

make quality more important than quantity and specifically to significantly decrease the value of all of the juvenile core component of all trees, and increase the value of the mature wood component, taking 12 years as the boundary. If the result of such a change becomes widespread, it would help small and farm woodlot owners to make up their minds to extend rotation ages and not to sell "as soon as it's big enough to saw".

- Changes to silviculture regimes which would result in a higher proportion of physiologically older and more stable wood for high-value processing could also be examined. Possible changes include pruning some stems to only three metres to provide for a single acceptable veneer bolt, pruning much higher to slow growth rates for the first 12 years, and increasing planted and final-crop stem numbers on fertile sites.

I know some of these points have been discussed in the past (and some rejected by growers), but the whole subject is very much in need of discussion again. I have a genuine and recently reinforced concern that the problem of juvenile wood will become a major barrier to the full acceptance of New Zealand pine – particularly in the export market.

Chas Kerr

Forestry in the age of Methuselah, or Blessed are the risk-takers

In ancient Greece one's lifespan was about 28 years, only rising rapidly to 49 years at the end of the 19th Century in Europe – due mainly to improved sanitation. Today, with modern medicine, better diet(!), improved health-care knowledge and facilities, as well as reduced infant mortality the figure is 76 years in the United States. Research concerned with altering the biology of ageing suggests that increased life expectancy will not be simply one of incremental extrapolation; instead some estimate one's lifespan at perhaps 115 by 2010; ... and such age need not be associated with decrepitude. Over 40% of the 10,000+ who completed the 1989 New York marathon were over 40, 56 were over 70 and the oldest was 91!

Longevity means retirement delayed and all will be obliged to work for longer than is anticipated generally. Current legislation prevents compulsory retirement at any statutory age – introduced no doubt because of the inability of Government to fund universal retirement benefits under *existing* circumstances. Life extension is not a prospect to be welcomed by politicians and possibly by the public, who may see it as a "stretching" of the present. Individuals often look forward to retirement because they are bored or tired with life to date (... *all of which past, the sorrow onely staies*, Sir Walter Raleigh). For most the future is likely to be hardly any less disappointing. Will the retired remain content with a 50-year dismal diet of golf, a week on the Gold Coast and manicured lawns? ... and from where might one's retirement income come to enjoy old age? Young foresters could rely on the benefits of three rotations of radiata pine or even one of kauri. An alternative would be an annuity with a *strong* life-insurance company: strong because reserves will take a beating when actuarial assumptions are found wanting.

There is an ambivalent streak in modern geriatrics, enslaving all to a meaningless senility: doctors bound by an Oath; family to an altruistic duty; while the old, losing their independence and self-esteem, are denied even their death-wish (... *death after life does greatly please*, Edmund Spencer). However, the biotech hope is quite different; for an extended, active and productive life enriched by wisdom – and a swift end.

Prometheus, creator of mankind, stole fire (technology) from the Gods. In revenge Zeus forced Epimetheus, a fellow Titan, to marry Pandora. She opened the jar, that Prometheus had warned should be kept closed, and let loose the Spites – pitiless old age, labour, sickness, insanity, vice and passion together with Delusive Hope which discourages mankind from a general suicide (... *man never is, but always to be blest*, Alexander Pope). Biotechnology promises to put many of these Spites back in the jar again. Few appreciate the extent of recent progress, after the false dawns of the '70s and '80s; that over 350 US-listed biotech companies have raised some \$10 billion from the public in the last 12 months; that after years of clinical trials these companies are filing increasing numbers of New Drug Applications with the FDA; that last year saw some 150 tie-in relationships with major pharmaceutical houses.

Civilisation would be impossible if we lived just a few years. Therefore, an interesting question is why we don't live 969 years like Methuselah or 6000 years like the bristle cone pine? Such longevity might encourage timidity: an individual with 900 years to live has as many years to lose. One might envisage an ossified society punctuated by wrenching and violent upheavals. After all, we barely tolerate ten years of any Government before being distracted by something new, c.f.

Muldoonery and Rogernomics. Death is the primary mechanism by which species adapt to change. Death deferred will work profound changes through every avenue of life.

