Murupara Scheme—On Christmas Eve the Prime Minister announced the Government’s intention of proceeding with the establishment of an integrated timber, pulp and newsprint industry based on the large resources of Kaingaroa State Forest. Thus, after many years' investigation and negotiation, and after some false alarms, the project commonly known as the Murupara Scheme has at last been officially launched. The announcement came as a welcome relief both to the public of New Zealand and to the forestry profession in particular, after a long period of suspense.

The Prime Minister's statement indicated that the Government had accepted in principle the proposals put forward by a group to be known as the Tasman Pulp and Paper Company and consisting of Fletcher Holdings Ltd., Merritt-Chapman and Scott Inc. (of Delaware U.S.A.) and the Raymond Concrete and Pile Company (also of Delaware, U.S.A.). It is understood that the proposals do not differ greatly from those recommended to the Government by their overseas consultants and outlined in the sale proposal brochure published earlier in the year. The main points of difference seem to be the location of the industrial plant at Te Puke instead of at Murupara, and the expansion of its sulphate section at the expense of the sawmill. It is to be hoped that these differences can be satisfactorily reconciled and that the scheme will not as a result be further delayed.

The New Zealand Forest Service will now be faced with the exacting task of producing annually some 23 million cubic feet of logs from the Murupara Working Circle. The logging problems will be considerable and their solution will require the highest degree of skill and organisation. Even greater will be the management and silvicultural problems. The maintenance of sustained yield in both quantity and kind will demand, inter alia, steps to correct the present extreme mal-distribution of age classes; to thin within the next 10 to 15 years no less than 43,000 acres of Douglas fir and Corsican pine; to prune selected crop trees over a significant proportion of the area; to re-site many species; to regenerate all felled stands, in some cases by shelter-wood methods; to plant up further areas; and finally to give optimum silvicultural treatment to all second rotation crops. Very careful attention must also be paid to the question of
continued soil fertility and the possible deterioration of site quality from the growing of successive crops of pure conifers. And lastly, in order to prevent or to minimise the chances of insect or fungus attack on an epidemic scale, the utmost care must be taken to see that all stands are brought to and maintained in the most hygienic condition possible.

These are intricate and, by New Zealand standards, immense problems, which will tax the ingenuity of the forestry profession to the utmost. Their solution will demand not only a high standard of forest practice but also, and of no less importance, complete understanding and co-operation on the part of the dependent forest industries. Just as the management of Kaingaroa Forest for the greatest public good would be impossible without a large integrated industry to absorb the wide range of raw materials which will be offering, so equally the success of the proposed industrial plant will be impossible unless the many problems of forest management can be satisfactorily solved.

This principle, that forest management and forest utilisation are inter-dependent—and must themselves be fully co-ordinated, is a fundamental and axiomatic one in the field of forest economics. It is to be hoped that it will be fully appreciated by the operating company. Foresters will wish the venture every success.

**Biological Reserves**—Proclamation of the greater part of the indigenous forest area of Waipoua as a Forest Sanctuary under the Forest Act, 1949, has been a reminder of the controversy about forest reserves generally. The Waipoua Sanctuary, it could be maintained, was established primarily because of the play of emotional forces and against the recommendations of the official forestry case—the public was alarmed at the threat of any interference with one of the last kauri strongholds and mustered sufficient forces to sway the Government. This brings home the unfortunate fact that the general public little understands the aims of the forester who has to introduce management into a forest. In this instance however it seems that kauri forests have been so greatly reduced that even foresters themselves had qualms about the exploitation of Waipoua, or perhaps they have not sufficient faith yet in their ability to manage kauri forests!

Part of the case to reserve Waipoua *in toto* was the plea that the forest was required for scientific study quite apart from its relic, recreational and aesthetic values. This plea with regard to nature reserves, including forests, is becoming more and more insistent in many countries, and appears to stem from the increasing knowledge gained through the science of ecology and the success with which this knowledge can often be applied in the beneficial management of natural things. The greatest support to this trend, by the lay public, the Government and scientists, seems to be given in Britain where a special biological service has been set up to study nature reserves.
The setting up of this body was originally recommended by the National Parks Committee which maintained that one primary purpose of a National Park is the conservation and study of nature.

