APPENDIX

YIELD TABLES

Tables 20 to 39 include the yield tables for southern white cedar and other tables accessory to them and necessary for their proper application. The yield tables proper, Tables 25, 30, 35, and 39, show, in various units of measurement, the volume of wood which an acre of well-stocked cedar will yield at various ages. For a discussion of their general application see pages 23 to 25. The yield tables were prepared by the alinement-chart method (9). Average height of the dominant and codominant trees at the standard age of 50 years was used as the basis for site classification. (Fig. 17.) The tables for the total stand include all living trees 1 inch and larger in diameter at breast height.

The data given in Tables 21 to 39, inclusive, are shown in compact graphical form in a single system of alinement charts (Fig. 18), from which the tables were read. For ordinary purposes the tables are sufficient, but in more accurate work, where values must be interpolated for odd ages and to the nearest foot of site index, the alinement charts may be used. Such charts are read by passing a straight line through a known value on each of two axes and reading the unknown value at its intersection with the third. They obviate the labor and inaccuracies of arithmetic interpolation, since values can be read from the charts for any age or site index within their limits. The compactness of this form of expression makes the alinement-chart yield table of practical value in field use.

To obtain readings for—	Hold age on—	Hold site index on—	Read—	Multiply by—
A. Site classification hold age on B, height of average dominant on X, read site index on B'.				
B. Height of average dominant	B	B'	X	
C. Entire stand:				
1. Volume, total, less bark, cubic feet per acre	C	C'	X	100
2. Basal area, square feet per acre	D	D'	X	10
3. Number of trees per acre	E	E'	X	100
4. Average d. b. h., inches	F	F'	X'	
5. Tree basal area, square feet	F	F'	X	0.01
D. Partial stand: For any of the 5 factors listed under C determine its entire stand value first. Also determine its entire stand average d. b. h. (C-4 above). Pass a line through this average d. b. h. (on X') and the point R.				
1. For the stand 5 inches plus—				
Read average d. b. h. on	L			
Read per cent number of trees on	M			
Read per cent volume (cubic feet) on	N			
Read cubic feet per cord on	O			
2. For the stand 8 inches plus—				
Read average d. b. h. on	K			
Read per cent number of trees on	J			
Read board feet per cubic feet on	I			
3. For the dominant stand—				
Read average d. b. h. on	H			
Read per cent number of trees on	G			

Multiply the entire stand volume by the percentages and ratios read, holding the entire-stand value on A, the percentage or ratio on A', reading the partial-stand value on X, pointing off as with a slide rule. Similarly, bark volume of the entire stand can be obtained from P.

NOTES.—The cubic feet per cord values (O) represent the ratio of cubic feet (entire stem, less bark) to cords (to 3-inch top d. i. b.).

The board feet per cubic foot values (I) represent the ratio

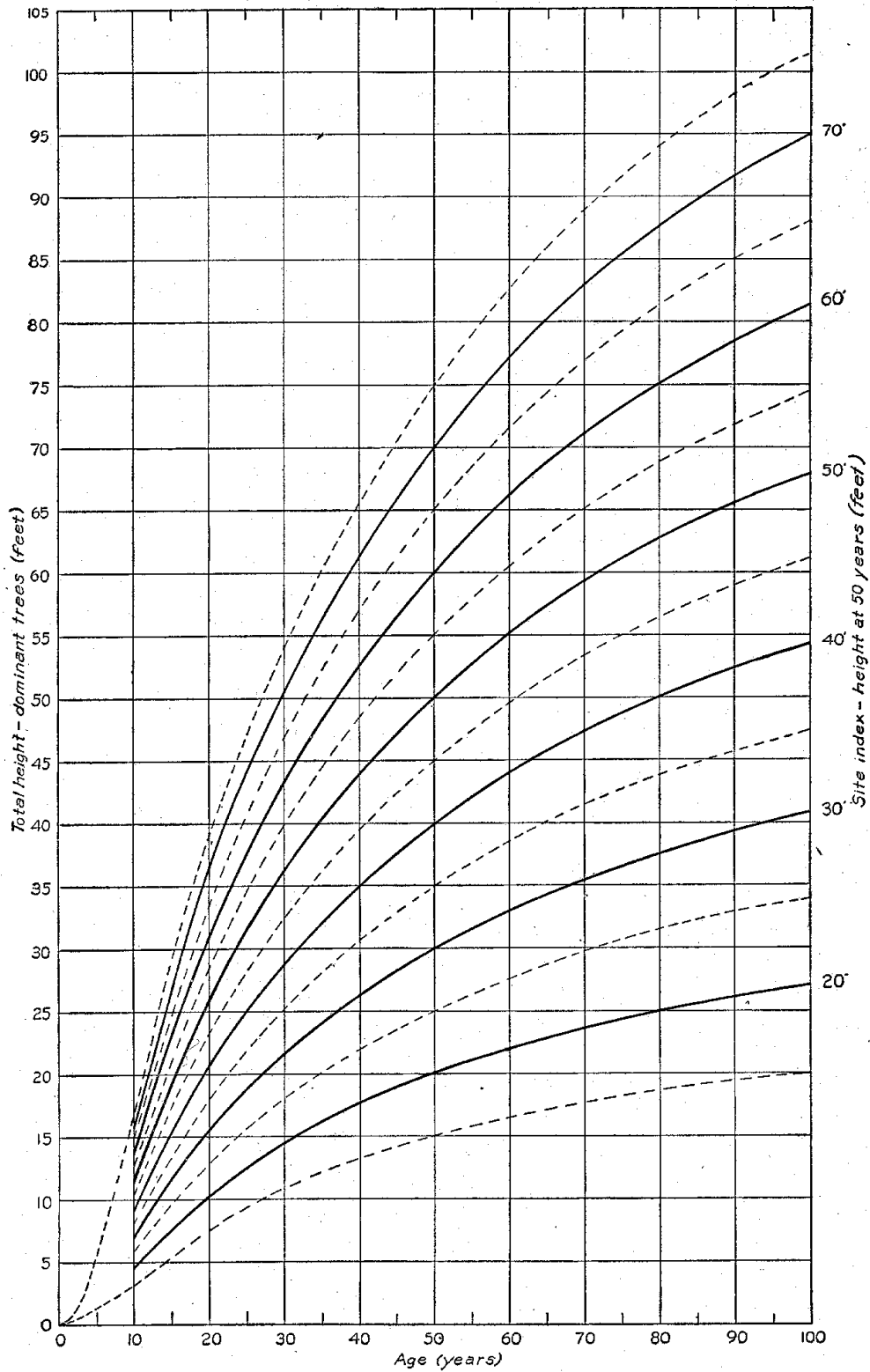$$\frac{\text{Board feet stand 8 inches plus}}{\text{Total cubic feet entire stand}}$$

FIGURE 17.—Height-growth classification for second-growth southern white cedar. (These curves were used as the basis for site classification in the preparation of the yield tables)
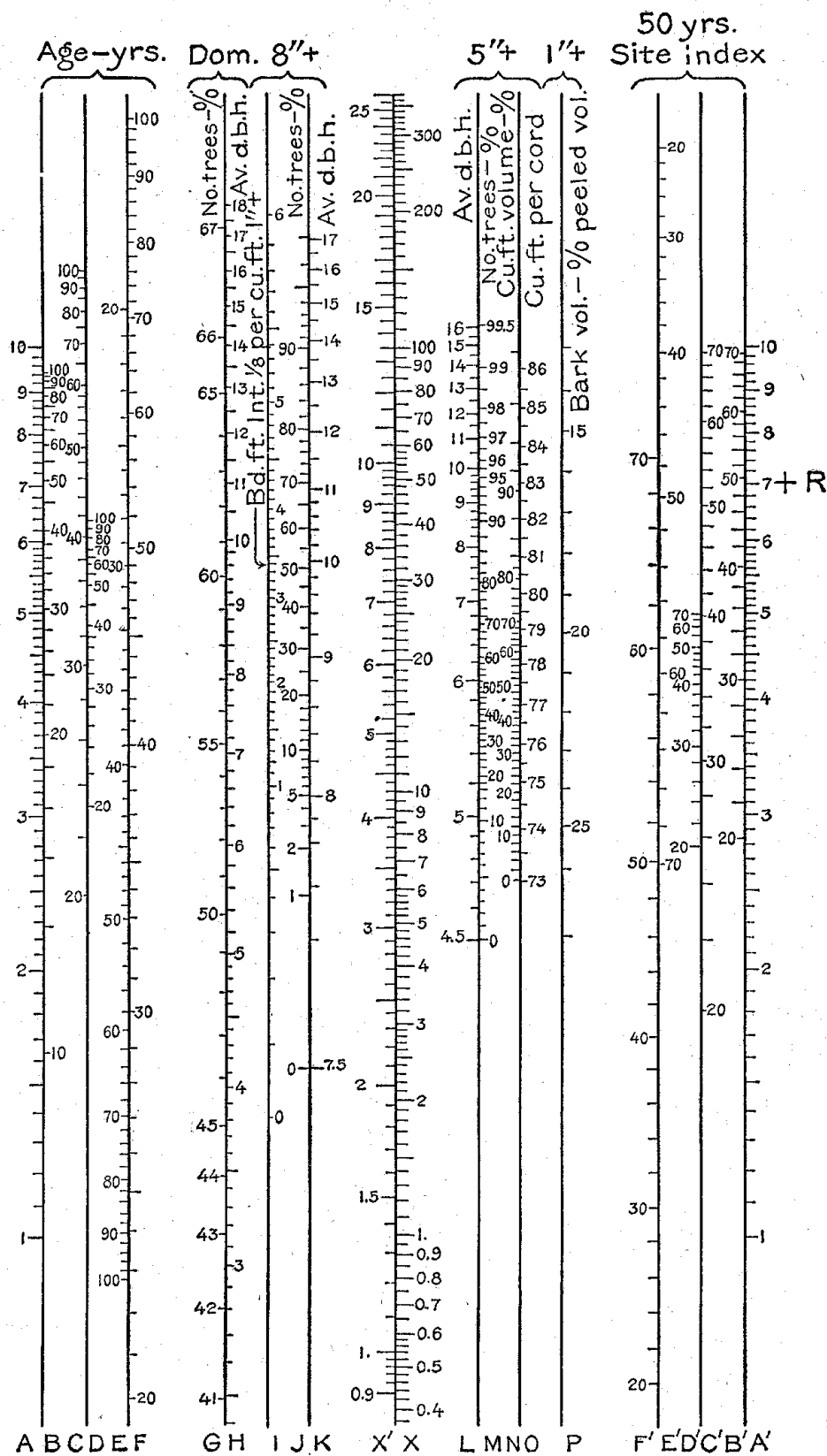
FIGURE 18.—Alignment-chart yield table for second-growth southern white cedar