If life were a mere repetition of the past there would be advantages in asexual cloning. A minuscule amount of tissue can reproduce hundreds of thousands of identical trees, so that the entire pine estate of New Zealand might have only a few hundred healthy parents which are best able to produce the types of wood sought by markets. However, nature favours sexual reproduction, a consequence of which is that the benefit of any favourable characteristic or mutant is immediately diluted in the next generation through breeding. Asexual reproduction allows a species to mass produce individuals which are ideal for existing conditions; while sexual reproduction enforces diversity in the gene pool, thereby assuring the survival of traits which may have no present value but could well be crucial to survival should conditions change abruptly. Nature is betting on change and, likewise, the forest sector has retained a broad-based gene pool in reserve for the unexpected.

Change is a feature of life. Consider an analogy: the management of a natural forest. Since its inception, Yellowstone National Park had the policy of putting out every fire, whether a barbecue gone out of control or a lightning strike. In 1972 the policy changed and only natural fires were left to burn, intervening simply to protect life and property. However, forest litter had accumulated at a rate equivalent to 3000 litres of fuel/ha/yr during a hundred years of Smokey Bear short-sightedness – just waiting. In 1988 exceptionally dry weather resulted in a number of fires burning totally out of control for some three weeks, until heavy rain and snow fell on September 10. A third of the park had

burnt, with another third well-singed (The Economist, Sept. 3, p.24, *National Parks, acres afire*; and Sept. 17, 1988, p.35 *National Parks, live and let die*). The policy of putting out every fire suppressed the cycle of regeneration and the park had become choked with ageing lodgepole pines and unburnt litter. We cannot ban fires from natural forests: ultimately there is an even greater conflagration, just as resistance to any change yields eventually to more dramatic events. A genuine conservation philosophy must preserve the potential for change. Indeed the 1988 fire was not the catastrophe depicted at the time. Paradoxically, fire control has played only a small part in the mismanagement of that magnificent park: see Alston Chase's *Playing God in Yellowstone* (Publ. Harcour Brace, 1987).

Intimations of change have rarely been recognised. Of the French Revolution, Alexis de Tocqueville wrote "... *never was any such event so inevitable yet so completely unforeseen*". Almost everyone presumes that existing trends will continue and only revise their ideas once businesses go bankrupt, the price of real estate collapses or the Evil Empire is overthrown: aircraft behave normally until the point of stall. Science fiction writers have proved the most reliable guides to the uncertain future – "20,000 Leagues Under the Sea", "Journey to the Moon". In the 1980s IBM failed completely to foresee the massive popularisation of the PC and the opportunities for networking. The fact that some believe that we stand at the beginning of another revolution as great as the Industrial Revolution is not particularly remarkable. What is remarkable is that we do not comprehend the significance of biotechnology and, as significant, the profound effects of miniaturisation of technology itself. If we cannot comprehend the nature and magnitude of the changes at hand, how can we embrace them?

It is ironic that in the mid-1970s Professor Peter McKelvey could observe that the searing effect of the Depression was such that parents saw the ultimate job – offering good wages and security – was a Government job (in the Forest Service, of course). However, the decades of Statism were nearing their end. A rollback of Government's involvement in commercial life followed.

New Zealanders were never alone. As investment and income growth shift to the faster-growing, developing countries, global competitiveness will bite deeper, tightening the grip of disinflation in wealthier nations. The balance-sheet of America has been ruined by politicians catering for constituents who naturally wanted something for nothing. The Federal deficit overwhelmed meagre personal

savings with the result that foreign capital is needed and very high real rates of interest are a consequence. Hence, all presidential candidates favour a balanced budget. Meanwhile deflationary policies and reduced consumer demand mean inflation is tamed for the foreseeable future. If grid-lock prevails, all countries will march to the same tune and New Zealand's economic extremism will be *passé*.

Isolationism is no solution. After the Kobe earthquake some Japanese companies quickly ran out of parts because all were being sourced from a single supplier in that area. Already computers link some firms and suppliers in wider networks, and this will grow because it is effective. In its absence, each firm has to support a team of suppliers which have enough capacity to meet its peak demand. With a network, by contrast, companies with varying patterns of demand can use each other's suppliers, so reducing the total capacity required: it is cheaper to buy in a liquid market, undermining the cosy links among local firms. It forces a wider internationalism, to the great benefit of small entrepreneurial companies (*Oriental renaissance: a survey of Japan*, The Economist, July 9, 1994, p.17).

