EDITORIAL NOTES

Log Exports to Japan

It is one of the more curious facts of New Zealand's overseas trade that her exports of forest products to her two most important Pacific trading partners, Australia and Japan, have developed in almost opposite directions. Thus, while our exports to Australia of such highly manufactured products as pulp, paper and paperboard have practically trebled in value over the past decade, her imports of our timber have remained virtually static. On the other hand, the growth in our exports of saw-logs to Japan — trade which was virtually non-existent ten years ago — has increased to *over twelve million dollars per annum*, and now comprises 80% of all timber and logs exported from New Zealand.

Initiated by one Japanese trading company in the autumn of 1958, there are now six such companies with contracts for *Pinus radiata* saw-logs. In addition to the regular shipments through Mount Maunganui and Nelson, the ports of Napier, Lyttelton, Timaru and Dunedin have also been involved, and there is a possibility of operations extending to Gisborne, Bluff and Picton. By efficient handling and the use of specially-built carrier-ships on long-term charter, the Japanese importers have overcome some of the economic disadvantages of freighting such bulky raw material simply to feed their own sawmills; and, by utilizing all bark and sawdust, the usual dead-weight losses have also been reduced.

Although it is generally propounded that export earnings should be maximized by raising the degree of processing and manufacture as close as possible to the ultimate consumer, at least one New Zealand exporter considers that post-devaluation prices for saw-logs are so attractive that their export is more profitable than that of pulp. Moreover, the Japanese sawmiller is protected by a 10% import duty and, although medium and large size flitches have been exempt from this since 1961, it has been difficult to secure a foothold for our sawtimber. However, the market for radiata pine is now so well established in Japan that, following the first trial shipments of timber early last year, a large sale worth 2½ million dollars has recently been negotiated and deliveries are well under way.

For the independent timber grower this strong external demand is proving a real boon. Too long has he suffered the repercussions of over-supply and cheap wood from State forests. Even shelter-belts and woodlots as far as 130 miles from a port can now be delivered to the wharf at a profit, and for the past 5 or 6 years this has been providing a livelihood for many small logging contractors and cartage operators. Their current rate of delivery to the wharves is approximately 180 to 200 loads per day. Those who will really feel the pinch of competition are the small sawmillers, dependent on local supplies from many different sources, and the current recession in demand for sawn timber within New Zealand will not make their lot any easier. The large forest-owning enterprises and those with access to cheap State timber are not only well buffered against these pressures — at least two are directly involved in the Japanese log and saw-timber contracts.

The implications for forest management and planning are also very considerable. With the current level of this trade approaching

30% of the total exotic cut in New Zealand, it is apparent that we are thereby taking a considerable additional slice out of the annual allowable cut. Primarily, it provides an exceptional opportunity for correcting our top-heavy growing-stock, particularly in the pre-war age classes. However, this must be only an adjustment, not something to be sustained, and it is important that an equivalent area should be replanted — not necessarily in the same locality. Although there are opportunities for spreading this benefit, as already indicated, by opening up additional ports to the trade, some people have been quick to point out the risk of precipitating regional timber deficiencies — *e.g.*, in Otago/Southland, Taranaki and East Coast, Hawke's Bay. However, these are internal adjustments, relatively simply made in a small country well served by its road transport system — whereas we cannot afford to stultify any developments in our overseas trade. Moreover, the ability to quit rough over-mature trees from farm shelterbelts and neglected woodlots will prove a better boost to private planting than any amount of official exhortation — while the higher stumpages will provide the best possible encouragement to those far-sighted landowners who already belong to farm forestry associations. The State in turn will benefit through better public support for its expanded afforestation targets.

What of the long-term prospects? First, the current saw-log boom is seen in rather better perspective if it is related to our total exports of forest products (including pulp and paper) in terms of f.o.b. values. On this basis, log exports must now be approaching 50% by value (they amounted to only 16% in 1966 — the last full year for which official statistics are available; but the Minister of Forests has recently announced that timber sales to Japan are expected to reach 23.8 million dollars next year). Can we, indeed *should* we, expect this saw-log trade to continue? There was a considerable reduction during 1963, for example, owing to a tighter monetary policy within Japan, as well as a glut of logs from the U.S.A. and U.S.S.R. In any case, it is not in our best interests to continue exporting large volumes of unprocessed wood to Japan — and a strong footing for our trade bargaining is provided in the estimate that by 1970 Japanese pulping imports alone will be more than double our own total production. Although we have long-term pulp and paper contracts with Australia, the Australians have indicated their wish to be self-sufficient — despite the modern appreciation that "self-sufficiency" is not an idea that promotes international trade or commercial goodwill. Thus we should press for increased Japanese imports of our chips and timber. (enabling us to buy more of their sophisticated manufactures in return) — and our current expansion of both forest and mill capacities should look well beyond the trans-Tasman trade.

Future Opportunities: Our New F.P. Research Lab.