TABLE 20.—*Distribution by age and site-quality classes of the 47 well-stocked, even-aged plots upon which the yield tables are based* [1] [2]

Age (years)	Site index [3]						
	20	30	40	50	60	70	Total
	Number of plots						
20					1		1
30			3			2	5
40			1	1			2
50		2	3	5			10
60	2		1	1	1		5
70			1	3	16	1	21
80					2		2
90				1			1
Total	2	2	9	13	18	3	47

[1] Deviations of individual plots from yield tables are as follows:

Measurement	Aggregate deviation	Average percentage deviation
	Per cent	Per cent
Basal area	−0. 49	±7. 0
Number of trees	+0. 38	±26. 6
Volume, cubic feet	−0. 23	±7. 9
Volume, by international (⅛-inch) rule	−1. 13	±35. 2

[2] A total of 63 plots was measured from Florida (1 plot) to Massachussetts (3 plots). The 47 well-stocked plots mathematically selected for yield-table construction are distributed as follows: North Carolina, 11; Virginia, 21; New Jersey, 13; Connecticut, 2.

[3] Site index is the height attained in 50 years by dominant trees of average basal area.

TABLE 21.—*Total height of southern white cedar trees in the dominant stand* [1]

Age (years)	Site index					
	20	30	40	50	60	70
	Total height—feet					
20	10. 2	15. 5	20. 8	25. 9	31. 0	36. 4
25	12. 5	18. 7	25. 1	31. 2	37. 6	43. 9
30	14. 4	21. 5	28. 8	35. 8	43. 2	50. 4
35	16. 0	24. 0	32. 2	40. 0	48. 2	56. 2
40	17. 4	26. 3	35. 0	43. 7	52. 6	61. 3
45	18. 8	28. 2	37. 7	47. 0	56. 5	65. 9
50	20. 0	30. 0	40. 0	50. 0	60. 0	70. 0
55	21. 1	31. 5	42. 2	52. 7	63. 2	73. 8
60	22. 0	33. 0	44. 1	55. 2	66. 2	77. 2
65	22. 8	34. 2	45. 8	57. 3	68. 7	80. 2
70	23. 6	35. 5	47. 4	59. 2	71. 1	83. 0
75	24. 3	36. 5	48. 8	61. 0	73. 2	85. 5
80	25. 0	37. 5	50. 1	62. 6	75. 2	87. 7
85	25. 5	38. 4	51. 2	64. 0	77. 0	89. 8
90	26. 0	39. 2	52. 3	65. 4	78. 6	91. 7
95	26. 5	40. 1	53. 3	66. 6	80. 0	93. 3
100	27. 0	41. 5	54. 2	67. 7	81. 3	94. 9

[1] The values in this table were read from the height-age curves in fig. 17. The 50-year values are site indices.

TABLE 22.—*Average diameter breast high of all southern white cedar trees 1 inch and more in diameter, by age and site-quality classes* [1]

Age (years)	Site index					
	20	30	40	50	60	70
	Diameter breast high—inches					
20	0.9	1.1	1.4	1.8	2.3	2.9
25	1.2	1.5	1.9	2.4	3.1	3.9
30	1.5	1.9	2.4	3.0	3.9	5.0
35	1.8	2.3	2.8	3.6	4.7	6.0
40	2.1	2.7	3.3	4.2	5.5	7.0
45	2.4	3.0	3.8	4.8	6.3	8.0
50	2.7	3.4	4.3	5.4	7.1	9.0
55	3.0	3.7	4.7	6.0	7.8	10.0
60	3.2	4.0	5.1	6.5	8.5	10.8
65	3.5	4.3	5.5	6.9	9.0	11.6
70	3.7	4.6	5.8	7.3	9.5	12.2
75	3.9	4.9	6.1	7.7	10.0	12.9
80	4.1	5.1	6.4	8.0	10.6	13.5
85	4.3	5.4	6.7	8.4	11.1	14.1
90	4.5	5.6	7.0	8.7	11.5	14.7
95	4.6	5.8	7.2	9.1	12.0	15.3
100	4.7	6.0	7.4	9.4	12.4	15.8

[1] Derived from total basal area per acre (Table 24) and total number of trees per acre (Table 23).

TABLE 23.—*Total number of southern white cedar trees per acre 1 inch and more in diameter breast high, by age and site-quality classes*

Age (years)	Site index					
	20	30	40	50	60	70
	Number of trees per acre					
20	18,000	14,700	10,800	7,400	4,600	2,800
25	13,000	10,500	7,600	5,100	3,300	2,000
30	9,600	7,600	5,600	3,850	2,400	1,450
35	7,400	5,800	4,500	2,950	1,860	1,120
40	5,800	4,500	3,400	2,300	1,440	870
45	4,600	3,700	2,700	1,900	1,170	720
50	3,900	3,100	2,250	1,550	970	580
55	3,350	2,600	1,950	1,330	830	500
60	2,900	2,300	1,700	1,170	740	435
65	2,550	2,050	1,500	1,050	660	380
70	2,300	1,850	1,350	940	580	350
75	2,150	1,700	1,250	860	540	330
80	1,980	1,550	1,150	790	500	300
85	1,850	1,450	1,075	740	460	280
90	1,750	1,350	1,000	700	430	260
95	1,650	1,270	950	660	420	250
100	1,550	1,200	900	620	385	230

TABLE 24.—*Basal area per acre of all southern white cedar trees 1 inch and more in diameter breast high, by age and site-quality classes* [1]

Age (years)	Site index					
	20	30	40	50	60	70
	Basal area—square feet per acre					
20	83	108	126	140	148	151
25	100	129	150	167	175	180
30	113	146	170	188	198	203
35	124	159	185	205	217	223
40	134	170	200	220	232	240
45	141	180	210	233	245	254
50	148	188	220	243	256	267
55	152	194	228	252	265	275
60	156	198	234	259	272	283
65	159	202	239	264	279	290
70	162	206	242	269	284	295
75	164	209	246	274	289	300
80	166	213	250	279	294	304
85	168	216	253	281	297	308
90	169	219	256	284	300	311
95	170	221	259	287	302	314
100	172	223	261	290	304	317

[1] By basal area is meant the sum of the cross-sectional areas in square feet of all trees on an average acre measured at breast height. Since it is computed from the diameters at breast height it includes both wood and bark. Basal area has been found relatively insensitive to variations in stocking.

