

Cirencester Science and Technology Society

The Society's **2009 Annual Public Lecture** was given by Prof. Chris Rapley, Director of the Science Museum, on "Climate Change and the Energy Challenge" at the RAC. It was an overview of global warming and the low-carbon economy.

The Earth's energy from the Sun is broadly balanced by absorption and some reflection into space. For centuries man used energy e.g. water wheels for his own use, but in the last 100 years carbon based fuels have transformed the human condition. Energy creates prosperity and dependence.



About 50% of the extra CO₂ generated by man is not absorbed by the oceans and the biosphere and is redistributed within the atmosphere. Analysis of air bubbles in Antarctic ice cores covering 500 million years shows CO₂ ranged between 180- 280ppm. These levels have risen sharply over the last 100 years to the present 387ppm with projections for 2100 of 600-1000ppm.

Critics of global warming concentrate on local contrary effects, but the temperature data over millions of years shows a strong tendency to warming. Examples of current effects are the reduction of summer ice in the arctic and the increasing melting of the Greenland ice-cap coupled with increasing glacier flows. These effects increase the risk of coastal flooding, including of Central London.

The speaker believed man could cope with a 2°C increase in temperature equivalent to CO₂ at 450ppm. There were many green energy systems including wind, solar, nuclear and clean coal/oil which should be utilised. New technologies would be developed to limit the increase in CO₂. Major issues which required urgent action were energy efficiency, changed expectations, a switch to vegetarian diets, and fertility controls. He was encouraged by major companies who were planning to become carbon neutral.

Prof. Rapley concluded by summarising the aims of the forthcoming UN Conference on Global Warming in Copenhagen when 192 countries would be represented. The big questions would be (1) who gets how much carbon? and (2) when and for what?

The Cirencester Branch of the United Nations Association had a display relating to global warming.

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