In 1934 the plot was remeasured and showed an annual increment over all species of 274 cu. ft. on trees down to 8 cm. D.B.H.

The Umbrella Pine is being preserved as much as possible in its natural habitat but no attempt is being made to extend its area by planting.

References.

1. Wilson, H. E. "The Conifers and Taxads of Japan," Oxford, 1916.
2. Dallimore & Jackson. "A Handbook of Coniferae," London, 1931.
3. Bulletins of the Natural Resources Section, S.C.A.P., Tokyo.
4. Translated Data from the Japanese National Forest Bureau.

A. W. GRAYBURN.

SILICA IN BEECH TIMBERS.

Difficulties in sawing some of the New Zealand beech timbers are frequently reported.

The species concerned are *Nothofagus truncata* (hard beech) *N. solanderi* (black beech) and *N. cliffortioides* (mountain beech). Drawing an analogy from teak, which blunts saws in a comparable way, it was assumed that high silica content was a probable explanation. Analyses of a small number of beech samples were made by the Dominion Laboratory to determine total ash contents and percentages of silica in the ash. The figures for these and some overseas woods are :

No. of Sample	Species and Locality	Total Ash (based on oven-dry weight of wood). per cent.	Silica in Ash per cent.	Silica in Dry Wood per cent.
1.	*N. fusca* (small tree) Karioi, Central N.I.	0.43	7.55	0.03
2.	*N. cliffortioides* (small tree) Karioi, Central N.I.	0.91	43.30	0.39
3.	*N. fusca* (split post) Mamaku, Rotorua	0.16	9.74	0.02
4.	*N. truncata* (split post) Mamaku, Rotorua	0.34	49.50	0.17
5.	*N. cliffortioides* (sawn timber) Lillburn Valley, Southland	1.11	44.60	0.50
6.	*N. cliffortioides* (sawn timber) Lillburn Valley, Southland	0.88	12.14	0.11
	Overseas woods from "Wood Chemistry," by L. E. Wise			
	Betula alba	0.21	0.85	0.002
	Fraxinus americana	0.43	7.05	0.03
	Quercus alba	0.37	3.20	0.01
	Tectona grandis	1.3 to 3.1	25.00	0.33 to 0.77

The significance of these figures will be apparent; the final column, "silica in dry wood," is put in as the most satisfactory basis of comparison on account of the varying percentages of ash obtained from the several timbers. For instance, teak yielding 1.3 per cent ash with 25 per cent silica, becomes comparable with Karioi mountain beech yielding 0.91 per cent. ash with 43 per cent. silica.

An additional specimen of beech recorded as *N. cliffortioides* from the Lillburn Valley was analysed giving 0.37 per cent. ash, 13.65 per cent. silica in ash or 0.05 per cent. silica in dry wood. It was excluded from the table as the microscopic structure of the wood linked it with *N. solanderi*. Sawyers apparently have a greater antipathy to *N. solanderi*, particularly in Hawke's Bay, than to the other beech species, although the anomalous *N. cliffortioides* in the Lillburn and adjacent valleys in Southland and *N. truncata* in various localities are also troublesome.

Microscopic sections show the silica crystals concentrated in ray cells. The additional evidence given by the microscope sections is interesting. Slides of the three latter species show :—

(a) *N. solanderi* from :

(i) Maungataniwha, H.B. :	Very high silica content.
(ii) Hastings-Taihape Road, H.B. :	Very high silica content.
(iii) Wallaceville, Wellington :	High silica content.
(iv) Ronga Valley, Marlborough :	High silica content.
(v) Alford Forest, Canterbury :	Moderate to high silica content.

(b) *N. cliffortioides* from :

(i) Karioi, Central N.I. :	Moderate to high silica content.
(ii) Westport locality :	Low to high silica content.
(iii) Lillburn Valley, Southland :	Moderate to high silica content.
(iv) Canterbury :	Moderate silica content.

(c) *N. truncata* from :

(i) Auckland locality :	Moderate to high silica content.
(ii) Mamaku, Rotorua :	Moderate to high silica content.
(iii) Westport-Reefton :	Low to moderate silica content.

It is therefore to be expected that *N. solanderi* from the Hawke's Bay areas may show on analysis higher contents of silica than have been recorded in the analyses recorded above.

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