TABLE 25.—*Yield of well-stocked even-aged stands of southern white cedar in cubic feet of peeled wood per acre, by age and site-quality classes*

Age (years)	Site index					
	20	30	40	50	60	70
	Volume of peeled wood [1]—cubic feet per acre					
20	420	820	1,200	1,600	2,050	2,400
25	600	1,170	1,700	2,300	2,850	3,400
30	780	1,500	2,200	2,950	3,650	4,300
35	930	1,800	2,650	3,550	4,350	5,200
40	1,080	2,100	3,100	4,050	5,050	6,050
45	1,230	2,350	3,500	4,550	5,750	6,850
50	1,370	2,600	3,850	5,050	6,400	7,600
55	1,500	2,850	4,150	5,550	7,000	8,300
60	1,600	3,100	4,450	6,000	7,500	8,900
65	1,700	3,300	4,700	6,400	7,900	9,450
70	1,800	3,450	4,950	6,700	8,300	10,000
75	1,900	3,600	5,200	7,000	8,650	10,500
80	1,950	3,750	5,400	7,250	9,000	10,900
85	2,000	3,850	5,600	7,500	9,300	11,200
90	2,050	3,950	5,800	7,700	9,600	11,500
95	2,100	4,050	5,900	7,900	9,900	11,800
100	2,150	4,100	6,000	8,050	10,100	12,000

[1] Volume of entire stem without bark, including stump and top.

TABLE 26.—*Total bark volume in percentage of total peeled volume for all southern white cedar trees 1 inch and more in diameter, by age and site-quality classes* [1]

Age (years)	Site index					
	20	30	40	50	60	70
	Bark volume—percentage of total peeled volume					
20	27.8	27.2	26.5	25.5	24.2	23.1
25	27.1	26.2	25.3	24.2	22.5	21.2
30	26.2	25.3	24.2	22.8	21.2	19.8
35	25.5	24.2	23.0	21.7	20.2	18.7
40	24.7	23.3	22.1	20.8	19.3	17.9
45	23.9	22.6	21.3	20.0	18.4	17.2
50	23.2	21.9	20.7	19.4	17.8	16.6
55	22.7	21.5	20.2	18.8	17.3	16.0
60	22.3	21.0	19.7	18.3	16.8	15.6
65	21.9	20.7	19.3	18.0	16.5	15.2
70	21.5	20.3	18.9	17.7	16.2	14.9
75	21.2	19.9	18.7	17.4	16.0	14.6
80	20.9	19.7	18.4	17.2	15.7	14.4
85	20.7	19.4	18.2	16.9	15.4	14.2
90	20.4	19.2	18.0	16.7	15.2	13.9
95	20.3	18.9	17.8	16.5	15.0	13.7
100	20.2	18.8	17.6	16.3	14.8	13.5

[1] This table gives bark volume of entire stem, including stump and top, in percentage of the peeled volume of the entire stem.

TABLE 27.—*Average diameter breast high of all southern white cedar trees 5 inches and more in diameter, by age and site-quality classes*

Age (years)	Site index					
	20	30	40	50	60	70
	Diameter breast high—inches					
20					4.6	5.0
25				4.7	5.0	5.6
30			4.7	5.0	5.4	6.2
35		4.6	4.9	5.3	5.9	6.9
40		4.8	5.2	5.7	6.4	7.7
45	4.7	5.0	5.4	6.0	6.9	8.5
50	4.8	5.2	5.7	6.3	7.5	9.4
55	4.9	5.4	5.9	6.7	8.0	10.2
60	5.0	5.5	6.1	7.0	8.6	11.0
65	5.1	5.7	6.3	7.4	9.1	11.8
70	5.2	5.8	6.6	7.7	9.6	12.5
75	5.3	6.0	6.8	8.0	10.1	13.1
80	5.4	6.1	7.0	8.3	10.6	13.8
85	5.4	6.3	7.2	8.6	11.0	14.3
90	5.5	6.4	7.4	8.9	11.4	14.9
95	5.5	6.5	7.6	9.2	11.8	15.4
100	5.6	6.7	7.8	9.5	12.1	15.9

TABLE 28.—*Total number per acre of southern white cedar trees 5 inches and more in diameter, by age and site-quality classes*

Age (years)	Site index					
	20	30	40	50	60	70
	Number of trees per acre					
20					58	213
25				95	330	553
30			97	308	654	768
35		63	215	575	834	784
40		185	442	759	900	705
45	80	295	648	892	866	634
50	161	465	788	946	795	545
55	259	572	876	931	740	478
60	355	666	935	906	663	427
65	446	725	938	842	612	381
70	506	803	910	802	555	343
75	559	821	888	762	516	320
80	620	850	862	725	477	292
85	670	857	838	684	446	277
90	702	864	810	642	419	258
95	726	853	788	614	397	243
100	735	822	762	584	378	229

TABLE 29.—*Basal area per acre of all southern white cedar trees 5 inches and more in diameter, by age and site-quality classes* [1]

Age (years)	Site index					
	20	30	40	50	60	70
	Basal area—square feet per acre					
20					6.7	29.0
25				11.4	44.4	94.5
30			11.6	41.9	104.0	160.0
35		7.2	28.1	88.2	158.4	201.4
40		23.3	65.2	134.2	199.5	229.0
45	9.6	40.1	104.0	174.8	226.1	248.2
50	20.3	68.1	139.7	206.6	245.2	263.8
55	33.9	90.2	166.4	227.6	258.1	273.4
60	48.0	109.9	189.5	241.9	267.1	281.6
65	63.3	128.3	205.5	251.1	275.7	289.1
70	75.3	145.2	214.9	259.0	281.4	294.4
75	86.1	160.9	223.9	266.1	287.3	299.4
80	96.8	172.5	232.2	272.6	292.5	303.7
85	106.7	183.0	238.6	275.7	295.8	307.7
90	115.8	190.5	244.2	279.7	298.8	310.7
95	121.0	196.2	248.6	283.8	301.1	313.7
100	125.6	201.4	252.1	287.1	303.4	316.7

[1] Basal area is measured at breast height.

TABLE 30.—*Yield of well-stocked even-aged stands of southern white cedar trees 5 inches and more in diameter, in cords per acre, by age and site-quality classes* [1]

Age (years)	Site index					
	20	30	40	50	60	70
	Yield of wood and bark—cords per acre					
20					1.4	5.9
25				2.8	8.9	18.7
30			2.4	8.9	19.2	33.2
35		1.2	6.7	16.0	31.0	48.0
40		3.9	11.8	24.0	43.5	61.8
45	1.0	6.9	17.5	32.7	55.3	73.2
50	2.6	10.2	23.6	41.8	65.1	82.7
55	4.1	13.9	29.4	50.5	73.0	90.7
60	5.6	17.3	34.9	58.1	79.5	97.5
65	7.1	20.6	40.0	64.4	85.2	103.8
70	8.5	23.7	44.6	69.5	90.2	109.5
75	9.8	26.7	48.8	73.8	94.5	114.4
80	11.0	29.5	52.8	77.4	98.5	118.7
85	12.2	32.2	56.1	80.5	101.9	122.4
90	13.3	34.4	59.1	83.2	105.0	125.6
95	14.3	36.5	61.6	85.6	108.0	128.7
100	15.1	38.2	63.8	87.8	110.7	131.5

[1] Volume includes stem and bark between 1-foot stump and an inside bark top diameter of 4 inches.

TABLE 31.—*Cubic feet of solid wood per stacked cord of wood with bark for all trees 5 inches and more in diameter, by age and site-quality classes*

Age (years)	Site index					
	20	30	40	50	60	70
	Cubic feet of solid wood per cord with bark					
20					73.5	74.8
25				73.8	75.2	76.7
30			73.8	75.0	76.7	78.3
35		73.5	74.6	76.2	77.8	79.7
40		74.7	75.6	77.2	79.1	80.8
45	73.8	75.0	76.6	78.0	80.1	81.7
50	74.7	75.8	77.3	78.9	80.9	82.7
55	75.0	76.4	77.8	79.7	81.7	83.4
60	75.4	76.8	78.5	80.3	82.3	84.0
65	76.0	77.3	79.1	80.7	82.7	84.4
70	76.4	77.7	79.4	81.2	83.1	84.7
75	76.7	78.2	79.8	81.5	83.4	85.2
80	77.0	78.5	80.2	81.8	83.8	85.4
85	77.3	78.9	80.5	82.2	84.2	85.7
90	77.6	79.2	80.8	82.4	84.3	86.0
95	77.7	79.4	81.0	82.8	84.6	86.2
100	77.8	79.7	81.3	83.0	84.8	86.5

TABLE 32.—*Average diameter breast high of all southern white cedar trees 8 inches and more in diameter, by age and site-quality classes*

Age (years)	Site index					
	20	30	40	50	60	70
	Diameter breast high—inches					
25						7.7
30					7.7	8.1
35				7.6	7.9	8.5
40				7.7	8.1	9.0
45			7.6	7.8	8.4	9.6
50			7.6	8.0	8.8	10.3
55		7.6	7.7	8.2	9.2	11.1
60		7.6	7.8	8.4	9.6	11.8
65	7.6	7.7	8.0	8.7	10.1	12.4
70	7.6	7.7	8.1	9.0	10.5	13.0
75	7.6	7.8	8.3	9.3	10.9	13.5
80	7.6	7.9	8.4	9.6	11.3	14.0
85	7.7	7.9	8.6	9.8	11.6	14.6
90	7.7	8.0	8.7	9.9	12.0	15.1
95	7.7	8.0	8.9	10.1	12.3	15.6
100	7.7	8.1	9.0	10.3	12.6	16.1

