

VOLUME OF TIMBER ASCERTAINED BY SAMPLE-PLOT METHODS.

The collecting and tabulating of records bearing on the annual increment and timber volume of growing trees in our youthful plantations has now been instituted, as it is chiefly in the possession of such data that the correction of close planting can be determined, and thinning resorted to. Some eight sample plots have been permanently pegged off at Dusky Hill Plantation and one at Tapanui Nursery by Mr. W. A. Fraser, B.Sc. (Forestry), and the statistics relating thereto are appended. Most encouraging returns are revealed in the tables, and it is evident that trees planted in New Zealand develop with greater rapidity than in either Great Britain or Germany. For instance, at Dusky Hill the volume of timber per acre over a fifteen-year-old larch area in Serial No. 1 amounts to 2,565 cubic feet, whilst only 1,890 cubic feet is calculated in the yield tables over a twenty-year-old similar block in Saxony. Perhaps the plot of pure *Pinus radiata* (which has been planted at slightly over 8 ft. apart, and has developed rather heavy branching habits) discloses the most satisfactory returns, as after nine years planting 3,009 cubic feet of timber has been produced, whereas in North Germany less than 800 cubic feet of the comparatively fast-growing *Pinus sylvestris* is expected over a similar growing-period. A minute examination of specimen larch shows the annually reducing rate of girth-expansion, and a light thinning in the more advanced blocks might be undertaken at any time now with improving prospects. Arrangements are now complete for the subdivision of blocks in the South Island plantations by a competent surveyor, and efforts will be made to place the earlier plantings on a more satisfactory basis for recording purposes.

Details of Sample Plots, Tapanui District.

Serial Number of Sample Plot.	Area of Sample Plot, in Acres.	Species.	Age, in Years.	Number of Trees planted per Acre.	Number of Trees now Dead per Acre.	Number of Trees per Acre under 3 in. Diameter at B.H.	Number of Trees per Acre over 3 in. Diameter at B.H.	Average Diameter at B.H., in Inches, of Trees over 3 in.	Average Height, in Feet.	Volume per Acre, in Cubic Feet.		
										Timber over 3 in. Diameter Small End.	Tree-tops and Trees under 3 in. Diameter.	Total.
I	0.30	European larch ..	15	2,032	596	110	1,326	4.70	37.0	2,380	185	2,565
		Douglas fir ..	15	196	0	140	56	4.75	15.0	70	15	85
		Norway spruce ..	9	120	26	94	0	..	2.5	..	..	..
		Ash ..	15	330	0	330	0	..	20.0	..	..	..
				2,678	632	674	1,382	..	..	2,450	200	2,650
II	0.20	European larch ..	14	2,230	345	165	1,720	4.45	34.0	2,124	374	2,498
		Douglas fir ..	14	225	0	225	0	..	10.0	..	..	..
		Norway spruce ..	9	180	15	145	0	..	2.5	..	..	..
		Ash ..	14	385	10	375	0	..	20.0	..	..	..
				3,020	390	910	1,720	..	..	2,124	374	2,498
III	0.20	Maritime pine ..	14	2,240	250	170	1,820	4.70	30.5	3,171	398	3,569
		Oak, ash, sycamore	14	746	0	746	0	..	18.0	..	..	..
				2,986	250	916	1,820	..	..	3,171	398	3,569
IV	0.20	European larch ..	13	2,652	277	375	2,000	3.85	29.0	1,800	662	2,462
		Walnut ..	13	108	107	1	0	..	..	..	..	..
				2,760	384	376	2,000	..	..	1,800	662	2,462
V	0.20	Japanese larch ..	14	2,560	360	400	1,800	4.00	25.5	1,776	486	2,262
VI	0.20	Austrian pine ..	14	2,160	35	170	1,955	4.20	20.5	2,335	305	2,640
		Oak, ash, sycamore	14	750	0	746	0	..	15.0	..	..	..
				2,910	35	916	1,955	..	..	2,335	305	2,640
VII	0.40	<i>Populus deltoides</i>	11	795	17	110	668	4.00	27.5	545	303	848
VIII	0.20	European larch ..	12	2,425	165	585	1,675	3.70	26.5	1,148	312	1,460
		Walnut ..	12	108	73	35	0	..	..	..	..	..
				2,533	238	620	1,675	..	..	1,148	312	1,460
IX	0.24	<i>Pinus radiata</i> ..	9	538	0	5	533	7.35	42.5	2,869	140	3,009

FIRE-BREAKS.—SUBSTITUTING GRAZING FOR CULTIVATION.

For the past three years the increasing amount of labour devoted to the keeping of fire-lines in an efficient state emphasized the importance attached to the substitution of some means that might be advantageously employed in attaining the same purpose with a reduced expenditure, and successful trials extending over that period have been made with a small flock of sheep. The animals were liberated on the Conical Hills Plantation, where trees have attained a height ranging between 5 ft. and 25 ft. The optimistic opinions harboured have been borne out by direct results, as the sheep have remained well on the fire-lines, and kept the herbage closely cropped. No damage to trees has