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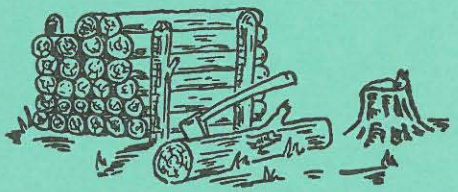
MP624: Volume Tables for Maine

Harold E. Young

VOLUME TABLES
FOR
MAINE

Compiled by

HAROLD E. YOUNG



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INTRODUCTION

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With the recent completion of the hemlock volume tables it seemed desirable to publish under one cover all of the volume tables compiled by the Maine Agricultural Experiment Station. Therefore the white pine volume tables for southern Maine prepared by D. B. Demeritt, and the northern white cedar volume tables prepared by James D. Curtis and Dwight B. Demeritt are included.

For the convenience of those preparing forest inventories or engaged in other forest work in Maine, permission was granted by the Harvard University Press to print the poplar and spruce tables prepared by Austin Cary.

A. D. Nutting, Forest Commissioner of Maine, gave permission to use the northern hardwood table prepared by Austin Cary and R. G. Stubbs.

There are no tables for fir in Maine. Austin Cary observed fir to be slimmer than spruce, but from measurements found the bark of fir is thinner than the bark of spruce. Common practice is to use spruce volume tables for fir either directly or by reducing them by an appropriate percentage. Professor Frank K. Beyer is currently preparing a set of fir volume tables to remedy this lack of information.

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GLOSSARY OF SPECIAL TERMS

i.b.	inside bark.
o.b.	outside bark.
Dbh	diameter breast high (4.5 feet above the ground).
basis	the number of trees for which data were available to construct the volume table.
aggregate per cent of difference	The difference between the sum of the actual volume of the trees constituting the basic data and the sum of the tabular volumes for trees of the same diameter and height as the basic data divided by the sum of the actual volumes and the result multiplied by 100.
Absolute form quotient	The ratio of the diameter o.b. at 2.25 feet above the midpoint of the tree to dbh.
Old Growth	In these tables old growth means trees that are 175 years old or trees that are younger but have an absolute form quotient of 0.700 or larger. Almost all trees that are 175 or more years old have a form quotient of 0.700 or larger. There are some trees that are much younger but fast growing with a larger form quotient.
Second Growth	In these tables second growth means trees that are less than 175 years old and whose absolute form quotient is less than 0.700. Young trees with an absolute form quotient above this limit are characterized as "old growth" in form and are included in the old growth table.
Cubic foot	A cube having sides one foot long.
Cord	A unit of measure for stacked wood, four feet high, eight feet long, and four feet wide. It consists of wood and air space and in the case of rough wood, the bark.
Board foot	A unit of measure twelve inches wide, twelve inches long, and an inch thick. For standing trees it is a unit of estimate rather than a unit of measure.
Peeled Wood	Pulpwood with the bark removed.
Rough Wood	Pulpwood with the bark intact.

CONTENTS

TABLE 1

NORTHERN WHITE CEDAR

Volume in Cubic Feet to 4-inch Top—Unpeeled

Dbh Inches	Total Height—Feet				
	20	30	40	50	60
4					
5	1.20	1.70	2.00		
6	1.80	2.50	3.10		
7	2.40	3.47	4.64	5.72	
8	3.10	4.63	6.27	7.62	
9		6.08	8.00	10.02	12.00
10		7.60	9.90	12.47	14.93
11			12.13	15.33	18.53
12			14.60	18.27	21.88
13				22.01	25.99
14				25.83	30.98
15				29.69	35.84

Data collected in central Maine by J. D. Curtis, et al., University of Maine. Table prepared by D. B. Demeritt from percentile taper curves, based on 140 trees. Stump height, 1 foot. Table indicates volume of trees with bark from a one-foot stump to a four-inch top outside bark.

TABLE 2

NORTHERN WHITE CEDAR

Volume in Cords—Rough Wood

Dbh Inches	Total Height—Feet					Basis
	20	30	40	50	60	
5	.013	**.018**	**.022**			11
6	.019	**.027**	**.034**			8
7	.024	**.038**	**.049**	.061		8
8	.032	**.048**	**.064**	.079		28
9		.062	**.081**	**.102**	.122	20
10		**.076**	**.099**	**.125**	.149	15
11			.118	**.150**	.178	1
12			.140	.176	.210	0
13				.209	.250	0
14				.246	.293	0
15				.283	.340	0
Basis		14	71	6		91

Prepared by D. B. Demeritt from data collected by James D. Curtis, University of Maine. Cubic feet were converted to cords at the rate of 90 cubic feet per cord.
Stump height, one foot.
Bold faced figures indicate extent of basic data.

TABLE 3

NORTHERN WHITE CEDAR

Number of 7-foot Peeled Posts per Tree to a 4-inch Top i.b.

Dbh Inches	Total Height—Feet			
	30	40	50	60
6	2	2		
7	2	3	4	
8	2	3	4	5
9	3	4	5	6
10	3	4	5	6
11	3	4	5	6
12		4	5	6
13			5	6
14			6	7
15			6	7

Table prepared from percentile taper curves by J. D. Curtis and D. B. Demeritt, University of Maine. Table shows number of 7-foot peeled posts obtainable per tree above a 1-foot stump to a 4-inch top inside bark.

TABLE 4

HARDWOODS

Volume in Cords—Peeled Wood

Dbh Inches	Total Height—Feet							
	45	50	55	60	65	70	75	80
6	.032	.036	.040	.045	—	—	—	—
7	.044	.050	.056	.062	.068	.076	—	—
8	.057	.064	.071	.078	.086	.095	—	—
9	—	.078	.087	.096	.106	.118	—	—
10	—	.093	.103	.114	.127	.142	.156	—
11	—	.108	.120	.134	.150	.167	.185	—
12	—	.126	.140	.158	.176	.196	.217	—
13	—	—	.164	.183	.206	.230	.250	—
14	—	—	.190	.214	.240	.265	.290	.300
15	—	—	—	.245	.275	.305	.330	.350
16	—	—	—	—	.315	.345	.370	.400

Prepared by Austin Cary and R. G. Stubbs. Permission to print this table granted by Maine Forest Commissioner A. D. Nutting. Based on about 800 trees cut in Maine. Top diameters range from four to six and one-half inches.