TABLE 33.—*Total number per acre of southern white cedar trees 8 inches and more in diameter, by age and site-quality classes*

Age (years)	Site index					
	20	30	40	50	60	70
	Number of trees per acre					
25						12
30					13	87
35				6	65	203
40				27	165	310
45			11	83	269	374
50			34	162	359	388
55		8	71	246	407	370
60		17	119	310	430	349
65	4	31	168	352	422	331
70	7	54	213	382	414	308
75	11	85	250	403	404	294
80	16	112	288	411	390	278
85	25	147	322	422	382	263
90	38	169	353	430	366	248
95	45	200	365	436	354	234
100	54	223	378	436	343	223

TABLE 34.—*Basal area per acre of all southern white cedar trees 8 inches and more in diameter, by age and site-quality classes*

Age (years)	Site index					
	20	30	40	50	60	70
	Basal area—square feet per acre					
25						3.8
30					4.2	31.3
35				2.0	21.9	79.8
40				8.0	58.9	136.8
45			3.6	27.5	103.6	187.2
50			10.8	56.4	151.0	224.5
55		2.5	23.0	90.2	187.9	248.3
60		5.3	39.8	120.7	216.2	264.6
65	1.3	9.9	58.0	145.2	234.6	277.8
70	2.1	17.5	76.2	168.9	249.1	285.9
75	3.4	28.2	93.5	190.4	262.0	294.0
80	5.1	38.0	111.2	205.6	272.8	298.5
85	8.2	50.0	128.5	220.3	280.7	304.0
90	12.2	59.6	145.9	231.2	286.5	307.9
95	14.4	69.6	158.0	244.0	291.7	311.2
100	17.4	79.8	168.1	252.3	295.5	314.5

TABLE 35.—*Yield of well-stocked even-aged stands of southern white cedar trees 8 inches and more in diameter in board feet, international (⅛-inch) log rule, by age and site-quality classes* [1]

Age (years)	Site index					
	20	30	40	50	60	70
	Yield—board feet per acre					
20						120
25					255	1,000
30				205	1,060	3,440
35			105	710	2,660	8,320
40		40	405	1,540	5,910	15,300
45		165	910	3,000	10,700	23,000
50	25	350	1,620	5,500	16,600	30,300
55	105	650	2,530	8,800	22,300	37,000
60	200	1,000	3,900	12,100	27,500	42,900
65	305	1,400	5,450	15,300	31,900	48,200
70	420	1,950	7,050	18,400	35,700	53,100
75	545	2,550	8,750	21,500	39,300	57,300
80	685	3,250	10,500	24,300	42,700	60,800
85	840	4,050	12,300	27,000	46,000	63,900
90	1,000	4,850	14,100	29,500	49,000	66,700
95	1,170	5,700	15,900	32,000	51,700	69,300
100	1,350	6,550	17,800	34,400	54,200	71,500

[1] Stump height 1 foot; top diameter inside bark 6 inches; for ¼-inch saw kerf, deduct 9.5 per cent.

TABLE 36.—*Average diameter breast high of all southern white cedar trees in the dominant stand, by age and site-quality classes*

Age (years)	Site index					
	20	30	40	50	60	70
	Diameter breast high—inches					
20		1.5	1.9	2.4	3.0	3.7
25	1.6	2.0	2.5	3.2	3.9	4.9
30	2.0	2.5	3.1	3.9	4.9	6.1
35	2.4	3.0	3.7	4.6	5.8	7.2
40	2.8	3.4	4.2	5.2	6.6	8.4
45	3.1	3.9	4.8	5.9	7.4	9.5
50	3.4	4.3	5.2	6.5	8.2	10.5
55	3.7	4.6	5.7	7.0	8.8	11.5
60	4.0	5.0	6.1	7.5	9.5	12.4
65	4.3	5.3	6.5	8.0	10.2	13.2
70	4.5	5.6	6.9	8.5	10.7	14.0
75	4.7	5.8	7.2	8.9	11.3	14.8
80	4.9	6.1	7.5	9.3	11.8	15.5
85	5.1	6.3	7.8	9.6	12.3	16.1
90	5.3	6.6	8.0	10.0	12.7	16.7
95	5.4	6.8	8.3	10.3	13.2	17.3
100	5.6	7.0	8.5	10.6	13.6	17.9

TABLE 37.—*Total number of southern white cedar trees per acre in the dominant stand, by age and site-quality classes*

Age (years)	Site index					
	20	30	40	50	60	70
	Number of trees per acre					
20		6,500	4,750	3,340	2,270	1,530
25	5,290	4,410	3,300	2,250	1,600	1,060
30	3,860	3,140	2,400	1,730	1,160	783
35	3,030	2,470	1,880	1,370	923	626
40	2,350	2,060	1,570	1,130	770	502
45	1,970	1,660	1,300	956	655	420
50	1,780	1,440	1,160	823	563	365
55	1,550	1,300	994	749	510	317
60	1,360	1,120	902	674	451	281
65	1,200	1,020	820	604	407	256
70	1,130	938	734	549	377	232
75	1,040	876	685	510	342	213
80	980	815	646	481	322	197
85	925	788	610	457	300	186
90	858	720	589	428	285	174
95	837	685	553	409	267	164
100	790	660	530	388	254	155

TABLE 38.—*Basal area per acre of all southern white cedar trees in the dominant stand, by age and site-quality classes*

| Age (years) | Site index | | | | | |
	20	30	40	50	60	70
	Basal area—square feet per acre					
20		79.6	93.5	104.7	111.3	114.6
25	74.1	96.1	112.4	125.8	133.2	138.6
30	84.2	109.4	128.0	142.9	152.5	158.7
35	92.8	119.6	140.2	157.2	169.0	177.1
40	100.5	130.0	152.6	170.1	183.0	192.7
45	106.2	136.8	161.5	181.7	195.5	206.8
50	112.0	143.8	170.3	191.5	206.1	219.5
55	115.5	149.0	177.6	200.1	215.2	228.2
60	118.9	152.7	183.2	206.9	222.8	236.0
65	121.8	156.3	188.6	211.7	229.3	243.3
70	124.4	160.3	191.7	217.1	235.2	247.8
75	126.3	163.2	195.6	222.2	239.9	252.9
80	128.2	166.8	199.5	227.1	244.9	257.9
85	130.0	170.2	202.7	229.9	248.6	261.5
90	131.3	173.2	205.6	232.9	251.4	264.4
95	132.3	175.0	208.8	236.2	253.7	267.2
100	134.0	177.1	211.1	239.8	255.7	270.1

TABLE 39.—*Yield of the dominant stand of fully stocked southern white cedar in board feet, international (⅛-inch) log rule, by age and site-quality classes* [1]

| Age (years) | Site index | | | | | |
	20	30	40	50	60	70
	Yield—board feet per acre					
20						95
25					200	930
30				145	985	3,440
35			55	640	2,700	8,480
40		20	340	1,540	5,960	15,200
45		120	805	3,050	10,800	22,500
50	15	340	1,620	5,500	16,600	28,900
55	75	600	2,580	8,960	21,900	35,000
60	145	960	3,870	12,500	26,600	40,000
65	255	1,380	5,540	15,500	30,000	44,500
70	380	1,960	7,180	18,500	33,400	48,500
75	515	2,630	9,000	21,400	36,500	52,300
80	665	3,260	10,700	23,600	39,800	55,400
85	840	4,240	12,600	26,200	42,600	57,900
90	1,060	5,020	14,600	28,100	44,900	60,400
95	1,200	5,870	15,800	30,400	47,500	62,500
100	1,340	6,680	17,000	32,000	49,300	64,200

[1] Stump height, 1 foot; top diameter inside of bark, 6 inches; for ¼-inch saw kerf, deduct 9.5 per cent.

THE SOUTHERN WHITE CEDAR ALIGNMENT-CHART STAND TABLE

For solving many of the problems of forest management, a yield table is insufficient unless it is accompanied by an adequate stand table. When maximum or minimum size of, tree enters into calculations, as it does when dealing with piece products, or establishing a cutting limit, the yield-table values of average diameter growth and number of trees are inadequate; the number of trees in e ach diameter class or group of diameter classes must also be known. A stand table gives such information.

