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NOTES ON SOME NEW SOUTH WALES TIMBERS.

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THE author accepted the invitation of your President to bring the subject of colonial timbers under your notice, chiefly because of the usefulness of the discussion likely to ensue amongst gentlemen engaged more or less in the employment of such materials of construction. It would be presumptious of me to dilate upon the subject from an engineering point of view, but he has devoted much attention to Australian timbers as a branch of economic botany. The subject is a vast one, far too great to be taken up in a single paper, except in the most general terms; and even that which he has chosen for his theme can only be very cursorily treated on such an occasion as the present one.

In most works on materials of construction, Australian timbers are either ignored, or the references to them are so scanty and vague, as to be little more than worthless. From the paucity of references in books published in Australia itself, in spite of the often expressed wish of practical men to gain information on the subject, as one would naturally infer that there is some difficulty which prevents demand being satisfied by supply. That inference is a correct one, and the difficulty results from *the troubles which non-botanists and botanists' experience in discriminating one tree from another.* This is particularly the case in regard to the genus *Eucalyptus* ("gum trees") and considering that most of our vegetation consists of such, our task is difficult to begin with.

SCHEDULE OF PARTICULARS OF NEW SOUTH WALES TIMBERS SENT WITH THE SPECIMENS FOR TESTING.

Local Name.	Mark.	Number.	Date when tree was felled.	Date when tree was cut	Height of Tree.	Diameter of Tree.	Number of Rings.	Average ht. of trees in locality.	Average dia. of trees in locality.	Locality whence obtained.	Formation and Kind of Soil.	Botanical Name.
					about	about	about	feet.	inches.			
Tallow-wood	M	1	26-11-86	28-11-86	150 feet	33 ins.	90	150	33	Bullahdelah	Altered sedimentary formation; fair depth of soil; slopes and [gullies.	Eucalyptus Microcorys F.v.M. ord. Myrtaceæ
do §	F	8	Jlyor Aug.86	12-5-87	130 „	31 „	115	100 to 120	30 to 36	Parish of Tanban, County of Dudley.	Clayey soil; decomposed granite formation.	do do do
do	P	2	14-7-87	11-10-87	105 „	32 „	125	90 to 140	30 to 48	Forest reserve 121, north of Bellinger River, Macleay district.	Granite formation; grown on slope of a gravel ridge; soil stiff [yellow clay.	do do do
Spotted Gum	M	2	26-11-86	28-11-86	130 „	27 „	70	130	27	Bullahdelah.	Altered sedimentary formation; open lowland soil; generally [clayey.	Eucalyptus Maculata Hk. ord. Myrtaceæ
do	B	3	6-86	22-1-87	100 „	28 „	80 26in. dia.	70 to 120	24 to 48	Parish of Benandra, County of St. Vincent.	Slate formation; poor soil.	do do do
do	B	14	30-6-87	26-8-87	180 „	30 „	66	100 to 200	24 to 48	do do.	do. poor stony soil.	do do do
do	C	4	18-7-87	19-10-87	57 „	46 „	105	.	....	Coraki.	Sandy loam.	do do do
Blackbutt	M	3	26-11-86	28-11-86	150 „	30 „	80	150	30	Bullahdelah.	Altered sedimentary formation; top and sides of stoney ridges.	Eucalyptus pilularis Sm. ord. Myrtaceæ.
do†	F	1	Jlyor Aug 86	11-5-87	150 „	36 „	120	120 to 130	48	Parish of Tanban, County of Dudley.	Decomposed granite formation; clayey soil.	do do do
do	B	4	6-86	24-1-87	110 „	36 „	92, 30in. dia.	60 to 110	24 to 48	Parish of Benandra, County of St. Vincent.	Quartz and slate; poor soil.	do do do
do	B	22	23-6-87	1-9-87	137 „	32 „	64	100 to 150	24 to 48	Parish of Woodburn, do.	Sandstone; sandy soil.	do do do
do	P	1	16-7-87	12-10-87	135 „	34 „	142	100 to 150	30 to 48	Forest reserve 121, north of Bellinger River, Macleay district.	Granite formation; trees grown on slopes of a gravel ridge; [soil stiff yellow clay.	do do do
Woollybutt	B	5	6-86	21-1-87	110 „	36 „	86, 34in. dia.	80 to 150	24 to 48	Parish of Benandra County of St. Vincent.	Alluvial fairly good soil.	Eucalyptus sp? It is not thought that this is [true Woolybutt.
do	B	15	30 6-87	26-8-87	160 „	31 „	76	80 to 180	24 to 48	do do.	do good porous soil.	Eucalyptus longifolia.
Red Gum	1.2.3M	1.2.3	May 1886	8-2-87	34 ft. to fork	30 „	not ascert'd	80 to 90	30 to 42	Moira state forest, County of Cadell.	do subject to annual inundation; clay loam.	Eucalyptus rostrata Schl. ord. Myrtaceæ.
do	B	11	29-6-87	25-8-87	100 feet	26 „	60	80 to 120	24 to 42	Parish of Mogendowra, County of St. Vincent.	Granite on good alluvial soil.	do do do
do	C	6	18-7-87	19-10-87	53 „	42 „	not ascert'd	.	....	Coraki.	Sandy loam.	do do do
White Ironbark	D	1	18-4-87	4-5-87	100 „	24 „	108	120	24	South Grafton forest ridges.	Ironstone: poor soil, clay sub-soil.	Eucalyptus crebra F. v. M. ord. Myrtaceæ.
do	P	5	13-7-87	11-10-87	130 „	28 „	114	80 to 150	22 to 36	Forest reserve 121, north of Bellinger River, Macleay district.	Tree grown on the slope of a quartz ridge; soil white pipe-clay [nature.	do do do
Grey Ironbark	B	1	10-10-86	11-1-87	90 „	30 „	130, 30in. dia	50 to 100	24 to 36	Parish of Benandra, County of St. Vincent.	Slate stony ridges; poor soil.	do do do
do	B	17	30-6-87	26-8-87	160 „	30 „	86	100 to 200	24 to 36	Parish of Clyde, do.	Slate formation; stony ranges and spurs.	do do do
Red Ironbark	B	2	8-12-86	12-1-87	96 „	34 „	110, 28in. dia	50 to 100	24 to 36	Parish of Benandra, do.	do stony ridges; poor.	Eucalyptus leucoxylon do
do	B	16	30 6-87	26-8-87	180 „	29 „	95	100 to 200	24 to 36	Parish of Clyde, do.	do stony ranges and spurs.	do do do
do	P	4	14-7-87	12-10-87	134 „	20 „	161	80 to 100	22 to 36	Forest reserve 121, north of Bellinger River, Macleay district.	Tree grown on the slope of a gravel ridge; soil stiff yellow clay.	do do do
Forest Oak	A	1	19-4-87	3-5-87	74 „	15 „	45	60 to 80	11 to 13	Cowarra reserve Parish of Queen's Lake, A. O. Lauriton, County of Macquarie	Undulating; sub-soil yellow clay.	Casuarina torulosa Ait. ord. Casuarineæ.
do	A	0	5-5-87	5-5-87	62 „	18 „	32	50 to 70	15 to 20		do do do	do do do
do	P	13	13-7-87	12-10-87	90 „	22 „	108	50 to 60	10 to 14	Forest reserve 121, north of Bellinger River, Macleay district.	Tree grown on slope of a gravel ridge; soil stiff yellow clay.	do do do
