

as judged by your Piers

# New wonder-material was partly a Kiwi invention

**H**uman history has been categorised by the materials used. The Stone Age, the Bronze Age, the Iron Age, and so forth. You could describe the last few centuries as the Steel Age, and we are currently in the Age of Plastics.

But humans have always lived in the Wood Age, in that we use approximately as much wood as all other construction materials combined. This is a great thing – wood is such a sustainable, environmentally friendly resource. But it has a major drawback: wood is of biological origin, and therefore no two pieces are identical in size, shape or internal quality. Modern mass-production techniques have enormously reduced the price of goods, but for such efficiencies to occur the feedstock needs to be uniform. Wood is too variable for high-tech factories.

Sawmills were invented only some 200-300 years ago and were a major step towards standardisation of wood. A “four by two” (or 100x50 mm) is approximately just that, although it is still too inconsistent – particularly in internal quality – to be welcomed by many architects and engineers in their designs. Laminated Veneer Lumber (LVL) points the way forward in terms of structural applications for wood.

As far as panels are concerned, the real breakthrough came with Medium Density Fibreboard (MDF). The process is capable of achieving remarkable precision – better than can be detected by the human eye. MDF has largely supplanted the earlier prototypes of hardboard, chipboard, and plywood. It is amenable to mass production, and has enabled high quality furniture to come within the price-range of ordinary consumers. There is the potential for tannin-impregnated board to impart exterior durability as well as displacing the need for resins currently made from natural gas.

Many New Zealanders are aware of that classic example of Kiwi invention – the Hamilton Jetboat. But what influence does a jetboat have on our daily lives? On the other hand, most New Zealanders – and for that matter, most people in developed countries – actually touch MDF in their offices, their kitchens and their bathrooms, whether they realise it or not. If MDF is still used in a thousand years (and why not?) then its creation is as significant as bronze, glass or concrete.

The Sefton MDF plant was commissioned in 1976, and was the first such plant in the Southern Hemisphere. Although a dozen mills had previously been built elsewhere, these incurred a range of teething problems so that MDF had not yet posed a serious threat to more traditional wood-based panels. Some of the crucial breakthroughs were made right here, almost in line of sight from where I sit to write this column.

When another New Zealand inventor, Richard Pearse, flew his primitive aircraft over that South Canterbury paddock several months before the Wright brothers, I doubt if he grasped the historical importance of his act. He was probably just another young hoon having a buzz.

When the first man (I bet it was a man) mixed tin with copper to make bronze, I doubt if he had any inkling he was starting a new epoch. But the New Zealanders who pioneered MDF definitely did have a sense of the historic importance of their work.

David Reese had been a president of the Plastics Industry of New Zealand. He was certainly aware of the significance of high-tech materials in modern economies. As for Owen Haylock, he had been schooled by his father-in-law Major Robert Wilson in the inevitable extinction of wide clear boards from indigenous forests, and the need for a synthetic replacement. These two leaders knew exactly what they were doing, and that was why they worked so long and so hard to develop MDF. For them, the work was not just a business opportunity and a job; it was a vocation, a mission.

The outcome of the venture was not a foregone conclusion. Canterbury Timber Products (CTP) started down the wrong track, using phenol formaldehyde resins to make boards for exterior uses. Thirty years later, this approach has still not been vindicated. But CTP quickly switched to urea formaldehyde board, and discovered a huge range of (unanticipated) new markets. The plant proved to be hugely profitable, and was soon snaffled up by the big companies. As often happens in such events, the original founders were cast aside.

Despite its ultimate profitability, in the early days CTP came within a week of insolvency. What saved it? Many things, but government support was a crucial factor. The State had grown and provided the wood resource, and the State – through the Development Finance Corporation – had lent most of the money.

Some people have a polarised view of economic development, and religiously support private enterprise in comparison to governmental initiatives, or vice versa. But the case-study of MDF shows a more complex story: individual capitalists (indeed, backers of the National Party) being funded against the advice of the private sector by a Labour government to achieve a success of global importance and of undoubted benefit to New Zealand. We continue to live in a mixed economy.

The lessons of history from CTP must not be forgotten. All New Zealanders involved in the timber industry would learn something from this fascinating story. The name of Owen Haylock needs to be added, alongside Bill Hamilton and Richard Pearse, to the list of Kiwi inventors.

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