An alignment-chart stand table for southern white cedar is -presented in Figure 19. The known values are the average diameter of the stand (taken from the yield table) and the diameter limits which are involved in the problem. For instance, if the average diameter of the stand is 15 inches and the number of

trees in and above the 20-inch d.b. h. class is desired, a straight line is passed through 19.5 inches on the diameter limit scale (since the 20-inch class includes trees above 19.5 inches) and 15 inches on the average diameter scale, reading 10 per cent on the number-of-trees scale. Since the number is expressed in per-
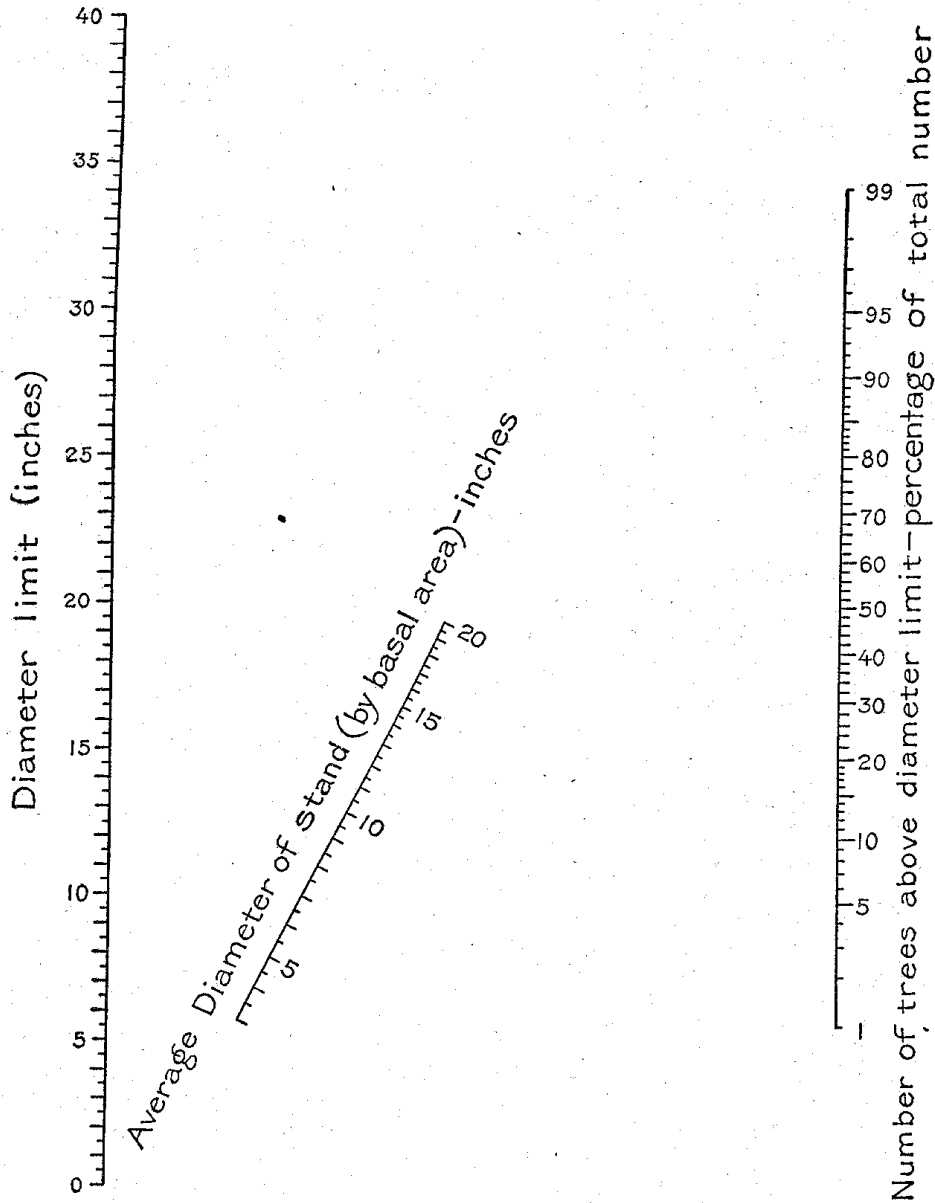
FIGURE 19.—Alignment-chart stand table for second-growth southern white cedar

centage of the total number, it must be multiplied by the total number as read from the yield table.

If the number of trees in any one d.b.h. class is desired, two readings will be necessary, for the upper and lower limits of the class, the difference between them being the desired result. The number in the 20-inch class will thus be the difference between the readings for its limits, 19.5 and 20.5 inches. These readings are 10 per cent and 6 per cent, respectively; therefore 4 per cent of the total number of trees are in the 20-inch class.

VOLUME TABLES [2]

The volume tables for southern white cedar which follow (Tables 40 to 44) indicate the average volume in cubic feet, cords, and board feet of trees having the total heights and breast-high diameters given. Tables 40, 41, and 44 are particularly useful in determining the merchantable contents of trees. Tables 42 and 43, which give the total volumes of the entire tree, stump, stem, and top, peeled and unpeeled, are intended primarily for use in scientific studies where a measure of the entire wood volume of the tree is desired. Tables 45, 46, and 47 supplement the regular volume tables.

The field and office methods used in the preparation of the volume tables are substantially those recommended as standard by a joint committee from the Society of American Foresters, the Association of State Foresters, and the United States Forest Service (2). Since the use of the international log rule (1/8-inch saw kerf) has been recommended by this joint committee as standard for second growth board-foot yield tables, it is used in the present study. This log rule is preferable to other rules because it is fundamentally sound in derivation and indicates more closely than any other the amount of material which can actually be sawed from logs of different sizes. For these reasons it is far superior to the Doyle rule, in common use in many localities. The yields of well-stocked stands shown in Table 24, which were determined by the international log rule, would have been from 40 to 70 per cent less had they been computed by means of the Doyle rule, because this rule greatly understates the amount of material contained in small trees. The greatest difference in yield as measured by the Doyle and international rules is naturally found in dense stands composed of many small trees to the acre, such as occur on the poorer sites.

TABLE 40.—*Merchantable volume in board feet of southern white cedar of different diameters and heights scaled by the international log rule, ⅛-inch kerf* [a]

Diameter breast high (inches)	Total height of tree—feet							Basis (trees)
	40	50	60	70	80	90	100	
	Volume—board feet							
8	15	25	30	40	45	55	--------	46
9	25	35	45	55	65	80	--------	1
10	30	45	60	75	90	105	--------	47
11	40	60	75	95	115	135	--------	8
12	50	75	95	120	140	165	--------	40
13	65	90	115	140	170	200	--------	26
14	75	110	140	170	200	235	--------	4
15	--------	130	165	200	235	275	--------	1
16	--------	150	190	230	270	315	355	22
17	--------	170	220	265	310	355	405	2
18	--------	195	250	300	350	405	455	11
19	--------	--------	280	340	395	455	510	1
20	--------	--------	320	380	445	510	570	10
21	--------	--------	355	425	495	565	635	6
22	--------	--------	395	475	550	625	700	2
23	--------	--------	--------	520	605	690	775	--------
24	--------	--------	--------	565	660	750	850	--------
Basis	4	39	36	76	45	23	4	227

[a] Top diameter, 6 inches; stump height, 1 foot; compiled by frustum form factor method. Aggregate check: Table 0.5 per cent below basic data. Basic trees: Virginia and North Carolina, 165; New Jersey, 40; Florida, 22. Block indicates extent of basic data.

[2] These tables were prepared by R. M. Brown from field data collected by C. F. Korstian in cooperation with the State foresters of North Carolina, Virginia, and New Jersey.

TABLE 41.—*Merchantable peeled volume, in cubic feet, of southern white cedar of different diameters and heights* [1]

Diameter breast high (inches)	Total height of tree—feet									Basis (trees)	Factor [2] to 6-inch top
	20	30	40	50	60	70	80	90	100		
	Peeled volume—cubic feet										
5	0.6	0.9	1.3	1.6						12	
6	1.3	1.9	2.5	3.2						46	
7		3	4	5	6	7				4	
8		4	5	7	8	9				51	0.687
9		5	7	9	10	12	14			1	.835
10		6	8	11	13	15	17			47	.890
11			10	13	16	18	21			8	.920
12			12	15	19	21	25	28	31	40	.939
13			14	18	22	25	29	32	36	26	.952
14			16	21	25	29	33	37	42	4	.962
15				24	28	33	38	42	48	1	.969
16				27	32	38	43	48	54	22	.975
17				31	36	42	48	54	61	2	.980
18				34	41	48	54	61	68	11	.984
19				38	45	53	60	68	76	1	.987
20				42	50	58	67	75	84	10	.990
21					55	65	74	83	93	6	.992
22					61	71	81	91	101	2	.993
23					67	78	89	99	110		.993
24					73	85	96	108	120		.994
Basis		12	21	74	38	77	45	23	4	294	

[1] Top diameter, 4 inches inside bark; stump height, 1 foot; compiled by form factor method, total cubic volume used as base. Aggregate check: Table 0.8 per cent below basic data. Basic trees: Virginia, North Carolina, 193; New Jersey, 79; Florida, 22. Block indicates extent of basic data.
[2] To convert to a 6-inch top diameter limit inside bark use factor in this column.