Turpentine	A	2	18-4-87	3 5-87a	125 „	30 „	128	100 to 130	18 to 30	Cowarra reserve, parish of Queen's Lake, A. O. Lauriton, County [Macquarie.	Undulating; sub-soil clayey.	Syncarpia laurifolia Jen. ord. Myrtaceæ.
do	B	23	23-6-87	3-9-87	120 „	33 „	90	80 to 150	24 to 48	Parish of Woodburn, County St. Vincent.	Sandstone and basaltic; good porous soil.	do do do
do	P	3	16-7-87	14-10-87	100 „	34 „	182	80 to 140	2[illegible] to 42	Forest reserve, 121, north of Bellinger River, Macleay district.	Black soil; flat.	do do do
Flooded Gum	A	3	18-4-87	3-5-87	154 „	48 „	50	130 to 160	36 to 48	Cowarra reserve, parish of Queen's Lake, A.O. Lauriton, County [of Macquarie.	Level; moist and swampy scrub.	Eucalyptus Saligna Sm. ord. Myrtaceæ.
do ¶	F	5	Jlyor Aug 86	13-5-87	110 „	29 „	95	110 to 120	30	Parish of Tanban, County of Dudley.	Decomposed granite formation; clayey soil.	do do do
do	P	8	16-7-87	12-10-87	150 „	32 „	156	100 to 150	30 to 48	Forest reserve 121, north of Bellinger River, Macleay district.	Tree grown on black soil flat, near bank of creek.	Eucalyptus rostrata.
Stringy Bark	A	4	19-4-87	3-5-87	110 „	30 „	50	90 to 110	18 to 30	Cowarra reserve, Parish of Queen's Lake, A. O. Lauriton [County of Macquarie	Ridges, red soil.	Eucalyptus piperita var. Sm. ord. Myrtaceæ.
do	C	5	18-7-87	19-10-87	62 „	54 „	140	....	....	Coraki	Sandy loam.	Eucalyptus obliqua.
do	B	12	6-7-87	26-8-87	90 „	24 „	65	70 to 100	18 to 30	Parish of Mogendowra, County of St. Vincent.	Granite on stoney ridges; poor soil.	do do do
Blackwood	B	8	20-4-87	30-4-87	80 „	22 „	70	50 to 100	18 to 30		Basaltic; stoney; porous soil.	Acacia melanoxylon. R.Br. ord. Leguminosæ.
do	B	21	4-7-87	19-9-87	80 „	20 „	80	50 to 100	12 to 24	Parish of Murrengenburg, County of St, Vincent.	Trap; good rich, porous soil.	do do do
Mahogany‡	F	2	Jly orAug 86	14-5-87	120 „	33 „	110	100 to 120	30	Parish of Tanban, County of Dudley.	Decomposed granite formation, clayey soil.	Eucalyptus Resinifera Sm. ord. Myrtaceæ.
Grey Gum‖	F	4	do	20-1-87	150 „	33 „	90	140 to 150	30 to 36	do do do	Alluvial soil; flooded land.	Eucalyptus tereticornusis? Sm.
do	P	7	13-7-87	11-10-87	130 „	32 „	138	100 to 140	18 to 36	Forest reserve 121, north of Bellinger River, Macleay District.	Top of a quartz ridge; soil white pipeclay nature.	Eucalyptus Saligna.
Grey Box	D	2	5-85	5-87	90 „	20 „	123	90	20	South Grafton Forest Ridges.	Ironstone; poor soil, clay sub-soil.	Eucalyptus polyanthema Schau ord Myrtaceæ
do	B	9	6-7-87	25-8-87	100 „	30 „	110	80 to 120	24 to 36	Parish of Mogendowra, County of St. Vincent,	Granite on good alluvial soil.	Tristania conferta.
do	P	10	11-7-87	11-10-87	70 „	33 „	130	60 to 100	30 to 42	Forest reserve 121, north of Bellinger River, Macleay District.	On the slope of a gravel ridge; soil black loamy nature.	do do
Pine	D	8	15-4-87	5-5-87	140 „	26 „	198	140	26	West camp, Nymboida.	Trap; scrub soil.	Araucaria Cunninghamii Ait. ord. coniferæ.
do	C	7	18-7-87	19-10-87	70 „	50 „	180	....	....	Goolmangar.	Basaltic; chocolate soil.	do do do
Forest Mahogany*	D	4	2-87	5-5-87	140 „	26 „	198	140	26	North Arm, Clarence River.	Forest ridges; red soil.	Eucalyptus resinifera Sm. ord. Myrtaceæ.
do	P	11	18-7-87	13-10-87	140 „	39 „	214	80 to 150	30 to 48	Forest reserve 121, north of Bellinger River, Macleay District.	On top of a gravel ridge; soil stiff yellow clay.	do do do
Rosewood	D	5	15-4-87	5-5-7	70 „	15 „	100	100	24	West camp, Nymboida River.	Trap; scrub soil.	Disoxylon Fraserianum Benth. ord Meliaceæ.
do	P	16	19-7-87	14-10-87	90 „	38 „	186	80 to 100	35 to 48	Benville Creek, north of Bellinger River, near Dividing Range.	Alluvial flat on the bank of Benville creek.	do do do
White Beech	D	6	2-5-87	4-5-87	80 „	18 „	126	120	30	Alumny Creek reserve, 260.	Sandstone, alluvial.	(Not true white beech Gmelina Leichardtii)
do	P	15	19-7-87	14-1·-87	110 „	38 „	141	90 to 130	24 to 48	Benville Creek, north of Bellinger River, near Dividing Range.	Alluvial flat on the Bank of Benville creek.	Gmelina Leichardtii. [genus species not ind.
Swamp Mahogany	B	6	18-4-87	22-4-87	50 „	36 „	80	50 to 70	24 to 36	Moruya, County of St. Vincent.	Alluvial, and swampy sour soil.	Eucalyptus Robusta Sm. ord. Myrtaceæ.
do	B	10	29-6-87	25-8-87	130 „	29 „	86	100 to 150	24 to 48	Parish of Mogendowra, County of St. Vincent.	do do	do do do
do	P	12	11-7-87	14-10-87	98 „	28 „	172	60 to 90	22 to 30	Forest reserve 121, north of Bellinger River, Macleay District.	Boggy swamp near north bank of Bellinger, timber very faulty.	do do do
Mountain Ash	B	7	15-4-87	26-4-87	100 „	30 „	80	80 to 150	24 to 48	Parish of Monga, County of St. Vincent.	Granite, stony soil.	Eucalyptus Virgata Sieb. ord. Myrtaceæ.
do	B	18	4-7-87	16-9-87	120 „	32 „	96	80 to 130	24 to 48	do do	Granite, stoney ridges; poor soil.	do do do
do	C	3	4-7-87	10-9-87	60 „	42 „	203	....	....	County of Rous.	Basaltic; chocolate soil.	Evodia micrococa.
Black Bean	C	1	do	do	115 „	48 „	..	....	....	do	do do	Castanospermum Australe.
Red Bean	C	2	do	do	80 „	51 „	..	....	....	do	do do	
Mountain Gum	B	19	4-7-87	13-9-87	160 „	40 „	120	100 to 200	24 to 48	Parish of Murrengenburg, County of St. Vincent.	Slate; good open soil.	Cannot at present be named.
Messmate	B	20	do	7-9-87	140 „	36 „	112	100 to 200	24 to 60	Parish of Monga, do	Granite; poor soil.	Eucalyptus Amygdalina.
do	P	6	19-7-87	12-10-87	100 „	33 „	153	80 to 120	24 to 36	Forest reserve 121, north of Bellinger River, Macleay District.	Pipeclay flat, timber very faulty.	do do do
Coach Wood or Leather Jacket	B	24	2-8-87	26-9-87	93 „	34 „	106	60 to 120	18 to 36	Parish of Broughton, County of Camden.	Basalt; rich red loam soil.	Ceratopetalum Apetalum.
do	P	14	18-7-87	13-10-87	60 „	24 „	105	50 to 60	18 to 24	Pine Creek, north of Bellinger River a tributary of Benville [Creek.	Alluvial flat on bank of Pine Creek.	do do do
Bloodwood	P	9	11-7-87	11-10-87	75 „	27 „	139	70 to 100	24 to 36	Forest reserve 121, north of Bellinger River, Macleay District.	On slope of gravel ridge, black loam soil.	Eucalyptus Corymbosa.
do	B	13	7-7-87	26 8-87	110 „	30 „	70	70 to 100	24 to 36	Parish of Mogendowra, County of St. Vincent	Slate; very poor soil.	do do