These figures apply for birches and maples. Figures should be reduced 13% when applied to beech.

HARDWOODS—BINGHAM TOWNSHIP

Volume in Cords—Rough Wood

Merchantable Height in 16 foot logs

Dbh Inches	1	1½	2	2½	3	3½
6	.025	.038				
7	.034	.051				
8	.045	.067	.089			
9	.056	.085	.113			
10	.070	.105	.140	.175		
11	.084	.127	.169	.211		
12	.100	.151	.201	.251	.302	
13	.118	.177	.236	.295	.354	
14		.205	.274	.342	.411	.479
15		.236	.314	.393	.471	.551
16			.358	.447	.536	.626
17			.404	.505	.605	.706
18			.453	.566	.679	.792
19				.630	.756	.882
20				.698	.838	.978
21				.775	.924	1.078
22				.845	1.014	1.183
23				.924	1.108	1.293
24				1.006	1.207	1.408
25				1.091	1.310	1.528

Data on 3090 trees collected in the eastern part of Bingham Township by the S. D. Warren Co. Volume table prepared by H. E. Young from the regression equation:
Volume $= 0.0001746D^2B$, where D is the diameter at breast height and B is the number of four foot bolts.
Stump height, one foot.
Merchantable height extending to a minimum of four inches for the upper diameter limit when possible.
These figures apply to beech, birch, and maple stands and should be carefully checked in the field before using in any part of the state other than the area where the basic data were obtained.

TABLE 5

SECOND GROWTH HEMLOCK
CENTRAL AND SOUTHERN MAINE

Volume in cubic feet to a 5-inch top i.b.

Dbh Inches	Total Height—Feet						Basis
	30	40	50	60	70	80	
6	**1.3**	**2.0**	**2.5**				12
7	**2.2**	**3.3**	**4.1**				20
8	**3.5**	**4.6**	**5.7**	6.9			41
9	**4.9**	**6.3**	**7.5**	**9.0**			45
10	**6.3**	**8.1**	**9.8**	**11.5**			36
11	**8.1**	**10.1**	**12.0**	**14.0**	**15.7**		40
12		**12.3**	**14.7**	**17.1**	**19.0**		33
13		**14.6**	**17.6**	**20.5**	**22.8**		35
14		**17.0**	**20.6**	**24.2**	**26.9**		22
15		19.5	**23.7**	**27.8**	**31.1**		19
16		**22.1**	**26.9**	**31.6**	**35.5**	40.2	19
17			**30.1**	**35.5**	**39.8**	**45.1**	7
18			**33.5**	**39.4**	**44.2**	**50.1**	5
19			37.0	43.5	**49.0**	55.5	1
20			40.5	**47.7**	**53.8**	60.8	2
21				51.9	**58.8**	66.3	1
Basis	20	84	116	91	24	3	338

Data collected by D. B. Demeritt and H. E. Young. Volume table prepared by H. E. Young with aggregate per cent of difference 0.81 high. For trees less than 175 years old and absolute form quotient less than 0.700.
Stump height, one foot.
Bold faced figures indicate extent of basic data.

TABLE 6

SECOND GROWTH HEMLOCK
CENTRAL AND SOUTHERN MAINE

Volume in cords—peeled wood

Dbh Inches	Total Height—Feet						Basis
	30	40	50	60	70	80	
6	**.016**	**.025**	**.031**				12
7	**.026**	**.039**	**.049**				20
8	**.040**	**.053**	**.066**	.079			41
9	**.054**	**.070**	**.083**	**.100**			45
10	**.068**	**.088**	**.107**	**.125**			36
11	**.086**	**.107**	**.128**	**.149**	**.167**		40
12		**.128**	**.153**	**.178**	**.198**		33
13		**.151**	**.181**	**.211**	**.235**		35
14		**.173**	**.210**	**.247**	**.274**		22
15		.197	**.239**	**.281**	**.314**		19
16		**.221**	**.269**	**.316**	**.355**	.402	19
17			**.301**	**.355**	**.398**	**.451**	7
18			**.332**	**.390**	**.438**	**.496**	5
19			.366	.431	**.485**	.550	1
20			.405	**.477**	**.538**	.608	2
21				.519	**.588**	.663	1
Basis	20	84	116	91	24	3	338

Data collected by D. B. Demeritt and H. E. Young. Volume table converted by H. E. Young from cubic feet (Table 5) to cords by conversion factors listed in Table 21.
Bold faced figures indicate extent of basic data.

TABLE 7

SECOND GROWTH HEMLOCK
CENTRAL AND SOUTHERN MAINE

Volume in cubic feet to a 5-inch top o.b.

Dbh Inches	Total Height—Feet						Basis
	30	40	50	60	70	80	
6	**2.2**	**3.0**	**3.5**				8
7	**3.2**	**4.4**	**5.3**				12
8	**4.7**	**5.9**	**7.1**	8.4			23
9	**6.3**	**7.8**	**9.2**	**10.9**			32
10	**8.0**	**9.9**	**11.9**	**13.8**			27
11	**10.0**	**12.3**	**14.5**	**16.8**	18.8		25
12		**14.8**	**17.6**	**20.4**	**22.8**		22
13		**17.5**	**20.9**	**24.4**	**27.3**		20
14		20.3	**24.3**	**28.6**	**32.2**		10
15		23.2	**27.9**	**32.8**	**37.1**		9
16		**26.3**	**31.6**	**37.3**	**42.4**	48.9	11
17			**35.4**	**41.8**	**47.7**	**55.0**	5
18			**39.3**	**46.5**	**53.1**	61.3	4
19			43.4	**51.4**	**59.1**	68.1	1
20			47.5	**56.4**	**65.0**	74.9	2
21				61.5	**71.3**	81.9	1
Basis	17	54	78	47	14	2	212

Data collected by D. B. Demeritt and H. E. Young. Volume table prepared by H. E. Young with aggregate per cent of difference 0.63 high. For trees less than 175 years old and absolute form quotient less than 0.700. Stump height, one foot.
Bold faced figures indicate extent of basic data.