Recreational and aesthetic needs of the population for forests have been well, if not amply, catered for in New Zealand. About four million acres of National Parks and reserves, well over half of which are forest clad, have been set aside. Apart from these, the great tramping grounds of the main ranges of both islands are open to the public. The forests on these are never likely to be interfered with since they are required for protections purposes.

All these areas are in themselves biological reserves for the conditions they represent. They are amenable to study with the exception of many lowland scenic reserves that are not protected adequately from stock and fire. We have, however, missed the opportunity of withholding reserves from many fine forests that have disappeared, and it would be difficult for any ecologist now to piece together accurately the story of the lowland forests. We can but be thankful for the very few well preserved pockets that are to be seen here and there. But it is not too late to see that adequate reserves are created in the last two strongholds of podocarp forests—the central North Island and the West Coast forests. The former are unique because of their quite recent origin on volcanic showers, and show ecological processes to be seen in few, if in any, other parts of the world. Likewise on the West Coast there are important ecological processes at work and, although liberal scenic areas have been reserved, it is doubtful if these contain many good examples of forest communities important to the forester, for instance silver pine forests. Since most of these forests are now in the hands of the Forest Service the onus is upon it to see that at least areas required for study in connection with future forest management are preserved. Fortunately there is a useful and simple means of doing this by creating sanctuaries under the Forests Act. An area thus proclaimed still remains under the protection of the Forest Service, but it cannot be violated in any way nor revoked except by Act of Parliament. State Forests also contain a few rare plant species of local occurrence only, which should be reserved from destruction.

Sand Dune Reclamation—During the year the Government decided that the stabilisation and development of coastal sand areas should become the joint responsibility of the Department of Lands and Survey and the N.Z. Forest Service. The primary objective of this work is to be the reclamation of land for agricultural and pastoral use. Most of the areas concerned lie on the west coast of the North Island north of Kawhia and south of Patea.

Prior to World War I the Department of Lands and Survey carried on sand stabilization on a small scale in North Auckland and, on its formation in 1921, the Forest Service undertook the stabilization
and afforestation of drifting sand at Tangimoana, south of the Rangitikei River. However, a strict interpretation of the Forest Act, 1921-22, whereby it was considered that moneys in the State Forest Account could not be rightly spent on what was essentially land reclamation, led to the responsibility for this work passing to the Public Works Department. There was considerable expansion under the impetus of unemployment during the early 1930’s and the Public Works Department launched new schemes at Waitarere on the Manawatu coast, at North Waikato Heads, Woodhill-South Kaipara Heads, Te Kopuru and Kaitaia on the west coast of the Auckland Province, and at Ruakaka and Pakiri-Te Arai on the east of the Auckland Peninsula. The Department of Maori Affairs also has a scheme at Ngataki in the far north. Work was continued on these schemes with labour as the limiting factor. Much land has been protected from further sand encroachment and some 10,000 acres of forest established. The tending of this forest is now becoming a major activity.

The emphasis in this work has been upon the creation of a fore-dune backed by a belt of sand grasses, scrub and forest, usually about a mile in depth but in some cases much more, along the coast as a barrier protecting the farmland behind. In future it is intended that agricultural and pastoral development within a wider zone will be the primary objective. The barrier against encroaching sand must remain coastwards, but behind this there will develop a rather intricate pattern of pasture on the flats and more mature dunes with forests on the unstable or potentially unstable dunes. The pattern of development will vary considerably as difference in soil moisture determine the limits of farm and forest areas. This is but another example of the meeting of forest and farm development upon marginal land; the replacement of extensive pasturage, which has been particularly damaging to sand country, by intensive farming and forestry.

Such integration will present many problems, and farming and forestry will need to concede a good deal to each other if a workable land use system is to be evolved. To the Forest Service falls the laborious task of initial stabilization; its cost can rarely be offset by the comparatively limited areas of productive forest, though these will include some good sites close to markets. Under present conditions shortage of labour is likely to limit progress on the development of new areas.