* Those marked with O additional, felled some years ago. † From an old tree decayed at heart 12 inches pipe. Fifteen specimens, as per size, from the same tree. ‡ An old tree, 6 inches pipe. Fifteen specimens from same tree. § An old tree, 9 inches pipe. Fifteen specimens from the same tree. ‖ Fairly matured tree, sound, no pipe. Fifteen specimens from the same tree, one of these specimens 5 by 3, is under the size given, there being no suitable timber left to make the third 6 by 4 required, the timber having lain in the mill yard since January will account for the numerous sun cracks. ¶ Fully matured tree, 4 inches pipe. a All from the same tree.

NOTE.—The natural growth and blending of the annual rings into each other renders it impossible to arrive at a correct estimate of the number of rings on a rough surface, although this may be done on a polished surface.

TRANSVERSE STRENGTH AND ELASTICITY OF NEW SOUTH WALES TIMBERS.

TABLE I.

Local Name.	Distinguishing Letter and Number.	Size of Specimen.			Weight in pounds per Cubic foot.	Breaking Load in Pounds.	Modulus of Rupture in pounds per square inch.	Modulus of Elasticity in pounds per sq. inch.	Number of days in Seasoning.	Deflections.							Remarks.
		Length.	Width.	Depth.						2,500 lbs.	5,000 ,,	10,000 ,,	12,500 ,,	15,000 ,,	17,500 ,,	20,000 ,,	
		′ ″	″	″						inches.	inches.	inches.	inches.	inches.	inches.	inches.	
Tallow-wood	M 1, 1	4 6·00	4·00	6·00		21,000	10,500	....	59								
,,	M 1, 2	4 6·00	3·96	5·90		22,000	11,491	1,523,024		·055	·11	·22	...	·328	...	·47	
,,	M 1, 3	4 6·00	4·00	6·00		24,000	12,000	1,867,272		·055	·11	·21	...	·34	...	...	
,,	F 3, 1	4 6·15	5·88	3·91	77·06	18,125	14,517	1,966,509	297	·1	·2	·4	...	·62	...	...	
,,	F 3, 2	4 6·00	5·92	3·92		18,375	14,543	2,153,680	298	·09	·18	·365	...	·58	...	...	
,,	F 3, 3	4 6·18	5·76	3·72		18,500	16.711	2,742,418	298	·085	·17	·34	...	·54	...	...	
,,	P 2, 1	4 4·625	5·57	3·59	64·87	20,310	19,281	2,688,700	311	·094	·187	·365	...	·54	·66	...	
,,	P 2, 2	4 4·375	5·70	3·87		22,125	18,660	2,676,100		·08	·16	·316	...	·456	·536	...	
,,	P 2, 3	4 4·125	5·54	3·84		21,250	19 745	2,871,200		·085	·175	·34	...	·517	·633	...	
Spotted Gum	M 2, 1	4 6·00	3·98	5·92		24,000	12,388	1,674,116	58	·05	·1	·2	...	·3	...	·455	
,,	M 2, 2	4 6·00	3·94	5·90		24,000	12,599	2,086,678		·04	·08	·165	...	·265	...	.4	
,,	M 2, 3	4 6·00	3·94	5·90		24,000	12,599	1,984,405		·043	·085	·18	...	·28	...	·41	
,,	B 3, 1	4 6·10	5·86	3·95	62·19	18,500	14,568	2,126,534	330	·09	·18	·36	...	·63	...	...	
,,	B 3, 2	4 6·10	5·90	3·99		15,000	11,498	1,800,394	331	·10	·2	·42	...	...	...	...	
,,	B 3, 3	4 5·90	5·89	3·99		18,000	13,821	2,241,376	331	·08	·16	·34	...	...	...	...	
,,	B 14, 1	4 6·375	5·66	3·8	54·06	19,000	16,738	2,472,900	668	·09	·178	·35	...	·58	·79	...	
,,	B 14, 2	4 5·75	5·88	3·79		19,600	16,709	2,847,100		·092	·187	·367	...	·577	·767	...	
,,	B 14, 3	4 5·75	5·75	3·85		18,560	15,679	2,840,500		·09	·182	·358	...	·587	·79	...	
,,	C 4, 46	4 6·48	5·91	3·97	63·6	22,700	17,552	2,956,700	872	·062	·122	·247	...	·3725	...	·527	
,,	C 4, 47	4 6·24	5·84	3·92		24,500	19,657	3,056,300		·06	·125	·253	...	·38	...	·545	
,,	C 4, 48	4 6·48	5·85	3·97		24,500	19,182	3,125,000		·063	·123	·25	...	·375	...	·575	
Blackbutt	M 3, 1	4 6·00	4·00	5·90		18,000	9,308	1,536,432	60	·055	·11	·22	...	...	...	...	
,,	M 3, 2	4 6·00	3·95	5·80		21,000	11,379	1,454,779		·06	·12	·24	...	·415	...	...	
,,	M 3, 3	4 6·00	3·94	5·87		21,500	11,402	1,734,695		·05	·1	·2	...	·34	...	...	
,,	F 1, 1	4 6·10	5·91	3·90	66·69	16,500	13,216	1,923,528	285	·102	·205	·4	...	·7	...	...	
