AN ECHO OF CRETE … IN WILTSHIRE

In 1978, in the course of a motor-scooter tour of railways in Wales, I found myself passing the Centre for Alternative Technology (CAT), near Machynlleth.

As a rather reactionary grammar-school sixth-former, I was wary of what I saw as the "hippy" image of the place (communal living! brightly coloured artwork! caring and sharing!) but the "technology" label overcame my scepticism; I had to at least give the place a viewing. And that's where I saw my first Cretan windmill.

The island of Crete has a lot of windmills. They are water-pumpers in the main, and they mostly share the characteristic of being built on a shoestring, using wood, rope, and sailcloth. The Cretan windmill at the CAT seemed to embody the same string-and-sealing-wax approach, but in spite of myself I was impressed by how accessible this technology seemed: there was a do-it-yourself guide on sale at the Centre shop... perhaps even I (indigent Arts student) might build a windmill?

The idea sat in the back of my mind for a good ten years until, having left Oxford University and found a job in publishing, I had the time and leisure to bring the idea forward a little. In the local library was a wonderful little book called "Small-scale Wind Power", by Dermot McGuigan. Written with infectious enthusiasm, its accounts of people's own wind-power systems – including the CAT Cretan – gripped my imagination. I read the book from cover to cover, and life was never quite the same afterwards.

I sought out my DIY guide – it was still there, in my scrapbook of the Welsh Railways expedition – and set to work. The first Cretan I built was eight feet in diameter, with sails hand-sewn from a worn bed-sheet. It perched on a spindly scaffold pole, and turned an old car dynamo via a set of gears from a redundant lawnmower. A motley collection of rather shaky parts, inviting comparison with the late W Heath Robinson's devices – but set up surreptitiously on common land near my flat, it caught the wind, the sails went round, and it actually produced some power! Enough to boil a mugful of water in twenty minutes, so no competitor to Sizewell A, on the one hand – but home-made, by me, capturing free energy from the tireless wind, and unlikely to do anybody any harm, on the other.

The second Cretan, built in 1990 in Oxford, was larger, more solid, with a car back axle taking the weight of the wind; with a well-braced wooden tower, held

firmly in place by recycled kerbstones; and a robust set of ex-car gears bringing the leisurely rotation of the 12 foot windrotor [about 50 rpm] up to the speed needed to turn a car alternator. This mill lived on a friend's smallholding some miles from home, and turned splendidly. Unfortunately, while it did produce electricity, I hardly ever got the time to set it up and monitor its working (for operating a Cretan mill is like sailing a ship – you really have to be there to set the sails and watch what the wind is up to, including furling the sails if the wind gets too strong). Thus, the time constraints of my career ultimately brought my experiments to an end, rather than any deficiency in the machine built; it is a simple technology (generator aside!) which costs relatively little in materials but a lot in time, with a need for operator interest and intervention to run it effectively. This is probably why there aren't thousands of Cretan windmills generating power nationwide. Conventional standards of cost-effectiveness demand a device of optimum efficiency and minimum time investment... however, I'm a self-taught home-build practitioner with a different agenda; I'm not attempting to tilt at power-stations.

The Cretan mill is a machine, but not (as the man said) as we know it. To me, “machine” carries some positive associations (such as “labour-saving”), but also some less attractive associations like “automaton” or “soulless”. Many people are less than enthusiastic about large wind turbines, for instance, because of their regular, stark, rather unnatural outlines and their constant mechanical sound.

A Cretan windmill is a very different class of machine (I nearly wrote “animal”): one which runs unpredictably, even erratically; one which follows the vagaries of Nature rather than competing with them. It turns slowly: as Dermot McGuigan put it, “the white revolving sails set against a blue sky are a delight to watch”. And as the wind stirs, the sails fill, adopting a gentle curve – and the windmill comes alive. Unpredictable... a delight to watch... concepts more from the world of art than of machines. For me, the Cretan mill has much of the work of art about it; it could be one of the most useful pieces of kinetic sculpture. Which is why, nearly thirty years later, working towards being retired in Yatton Keynell, I've just built another...

My latest Cretan windmill builds on the experience gained from its predecessors, but presented some new challenges. Its rotor measures 4.2 metres across (14 feet, for those of us who still have feet), with a tower 2.4 metres (8 feet) high. The tower itself is as much as I can lift from the horizontal when setting it up on end, but the car axle which forms the windshaft came from a 1950s Austin and was not built for lightness. It is just about as much as I can possibly lift – so installing it on top of the tower was no stepladder job. It had to be slid up an inclined plane (two scaffold planks) and bolted in place.

Then the rotor itself: I assembled it on the ground and put on its sails, its rigging, its “bowsprit” (the pole which sticks out in front and stops the wind from collapsing the sails backwards), and its circumferential chain, and then found that, far from hoisting it aloft and bolting it on to the windshaft, I was not able to lift it at all. The thirty years since the last Cretan had not, alas, added to my physical strength... Dismantling the rotor and refitting it, spar by spar, to the windshaft made a laborious end to an afternoon's work.

The next day, however, was bright and breezy and a Sunday so I was able to move the mill into a windy place (luckily it was built in a nearby barn surrounded by concrete), using rollers under the foot of the tower - like a small wooden siege

engine. This would have been a completely insane manoeuvre but for the fact that the “feet” attached to the tower prevented it from toppling over! Once the mill was in place, the wind obligingly put in an appearance and I set the sails… and took off the brake… and the magic happened. The sails filled. My mill came to life. It was a delight to watch.