TABLE 42.—*Total peeled volume, in cubic feet, of southern white cedar of different diameters and heights* [1]

Diameter breast high (inches)	Total height—feet										Basis (trees)
	10	20	30	40	50	60	70	80	90	100	
	Total peeled volume—cubic feet										
1	0.03	0.07									21
2	.11	.21	0.32								25
3	.22	.45	.67	0.9							20
4		.78	1.2	1.6	2						36
5		1.2	1.8	2.4	3						25
6		1.7	2.6	3.5	4						30
7			3.5	5	6	7	8				24
8			5	6	8	9	11				30
9			6	8	10	11	13	15			24
10			7	9	12	14	16	19			26
11				11	14	17	20	22			28
12				13	16	20	23	26	30	33	26
13				15	19	23	27	31	34	38	21
14				18	22	26	31	35	40	44	11
15					25	30	35	40	45	50	9
16					28	34	40	46	51	57	13
17					32	38	45	51	57	64	5
18					36	43	50	57	64	71	6
19					40	47	55	63	71	79	9
20					44	52	61	70	79	87	8
21						58	67	77	87	96	3
22						63	74	84	95	105	3
23						69	80	92	103	114	
24						75	87	99	112	124	2
Basis	20	33	42	44	77	38	77	45	25	4	405

[1] Volume includes stump, stem, and top. Block indicates extent of basic data. Basic trees: North Carolina, Virginia, 248; New Jersey, 135; Florida, 22. Compiled by form factor method. Average percentage deviation of tree volumes from table, 13.8 per cent. Aggregate deviation, tabular volume, 0.03 per cent low.

TABLE 43.—*Total unpeeled volume, in cubic feet, of southern white cedar of different diameters and heights* [1]

Diameter breast high (inches)	Total height—feet										Basis (trees)
	10	20	30	40	50	60	70	80	90	100	
	Total unpeeled volume—cubic feet										
1	0.05	0.10									21
2	.15	.29	0.44								25
3	.29	.59	.88	1.2							20
4		1.00	1.5	2.0	2.5						36
5		1.52	2.3	3.0	3.8						25
6		2.14	3.2	4.3	5.4	7					30
7			4.3	6	7	9	10				24
8			6	7	9	11	13				30
9			7	9	11	14	16	18			24
10			8	11	14	17	19	22			26
11				13	17	20	23	27			28
12				16	19	23	27	31	35	39	26
13				18	22	27	31	36	40	45	21
14				21	26	31	36	41	46	51	11
15					29	35	41	47	52	58	9
16					33	39	46	52	59	66	13
17					36	44	51	58	66	73	5
18					41	49	57	65	73	81	6
19					45	54	63	72	81	90	9
20					50	59	69	79	89	99	8
21						65	76	87	98	108	3
22						71	83	95	107	119	3
23						77	90	103	116	129	
24						84	98	112	126	140	2
Basis	20	33	42	44	77	38	77	45	25	4	405

[1] Volume includes stump, stem, top, and bark. Block indicates extent of basic data. Basic trees: North Carolina, Virginia, 248; New Jersey, 135; Florida, 22. Compiled by form factor method. Average percentage deviation of tree volumes from table, 12.5 per cent. Aggregate deviation, tabular volume, 1.07 per cent low.

TABLE 44.—*Merchantable unpeeled volume, in standard cords, of southern white cedar of different diameters and heights* [1]

Diameter breast high (inches)	Total height of tree—feet									Converting factor—		Bark (per cent)	Basis (trees)
	20	30	40	50	60	70	80	90	100	To a 6-inch top	Total [3]		
	Volume—standard cords [2]												
5	0.01	0.01	0.02	0.02							2.38	20	12
6	.02	.03	.04	.04							1.27	19	46
7		.04	.05	.06	0.08	0.09					1.25	18	4
8			.05	.07	.08	.10	.12			0.687	1.22	17	51
9			.06	.08	.10	.13	.15	0.18		.835	1.18	16	1
10		.07		.10	.13	.15	.18	.21		.890	1.15	16	47
11				.12	.15	.18	.22	.25		.920	1.13	15	8
12			.14	.18	.22	.26	.29	0.33	0.37	.939	1.10	15	40
13			.17	.21	.25	.30	.34	.38	.43	.952	1.08	14	26
14			.19	.24	.29	.34	.39	.43	.48	.962	1.07	14	4
15				.27	.33	.38	.44	.49	.54	.969	1.06	14	1
16				.31	.37	.43	.49	.55	.61	.975	1.06	13	22
17				.34	.41	.48	.55	.61	.68	.980	1.05	13	2
18				.38	.46	.53	.61	.68	.76	.984	1.05	13	11
19				.42	.50	.59	.67	.76	.84	.987	1.04	12	1
20				.46	.56	.65	.74	.84	.93	.990	1.04	12	10
21					.61	.72	.82	.92	1.03	.992	1.03	12	6
22					.68	.79	.90	1.01	1.12	.993	1.03	11	2
23					.74	.86	.98	1.10	1.22	.993	1.02	11	
24					.81	.94	1.07	1.20	1.33	.994	1.02	11	
Basis		12	21	74	38	77	45	23	4				294

[1] Converted from a cubic foot volume table by number of cubic feet per standard cord for each d. b. h. class. Basic trees: Virginia, North Carolina, 193; New Jersey, 79; Florida, 22. Block indicates extent of basic data.

[2] Volume includes wood and bark; top diameter inside bark, 4 inches; stump height, 1 foot. A standard cord contains 128 cubic feet of stacked wood or the equivalent of a rick 4 feet by 4 feet by 8 feet.

[3] Volume includes stump, stem, top, and bark.

TABLE 45.—*Number of cubic feet per standard stacked cord of unpeeled southern white cedar cordwood bolts* [1]

Diameter breast high (inches)	Volume (wood and bark)	Volume (wood only)	Diameter breast high (inches)	Volume (wood and bark)	Volume (wood only)	Diameter breast high (inches)	Volume (wood and bark)	Volume (wood only)
	Cubic feet	*Cubic feet*		*Cubic feet*	*Cubic feet*		*Cubic feet*	*Cubic feet*
1	50	31	9	93	81	17	101	88
2	54	36	10	95	83	18	101	89
3	65	47	11	96	84	19	102	89
4	74	58	12	98	85	20	102	89
5	80	65	13	99	86	21	102	89
6	85	71	14	100	87	22	102	89
7	88	75	15	100	88	23	102	89
8	91	79	16	101	88	24	102	89

[1] A standard cord contains 128 cubic feet of stacked wood, or the equivalent of a rick 4 by 4 by 8 feet. Weighted average length of bolt, 6.6 feet; diameter outside bark at one-half height above breast height taken as the diameter of the average bolt in tree. Based on measurement of 43.2 stacked cords by C. F. Korstian and Alfred Akerman in Pasquotank County, N. C., and C. F. Korstian and A. D. LaMonte in Atlantic County, N. J.

TABLE 46.—*Number of southern white cedar trees per standard cord, including entire stem with bark*

| Diameter breast high (inches) | Total height—feet | | | | | | | | | | Basis (trees) |
| | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | |
	Number of trees per standard cord [1]										
1	1,000	500									21
2	360	186	123								25
3	224	110	74	54							20
4		74	49	37	30						36
5		53	35	27	21						25
6		39.7	26.6	19.8	15.7						30
7			20.5	15.4	12.4	10.2	8.8				24
8			16.5	12.5	9.9	8.3	7.1				30
9			13.7	10.2	8.2	6.8	5.8	5.1			24
10			11.4	8.6	6.8	5.7	4.9	4.3			26
11				7.3	5.8	4.8	4.2	3.6			28
12				6.3	5.1	4.2	3.6	3.2	2.8	2.5	26
13				5.5	4.4	3.7	3.2	2.8	2.5	2.2	21
14				4.9	3.9	3.2	2.8	2.4	2.2	1.9	11
15					3.4	2.9	2.5	2.2	1.9	1.7	9
16					3.1	2.6	2.2	1.9	1.7	1.5	13
17					2.8	2.3	2.0	1.7	1.5	1.4	5
18					2.5	2.1	1.8	1.6	1.4	1.2	6
19					2.3	1.9	1.6	1.4	1.3	1.1	9
20					2.1	1.7	1.5	1.3	1.1	1.0	8
21						1.6	1.3	1.2	1.0	.94	3
22						1.4	1.2	1.1	.95	.86	3
23						1.3	1.1	.99	.88	.79	
24						1.2	1.04	.91	.81	.73	2
Trees	20	33	42	44	77	38	77	45	25	4	405

[1] A standard cord contains 128 cubic feet of stacked wood, or the equivalent of a rick 4 by 4 by 8 feet. Block indicates extent of basic observations. Compiled from Table 49, by a variable converting factor. Basic trees: North Carolina, Virginia, 248; New Jersey, 135; Florida, 22.