,,	F 1, 2	4 6·00	5·94	3·92		17,500	13 804	1,981,319	285	·098	·195	·3	...	·67	...	...	
,,	F 1, 3	4 6·10	5·93	3·92		16,750	13,235	1,984,660	294	·098	·195	·4	...	·725	...	...	
,,	B 4, 1	4 6·10	5·90	4·03		18,700	14,051	2,433,319	241	·07	·14	·31	...	·53	...	...	
,,	B 4, 2	4 6·10	5·89	3·96		17,000	13,252	2,315,101		·075	·15	·35	...	·65	...	...	
,,	B 4, 3	4 6·10	5·86	3·98		19,100	14,815	2,338,659		·08	·16	·32	...	·55	...	...	
,,	B 22, 1	4 5·5	5·50	3·64	57·997	16,750	16,550	2.314,900	689	·11	·215	·43	...	·72	...	...	
,,	B 22, 2	4 4·625	5·50	3·77		20,000	18,421	2,526,100		·095	·185	·355	...	·55	·705	...	Broke along a gum vein.
,,	B 22, 3	4 4·5	5·52	3·68		19,125	18,627	2,432,400		·105	·205	·395	...	·615	·815	...	
,,	P 1, 1	4 4·625	5·65	3·87	55·895	22,500	19,145	2,633,950	668	·082	·165	·325	...	·48	...	...	
,,	P 1, 2	4 4·625	5·66	3·97		19,550	16,351	2,421,450		·087	·174	·327	...	·477	·577	...	Sheared along a gum vein horizontal.
,,	P 1, 3	4 4·25	5·64	3·87		22,425	19,115	2,486,900		·087	·175	·335	...	·49	·59	...	
Woolybutt	B 5, 1	4 6·10	5·88	3·94	63·89	15,400	12,147	2,079,282	241	·095	·19	·36	...	...	...	...	
,,	B 5, 2	4 5·80	5·86	3·94		16,000	12,664	2,012,110	241	·09	·18	·41	...	·88	...	...	
,,	B 5, 3	4 6·20	5·84	3·95		16,850	13,314	2,329,939	242	·08	·16	·34	...	·77	...	...	
,,	B 15, 1	4 4·625	5·64	3·79	63·989	17,500	15,553	2,046,500	675	·11	·22	·43	...	·7	...	...	
,,	B 15, 2	4 4·625	5·66	3·76		18,000	16,196	2,088,500		·11	·221	·43	...	·678	...	...	
,,	B 15, 3	4 4·875	5·69	3·76		17,000	15,216	2,077,500		·11	·22	·43	...	·78	...	...	
Red Gum	1 M 1, 1	4 6·60	5·87	3·96	62·19	7,250	5,671	630,898	273	·28	·64		...	...	...	...	
,,	1 M 1, 2	4 6·80	3·96	5·88		11,725	6,166	741,494	273	·16	·31	·69	...	...	...	...	
,,	2 M, 3	4 6·50	3·97	5·89		17,125	8,953	912,915	362	·09	·2	·42	...	·8	...	...	
,,	B 11, 1	4 6·25	5·51	3·74	70·815	15,275	14,192	2,168,130	669	·11	·225	·455	...	·765	...	...	Knot. [grain.
,,	B 11, 2	4 4·5	5·54	3·70		20,000	18,986	2,239,200		·11	·22	·44	...	·69	...	...	Sound—straight
,,	B 11, 3	4 6·375	5·50	3·74		15,250	14,272	2,183,900		·11	·22	·435	...	·69	...	...	Knot in middle.
,,	C 6, 76	4 6·36	5·85	3·93	68·4	14,000	11,156	1,899,100	372	·105	·206	·416	·515	...	...	...	
,,	C 6, 77	4 6·36	5·80	3·94		16,650	13,419	1,948,400		·1025	·2075	·4125	...	...	...	...	
,,	C 6, 78	4 6·48	5·75	3·95		19,000	15,604	2,167,300		·108	·208	·376	...	·62	·758	...	
White Ironbark...	D 1, 1	4 5·95	5·98	3·84	73·55	19,625	16,024	2.916,157	51	·07	·14	·295	...	·465	·608	...	
,,	D 1, 2	4 6·50	5·99	3·86		21,250	17,143	2,994.610		·077	·154	·285	...	·434	...	·64	
,,	D 1, 3	4 5·80	5·96	3·97		23,000	17 629	2.471,295		·075	·15	·304	...	·44	...	·629	
,,	P 5, 1	4 4·625	5·75	3·92	69·578	25,000	20,370	2,722,800	682	·075	·15	·285	...	·415	...	·565	
,,	P 5, 2	4 4·25	5·57	3·88		24,125	20,715	3,601,100		·076	·156	·29	...	·426	...	·592	
,,	P 5, 3	4 4·00	5·64	3·88		23,375	19,822	2,788,300		·077	·157	·297	...	·428	...	·596	
Grey Ironbark ...	B 1, 1	4 6·00	6·03	4·10	73·85	25,000	17,758	2,716,499	117	·06	·12	·25	...	·48	...	·56	
,,	B 1, 2	4 6·00	6·10	4·14		25,000	17,216	2,559,107	121	·06	·12	·26	...	·39	...	·56	
,,	B 1, 3	4 5·90	5·92	4·00		24,500	18,623	2,178,791	197	·085	·17	·33	·402	...	...	...	
,,	B 17, 1	4 4·875	5·66	3·80	74·73	22,750	20,042	2,781,950	675	·08	·15	·3	...	·455	...	·66	
,,	B 17, 2	4 5·125	5·56	3·80		25,000	22,420	2,832,000		·08	·14	·303	...	·453	...	·628	Cracked through.
Red Ironbark......	B 2, 1	4 6·00	6·00	4·00	76·52	21,500	16,125	2,400,000	58	·075	·15	·3	...	·46	·617	...	
,,	B 2, 2	4 6·20	5·90	3·90		20,500	16.448	2,806,572	121	·09	·18	·32	...	·47	...	·66	
