

After carefully examining our methods I am of opinion that, in the interests of economy and convenience, more youths should be employed by the Department in the State nurseries. The employment of a certain number of experienced men is essential, but much of the tree-raising work is of a light nature and eminently suitable for active lads, whose rate of pay to commence need not exceed 4s. 6d. per day. Such youths, on receiving a training in nursery or plantation work, could be available for undertaking special work, perhaps in the more isolated places where married men cannot reasonably be expected to go.

#### EXPERIMENTAL WORK.

In journeying through Canada, Great Britain, and Australia I was surprised to find that, although the necessity for the adoption of a vigorous State afforestation policy was being acclaimed on all sides, only a comparatively small expenditure was devoted to State tree-planting for timber-production; but evidently, with commendable foresight, each country is carefully conducting experimental work on a scale not attempted in New Zealand, the results of which should simplify the local sylvicultural possibilities when the time arrives for extensive application. From time to time valuable suggestions are noticed in pamphlets received from other countries, and where applicable greater inducement might be extended to district officers to co-operate with the Superintending Nurseryman in overcoming by assiduous experiments any phase of either nursery or plantation work in vogue that does not compare favourably with progressive measures advocated in such articles.

In Canada, surrounding the large, well-conducted Indian Head Nursery, a series of fifty experiments in pure planting and mixture have been undertaken with a view to ascertaining the most desirable method of associating trees in arid localities. Most original ideas have been introduced, and in many cases the recognized principles or scientific forestry have been quite ignored. The results, however, show that the behaviour of certain trees in their native habitat cannot be accepted as a criterion of possible attainments with such trees in foreign places, even where similar growing-conditions are recognized. Trees are generally planted at 4 ft. apart, and in the following mixture were noticed to be growing in perfect harmony:—

*Fraxinus excelsior* and *Pinus sylvestris* ;  
*Populus deltoides* and *Acer manitoba* ;  
*Salix* (vars.) and *Populus* (vars.) ;  
*Pinus Murrayana* and *Fraxinus americana* ;  
*Picea excelsa* and *Caragana* ;  
*Larix siberiana* and *Acer manitoba* ; &c.

Perhaps no more valuable experience was gained on the tour than that relating to the inconsistency of certain species of trees when used in admixture, and beliefs formed previously that full local conditions and experience must be gained before successful afforestation-work can be realized are now borne out by direct observations.

Although Canada at present relies principally upon replenishing her timber-supplies by both artificial and natural reforestation methods, her officers are alive to the fact that the time is rapidly approaching when tree-planting over the waste prairies will play an almost important part. Generally throughout America one is impressed with the amount of time devoted to any method from which useful knowledge might be acquired or contrivance that will tend to simplify management. In New Zealand we are now making more provision for such experimental work than formerly, although I feel sure that neither sufficient time nor expenditure is allocated this important phase.

The forestry experts of Scotland realize the absolute necessity for the Government to acquire a central demonstration area upon which experiments may be conducted, and at the termination of the Conference it was found that discussion was directed a good deal upon this aspect. The following from a report of the departmental committee might be interesting:—

“The Commissioners appear scarcely to have realized the peculiar difficulties which confront afforestation in Scotland, especially those districts on which it would confer most benefit, and where, owing to the low value of the land, it would be most likely to prove remunerative. The chief existing obstacles are—

“(a.) Economic difficulties concerned with rating, wintering, the occupation of the adjoining ground too high or too low to plant, and the reconciliation of sylviculture with existing interests generally:

“(b.) A popular and natural prejudice against afforestation, which focusses attention on the immediate disturbance to the few and disregards the benefits which sylviculture would confer on a much larger population:

“(c.) A widespread belief, based on the experience of ill-managed woods, that sylviculture cannot be made to pay in Scotland.

“We are convinced that nothing short of ocular demonstration will overcome these obstacles. A central demonstration area will do something in this direction; but in this area, unless it is a very large one, the place of a resident population will be largely taken by the apprentice students. Demonstration is, moreover, required in other and more remote parts of Scotland. A few cautious trials in actual afforestation appear to be an indispensable preliminary to State afforestation on a large scale.”

There can be no doubt of the immediate importance derived from district experimental plantations, where trials with various trees, planting-distances, and methods could be undertaken with little expense. I would earnestly suggest that in localities where there are even remote possibilities of future State afforestation-works being undertaken small areas of, say, 5 to 10 acres be acquired for demonstration and experimental purposes.