

Review of *The Burning Answer: A User's Guide to the Solar Revolution*, by Keith Barnham (Weidenfeld & Nicolson, 2014) – Helen Moore, published in *Permaculture Magazine*, Autumn 2014

As an artist engaged in campaigns against extreme energy, my limited science education often puts me at a disadvantage in accessing the right scientific knowledge to elaborate my ideas. *The Burning Answer*, by Emeritus Professor of Physics at Imperial College, London, Keith Barnham, is an excellent resource not only in explaining the science, historical development and future potential of solar technologies, but also contextualising them in terms of “the triad of threats we face” – global warming, fossil fuel depletion and “the devil’s bargain of nuclear power”.

Describing ours as a “cusp civilisation” – at risk of destroying ourselves with the misapplication of Einstein’s famous $E=MC^2$, which says that mass can be converted into enormous amounts of energy – the author details the history of the Manhattan Project, with US scientists working in secret fear that the Nazis were simultaneously developing the atomic bomb, and shows that when science has significant military applications, governments deploy unlimited resources in support. He also documents the UK’s poor record on plutonium accountancy and the nuclear materials that need “topping up” in today’s weapons, which might explain the current British government’s policy of “committing vast amounts of tax payers’ money to rig the electricity market in favour of... nuclear electricity.”

Despite the unresolved issue of nuclear waste (requiring safe storage for 300,000 years), a life cycle analysis of nuclear electricity showing a substantial carbon footprint, plus scientific consensus on the effects of burning fossil fuels, solar technology receives negligible support from the UK government. And yet the ‘burning answer’ to supplying our energy needs would appear to be “the primary resource driving the evolution of our universe”. Interestingly, the world leaders in solar power – Germany, Italy and Japan – all seem to have learnt from their defeat in WWI I.

The development of photovoltaic cells derives from Einstein’s lesser known equation, $E=hf$, for which he won the Nobel Prize in 1921. It began the quantum revolution, from which emerged the semiconductor, the technology behind laptops and mobile phones, and the enormous potential for exploiting solar power. According to Barnham, “the sunlight falling on the Earth in one hour is more than enough to supply all the energy demands of humankind for one year.” Whether it’s wise for global capitalism to be thus enabled to grow unchecked isn’t an issue this book addresses. Nevertheless, the author tackles the gamut of solar sceptics, including the Royal Society and Professor David McKay, chief scientific adviser to the UK Department of Energy and Climate Change.

Concluding with a ‘Manifesto for the Solar Revolution’, which envisions the roll-out of electric cars, solar-powered factories, air-conditioning and greenhouses, Barnham offers steps we can take individually and collectively as ‘solar revolutionaries’. I suspect it may take more than switching energy providers and lobbying government to stop the vested

interests in extreme energy. But I'll be bringing the knowledge I've gained from this book to 'Reclaim the Power', a direct action camp against fracking.

Helen Moore is an eco poet and community artist and activist based in Somerset. Her debut poetry collection is *Hedge Fund, And Other Living Margins* (Shearsman Books 2012). www.natures-words.co.uk