,,	B 2, 3	4 6·10	5·91	3·92		20,500	16,258	2,818,836	121	·085	·17	·33	·423	...	...	...	
,,	B 16 1	4 5·25	5·60	3·77	72·57	22,000	19,901	2,775,300	554	·083	·165	·34	...	·505	...	·72	
,,	B 16, 2	4 4·5	5·60	3·77		21,500	19,949	2,559,400		·09	·178	·36	...	·54	·66	...	
,,	B 16, 3	4 4·75	5·65	3·80		22,750	20,042	2,662,900		·085	·17	·333	...	·52	63	...	
,,	P 4, 1	4 4·5	5·51	3·67	72·879	24,125	23,406	3,715,100	671	·088	·17	·335	...	·505	...	·722	
,,	P 4, 2	4 4·5	5·51	3·69		23,687	22,732	2,838,800		·09	·172	·336	...	·5	...	·705	
,,	P 4, 3	4 4·25	5·61	3·80		17,125	15,220	2,703,200		·085	·165	·315	...	·47	...	...	Faulty specimen.
Forest Oak	A O. 1	4 6·00	6·00	3·91	75·48	20,000	15,698	2,240,906	51	·08	·172	·37	...	·57	·69	...	
,,	A O, 2	4 6·15	5·96	3·91		18,750	14,816	2,503 372	36	·095	·185	·38	...	·58	·77	...	
,,	A 1, 3	4 6·15	5·98	3·98		21,000	15,962	2,444,511	36	·08	·172	·35	...	·515	·65	...	
,,	P 13, 1	4 5·00	5·59	3·70	63·907	14,875	13,995	2.379,000	686	·105	·212	·43	·59	...	...	...	Longit'nal crack.
,,	P 13, 2	4 4·00	5·62	3·74		18,250	16,715	2,830,800		·085	·17	·389	...	·52	·675	...	
,,	P 13, 3	4 4·125	5·58	3·68		17,500	17,136	2.523,840		·105	·203	·423	...	·673	...	...	
Turpentine	A 2, 1	4 5·90	5·98	3·95	69·84	16,125	12,443	2,273,303	54	·081	·165	·43	·628	...	...	...	
,,	A 2, 2	4 6.05	5·94	3·93		15,250	11,968	1,783,827		·095	·215	·43	...	·78	...	...	
,,	A 2, 3	4 6·00	5·99	3·97		14,125	10,772	1,839,943		·09	·21	·4	·62	...	...	...	
,,	B 23, 1	4 4·875	5·30	3·64	63·58	13,400	13,739	2,129,200	689	·127	·257	·512	·672	...	...	...	
,,	B 23, 2	4 4·125	5·34	3·68		14,500	14,436	1,855,200		·14	·285	·57	·74	...	...	...	
,,	B 23, 3	4 4·5	5·33	3·67		16,250	16,298	2,018,100		·13	·255	·53	·68	...	...	...	
,,	P 3, 1	4 4·125	5·16	3·66	62·01	14,375	14,974	1,889,100	666	·148	·292	·58	·755	...	...	...	
,,	P 3, 2	4 3·875	5·03	3·57		16,250	18,251	2,060,300		·15	·295	·59	·78	...	...	...	
,,	P 3, 3	4 4·375	5·17	3·65		15,812	16,529	1,940,300		·145	·29	·58	...	...	...	...	
Flooded Gum......	A 3, 1	4 6·20	5·96	3·96	69·84	17,000	13,096	1,778,617	54	·108	·21	·43	...	·785	...	...	
,,	A 3, 2	4 6·20	5·94	3·92		13,500	10,649	1,717,143		·108	·225	·41	·575	...	...	...	
,,	A 3, 3	4 6·20	5·96	3·96		16,000	12,326	2,334,435		·085	·16	·37	·505	...	...	...	
,,	F 5, 1	4 6·12	5·88	3·92	77·94	21,875	17,431	2,230,284	331	·087	·175	·375	...	·563	...	·78	
,,	F 5, 2	4 6·14	5·92	3·88		21,250	17,167	2,351,624		·085	·17	·335	...	·515	...	·804	
,,	F 5, 3	4 6·20	5·88	3·84		22,000	18,269	2,442,384		·085	·17	·343	...	·52	...	·765	
,,	P 8, 1	4 4·25	5·78	3·66	55·027	17,250	16,041	2,546,890	673	·098	·194	·435	...	·79	...	...	
,,	P 8, 2	4 4·125	5·62	3·88		15,875	13,510	1,976,300		·109	·21	·475	·695	...	...	...	
,,	P 8, 3	4 4·125	5·63	3·65		15,000	14,399	2.066,900		·125	·235	·51	...	...	...	...	Cracked.
Stringy Bark	A 4, 1	4 6·10	6·00	3·97	71·33	19,250	14,657	2.375,632	52	·078	·155	·311	...	·45	·645	...	
,,	A 4, 2	4 6·25	5·96	3·96		17,750	18,674	2,490,065	55	·075	·15	·294	...	·5	...	...	
,,	A 4, 3	4 6·25	5·97	3·96		17,500	18,462	2,193.436	56	·085	·17	·34	...	·55	...	...	
,,	C 5, 61	4 6·24	5·65	3·85	58·6	16,750	14,400	1,869,900	372	·119	·242	·48	...	·785	...	...	
,,	C 5, 62	4 6·48	5·84	3·79		16,750	14,376	1,812,100		·11	·22	·445	·68	...	...	...	
,,	C 5, 63	4 6·48	5·81	3·90		16 525	13.461	1,506,500		·125	·25	·494	...	·725	...	...	
,,	B 12, 1	4 5·75	5·62	3·78	68·312	17,250	15,360	1,897,700	663	·12	·23	·45	...	·705	...	...	Knot in centre.
,,	B 12, 2	4 6·875	5·65	3·80		17,375	15,438	2,123.300		·105	208	·423	...	·665	...	...	
,,	B 12, 3	4 6·00	5·82	3·88		16,437	15,549	1,888,100		·115	·227	·44	...	·677	...	...	

