

33. *Quality of Sawn Timber.*—As to the competitive quality and price of the sawn timber on the Australian markets the Waipa Sawmill was established as a prototype of the Murupara plant both to develop operating technique and efficiency and to test the Australian markets. In both it has been successful. From the Waipa experience it has been possible to design a plant of sufficient size to reduce operating-costs by almost 40 per cent. On the Australian markets it is freely conceded by both New Zealand producers and Australian users that the Waipa sawn timber has set a new high standard of quality production and merchandizing. This is best reflected by the premium which it commands. As a further result of sawing at Murupara only the larger and better quality logs and of pulping the smaller and lower quality also now being sawn at Waipa, the average dimension and quality of sawn timber will be so improved that it is confidently anticipated that the Murupara product will be able to compete at world-parity prices on the Australian market against competition from both North America and Northern Europe.

34. *Quality of Newsprint.*—A long series of laboratory pilot plant and full-mill scale tests had established the suitability of New-Zealand-grown insignis pine for the production of acceptable grades of both sulphate pulp and newsprint and various printings and writings, but it was deemed advisable to have further large-scale mill trials run at the only mill in the world then successfully manufacturing newsprint wholly from pine pulp-wood. Accordingly, whilst in America in 1949, the New Zealand delegation to the World Wood Pulp Conference at Montreal concluded negotiations with the Southland Paper Mills, Ltd., of Lufkin, Texas, for a commercial trial of its process for eliminating resin trouble in the manufacture of newsprint from New-Zealand-grown insignis pine. Preliminary tests by the company had indicated that the resin in New Zealand pulp-wood so resembled that in the southern pine pulp-wood, which it regularly used, that it would respond to the same method of treatment for resin control. The basic difficulty in using any pine-wood for the production of groundwood, which forms about 80 per cent. of the pulp required for newsprint, is that without suitable treatment resin accumulates on the paper-machine wire mesh until large holes occur all over the paper and make it unusable. The rate of accumulation varies widely due to numerous factors such as age of tree, heartwood content, density of wood, season of cutting, period of drying, &c. Previously about 100 tons of newsprint has been produced at the Australian Newsprint Mills at Boyer, Tasmania, but on that occasion every precaution had been taken to use wood in which the resin content was abnormally low. The test showed that newsprint of good colour could be produced, but due to the necessity of using the same grinding conditions as employed for making eucalypt groundwood the finish of the paper was very rough, and nothing like as smooth as either eucalypt newsprint or the usual high-quality Canadian product.

35. *Newsprint Tests at Lufkin, Texas.*—The Lufkin trials were accordingly shaped to test the practicability of controlling resin accumulation on the paper-machine wire and of producing a smooth sheet. They were successful in both respects, but due to unavoidable shipping delays the wood when ground at Lufkin was far too dry to give optimum results. Firstly, the colour was somewhat greyish as compared with the creaminess of the Boyer trial sheet and the high blue-white of the usual Eastern Canadian paper. Secondly, as it was also necessary to use the same grinding conditions as for the denser southern pine pulp-wood, considerable difficulty was experienced in making the newsprint at the full basis weight of 32 lb. For these reasons it was necessary to use 26 in place of the usual 20 per cent. of chemical pulp, but had the wood been as green as in the case of the Boyer trial there would have been no difficulty in producing a 32 lb. sheet of much better colour with even less than 20 per cent. of chemical pulp. As it proved, however, the very difficulties themselves yielded invaluable results on the extraordinary strength of the New Zealand sheet which, even allowing for the slightly higher percentage of chemical pulp, would still be almost twice as strong as the