TABLE 8

SECOND GROWTH HEMLOCK
CENTRAL AND SOUTHERN MAINE

Volume in cords—rough wood

Dbh Inches	Total Height—Feet						Basis
	30	40	50	60	70	80	
6	**.027**	**.036**	**.043**				8
7	**.037**	**.051**	**.062**				12
8	**.052**	**.066**	**.079**	.093			23
9	**.068**	**.085**	**.100**	**.118**			32
10	**.085**	**.105**	**.127**	**.147**			27
11	**.103**	**.127**	**.149**	**.173**	.194		25
12		**.151**	**.180**	**.208**	**.233**		22
13		**.177**	**.211**	**.246**	**.276**		20
14		.203	**.243**	**.286**	**.322**		10
15		.232	**.279**	**.328**	**.371**		9
16		**.260**	**.313**	**.369**	**.420**	.484	11
17			**.350**	**.414**	**.472**	**.545**	5
18			**.393**	**.465**	**.531**	.613	4
19			.434	**.514**	**.591**	.681	1
20			.480	**.570**	**.657**	.757	2
21				.628	**.728**	.836	1
Basis	17	54	78	47	14	2	212

Data collected by D. B. Demeritt and H. E. Young. Volume table converted by H. E. Young from cubic feet (Table 7) to cords by conversion factors listed in Table 21.
Bold faced figures indicate extent of basic data.

TABLE 9

SECOND GROWTH HEMLOCK
CENTRAL AND SOUTHERN MAINE

Volume in board feet
International ¼" rule

Dbh Inches	Total Height—Feet						Basis	Used top Diameter
	30	40	50	60	70	80		
8	**12**	**16**	**21**				41	6
9	**17**	**22**	**31**	**39**			45	6
10	**22**	**32**	**42**	**55**			36	6
11	**29**	**42**	**55**	**71**	**84**		40	6
12		**55**	**68**	**88**	**103**		33	6
13		**68**	**83**	**107**	**127**		35	7
14		**82**	**98**	**127**	**150**		22	7
15		95	**116**	**148**	**175**	193	19	7
16		**110**	**133**	**171**	**200**	**220**	19	8
17			**152**	**195**	**227**	**247**	7	8
18			**172**	**220**	**252**	**277**	5	8
19				243	**278**	307	1	8
20				**268**	**304**	336	2	9
21				292	**332**	365	1	9
Basis	9	67	112	91	24	3	306	

Data collected by D. B. Demeritt and H. E. Young. Volume table prepared by H. E. Young with aggregate per cent of difference 0.65 high. For trees less than 175 years old and absolute form quotient less than 0.700. Stump height, one foot.
Bold faced figures indicate extent of basic data.

TABLE 10

SECOND GROWTH HEMLOCK
CENTRAL AND SOUTHERN MAINE

Volume in board feet
International ⅛" rule

Dbh Inches	Total Height—Feet						Basis	Used top Diameter
	30	40	50	60	70	80		
8	**15**	**20**	**26**				41	6
9	**21**	**30**	**37**	**43**			45	6
10	**29**	**40**	**57**	**60**			36	6
11	**38**	**52**	**67**	**80**	**93**		40	6
12		**65**	**83**	**100**	**117**		33	6
13		**80**	**100**	**122**	**143**		35	7
14		**94**	**117**	**145**	**170**		22	7
15		108	**136**	**167**	**196**	223	19	7
16		**123**	**155**	**190**	**222**	**253**	19	8
17			**174**	**213**	**248**	**285**	7	8
18			**194**	**238**	**277**	**317**	5	8
19				263	**308**	352	1	8
20				**292**	**341**	389	2	9
21				322	**376**	428	1	9
Basis	9	67	112	91	24	3	306	

Data collected by D. B. Demeritt and H. E. Young. Volume table prepared by H. E. Young with aggregate per cent of difference 0.69 high. For trees less than 175 years old and absolute form quotient less than 0.700. Stump height, one foot.
Bold faced figures indicate extent of basic data.

TABLE 11

SECOND GROWTH HEMLOCK
CENTRAL AND SOUTHERN MAINE

Volume in board feet
Scribner Rule

Dbh Inches	Total Height—Feet							Used top Diameter
	30	40	50	60	70	80	Basis	
8	**13**	**18**	**27**				41	6
9	**18**	**25**	**33**	**42**			45	6
10	**25**	**33**	**42**	**53**			36	6
11	**31**	**42**	**53**	**66**	**75**		40	6
12		**51**	**64**	**79**	**90**		33	6
13		**61**	**77**	**95**	**108**		35	7
14		**73**	**91**	**112**	**127**		22	7
15		86	**108**	**131**	**150**	171	19	7
16		**100**	**126**	**152**	**175**	**200**	19	8
17			**145**	**176**	**202**	**231**	7	8
18			**165**	**201**	**232**	**264**	5	8
19				229	**263**	300	1	8
20				**258**	**295**	340	2	9
21				290	**330**	379	1	9
Basis	9	67	112	91	24	3	306	

Data collected by D. B. Demeritt and H. E. Young. Volume table prepared by H. E. Young with aggregate per cent of difference 0.68 high. For trees less than 175 years old and absolute form quotient less than 0.700. Stump height, one foot.
Bold faced figures indicate extent of basic data.

TABLE 12

SECOND GROWTH HEMLOCK
CENTRAL AND SOUTHERN MAINE

Volume in board feet
Maine Rule

Dbh Inches	Total Height—Feet						Basis	Used top Diameter
	30	40	50	60	70	80		
8	**17**	**22**	**27**				41	6
9	**22**	**30**	**38**	**46**			45	6
10	**28**	**40**	**51**	**61**			36	6
11	**37**	**51**	**65**	**75**	**88**		40	6
12		**62**	**80**	**92**	**109**		33	6
13		**75**	**95**	**111**	**131**		35	7
14		**87**	**112**	**130**	**155**		22	7
15		102	**127**	**152**	**177**	202	19	7
16		**116**	**144**	**172**	**202**	**230**	19	8
17			**162**	**194**	**227**	**260**	7	8
18			**180**	**217**	**254**	**292**	5	8
19				241	**282**	325	1	8
20				**267**	**312**	360	2	9
21				292	**341**	392	1	9
Basis	9	67	112	91	24	3	306	

Data collected by D. B. Demeritt and H. E. Young. Volume table prepared by H. E. Young with aggregate per cent of difference 0.62 high. For trees less than 175 years old and absolute form quotient less than 0.700. Stump height, one foot.
Bold faced figures indicate extent of basic data.