TRANSVERSE STRENGTH AND ELASTICITY OF NEW SOUTH WALES TIMBERS.

TABLE I.—*Continued.*

Local Name.	Distinguishing Letter and Numbers.	Size of Specimen.			Weight in pounds per Cubic foot.	Breaking Load in Pounds.	Modulus of Rupture in pounds per square inch.	Modulus of Elasticity in pounds per sq. inch.	Number of days in Seasoning.	Deflections.							Remarks.
		Length.	Width.	Depth.						2,500 lbs.	5 000 ,,	10,000 ,,	12,500 ,,	15,000 ,,	17,500 ,,	20,000 ,,	
		′ ″	″	″						inches.	inches.	inches.	inches.	inches.	inches.	inches.	
Blackwood	B 8, 1	4 6·90	6·02	4·10	70·58	13,500	9,605	1,893,096	51	·088	·176	·370	...	...	...	...	
,,	B 8, 2	4 8·00	5·96	4·04		19,250	14,248	2,069,161	51	·085	·170	·326	...	·540	·690	...	
,,	B 8, 3	4 7·10	5·99	4·03		9,375	6,938	1,763.039	54	·100	·200	...	...	...	...	...	
,,	B 21, 1	4 5·875	5·73	3·82	37·261	15,000	12,925	1,684.620	672	·130	·260	·515	·680	...	...	...	
,,	B 21, 2	4 6.875	5·85	3·73		13,000	11,503	1,626,300		·140	·285	·575	...	...	...	...	
,,	B 21, 3	4 6·00	5·84	3·79		15,000	12,875	1,672,460		·130	·269	·532	·700	...	...	...	
Mahogany	F 2, 1	4 6·05	5·94	3·88	75·05	17,000	13,688	2,097,001	328	·095	·190	·390	...	·595	...	...	
,,	F 2, 2	4 6·05	5·94	3·88		18,500	14,895	2,414,728		·082	·165	·334	...	·520	...	...	
,,	F 2, 3	4 6·05	5.92	3·87		18,625	14,917	2,263,388		·089	·178	·365	...	·550	...	...	
Grey Gum	F 4, 1	4 6·20	4·76	3·06	57·33	7,750	12,519	1,987,432	329	·255	·510	...	...	...	...	...	
,,	F 4, 2	4 6·12	5·64	3·72		16,250	14,991	2,880,652		·100	·200	·417	·585	...	...	...	
,,	F 4, 3	4 6·08	5·80	3·86		14,125	11,768	2,072,115		·100	·200	·434	...	...	...	...	
,,	P 7, 1	4 4·125	5·66	3·89	70·34	22.935	19,281	2 589,000	678	·082	·164	·232	...	·493	·618	...	
,,	P 7. 2	4 4·25	5·72	3·87		16,000	13,447	2,381,400		·090	·180	·360	...	·550	...	...	
,,	P 7, 3	4 4·25	5·61	3·83		22,875	20,015	2,671,500		·084	·170	·340	...	·520	...	...	
Australian Teak...	F 6, 1	4 9·60	5·92	3·89	62·9	18,000	14.467	2,196,474		·090	·180	·350	...	·590	...	...	
,,	F 6, 2	4 9·45	5·94	3·86		19,750	16,067	2,196,913	......	·090	·180	·355	...	·570	...	...	
,,	F 6, 3	4 9·60	5·89	3·87		15,575	12,712	2,131,237		·095	·190	·390	...	·760	...	...	
Grey Box	D 2, 1	4 6·00	5·95	3·87	73·62	19,500	15.755	2,783,692	768	·072	·144	·295	...	·470	...	...	
,,	D 2, 2	4 6·10	5·91	3·88		20.325	16,448	2.669.684		·075	·150	·295	...	·445	...	...	
,,	D 2, 3	4 6·40	5·94	3·88		20,400	16,425	2,845,930		·070	·140	·295	...	·490	...	...	
,,	B 9, 1	4 5·625	5·6	3·75	67·165	20,937	19,144	2,310,580	661	·100	·203	·400	...	·603	·780	...	
,,	B 9, 2	4 5·50	5·58	3·80		18,875	16.866	1,881,210		·120	·240	·490	...	·800	...	...	
,,	B 9, 3	4 5·375	5·48	3·78		20,000	18,433	2,123,020		·110	·220	·445	...	·700	...	...	
,,	P 10, 1	4 4·625	5·64	3·86	58·094	15,500	13.281	1,791,500	681	·122	·250	·520	·700	...	...	...	
,,	P 10, 2	4 4·75	5·60	3·77		15,875	14,328	2,142,900		·110	·220	·445	·620	...	...	...	
,,	P 10, 3	4 4·50	5·53	3·74		14,125	12,875	2,037,400		·120	·265	·620	...	...	...	...	
Pine	D 3, 1	4 6·25	6·04	3·87	54·31	11,250	8,954	2,668,100	55	·063	·148	·460	...	...	...	...	
,,	D 3, 2	4 6·30	5·96	3·90		11,000	8,737	2,443,844		·075	·160	·500	...	...	...	...	
,,	D 3, 3	4 6·15	5·99	3·88		11,000	8,783	2,112,857		·080	·187	·500	...	...	...	...	
,,	C 7, 91	4 6·36	5·93	3·88	33·6	10,000	...	...	372	·115	·230	...	...	...	...	...	
,,	C 7, 92	4 6·36	5·94	3·91		14,400	11,420	2,329.200		·090	·181	·386	...	...	...	...	
,,	C 7, 93	4 6·24	5·90	3·97		14,000	10,840	1,747,400		·100	·200	·390	·505	...	...	...	
Forest Mahogany	D 4, 1	4 6·20	6·03	3·90	72·23	18,125	14,228	2,760,554	54	·065	·140	·303	...	·460	...	...	
,,	D 4, 2	4 6·10	5·96	3·88		15,500	12,438	3,514.097	54	·060	·113	·305	...	·500	...	...	
,,	D 4, 3	4 6·50	5·89	3·89		18,125	14,642	2,848,010	58	·065	·140	·280	...	·510	...	...	Split at 11250 lbs.
,,	P 11, 1	4 4·625	5·67	3·85	59·819	19,500	16,705	2,914,600	674	·075	·145	·325	...	...	...	...	
,,	P 11, 2	4 4·25	5·51	3·66		20,000	18,125	1,914,000		·098	·190	·377	...	·625	·805	...	
,,	P 11, 3	4 4·5	5·60	3·70		20,250	17,965	2,744,800		·084	·163	·339	...	·524	·679	...	
Rosewood	D 5, 1	4 6·30	5·87	3·84	74·29	11,750	9,774	2,079,563	54	·096	·200	·470	...	...	...	...	
,,	D 5, 2	4 6·15	5·88	3·84		12,625	10,484	1,730,022		·117	·240	·505	...	...	...	...	
,,	D 5, 3	4 6·00	5·90	3·85		14,000	11,526	2,002,837		·100	·205	·445	...	...	...	...	
,,	P 16, 1	4 4·625	5·70	3·81	47·269	15,250	13,270	1,725,900	680	·130	·265	·520	·700	...	...	...	
,,	P 16, 2	4 4·125	5·79	3·84		15,750	13,282	1,659,500		·130	·252	·510	·680	...	...	...	
,,	P 16, 3	4 4·5	5·72	3·90		15,800	13,075	1,829,700		·125	·250	·505	·660	...	...	...	
White Beech	D 6, 1	4 6·30	6·02	3·85	63·03	19,625	15,835	2,794,426	38	·0625	·144	·335	...	·540	...	...	