TABLE 47.—*Volume of bark in proportion to total cubic volume of entire stem with bark* [1]

Diameter breast high (inches)	Bark volume percentage of total volume	Diameter breast high (inches)	Bark volume percentage of total volume	Diameter breast high (inches)	Bark volume percentage of total volume	Diameter breast high (inches)	Bark volume percentage of total volume
	Per cent		*Per cent*		*Per cent*		*Per cent*
1	35.0	7	17.4	13	14.0	19	12.0
2	27.3	8	16.7	14	13.7	20	11.7
3	23.7	9	16.1	15	13.3	21	11.5
4	21.2	10	15.5	16	12.9	22	11.3
5	19.5	11	15.0	17	12.6	23	11.2
6	18.4	12	14.5	18	12.3	24	11.1

[1] Basic trees; North Carolina, Virginia, 248; New Jersey, 135; Florida, 22.

TAPER AND FORM TABLES

The taper or form of second-growth southern white cedar trees of different diameters and heights is shown in Table 48. This table gives for each 10-foot height and each 1-inch d . h. h. (measured outside bark), the diameter inside bark at 1-foot intervals from the ground up to 3 feet, at 4.5 feet (breast height), and at 10-foot intervals above the ground. The variation in the taper of individual trees is great. It is therefore unsafe to assume, for example, that, because a tree 12 inches d. b. h. will on the average yield a pole of specified length and upper diameter, a fully stocked stand containing twenty 12-inch trees will actually yield 20 such poles having the same specifications. When the number of specified size classes is small and the prices offered vary widely, the use of taper tables in conjunction with stand tables in estimating linear products is subject to serious error, which may in some cases amount to 50 per cent, approximately 50 per cent of the trees being above the average and 50 per cent below (8). When there is a large range of sizes and a tree which fails to make a pole of one class may fall in the next smaller class, the tables can be used with less error.

The form factors and form quotients given in Table 49 will also be useful in determining the form and contents of southern white cedar trees. The same is also true of the bark widths for different diameters given in Table 50.

TABLE 48.—*Diameters inside bark at intervals above the ground for southern white cedar trees of different diameters and heights* [a]

30-FOOT TREES

Diameter breast high (inches)	Height above ground—feet												
	1	2	3	4.5	10	20	30	40	50	60	70	80	90
	Diameter inside bark—inches												
2	1.9	1.8	1.8	1.8	1.6	1.0							
3	2.9	2.9	2.8	2.8	2.5	1.3							
4	4.0	3.9	3.8	3.7	3.2	1.7							
5	5.1	5.0	4.8	4.6	3.9	2.0							
6	6.2	6.0	5.8	5.6	4.6	2.3							
7	7.3	7.0	6.8	6.5	5.4	2.7							
8	8.4	8.0	7.7	7.4	6.1	3.0							
9	9.6	9.2	8.8	8.4	6.9	3.3							

[a] Constructed by the multiple-correlation method. Aggregate deviation of basic data from a total cubic volume table constructed from these tables, 0.012 per cent. Basic trees: North Carolina, Virginia, 248; New Jersey, 135; Florida, 22.

[3] These tables were prepared by R. M. Brown and L. H. Reineke from field data collected by C. F. Korstian in cooperation with the State foresters of North Carolina, Virginia, and New Jersey.

TABLE 48.—*Diameters inside bark at intervals above the ground for southern white cedar trees of different diameters and heights*—Continued

40-FOOT TREES

Diameter breast high (inches)	Height above ground—feet												
	1	2	3	4.5	10	20	30	40	50	60	70	80	90
	Diameter inside bark—inches												
3	2.9	2.9	2.8	2.8	2.6	2.2	1.5						
4	4.0	3.9	3.8	3.7	3.4	2.7	1.7						
5	5.1	4.9	4.8	4.6	4.1	3.3	2.0						
6	6.2	6.0	5.8	5.6	4.9	3.8	2.2						
7	7.3	7.0	6.8	6.5	5.7	4.3	2.4						
8	8.4	8.1	7.8	7.4	6.5	4.9	2.7						
9	9.6	9.2	8.9	8.4	7.2	5.5	2.9						
10	10.6	10.2	9.8	9.3	8.0	6.0	3.1						
11	11.7	11.1	10.7	10.2	8.8	6.6	3.4						
12	12.8	12.3	11.9	11.2	9.5	7.0	3.6						
13	13.9	13.3	12.8	12.1	10.4	7.6	3.8						
14	15.0	14.3	13.8	13.0	11.2	8.1	4.0						

50-FOOT TREES

Diameter breast high (inches)	1	2	3	4.5	10	20	30	40	50	60	70	80	90
4	4.0	3.9	3.8	3.7	3.5	3.1	2.7	1.8					
5	5.1	4.9	4.8	4.6	4.2	3.7	3.1	1.9					
6	6.2	6.0	5.8	5.6	5.1	4.4	3.5	2.1					
7	7.3	7.0	6.8	6.5	5.8	5.1	3.9	2.2					
8	8.4	8.0	7.7	7.4	6.7	5.7	4.4	2.4					
9	9.6	9.1	8.8	8.4	7.5	6.3	4.8	2.6					
10	10.6	10.2	9.7	9.3	8.3	7.0	5.2	2.8					
11	11.7	11.1	10.7	10.2	9.1	7.5	5.5	2.9					
12	12.8	12.2	11.8	11.2	9.9	8.2	5.9	3.1					
13	13.9	13.3	12.8	12.1	10.6	8.8	6.4	3.3					
14	15.0	14.4	13.8	13.0	11.5	9.5	6.8	3.4					
15	16.2	15.3	14.7	14.0	12.3	10.1	7.2	3.6					
16	17.3	16.5	15.8	14.9	13.1	10.8	7.6	3.8					
17	18.5	17.4	16.7	15.8	13.9	11.5	8.0	3.9					
18	19.8	18.6	17.8	16.8	14.6	12.1	8.4	4.1					

60-FOOT TREES

Diameter breast high (inches)	1	2	3	4.5	10	20	30	40	50	60	70	80	90
5	5.1	4.9	4.8	4.6	4.3	4.1	3.8	3.2	2.0				
6	6.2	6.0	5.8	5.6	5.2	4.8	4.2	3.5	2.1				
7	7.3	7.0	6.8	6.5	6.0	5.5	4.8	3.8	2.3				
8	8.4	8.0	7.8	7.4	6.9	6.2	5.2	4.1	2.4				
9	9.6	9.2	8.8	8.4	7.6	6.9	5.8	4.5	2.5				
10	10.6	10.1	9.8	9.3	8.4	7.5	6.3	4.8	2.6				
11	11.7	11.1	10.7	10.2	9.2	8.2	6.8	5.1	2.8				
12	12.8	12.2	11.7	11.2	10.1	8.9	7.4	5.4	2.9				
13	13.9	13.2	12.7	12.1	10.9	9.6	7.9	5.7	3.0				
14	15.0	14.3	13.7	13.0	11.7	10.3	8.4	6.0	3.2				
15	16.2	15.4	14.8	14.0	12.4	11.0	8.9	6.3	3.3				
16	17.3	16.4	15.7	14.9	13.3	11.7	9.4	6.7	3.4				
17	18.5	17.5	16.7	15.8	14.1	12.4	9.9	7.0	3.5				
18	19.8	18.7	17.8	16.8	14.9	13.1	10.4	7.3	3.7				
19	21.0	19.6	18.7	17.7	15.8	13.8	11.0	7.6	3.8				
20	22.2	20.7	19.7	18.6	16.6	14.5	11.4	7.9	3.9				
21	23.4	21.9	20.8	19.6	17.4	15.2	12.0	8.2	4.1				
22	24.7	23.0	21.7	20.5	18.2	15.9	12.5	8.5	4.2				

70-FOOT TREES

Diameter breast high (inches)	1	2	3	4.5	10	20	30	40	50	60	70	80	90
7	7.3	6.9	6.7	6.5	6.0	5.7	5.3	4.7	3.9	2.3			
8	8.4	7.9	7.6	7.4	6.9	6.4	5.8	5.1	4.1	2.4			
9	9.6	9.2	8.8	8.4	7.7	7.1	6.5	5.6	4.3	2.5			
10	10.6	10.1	9.7	9.3	8.6	7.9	7.0	6.0	4.6	2.6			
11	11.7	11.2	10.7	10.2	9.4	8.6	7.6	6.4	4.9	2.7			
12	12.8	12.2	11.8	11.2	10.2	9.3	8.2	6.8	5.2	2.8			
13	13.9	13.2	12.7	12.1	11.1	10.1	8.8	7.2	5.4	2.9			
14	15.0	14.1	13.6	13.0	11.9	10.8	9.4	7.7	5.7	3.0			
15	16.2	15.4	14.7	14.0	12.7	11.5	10.0	8.1	5.9	3.1			
16	17.3	16.3	15.6	14.9	13.6	12.3	10.5	8.5	6.2	3.2			
17	18.5	17.3	16.6	15.8	14.4	13.0	11.1	8.9	6.4	3.3			
18	19.8	18.4	17.6	16.8	15.3	13.7	11.7	9.4	6.7	3.4			
19	21.0	19.6	18.6	17.7	16.1	14.4	12.4	9.8	6.9	3.5			
20	22.2	20.4	19.5	18.6	16.9	15.2	12.9	10.2	7.2	3.6			
21	23.4	21.7	20.6	19.6	17.7	15.9	13.5	10.6	7.4	3.7			
22	24.7	22.6	21.6	20.5	18.6	16.6	14.1	11.1	7.7	3.9			