TABLE 13

OLD GROWTH HEMLOCK
CENTRAL AND SOUTHERN MAINE

Volume in cubic feet to a 5-inch top i.b.

Dbh Inches	Total Height—Feet							
	30	40	50	60	70	80	90	Basis
6	**1.6**	**2.5**	**3.4**					6
7	**2.6**	**3.6**	**5.1**					7
8	3.7	**5.3**	7.0					3
9	**5.0**	**7.0**	**9.1**	10.9				10
10	6.9	**8.9**	**11.5**	**13.4**				14
11	**8.8**	**11.0**	**14.0**	**16.3**				7
12		**13.7**	**16.9**	**19.6**	**22.8**			14
13		16.0	**20.0**	**23.0**	**26.7**			12
14		**18.9**	**23.2**	**26.8**	**30.6**			7
15		21.8	**26.5**	**30.9**	**34.9**	**39.0**		11
16		**24.7**	**30.0**	**35.3**	**39.6**	45.0		13
17			34.1	**40.0**	**44.7**	**50.8**		12
18				44.8	**50.2**	57.0		8
19				50.2	**56.3**	**63.0**		9
20				56.0	**62.8**	**69.7**	**78.7**	8
21				**62.2**	**69.6**	**77.0**	86.6	6
22				68.4	**76.6**	**84.8**	**95.3**	8
23					83.7	**92.8**	104.4	1
24					**91.0**	100.8	113.9	2
25					98.7	109.4	123.7	0
26					106.8	**118.0**	134.2	1
Basis	10	21	24	34	48	17	5	159

Data collected by D. B. Demeritt and H. E. Young. Volume table prepared by H. E. Young with aggregate per cent of difference 0.43 high. For trees over 175 years old **and/or** absolute form quotient more than 0.700. Stump height, one foot.
Bold faced figures indicate extent of basic data.

TABLE 14

OLD GROWTH HEMLOCK
CENTRAL AND SOUTHERN MAINE

Volume in cords—peeled wood

Dbh Inches	Total Height—Feet							
	30	40	50	60	70	80	90	Basis
6	**.020**	**.031**	**.042**					6
7	**.031**	**.043**	**.061**					7
8	.043	**.061**	.080					3
9	**.056**	**.078**	**.101**	.121				10
10	.075	**.097**	**.125**	**.146**				14
11	**.094**	**.117**	**.149**	**.173**				7
12		**.143**	**.176**	**.204**	**.237**			14
13		.165	**.206**	**.237**	**.275**			12
14		**.193**	**.237**	**.273**	**.312**			7
15		.220	**.268**	**.312**	**.353**	**.394**		11
16		**.247**	**.300**	**.353**	**.396**	.450		13
17			.341	**.400**	**.447**	**.508**		12
18				.444	**.497**	.564		8
19				.497	**.557**	**.624**		9
20				.560	**.628**	**.697**	**.787**	8
21				**.622**	**.696**	**.770**	.866	6
22				.691	**.774**	**.857**	**.963**	8
23					.845	**.937**	1.055	1
24					**.929**	1.029	1.162	2
25					1.018	1.128	1.275	0
26					1.101	**1.216**	1.384	1
Basis	10	21	24	34	48	17	5	159

Data collected by D. B. Demeritt and H. E. Young. Volume table converted by H. E. Young from cubic feet (Table 13) to cords by conversion factors listed in Table 21.
Bold faced figures indicate extent of basic data.

TABLE 15

OLD GROWTH HEMLOCK
CENTRAL AND SOUTHERN MAINE

Volume in cubic feet to a 5-inch top o.b.

Dbh Inches	Total Height—Feet							
	30	40	50	60	70	80	90	Basis
6	**2.6**	3.7	**4.8**					5
7	**3.8**	**5.1**	**6.9**					6
8	5.1	**7.1**	9.1					2
9	**6.8**	**9.2**	**11.7**	13.7				6
10	9.1	**11.6**	**14.6**	**16.8**				8
11	**11.4**	**14.4**	**17.7**	**20.4**				4
12		**17.7**	**21.3**	**24.4**	**28.0**			7
13		20.8	25.2	**28.6**	**32.7**			7
14		**24.7**	29.3	**33.2**	**37.4**			3
15		28.5	33.5	**38.3**	**42.5**	**47.3**		7
16		**32.3**	**37.9**	**43.7**	**48.2**	54.5		11
17			43.0	**49.4**	**54.6**	**61.4**		12
18				55.2	**61.1**	69.0		8
19				61.8	**68.5**	**76.4**		9
20				69.0	**76.5**	**84.6**	**95.0**	8
21				**76.5**	**84.8**	**93.4**	104.6	6
22				84.1	**93.4**	**103.0**	**115.1**	8
23					102.2	**112.8**	126.0	1
24					**111.2**	122.6	137.5	2
25					120.7	133.2	149.3	0
26					130.0	**143.8**	162.0	1
Basis	10	10	9	24	46	18	4	121

Data collected by D. B. Demeritt and H. E. Young. Volume table prepared by H. E. Young with aggregate per cent of difference 0.28 high. For trees over 175 years old **and/or** absolute form quotient more than 0.700. Stump height, one foot.
Bold faced figures indicate extent of basic data.

TABLE 16

OLD GROWTH HEMLOCK
CENTRAL AND SOUTHERN MAINE

Volume in cords—rough wood

Dbh Inches	Total Height—Feet							Basis
	30	40	50	60	70	80	90	
6	**.032**	.045	**.059**					5
7	**.044**	**.059**	.080					6
8	.057	**.079**	.101					2
9	**.074**	**.100**	**.127**	.149				6
10	.097	**.123**	.155	**.179**				8
11	**.118**	.148	**.182**	**.210**				4
12		**.181**	**.217**	**.249**	**.286**			7
13		.210	.255	**.289**	**.330**			7
14		**.247**	.293	**.332**	**.374**			3
15		.285	.335	**.383**	**.425**	**.473**		7
16		**.320**	**.375**	**.433**	**.477**	.540		11
17			.426	**.489**	**.541**	**.608**		12
18				.552	**.611**	.690		8
19				.618	**.685**	**.764**		9
20				.697	**.773**	**.855**	**.960**	8
21				**.781**	**.865**	**.953**	1.067	6
22				.867	**.963**	**1.062**	**1.187**	8
23					1.065	**1.175**	1.312	1
24					**1.171**	1.291	1.447	2
25					1.271	1.402	1.572	0
26					1.391	**1.530**	1.723	1
Basis	10	10	9	24	46	18	4	121

Data collected by D. B. Demeritt and H. E. Young. Volume table converted by H. E. Young from cubic feet (Table 15) to cords by conversion factors listed in Table 21.
Bold faced figures indicate extent of basic data.