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The past development of marginal land and the unwillingness of the farmer – and Government – to countenance retrenchment was responsible for some unwise and less profitable forestry as it was relegated to the margins. Recent forced retrenchment in agriculture has meant that only good land continues to be cultivated (less inputs for greater yields) and better land is available for forestry. Economic forces favour the further intensification of agriculture, but ever-growing surpluses mean that even less land will be needed. For example, in Britain between 10 and 30% of agricultural land may come out of production (*New life from old farmland*, New Scientist, Sept. 3, 1987, p.50-2). Hitherto the dominance of communism in parts of the world has increased the return on agricultural investments elsewhere. By their very inefficiencies communists suppressed output and indirectly supported Western farmers. This increased the value of Western farmland. One should remember that during the last years of the Czars, Russia was the world's largest exporter of grains, whereas it cannot feed itself today – grain accounted for 36% of Russia's

exports in 1913. Even modest reform and improved distribution will impact negatively on the profitability of non-tropical food commodities and the price of agricultural land (Davidson, J.D. and Rees-Mogg, W. 1987. *Blood in the Streets*. Sidgwick and Jackson). The European Union has the stark choice of accepting many immigrants from Eastern Europe and the lands of the former Soviet Union or of allowing those people to achieve a reasonable standard of living by tolerating trade in those products in which they have the potential to excel – and that to a large degree is in agriculture.

The world is moving towards equality of opportunity and income for people of comparable abilities – and there are a billion people who struggle to survive on less than \$1 a day. New production in emerging economies puts excruciating pressure on the price of manufactured goods and on the wages of less-skilled workers everywhere, and the largest overhead is government expenditure (including the universities). Any high-tax, obtrusive government is likely to provide a break to long-term rapid growth, and it is hard to see 2-3% growth meeting people's needs – fortunately new products tend to need less material resources and unskilled labour. Slow growth challenges the dominance of the United States even more acutely: on existing trends China's GDP will overtake the US by 2005-10 and will be double that of the US by 2020.

The last GATT round may open other markets to New Zealand farmers, counterbalancing the previous argument and suggesting stable or rising land prices. Further, one commentator has noted that "after bottoming in December 1993 commodities sold for less – adjusted for inflation – than in 1933". Rather, should one not be worried if many materials and products were not cheaper? A forester has to take a position in such geopolitical thinking, especially when buying land. Of course, no matter what is your heart's desire and what your preconceptions are, you will always find some forecaster or investment analyst who agrees with you (beware of kindred spirits?).

Blessed are the risk-takers. New Zealanders are uncomfortable with intellectual assets which determine the full utilisation of physical resources: hence the interest in farming, fishing and forestry. Foreign ownership of land is a recurrent fetish, as much a reflection of the nation's dispossessed émigré history: one of the perceived attractions of forestry is that it is based on and generates physical assets which are harder for other people to pinch, and that appeals to the evicted Irish as much as to Maori. Further, the ability to defer taxation on the appreciating value of

a forest for 25-30 years contrasts strikingly with superannuation schemes subject to annual taxation. An estimated return of about 8% over and above the rate of inflation, compounded free of taxation (until the end), is not to be passed over lightly. If New Zealanders turn xenophobic preventing others owning land, then we encourage those inefficiencies that were seen in the Soviet Union. Paradoxically, long-term investment in forestry by overseas investors suits a country like New Zealand which is short of capital. Our own limited savings should be recycling more rapidly through the economy in immediately productive investments. Actually physical assets like forests are highly visible and so easy to tax; whereas many value-adding operations are free to vanish offshore to a low tax jurisdiction – as “virtual” distribution corporations located in many places concurrently.

