 2035, equivalent to a temperature rise of up to 3.5 °C, with shattering early consequences for mankind throughout the world. Although sea levels are already rising, with significant short-term consequences if unchecked, massive oceanographic changes are probably less imminent.

In a section on “Technological Solutions”, it is deemed possible to limit the temperature rise to perhaps 2.5 °C with CO<sub>2</sub> peaking at a just tolerable 450 ppm.eq, and global GHG emissions falling to half current levels by 2050. Methods to achieve these aims are discussed in regard to power generation, alternative energy sources and usage, carbon capture and storage, deforestation, efficiency and technological improvements across industry and agriculture, as well as domestic, travel and waste economies.

“Political Solutions” to the problem highlight the major differences between rapidly developing and long-industrialised nations in terms of total, historical, current, and *per capita* levels of GHG emissions, changes since 1990 and ability to pay. Economic factors are discussed in the light of the 2007 reports by Sir Nicholas Stern on “The Economics of Climate Change” and by the International Panel on Climate Change. Overall costs are thought to be surprisingly cheap in terms of global domestic product, having regard to the *laissez-faire* consequences. The setting of a global CO<sub>2</sub> target of 450 ppm.eq, and of a contentious start date from which individual nations should adjust emissions are discussed. The discussion also covers variants, already in operation or in prospect, of the “Contraction and Convergence” principle, whereby global contractions of emissions lead to an overall convergence on the target by 2050. Methods suggested include: (a) taxation per tonne of GHGs emitted, (b) “Cap and Trade” whereby emitters exceeding an allowable limit (cap) have to pay (trade) under-emitters, (c) investment/financial

contributions from developed nations (better able to “save” emissions) to developing nations (greater current and future emitters), thus enabling the latter to “leapfrog” the polluting practices of former industrial times. In this latter context, the Kyoto-inspired “Clean Development Mechanism” already shows promise. From the Rio Earth Summit in 1992 and the Kyoto Protocol in 1994, increasingly significant international co-operation has recently witnessed the inclusion of the five most rapidly developing nations, along with the G8 and the European Union, in the “Gleneagles Dialogue” of 2007 and the prospect for major international agreements at the forthcoming Copenhagen “UN Climate Summit” in December 2009. In the meantime, some industries, states and nations are now taking worthwhile steps and it is salutary that the UK is taking the lead in promoting these endeavours.

A final section, “How you can change the world”, notes the expected increase in population from the current six billion to the projected nine and a half billion by 2050 and itemises the simple procedures that should be adopted by individuals and communities to help bring about, even more urgently, the required changes in energy usage.

There is a 10 page “ Appendix” that re-iterates the “Climate Myths, Half-truths and Misconceptions” already discussed earlier, the last paragraph of which reads as follows: *“It isn’t too late, and there is something we can do. Though we can’t stop the initial effects of climate change, some of which are already here, we do still have a chance to hold off the very worst things the climate can throw at us... We have also shown exactly what you can do to make all this happen. This is neither the time to panic nor the time to bury your head in the sand. It’s the time for action”.*

There follows useful websites, notes on chapters, acknowledgements and an index.

Roy Postlethwaite

## **Tailpiece**

What’s in a name?

Compounds of metals sometimes have strange common names. Titanium tetrachloride was commonly referred to as “tickle”. Curium trichloride may be called curous chloride or curious chloride and curium oxides are called ‘curates’. It is even possible to have ‘curious curates’! Certain nickel compounds are called ‘nickelous’ and thus you can get compounds with names such as nickelous curate.

And finally

Two atoms are walking down the road and they bump into each other. “Are you OK?” said the first.

“No I’ve lost an electron!”

“Are you sure?”

“Yes I’m, positive”.