TABLE 17

OLD GROWTH HEMLOCK
CENTRAL AND SOUTHERN MAINE

Volume in board feet

International ¼" rule

Dbh Inches	Total Height—Feet							Basis	Used top Diameter
	30	40	50	60	70	80	90		
8	19	**24**	30					3	6
9	**24**	**33**	**41**	46				10	6
10	**31**	**43**	**57**	**63**				14	7
11	**40**	**56**	**72**	**80**				7	7
12		**69**	**90**	**102**	**118**			14	7
13		84	**110**	**126**	**147**			12	7
14		**102**	**131**	**150**	**178**			7	7
15		122	**153**	**179**	**210**	**241**		11	8
16		**144**	**179**	**211**	**247**	282		13	8
17			205	**247**	**284**	**324**		12	8
18				283	**322**	367		8	8
19				320	**361**	**410**		9	9
20				358	**403**	**454**	**504**	8	9
21				**397**	**449**	**504**	560	6	9
22				437	**495**	**557**	**620**	8	9
23					543	**610**	686	1	10
24					**594**	666	755	2	10
25					646	722	824	0	11
26					700	**780**	896	1	11
Basis	2	18	22	34	48	17	5	146	

Data collected by D. B. Demeritt and H. E. Young. Volume table prepared by H. E. Young with aggregate per cent of difference 0.75 high. For trees over 175 years old and/or absolute form quotient more than 0.700. Stump height, one foot.
Bold faced figures indicate extent of basic data.

TABLE 18

OLD GROWTH HEMLOCK
CENTRAL AND SOUTHERN MAINE

Volume in board feet
International ⅛" rule

Dbh Inches	Total Height—Feet								Used top Diameter
	30	40	50	60	70	80	90	Basis	
8	24	**32**	39					3	6
9	**27**	**37**	**47**	56				10	6
10	35	**47**	**60**	**71**				14	7
11	**46**	**62**	**77**	**93**				7	7
12		**79**	**98**	**118**	**139**			14	7
13		98	**123**	**146**	**172**			12	7
14		**119**	**149**	**175**	**205**			7	7
15		140	**175**	**205**	**240**	**282**		11	8
16		**163**	**204**	**238**	**277**	321		13	8
17			237	**274**	**316**	**363**		12	8
18				313	**357**	407		8	8
19				354	**400**	**454**		9	9
20				393	**446**	**505**	**574**	8	9
21				**436**	**494**	**556**	634	6	9
22				483	**545**	**611**	**697**	8	9
23					600	**619**	764	1	10
24					**658**	732	837	2	10
25					719	805	913	0	11
26					784	**882**	996	1	11
Basis	2	18	22	34	48	17	5	146	

Data collected by D. B. Demeritt and H. E. Young. Volume table prepared by H. E. Young with aggregate per cent of difference 0.92 high. For trees over 175 years old **and/or** absolute form quotient more than 0.700. Stump height, one foot.
Bold faced figures indicate extent of basic data.

TABLE 19

OLD GROWTH HEMLOCK
CENTRAL AND SOUTHERN MAINE

Volume in board feet
Scribner Rule

Dbh Inches	Total Height—Feet								Used top Diameter
	30	40	50	60	70	80	90	Basis	
8	24	27	33					3	6
9	26	31	37	43				10	6
10	30	38	48	55				14	7
11	39	49	61	68				7	7
12		63	77	85	98			14	7
13		77	95	108	123			12	7
14		93	114	133	152			7	7
15		111	135	160	185	207		11	8
16		132	160	188	218	246		13	8
17			185	218	253	287		12	8
18				250	289	330		8	8
19				282	327	373		9	9
20				314	365	415	467	8	9
21				348	403	459	517	6	9
22				383	444	507	568	8	9
23					487	556	623	1	10
24					532	608	682	2	10
25					585	672	756	0	11
26					640	740	838	1	11
Basis	2	18	22	34	48	17	5	146	

Data collected by D. B. Demeritt and H. E. Young. Volume table prepared by H. E. Young with aggregate per cent of difference 0.47 high. For trees over 175 years old and/or absolute form quotient more than 0.700. Stump height, one foot.
Bold faced figures indicate extent of basic data.

TABLE 20

OLD GROWTH HEMLOCK
CENTRAL AND SOUTHERN MAINE

Volume in board feet
Maine Rule

Dbh Inches	Total Height—Feet								Used top Diameter
	30	40	50	60	70	80	90	Basis	
8	23	**34**	40					3	6
9	**28**	**38**	**42**	51				10	6
10	35	**51**	**58**	**66**				14	7
11	**43**	**64**	**73**	**83**				7	7
12		**74**	**85**	**105**	**121**			14	7
13		97	**110**	**131**	**153**			12	7
14		**116**	**135**	**160**	**186**			7	7
15		135	**159**	**189**	**222**	**252**		11	8
16		**155**	**185**	**200**	**258**	293		13	8
17			212	**253**	**294**	**325**		12	8
18				287	**333**	378		8	8
19				321	**371**	**423**		9	9
20				357	**409**	**465**	**510**	8	9
21				**390**	**445**	**504**	560	6	9
22				425	**483**	**547**	**617**	8	9
23					522	**591**	679	1	10
24					**563**	643	744	2	10
25					618	708	823	0	11
26					684	**779**	908	1	11
Basis	2	18	22	34	48	17	5	146	

Data collected by D. B. Demeritt and H. E. Young. Volume table prepared by H. E. Young with aggregate per cent of difference 0.65 high. For trees over 175 years old and/or absolute form quotient more than 0.700. Stump height, one foot.
Bold faced figures indicate extent of basic data.