,,	D 6, 2	4 6·05	6·04	3·86		18,250	14,601	2,116,786	38	·087	·188	·393	...	·680	...	...	
,,	D 6, 3	4 6·35	5·99	3·96		21,375	16,384	2,352,145	42	·080	·158	·346	...	·550	...	...	
,,	P 15, 1	4 4·25	5·87	3·88	49·12	9,875	8,050	1,453,600	680	·142	·280	·840	...	...	...	...	
,,	P 15, 2	4 4·25	5·85	3·83		8,800	7,383	1,397,400		·154	·304	...	...	...	...	...	
,,	P 15, 3	4 4·25	5·76	3·81		8,800	7,577	1,441,700		·154	·310	...	...	...	...	...	
Swamp Mahogany	B 6, 1	4 6·80	5·91	3·94	75·98	13,750	10,791	2,331,974	51	·082	·164	·350	·450	...	...	...	
,,	B 6, 2	4 7·80	5·95	3·86		15,500	12,588	1,836,251		·110	·220	·456	·595	...	...	...	
,,	B 6, 3	4 6·70	5·92	3·90		16,250	12,994	2,127,877		·092	·185	·365	...	·610	...	...	
,,	B 10, 1	4 6·125	5·62	3·74	52·508	12,500	11,449	1,567,330	668	·150	·315	·651	·930	...	...	...	
,,	B 10, 2	4 6·125	5·40	3·78		15,800	14,744	1,543,030		·122	·247	·500	·658	...	...	...	Knot near centre.
,,	B, 10 3	4 6·00	5·38	3·80		15,250	14,463	2,036,000		·115	·231	·470	·618	...	...	...	
,,	P 12, 1	4 4·125	5·56	3·83	56·715	12,125	10,704	1,886.900	681	·120	·235	·470	...	...	...	...	Gum veins.
,,	P 12, 2	4 4·75	5·59	3·77		12,250	11,101	2,001,200		·118	·223	·470	...	...	...	...	,, ,,
,,	P 12, 3	4 4·625	5·68	3·78		14,250	12,642	2,100,800		·110	·215	·452	·650	...	...	...	,, ,,
Mountain Ash ...	B 7, 1	4 7·10	5·96	3·95	66·57	15,500	12,001	2,045,400	54	·092	·184	·365	·450	...	...	...	
,,	B 7, 2	4 6·70	5·98	3·96		14,000	10,749	2,063,114	55	·090	·180	·375	·460	...	...	...	
,,	B 7, 3	4 6·60	5·93	3·94		15,125	11,830	2,049,167	58	·093	·186	·370	·465	...	...	...	
,,	C 3, 31	4 6·48	5·98	3·85	41·50	15,000	12,184	1,617,300	386	·118	·228	·458	·588	...	...	...	
,,	C 3, 32	4 6·24	5·78	3·85		14,400	12,102	1,854,200		·117	·237	·462	...	...	...	...	
,,	C 3, 33	4 6·48	5·97	3·97		13,500	10,330	1,577,200		·126	·246	·496	...	...	...	...	
,,	B 18, 1	4 5·875	5·64	3·74	53·936	14,500	13,232	2,231,100	672	·105	·202	·410	·519	...	...	...	
,,	B 18, 2	4 6·125	5·72	3·62		16,250	15,618	2,087,900		·122	·240	·482	·612	...	...	...	
,,	B 18, 3	4 6·375	5·56	3·54		13,750	11,286	2,160,609		·130	·260	·518	...	...	...	...	
Black Bean.........	C 1, 1	4 6·24	6·05	4·10	57·4	16,000	11,325	1,594,900	386	·101	·202	·405	·595	·625	...	...	
,,	C 1, 2	4 6·48	6·03	4·02		15,000	11,085	1,501,700		·125	·240	·475	·585	...	...	...	
,,	C 1, 3	4 6·36	6·05	4·07		15,500	11,135	1,526,700		·118	·232	·465	...	...	...	...	
Red Bean	C 2, 16	4 6·28	5·87	4·00	46·5	9,000	6,900	1,196,500	386	...	...	...	...	...	...	...	
,,	C 2, 17	4 6·28	5·91	4·05		7,500	5,671	1,193,600		·154	·311	...	...	...	...	...	
,,	C 2, 18	4 6·24	5·67	4·02		6,250	4,911	962,140		·217	·427	...	...	...	...	...	
Mountain Gum ...	B 19, 1	4 5·0	5·34	3·75	50·873	15,000	14,382	1,888,100	672	·130	·258	·520	·687	...	...	...	
,,	B 19, 2	4 6·25	5·54	3·70		14,250	13,528	1,734,600		·142	·340	·650	...	...	...	...	
,,	B 19, 3	4 5·0	5·52	3·72		13,250	12,489	1,676,000		·145	·300	·630	·680	...	...	...	
Messmate	B 20, 1	4 7·375	5·57	3·70	52·252	14,300	13,503	1,841,600	672	·130	·265	·530	·710	...	...	...	Broke thro' knot.
,,	B 20, 2	4 6·375	5·57	3·68		16,750	15 846	2,146,000		·115	·240	·475	·610	·790	...	...	
,,	B 20, 3	4 5·00	5·62	3·56		15,750	16,210	2,134,900		·130	·260	·528	·685	...	...	...	
,,	P 6, 1	4 3·875	5·72	3·83	56·746	19,800	16,991	2,201,100	666	·100	·200	·380	...	·580	...	...	
,,	P 6, 2	4 4·125	5·70	3·86		17,875	15,154	2,247,500		·096	·191	·376	...	·580	...	...	
,,	P 6, 3	4 4·50	5·73	3·85		17,435	14,780	2,253,200		·096	·190	·390	...	·600	...	...	
Coachwood or	B 24, 1	4 4·5	5·68	3·82	36·29	12,750	11,115	1,369,200	649	·160	·310	·650	...	...	...	...	
Leather Jacket	B 24, 2	4 4·625	5·82	3·81		11,000	9,375	1.371,600		·153	·308	·643	...	...	...	...	
,,	B 24, 3	4 5·375	5·67	3·81		13,750	12,028	1,574,400		·140	·278	·577	...	...	...	...	
,,	P 14, 1	4 4·5	5·61	3·72	39·63	11,000	10,202	1,632.800	681	·150	·302	·670	...	...	...	...	Twisted specimen.
,,	P 14, 2	4 4·375	5·64	3·55		10,500	16,637	1,660,200		·165	·335	·855	...	...	...	...	,, ,,
,,	P 14, 3	4 4·75	5·64	3·71		10,750	9,970	1,860,500		·132	·263	·702	...	...	...	...	Broke by shearing.
Bloodwood	P 9, 1	4 4.5	5·87	3·80	60·124	13,000	11,050	1,757,800	678	·125	·250	·510	...	...	...	...	Full gum v., & spt.
,,	P 9, 2	4 4·5	5·75	3·87		17,500	14,430	2,439,400		·087	·172	·372	...	·642	...	...	Gum veins.
,,	P 9, 3	4 4·5	5·71	3·85		21,625	18,418	2,359,400		·092	·190	·367	...	·547	...	...	,, ,,
,,	B 13, 1	4 6·125	5·70	3·79	55·437	15,375	13,520	1,855,800	661	·120	·235	·475	...	·770	...	...	Split along g.v.
,,	B 13, 2	4 5·625	5·60	3·75		12,000	10,971	1,733,800		·135	·265	·540	...	...	...	...	Full g.v., & knot.
,,	B 13, 3	4 5·00	5·88	3·82		16,000	13,426	1,757,335		·120	·235	·470	·580	...	...	...	Gum v., & knot,