Sadly, the historic record of the forest products sector is poor. The one notable success has been the medium density fibreboard (MDF) industry which was established by outsiders, a group of entrepreneurs under Dr Owen Haylock. They built one of the first MDF plants in the world at Sefton, Canterbury in 1975. The venture was high-risk: the banks sought to

close the mill before start-up unless the company pre-sold a significant proportion of its production. MDF processing has been singularly innovative and has been adopted enthusiastically by the mainstream players of the forest sector. However, the contrast with the large corporates couldn't be starker. The late 70s through to the late 80s saw the building of a plywood mill (NZFP), a resin-from-bark tannaphen plant (NZFP), a West Coast plywood venture, Karioi RMP mill (Winstone), RADA (NZFP) and a triboard mill (Northern Pulp), none of which was profitable to the original investors. Even Fletchers, which to its credit did not play in the Bear Pit of 1987, has shown the difficulties in anticipating the market correctly, especially in its North American paper operations. In this broader context the risks to the forest grower appear less severe, and they showed considerable foresight in investing in Latin America in the mid-1980s.

In the past some of the greatest fortunes were amassed by identifying a need and using technology to meet that need. Today the emphasis is reversed. The game is to create new needs from technologies that are still to be developed. New products will generate their own demand

because they will change the way people behave. Necessities will emerge that haven't been dreamed of as increasing affluence erases the distinction between luxuries and necessities: the automobile, telephone, TV and air travel were once luxuries. Much will change in 30 years. Even if the paperless office never materialises, it may be possible to synthesise paper fibres from a genetically modified soup without recourse to anything so beautiful and primitive as a tree. That is the kind of risk the forest grower faces – of unknown processes, products and markets 30 years hence.

Although the future lies in intellectual property rather than in resource-based products, that does not preclude profitable investment in less technologically exciting industries. However, it is important to recognise that one takes a position whether one cares to or not: so there is the need to capture the broad view and to take cognisance of changes in society at large. If that is all too much, it is time to plant another tree. Indeed, I've almost persuaded myself!

**John Walker,
School of Forestry,
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A potential threat to nursery health

Sir,

Tree health and nursery hygiene are never far from the nursery growers' minds when managing their crops. In recent years some forest nursery growers have become increasingly concerned at a potential threat to nursery health, with implication for the whole forest industry. The risk is created when empty tree cartons are returned to a nursery from the planting site containing soil from another nursery. The problem arises when the large consulting companies and tree buyers who like to reuse their cartons also draw trees from more than one nursery. One carton found this season had been used 14 times, through four different nurseries.

As well as the obvious impact for the nurseries concerned, the implications for the entire industry could be serious. A new pathogen entering the country could be quickly distributed nationwide before it was even detected. Even an existing organism which is harmless in one nursery environment could conceivably run

rampant when introduced to a new environment.

In bygone days nursery hygiene was an important priority with strict quarantine at entry points common. In recent years a comprehensive range of agrochemicals have controlled most of the major pests in forest nurseries and attitudes have relaxed. The 1992 Australia Nursery Tour, attended by most of our members, served as a timely warning that we were perhaps getting too complacent. The sight of a nursery rendered almost unproductive by soil nematodes was a sobering experience.

Tree stock buyers should be looking seriously at their tree-handling policies to avoid these potential cross-infections between their supplying nurseries. The best solution is for purchasers to look at managing their cartons in a tight local “loop”, utilising only one nursery per planting site. Other alternatives are one-trip cartons, or, dare I suggest, in some cases disposable bags.

Forest Health issues can never be overestimated. Keeping our forest estate healthy will require the combined efforts of all industry participants working together.

**Peter Harington
Secretary, New Zealand Forest
Nursery Growers Association**

How Greenpeace sets out its priorities

Sir,

In response to John Purey-Cust's request for “an explanation of how Greenpeace sets out its priorities and arrives at its opinions”, I'm happy to explain further. (However, just as an aside to begin with, I doubt whether plantation corporates have ever explained openly to the public and their shareholders why they are pursuing particular forestry strategies.)

Firstly, on Greenpeace's organisational structure and accountability. Greenpeace NZ is funded by individual subscriptions from 35,000 New Zealanders and does not receive money from corporations or governments. Annual accounts are published and made available to members and the media. Its decision-making structures are open to scrutiny and include a Voting Assembly drawn from its membership which elects the Greenpeace NZ board. The GPNZ board approves policies for the organisation. Annual campaign planning involving Greenpeace staff and peers, using criteria that include ecological imperatives, potential for change and progress, and member and public concern over an issue, determine international and national priorities.