TABLE 21

HEMLOCK: Cubic Feet per Cord Based on Average Bolt Diameter, and Conversion from Cubic Feet to Cords for Peeled and Rough Wood

A		B		
Cubic Feet per Cord According to Average Bolt Diameter in the Pile[1]		Conversion Factors for Both Second Growth and Old Growth Hemlock[2]		
Average Diameter of Pile in inches	Cubic Feet Per Cord	Dbh Inches	Cu. ft. Per Cord Peeled Wood	Cu. ft. Per Cord Rough Wood
6	85	6	80	82
7	90	7	84	86
8	94	8	87	90
9	97	9	90	92
10	99	10	92	94
11	100	11	94	97
12	101	12	96	98
13	100	13	97	99
14	98	14	98	100
15	96	15	99	100
16	94	16	100	101
17	91	17	100	101
18	89	18	101	100
		19	101	100
		20	100	99
		21	100	98
		22	99	97
		23	99	96
		24	98	95
		25	97	95
		26	97	94

[1] The diameters of each bolt were measured and the individual volumes computed for each of 50 piles of peeled hemlock amounting to 117 cords. Data collected and curve prepared by Paul Perkins and Wallace Robbins.

[2] The average pile diameter was computed on form 558A sheets for the trees in every other diameter class for peeled and rough wood in both second and old growth hemlock with negligible differences between the curves of peeled wood and the curves of rough wood. Therefore the data were combined to form Table B by H. E. Young.

TABLE 22

SECOND GROWTH WHITE PINE
SOUTHWESTERN MAINE

Volume in cubic feet to a 6-inch top i.b.

Dbh Inches	Total Height—Feet								
	40	50	60	70	80	90	100	110	Basis
7	3.5	4.2	5.0	5.7					0
8	**5.1**	**6.2**	**7.2**	**8.3**					9
9	**7.0**	**8.4**	**9.9**	11.4					16
10	**8.8**	**10.7**	**12.6**	**14.6**					29
11	10.7	**13.0**	**15.6**	**18.0**	**20.2**				27
12	**12.8**	**15.9**	**19.0**	**21.8**	**24.7**				41
13	**15.3**	**18.6**	**22.7**	**25.9**	**29.3**				36
14	18.3	**21.6**	**26.1**	**30.0**	**34.0**				41
15		**24.5**	**30.0**	**34.5**	**39.1**				33
16		**28.0**	**34.0**	**39.3**	**44.6**				37
17		**31.5**	**38.0**	**44.4**	**50.1**				27
18		35.3	**42.7**	**49.6**	**56.0**	**62.7**			26
19		39.8	**47.3**	**55.0**	**61.8**	**69.5**			16
20			52.5	**60.5**	**68.0**	**76.6**	**83.8**		14
21			**57.7**	**66.5**	**74.6**	**83.8**	**91.9**		16
22			**63.0**	**72.4**	**81.1**	**91.1**	**100.1**		11
23			**68.6**	**78.7**	**88.3**	**99.0**	**108.5**	118.5	11
24			74.2	**85.0**	**95.8**	**107.0**	**117.3**	**128.5**	13
25			**80.3**	**91.8**	**103.4**	**115.3**	**126.5**	138.6	4
26			86.3	98.8	**111.4**	**124.0**	**136.0**	149.2	12
27			92.6	**106.0**	**120.0**	**133.0**	**146.3**	160.6	4
28			99.0	**113.3**	**128.2**	**142.5**	**157.0**	172.3	4
29				121.0	**137.0**	**152.0**	**168.0**	184.0	3
30				129.0	**146.0**	**162.0**	179.0	196.0	2
31				138.0	156.0	**172.0**	190.0	208.0	1
32					165.0	182.0	202.0	221.0	0
33					175.0	193.0	213.0	234.0	0
34					184.0	204.0	225.0	247.0	0
35					194.0	214.0	237.0	261.0	0
Basis	18	54	108	133	91	20	8	1	433

Data collected by members of the Northeastern Forest Experiment Station. Volume table prepared by D. B. Demeritt. Aggregate difference, table 0.82 per cent low.
Stump height, one foot. Top diameter, six inches inside the bark.
Bold faced figures indicate extent of basic data.

TABLE 23

SECOND GROWTH WHITE PINE
SOUTHWESTERN MAINE

Volume in cords—peeled wood

Dbh Inches	Total Height—Feet								
	40	50	60	70	80	90	100	110	Basis
7	.037	.045	.053	.061					0
8	**.053**	**.064**	**.075**	**.086**					9
9	**.071**	**.086**	**.101**	.116					16
10	**.088**	**.107**	**.126**	**.146**					29
11	.105	**.127**	**.153**	**.176**	**.198**				27
12	**.123**	**.153**	**.183**	**.210**	**.237**				41
13	**.146**	**.177**	**.216**	**.247**	**.279**				36
14	.174	**.206**	**.248**	**.286**	**.324**				41
15		**.233**	**.286**	**.328**	**.372**				33
16		**.267**	**.324**	**.374**	**.425**				37
17		**.300**	**.362**	**.427**	**.477**				27
18		.336	**.407**	**.472**	**.533**	**.597**			26
19		.379	**.450**	**.524**	**.588**	**.662**			16
20			.50	**.58**	**.65**	**.73**	**.80**		14
21			**.55**	**.63**	**.71**	**.80**	**.87**		16
22			**.60**	**.69**	**.77**	**.87**	**.95**		11
23			**.65**	**.75**	**.84**	**.94**	**1.03**	1.13	11
24			.71	**.81**	**.91**	**1.02**	**1.12**	**1.22**	13
25			**.76**	**.87**	**.98**	**1.10**	**1.20**	1.32	4
26			.82	.94	**1.06**	**1.18**	**1.29**	1.42	12
27			.88	**1.01**	**1.14**	**1.27**	**1.39**	1.53	4
28			.94	**1.08**	**1.22**	**1.36**	**1.49**	1.64	4
29				1.15	**1.30**	**1.45**	**1.60**	1.75	3
30				1.23	**1.39**	**1.54**	1.70	1.87	2
31				1.31	1.48	**1.64**	1.81	1.98	1
32					1.57	1.73	1.92	2.10	0
33					1.67	1.84	2.03	2.23	0
34					1.75	1.94	2.14	2.35	0
35					1.85	2.04	2.26	2.48	0
Basis	18	54	108	133	91	20	8	1	433

Data collected by members of the Northeastern Forest Experiment Station. Volume table prepared by D. B. Demeritt. Aggregate difference, table 0.82 per cent low.