The following remarks of Sir William Macarthur excellently state this difficulty in regard to our native trees. They were written in 1854, and are true to-day. Speaking more particularly of "brush" timber, he says:—"The most experienced amongst the sawyers have no names for a great number, and can give little information to be relied upon with regard to the qualities of their timber. They have been in the habit of confounding together numerous species under the general designation of "brush trees." It requires careful and laborious investigation on the part of a stranger in these brushes to distinguish trees even of very different families. Their foliage is often so far overhead, and so intermingled with that of the neighbouring trees and climbers, their trunks are so covered with epiphytes, and the light is so imperfect, that the tree often requires to be cut down to determine its identity. . . . . The uncertainty of their periods of flowering and fruiting, gives rise to further difficulty."

Also the colony is but a century old, and all our knowledge in regard to its timbers has had to be painfully acquired since then.

Systematic attempts to describe and classify our timbers date from the year 1855, the date of the Paris Exhibition, as it was only Tasmania (Van Diemen's Land, as it was then called) which used the Great Exhibition of 1851 to make known her native timbers. In the year 1854, for the display at Paris in the year following, the first serious attempt was made to gather our native timbers together, name, and give particulars concerning them. This work was delegated to Mr. (afterwards Sir) William Macarthur, who undertook the collection of timbers from what was called the "Southern districts," but which mainly comprised the counties of Cumberland and Camden, while Mr. Charles Moore, then, as now, director of the Botanic Gardens, took charge of the "Northern districts," but his specimens only came from what is now a portion of Southern Queensland. These two gentlemen again co-operated for the London Exhibition of 1862, their collections in that Exhibition being of enhanced value, partly by reason of their greater number, and partly because they were better named, owing to the advance of Australian botanical science in the interim. Queensland having become a separate colony since the previous exhibition, Mr. Moore substituted for his previous collections large number of timbers, chiefly from the Clarence River district of our colony. Since then, advantage has been taken to exhibit New South Wales timbers at most of the principal International Exhibitions; but, I regret to express the opinion that strangers to New South Wales have learnt but little of our timbers, for the reason that we have imparted so little information concerning them. There is no doubt that the conventional method of showing timbers at exhibitions is almost a useless one; if the object be simply to show the appearance of polished blocks, that might easily be attained by carefully colouring and graining pieces of some light and inexpensive wood, which would lend itself to the process.

The fact of the matter is that exhibition collections are, as a general rule, required at too short notice for justice to be done to timbers in regard to either variety or quality. Again, recommendations of this and that timber, for this and that purpose, have been freely made; many of them appear to be merely guesses, more or less judicious, and should be prefaced with the words "I think." But to rectify such statements, and to assess a timber at its true value takes a long time, perhaps longer than any other vegetable product. Under the directions of the Committee of Management of the Technological Museum, the author has for the past three years been collecting logs of New South Wales timbers, with complete sets of herbarium material, in case any doubts should crop up. We have, up to date, nearly 130 logs four feet long, most of them of fairly large diameter. They have been cut at the proper season, are now undergoing seasoning, and at the proper time each will be sawn longitudinally into halves, one half displayed to show the nature of the wood, while the other will be, as far as possible, worked into various articles for which it has been pronounced by various writers to be suited. Pieces will also be available for the testing machine. Now all this requires much time, and is a serious expense, but there appears to be no golden road to a knowledge of timbers, any more than to any other branch of human knowledge. One of my reasons for coming here to-night is to ask the members of this important association to help in this national work of learning the truth about our native timbers. He would say to an individual member, "keep the timber of a particular species under observation, making notes in regard to the experience of yourself, and trustworthy information as to its uses and capabilities. Try and prove the truth or falsity of reports. But if the botanical name is not known to you already, it is in the highest degree important to collect flowering and fruiting specimens (usually most conveniently obtained by a gun) from a neighbouring tree of the same kind. The reason of this is, of course, to give precision to your remarks, for if a tree is ever so valuable, it is obvious it is of no use unless it can be identified." To the difficulty of identifying Australian trees, unless botanical precautions have been taken, he had already alluded. He stated a truism when he observed that our knowledge of Australian timbers is in its puling infancy, and he need not further apologise for these prefatory remarks which are intended to show the state of the case, and thus engineers may see that the slightest observation, on authenticated timber, is worthy of record and will pave the way for a literature of the subject.

As regards experimental investigations, he begged to submit herewith a list of determinations of the strength, &c. of Australian timbers. It is condensed from his "Useful Native Plants of Australia," a copy of which he respectfully offered to the Association. The names in brackets are the brief titles under which they are alluded to under each species.

1. On the strength, durability and value of the Blue Gum of Tasmania, and of some other Eucalypts,* for shipbuilding (Mitchell). *Roy. Soc.:* V. D. Land, Vol. ii., Part i, 1852.

2. Tests of New South Wales timbers at the Paris Exhibition of 1855 (Fowke). Some of the results are reproduced in the Report of the New Zealand Exhibition, 1865.

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* E. viminalis and E. obliqua.

3. Report of results obtained from experiments on the elasticity and strength of timber in New South Wales (Sydney Mint, 1858).

4. Report of further experiments, &c. (Sydney Mint, 1860).

5. "Timber and Timber Trees" (Laslett).

6. Australian Engineering and Building News, November 1879, (Byerley).

7. Experiments on the tensile strength of a few of the Colonial timbers (Campbell). *Trans. R.S., Vict.*, 1879.

8. Results of experiments on the transverse strength of the woods of various Eucalypts (Mueller and Luehmann).

9. Official Report of the Carriage Timber Board, Victorian Railways, Melbourne, 1884 (Victorian Timber Board).

10. The strength and elasticity of Ironbark timber as applied to works of construction (Warren). *Proc. R.S., N.S.W.*, 1886.

11. The strength and elasticity of New South Wales timbers of commercial value (Warren). Government Printer, Sydney.

The experiments of Professor Warren (one of your own members) are the most valuable of all, partly because of the instruments of precision employed, and partly because of the pains which were taken by the Forest Department, which supplied the timbers, to obtain them true to name. For lack of the latter precaution, he was afraid that many of the other experiments were but of little value, owing to the difficulty, or even impossibility of now tracing the precise timbers to which they refer.

One more allusion to engineering matters. It had occurred even to him, a layman, how difficult of comparison are many of the series of tests instituted by different observers. He would therefore take the liberty of inviting your attention to the suggestions contained in a paper by F. A. Campbell, C.E., *Proc: R.S., Victoria*, 1886, entitled, "The want of a uniform system in experimenting upon timber."

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Avoid a tree with a dead branch, or one with a cup-shake in any part of it, for the timber in neither instance can be depended upon.