TABLE 48.—*Diameters inside bark at intervals above the ground for southern white cedar trees of different diameters and heights*—Continued

80-FOOT TREES

Diameter breast high (inches)	Height above ground—feet												
	1	2	3	4.5	10	20	30	40	50	60	70	80	90
	Diameter inside bark—inches												
9	9.6	9.1	8.8	8.4	7.9	7.4	6.9	6.3	5.5	4.3	2.5		
10	10.6	10.1	9.7	9.3	8.7	8.2	7.5	6.8	5.9	4.5	2.6		
11	11.7	11.1	10.6	10.2	9.6	8.9	8.2	7.3	6.2	4.8	2.7		
12	12.8	12.2	11.7	11.2	10.4	9.7	8.8	7.8	6.6	5.0	2.7		
13	13.9	13.1	12.6	12.1	11.3	10.4	9.4	8.3	6.9	5.2	2.8		
14	15.0	14.1	13.5	13.0	12.1	11.2	10.1	8.8	7.3	5.4	2.9		
15	16.2	15.2	14.6	14.0	12.9	11.9	10.7	9.3	7.6	5.6	3.0		
16	17.3	16.2	15.5	14.9	13.9	12.7	11.3	9.8	8.0	5.8	3.1		
17	18.5	17.2	16.5	15.8	14.6	13.5	12.0	10.3	8.4	6.0	3.2		
18	19.8	18.4	17.6	16.8	15.5	14.2	12.6	10.8	8.7	6.2	3.3		
19	21.0	19.4	18.5	17.7	16.4	14.9	13.2	11.3	9.1	6.5	3.3		
20	22.2	20.3	19.4	18.6	17.2	15.7	13.9	11.8	9.4	6.7	3.4		
21	23.4	21.5	20.5	19.6	18.0	16.4	14.5	12.3	9.8	6.9	3.5		
22	24.7	22.6	21.5	20.5	18.9	17.2	15.2	12.8	10.2	7.1	3.6		
23	26.0	23.6	22.6	21.5	19.8	17.9	15.8	13.4	10.5	7.3	3.7		
24	27.3	24.5	23.4	22.4	20.6	18.6	16.4	13.9	10.9	7.5	3.8		

90-FOOT TREES

Diameter breast high (inches)	1	2	3	4.5	10	20	30	40	50	60	70	80	90
12	12.8	12.2	11.7	11.2	10.5	9.8	9.2	8.5	7.7	6.5	4.9	2.8	
13	13.9	13.1	12.6	12.1	11.5	10.7	9.9	9.1	8.1	6.8	5.1	2.9	
14	15.0	14.1	13.6	13.0	12.2	11.4	10.5	9.6	8.5	7.1	5.2	2.9	
15	16.2	15.1	14.6	14.0	13.1	12.2	11.2	10.2	9.0	7.4	5.4	3.0	
16	17.3	16.1	15.5	14.9	14.0	12.9	11.9	10.7	9.4	7.7	5.6	3.1	
17	18.5	17.1	16.4	15.8	14.8	13.7	12.6	11.3	9.8	8.0	5.8	3.2	
18	19.8	18.2	17.5	16.8	15.7	14.5	13.2	11.9	10.3	8.3	5.9	3.3	
19	21.0	19.1	18.4	17.7	16.6	15.3	13.9	12.4	10.7	8.6	6.1	3.3	
20	22.2	20.2	19.4	18.6	17.4	16.0	14.5	13.0	11.2	8.9	6.3	3.4	
21	23.4	21.3	20.4	19.6	18.2	16.8	15.3	13.6	11.6	9.2	6.5	3.5	
22	24.7	22.3	21.4	20.5	19.1	17.6	16.0	14.1	12.0	9.5	6.7	3.5	
23	26.0	23.4	22.4	21.5	20.0	18.4	16.6	14.7	12.5	9.9	6.8	3.6	
24	27.3	24.4	23.3	22.4	20.8	19.1	17.3	15.2	12.9	10.2	7.0	3.7	

100-FOOT TREES

Diameter breast high (inches)	1	2	3	4.5	10	20	30	40	50	60	70	80	90
12	12.8	12.0	11.5	11.2	10.7	10.1	9.5	9.0	8.3	7.6	6.4	4.8	2.7
13	13.9	13.0	12.5	12.1	11.5	10.9	10.3	9.5	8.8	8.0	6.7	4.9	2.7
14	15.0	14.0	13.5	13.0	12.4	11.6	11.0	10.2	9.3	8.4	7.0	5.1	2.8
15	16.2	15.1	14.5	14.0	13.3	12.4	11.7	10.8	9.8	8.8	7.3	5.2	2.8
16	17.3	16.1	15.3	14.9	14.2	13.2	12.3	11.4	10.3	9.1	7.5	5.4	2.9
17	18.5	17.0	16.3	15.8	15.0	14.0	13.1	12.0	10.8	9.5	7.7	5.5	2.9
18	19.8	18.2	17.4	16.8	15.9	14.8	13.8	12.6	11.3	9.9	8.0	5.7	3.0
19	21.1	19.3	18.4	17.7	16.7	15.5	14.5	13.2	11.8	10.3	8.2	5.9	3.1
20	22.2	20.3	19.4	18.6	17.6	16.3	15.2	13.9	12.3	10.6	8.5	6.0	3.1
21	23.4	21.4	20.5	19.6	18.5	17.1	15.9	14.4	12.8	11.0	8.8	6.2	3.2
22	24.7	22.5	21.4	20.5	19.4	17.9	16.6	15.0	13.3	11.4	9.1	6.4	3.3
23	26.0	23.8	22.4	21.5	20.2	18.7	17.3	15.6	13.8	11.8	9.3	6.5	3.4
24	27.3	24.6	23.2	22.4	21.1	19.4	18.0	16.2	14.3	12.1	9.6	6.6	3.5

TABLE 49.—*Form factors and form quotients for southern white cedar in Virginia, North Carolina, New Jersey, and Florida* [1]

Diameter breast high (inches)	Form factor [2]		Form quotient [3] Inside bark	Basis (trees)	Diameter breast high (inches)	Form factor [2]		Form quotient [3] Inside bark	Basis (trees)
	Inside bark	Outside bark				Inside bark	Outside bark		
1	1.150	1.669	0.544	21	14	0.823	0.960	0.640	11
2	.970	1.335	.590	25	15	.819	.948	.638	9
3	.914	1.195	.629	20	16	.815	.938	.636	13
4	.897	1.148	.663	36	17	.810	.925	.634	5
5	.890	1.118	.682	25	18	.808	.916	.631	6
6	.881	1.092	.690	30	19	.803	.910	.627	9
7	.872	1.070	.692	24	20	.801	.907	.624	8
8	.865	1.050	.688	30	21	.799	.901	.620	3
9	.858	1.032	.669	24	22	.797	.898	.617	3
10	.850	1.018	.656	26	23	.793	.893	.613	
11	.842	1.002	.648	28	24	.790	.890	.609	2
12	.837	.988	.643	26					
13	.830	.973	.641	21	Total				405

[1] The form factors and form quotients are curved.
[2] Average volume of tree with and without bark divided by the volume of a paraboloid of the same breast-high diameter outside bark and same total height.
[3] Ratio of diameter inside bark at one-half the height above breast height to the breast-high diameter inside bark.

TABLE 50.—*Bark thickness in southern white cedar* [1]

Diameter, outside bark (inches)	Single thickness of bark	Diameter, outside bark (inches)	Single thickness of bark	Diameter, outside bark (inches)	Single thickness of bark	Diameter, outside bark (inches)	Single thickness of bark
	Inches		*Inches*		*Inches*		*Inches*
1	0.11	9	0.37	17	0.58	25	0.80
2	.15	10	.40	18	.61	26	.83
3	.19	11	.42	19	.64	27	.85
4	.22	12	.45	20	.66	28	.88
5	.25	13	.47	21	.69	29	.91
6	.28	14	.50	22	.72	30	.94
7	.31	15	.53	23	.75		
8	.34	16	.55	24	.77		

[1] This table shows the thickness of bark, on radial sections of various diameters, for southern white cedar throughout its range. Based on 3,426 measurements on 469 trees in southeastern New Jersey, southeastern Virginia, eastern North Carolina, Darlington County, S. C., Calhoun County, Fla., Escambia County, Ala., and Pearl River County, Miss.