Stump height, one foot. Top diameter, six inches inside the bark.

Convert from cubic feet to cords at following rates: 7" trees, 94 cu. ft. per cord; 8" trees, 96 cu. ft. per cord; rising by 2 cu. ft. per cord for each diameter up to 13" (and larger) allowing 105 cu. ft. per cord.

Bold faced figures indicate extent of basic data.

TABLE 24

SECOND GROWTH WHITE PINE
SOUTHWESTERN MAINE

Volume in board feet to a 6-inch top
International ¼" Rule

Dbh Inches	Total Height—Feet								Basis
	40	50	60	70	80	90	100	110	
8	**25**	**35**	**40**	**45**					9
9	**35**	**50**	**60**	**70**					18
10	**45**	**60**	**75**	**90**					29
11	50	**75**	**90**	**110**	**130**				27
12	**60**	**85**	**110**	**135**	**160**				41
13	**70**	**100**	**130**	**160**	**190**				36
14		**110**	**150**	**185**	**225**	265			41
15		**125**	**170**	**210**	**255**	**300**			34
16		**140**	**190**	**240**	**290**	340			37
17		**160**	**210**	**270**	**330**	385			27
18			**235**	**300**	**365**	**435**			26
19			**265**	**335**	**405**	**485**			17
20			290	**375**	**455**	**535**	**630**		14
21			**325**	**415**	**500**	**585**	685		16
22			**360**	**455**	**545**	**640**	**740**		11
23			**390**	**495**	**595**	695	800		11
24			430	**535**	**645**	**750**	**860**	**960**	13
25			**465**	**580**	**695**	**810**	**925**	1050	9
26				620	**750**	**870**	**990**	1125	7
27				**665**	**805**	**930**	1065	1210	4
28				710	**855**	**1000**	1150	1300	4
29					**915**	**1075**	**1245**	1415	3
30					**970**	**1160**	**1345**	1530	2
31					1035	**1240**	1450	1660	1
Basis	18	54	108	135	91	22	8	1	437

Data collected by members of the Northeastern Forest Experiment Station. Volume table prepared by D. B. Demeritt. Aggregate difference, table 0.32 per cent low.

Stump height, one foot. Top diameter, six inches. Trees scaled in 16-foot logs and fractions by the International ¼" rule.

Bold faced figures indicate extent of basic data.

TABLE 25

SECOND GROWTH WHITE PINE
SOUTHWESTERN MAINE

Volume in board feet to a 6-inch top
Scribner Rule

Dbh Inches	Total Height—Feet								Basis
	40	50	60	70	80	90	100	110	
8	**25**	**25**	**30**	**35**					9
9	**30**	**40**	**50**	**55**					18
10	**40**	**55**	**65**	**75**					29
11	50	**65**	**80**	**95**	**110**				27
12	**55**	**75**	**95**	**115**	**135**				41
13	**65**	**85**	**110**	**135**	**160**				36
14		**100**	**130**	**160**	**190**				41
15		**110**	**145**	**180**	**220**	**255**			34
16		**120**	**165**	**205**	**250**	295			37
17		**135**	**185**	**235**	**285**	335			27
18		145	**205**	**260**	**315**	**380**			26
19			**230**	**290**	**355**	**420**			17
20			255	**325**	**395**	**470**	**540**		14
21			**285**	**360**	**440**	**520**	600		16
22			**315**	**400**	**485**	**570**	**655**		11
23			**345**	**440**	535	625	715		11
24			385	**480**	**580**	**680**	**780**	**880**	13
25			**425**	**525**	**630**	**735**	**840**	945	9
26			470	**575**	**685**	**795**	**905**	1015	7
27				**625**	**740**	**860**	975	1090	4
28				680	**800**	**925**	1050	1170	4
29					865	**995**	1125	1250	1
30					**935**	**1070**	**1200**	1335	1
31					1010	**1150**	1285	1420	1
Basis	18	54	108	135	90	21	7	1	434

Data collected by members of the Northeastern Forest Experiment Station. Volume table prepared by D. B. Demeritt. Aggregate difference, table 0.91 per cent low.

Stump height, one foot. Top diameter, six inches. Trees scaled in 16-foot logs and fractions by the Scribner rule.

Bold faced figures indicate extent of basic data.

TABLE 26

SECOND GROWTH WHITE PINE
SOUTHWESTERN MAINE

Volume in board feet

Maine Rule

Dbh Inches	Total Height—Feet								Basis	Used Top Diameter
	40	50	60	70	80	90	100	110		
8	**25**	**30**	**40**	**45**					9	6
9	**30**	**45**	**55**	**65**					18	6
10	**40**	**55**	**70**	**85**					29	7
11	50	**70**	**85**	**105**	**125**				27	7
12	**60**	**80**	**105**	**125**	**150**				41	7
13	**70**	**95**	**125**	**150**	**180**				36	7
14		**110**	**145**	**180**	**215**				41	7
15		**125**	**165**	**210**	**250**	**290**			34	7
16		**140**	**190**	**235**	**285**	335			37	8
17		**160**	**215**	**265**	**320**	375			27	8
18			**240**	**295**	**355**	**415**			26	8
19			**265**	**330**	**395**	**460**			17	8
20			290	**360**	**430**	**505**	**575**		14	9
21			**320**	**395**	**475**	**550**	630		16	9
22			**350**	**430**	**515**	**600**	**680**		11	10
23			**380**	**470**	**560**	650	735		11	10
24			410	**505**	**600**	**695**	795	**890**	13	11
25			**440**	**545**	**645**	**750**	**855**	955	9	11
26			470	585	**690**	**800**	910	1020	6	11
27				**625**	**740**	**855**	**970**	1080	4	11
28				**665**	**785**	**905**	1030	1145	4	11
29				710	835	**960**	1085	1210	1	11
30				750	**880**	1010	1145	1270	1	11
31				795	930	**1070**	1200	1330	1	11
Basis	18	54	108	135	91	21	5	1	433	

Data collected by members of the Northeastern Forest Experiment Station. Volume table prepared by D. B. Demeritt. Aggregate difference, table 0.9 per cent low. Trees cut into 10, 12, 14 and 16-foot logs and scaled sound by the Maine log rule as cut and utilized.