The recent occupation of the new Forest Products Laboratory at the Forest Research Institute in Rotorua is an event of great promise for forestry in New Zealand. It comes at a time when our countrymen are acutely aware of the need to develop exporting industries additional to those based on pastoral production; when merchant and consumer have accepted that exotic timbers are

here to stay; and when both industrial and financial circles have finally realized the profitability of exotic forest management on a sustained yield basis. But export potential, demand and profit all depend upon the skill with which the special properties of these exotic woods are exploited to meet particular specifications. The simplicity of wood, as a material that may be sawn and nailed together by anybody, anywhere, will never be superseded; but, as trade and commerce develop, it is the converted or remanufactured uses of wood that increase. Thus, a recent FAO study "Wood: World Trend and Prospects"* shows that, in the decade to 1962, although world industrial uses of wood had increased by 25%, the use of wood in the round or as fuel had remained static. Moreover, although world sawtimber consumption increased by about 30%, that of paper and paperboard grew by about 75%, while fibreboard uses more than doubled, plywood consumption increased almost 150% and particle-board, of which very little was manufactured prior to 1950, increased more than fifty-fold.

It is in the advisory sphere of fabrication and remanufacture that our forest products research has been most effective — especially in testing and adapting New Zealand-grown *Pinus radiata*, Douglas fir and other exotic species. During the past 20 years, research and careful technical promotion have resulted in our staple exotics penetrating almost every major field of use — from fencing posts to the production of kraft paper and newsprint of exceptional quality. The new laboratory buildings are themselves a tribute to the development of glue-laminating techniques — techniques that allow a functional simplicity which is increasingly appreciated, even in applications like the Selwyn Village Chapel or the fernhouse in the Dunedin Botanical Gardens.

Nevertheless, many problems remain. Thus, since 1960, when the exotic cut first exceeded that from indigenous forests, there has been continuing pressure from timber merchants for ways and means of augmenting the clear grades that they are accustomed to obtaining from native sawtimber. To the extent that this has resulted in more selective use of indigenous timber, and has precipitated better grading of exotic output (including the special Factory grade and the imminent extension of stress grading), together with research on methods of upgrading, it has been wholly beneficial. However, licensed softwood imports have gone up by 50%, in both volume and value, since 1960. (Exotic output is now double that of native timbers. Even without devaluation, this demands intensified research in all the fields of timber improvement — particularly cheaper means of meeting engineering specifications and better methods of external finishing, such as plastic or metal bonding, to meet the exacting requirements of house sheathing. At least one commercially successful technique is already in use, and one may anticipate that the overseas trend towards prefabricated plywood panels will duly overcome conservative New Zealand building practices.

Our current pre-occupation with excessively knotty grades may well be resolved by solutions such as these, or the even more radical developments in reconstituted wood — such as particle- or chipboard. When taken in conjunction with the trend towards large-scale

* FAO Basic Study No. 16, Rome, 1967.

tree-length harvesting and on-site conversion to chips, it is apparent that the forest manager must not only keep abreast of developments in forest products research — he must also be ready to interpret the pertinent results, and to re-appraise his objectives and priorities in silvicultural practice. There would, for example, be little point in pruning to produce clear wood 20 years after this had been superseded, or in continuing early heavy thinnings to waste long after the era of maximum piece-size had passed.

In the long term, as industries become more complex and trade more sophisticated, it may well be the versatility of wood as raw material for industry that promises the richest rewards. As raw material for conversion to glucose, it has been estimated that wood cellulose would cost less than a quarter of the cheapest material (starch) from cereal crops. *Pinus radiata* is one of the most efficient converters of solar energy on earth. The various so-called "silvichemicals" that can be extracted have an astonishing range of uses. Unfortunately, the potential importance of these has been somewhat obscured by two factors — first, the decline in demand for traditional "'naval stores" and, secondly, the competition afforded by the petrochemical industry.

However, world demand for oil is continually increasing in spheres where there is no overlap with wood — *i.e.*, not only for fuel in transport, but also in industries such as steel-making. Moreover, wood has an advantage that mineral oil cannot match — it is a renewable resource.

The decline in demand for gum turpentine and resin, as the paint and varnish industry has turned towards synthetic resins, is in part due to a compensating increase as by-products of sulphate pulping for kraft paper and newsprint, production of which has increased by 5 or 6% per annum over the past decade. About one gallon of crude turpentine can be extracted per ton of *P. radiata* pulp, so that New Zealand has a potential annual production of at least a quarter million gallons. Furthermore, *P. radiata* turpentine contains an unusually high content (approximately 65%) of beta-pinene, which is the preferred raw material for manufacturing polyterpene resins, used in pressure- sensitive adhesives. Pinene can also be converted into insecticides, paint resins and myrcene for the perfume industry. Valuable fatty acids and the remarkable new solvent DMSO (dimethyl sulfoxide) are further derivatives from the sulphate process.

Although only between 4 and 10% (depending on country) of all wood pulp goes through the sulphite process, the basic filament (rayon) is capable of many modifications to fit special uses, from clothing textiles to tire-cord. By-products include ethyl alcohol, glacial acetic acid, furfural and nucleic acid.

These examples by no means exhaust the range of industrial chemicals that can be produced from wood, and bark. They serve to indicate the type of specialized product that New Zealand should be able to produce efficiently from its forest resources, when world demand permits. Moreover, the manufacturing processes required to reconstitute wood will provide the necessary bridge between such future industries and the simple forest products of the present. But if we are to earn our way in world trade of increasing sophistication, research must prepare the way for industry. The challenge is there. May it never be said that our forests have outgrown the vision of those that tend them.