

as judged by your Piers

The Third Era of Wood

Piers Maclaren

Some good news and some bad news. First, the bad news. The world has sufficient coal reserves to totally stuff up the atmosphere and wreck the planet. This will occur well within the lifetimes of some readers of this column.

Although we've known about the atmosphere for a long time, the thinness of the vital gaseous sheath was an eye-opener to the Apollo astronauts. Numbers are great, but there's nothing like seeing it with your own eyes. If the distance between you and outer space were horizontal, you could drive there in an hour without exceeding the speed limit. You could jog after work to a location where oxygen levels are so low that you couldn't survive unaided.

In case you've missed the point: this planet's atmosphere is not an infinitely large rubbish dump. There is actually a very small volume of gas out there, which we are polluting at an ever-increasing rate.

Now for some good news. Rob Whitney of CRL Energy Ltd has recently presented a paper on geological sequestration of carbon dioxide, showing that – surprisingly – it is both a practical proposition and remarkably cheap to capture exhaust gases and to store them in saline aquifers for thousands of years. He estimates that it will cost only 5-30% energy loss to do this. In other words, we can continue our profligate lifestyle – gratifying ourselves with endless consumption – with a coal-driven hydrogen economy.

But wait. I hadn't finished all the bad news. As with agricultural effluent, only a fraction of the problem comes from point sources – the rest is diffuse pollution: you and me flying to Rarotonga, commuting to work in solitary splendour in our Sports Utility Vehicles, or even mowing our lawns. Hydrogen would need to become a universal fuel to make a major impact. It is comparatively easy to engineer power stations like Huntly to achieve a state of environmental perfection, but propagating the technology throughout the economy – and, moreover, the global economy – is something else.

The answer, as Ralph Sims from Massey University points out, is to plant trees. Trees are without doubt the most practical technology we possess for actually removing carbon from the air. The wood could be transported to power stations for profitable conversion to carbon dioxide, which would be recovered and added to the coal pipelines pumping CO₂ into the deep aquifers. The world could pay us for this environmental service.

Another proposal, from left field, comes from

Peter Read (also from Massey University). He argues that charcoal can be made from wood at an energy profit. Your columnist has seen large-scale charcoal manufacture in Malawi, and witnessed the huge amount of heat that is produced. The charcoal, Peter suggests, can be incorporated into soil as a conditioner. This is a traditional practice in Japanese agriculture. Charcoal physically separates large lumps of clay, aerates the soil and absorbs water. It is remarkably resistant to decomposition, and the global potential for such sequestration is effectively infinite.

Ah, you have spotted the flaw in this thinking! Without a World Government equipped with a police force capable of disciplining miscreant countries the size of the USA, there is no mechanism to make it all happen. Freeloaders will be able to benefit from the austerity of other countries while enjoying the competitive advantage that uncontrolled global pollution provides. If this political hitch could be overcome (Heaven knows how!), it would herald a new age for trees.

The first Era of Wood was undoubtedly for fuel. The key to success for our ancestral hominids was the domestication of fire, some million years ago. Fire was needed to warm our hairless bodies, to improve the nutrition of food, to chase game and frighten predators, to temper tools, and finally to stimulate grass growth (and therefore encourage game and domestic livestock) by fertilisation with wood-ash.

The second great Era of Wood was for construction: houses, bridges, wagons, and ships. Sadly, we seem to be waving goodbye to these traditional uses. To employ wooden components in a skyscraper, a four-lane suspension bridge, a commercial aircraft or a supertanker, would seem nostalgically romantic or even quirky. It would be a retrogressive step in our rapid progress towards new materials.

But do not despair. We are now entering the Third Era of Wood. Wood as an air-purifier, wood as a soil-conditioner. Our profession may still have a bright future. Indeed, it may not be an exaggeration to say that our knowledge may be vital to the very survival of civilisation. Hang in there!

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