Bold faced figures indicate extent of basic data.

TABLE 27

POPLAR

Volume in cords—Peeled Wood

Dbh Inches	Total Height—Feet										
	30	35	40	45	50	55	60	65	70	75	80
5	.017	.020	.022	.025	.028	.032					
6		.028	.032	.037	.042	.048	.055				
7			.044	.050	.057	.065	.073	.082			
8			.055	.063	.072	.082	.093	.105	.118		
9				.078	.090	.102	.115	.130	.145	.160	
10				.093	.108	.123	.139	.156	.175	.195	.215
11					.127	.144	.162	.182	.204	.225	.245
12						.165	.187	.210	.235	.260	.285
13						.185	.210	.235	.270	.300	.330
14						.205	.230	.260	.300	.340	.375
15						.225	.255	.290	.335	.375	.415
16							.275	.320	.370	.420	.460
17								.350	.410	.460	.510
18									.450	.510	.570

Prepared by Austin Cary. Permission to print this table granted by Harvard University Press, publishers of Cary's Woodsman's Manual. Based on 771 trees cut in Maine. Used top diameter ranges from 3.2 to 7 inches.

TABLE 28

SPRUCE

Volume in Cubic Feet, outside bark

Dbh Inches	Total Height—Feet										
	35	40	45	50	55	60	65	70	75	80	90
5	2.9	3.2	3.6	4.0							
6	4.0	4.5	5.1	5.8	6.5						
7	5.4	6.1	6.8	7.6	8.5	9.6					
8	7.0	7.8	8.6	9.5	10.6	12.0	14				
9		9.8	10.8	12.0	13.4	15.0	17				
10		12.0	13.5	15.0	16.5	18.2	20	21			
11			16.0	18.0	19.7	22.	23	25	27		
12			18.5	21.	23.	25.	27	29	32	34	
13			22.	24.	27.	29.	31	34	36	39	
14				28.	30.	33.	36	38	41	44	
15				31.	34.	37.	40	43	46	49	
16					38.	41.	44	47	51	55	63
17					43.	46.	49	52	56	61	70
18					47.	50.	54	58	62	67	77
19					52.	55.	59	64	69	74	85
20					56.	60.	65	70	76	81	93
21							72	77	82	87	98
22							79	84	88	93	105
23							87	92	95	100	114
24							96	100	104	108	123

Prepared by Austin Cary. Based on 2500 trees cut in Maine, New Hampshire, and New York. Gives volume from ground to tip, exclusive of branches. Permission to print this table granted by the Harvard University Press, publishers of Cary's Woodsman's Manual.

TABLE 29

SPRUCE

Volume in Cords—Peeled Wood

Dbh Inches	Total Height—Feet									
	35	40	45	50	55	60	65	70	75	80
5	.024	.028	.032							
6	.033	.038	.043	.048	.054					
7	.043	.049	.055	.061	.069	.077				
8	.055	.062	.069	.076	.085	.096	.11			
9		.076	.085	.095	.11	.12	.13			
10		.092	.10	.12	.13	.14	.15	.16	.18	
11			.12	.14	.15	.17	.18	.19	.21	.22
12			.14	.16	.18	.19	.21	.22	.24	.26
13			.17	.19	.20	.22	.24	.26	.28	.30
14				.21	.23	.25	.27	.29	.31	.34
15				.24	.26	.28	.30	.33	.35	.38
16					.29	.31	.34	.36	.39	.42
17					.32	.35	.37	.40	.43	.46
18					.36	.38	.41	.44	.47	.51
19					.39	.42	.45	.48	.52	.56
20					.42	.46	.49	.53	.57	.61

Prepared by Austin Cary. Based on data collected in Maine. Permission to print this table granted by Harvard University Press, publishers of Cary's Woodsman's Manual.

TABLE 30

SPRUCE

Volume in cords—rough wood

Dbh Inches	Total Height—Feet								
	40	45	50	55	60	65	70	75	80
6	.04	.04	.05	.06					
7	.06	.06	.07	.08	.09				
8	.07	.08	.09	.10	.12	.13			
9	.09	.10	.12	.13	.14	.16			
10	.11	.12	.14	.16	.17	.19	.20	.22	
11		.15	.17	.19	.20	.22	.24	.26	.28
12		.18	.20	.22	.24	.26	.28	.30	.32
13		.21	.23	.25	.27	.30	.32	.34	.37
14			.26	.29	.31	.34	.36	.39	.42
15				.32	.35	.38	.40	.43	.47
16				.36	.39	.42	.45	.48	.52
17				.40	.43	.46	.50	.54	.59
18				.45	.48	.50	.55	.59	.64
19				.49	.52	.56	.60	.65	.70
20				.52	.57	.62	.66	.72	.77

Prepared by Austin Cary. Based on data collected in Maine. Permission to print this table granted by the Harvard University Press, publishers of Cary's Woodsman's Manual.

TABLE 31

SPRUCE

Volume in board feet
Maine Log Rule

Dbh Inches	Total Height—Feet									
	40	45	50	55	60	65	70	75	80	90
7	20	20	20	25	25					
8	20	25	30	35	40	45				
9	30	35	40	45	50	55				
10	40	45	50	60	65	70	80			
11		55	65	70	80	90	105	115		
12		65	75	85	100	110	120	135	150	
13		75	90	100	115	125	140	155	170	
14			105	120	135	150	165	180	195	
15			120	135	155	170	190	205	220	
16				155	170	185	205	225	250	315
17				170	190	210	230	250	275	350
18				185	210	235	255	280	310	390
19				205	235	260	290	320	350	430
20				235	265	295	325	355	385	470
21					300	330	360	390	425	510
22					330	360	395	430	465	550
23					360	400	435	470	510	600
24					400	440	480	515	555	650

Prepared by Austin Cary and based on 2500 trees cut in Maine, New Hampshire and New York. Permission to print this table granted by Harvard University Press, publishers of Cary's Woodsman's Manual.