DEPRECIATION OF GROUP PROPERTIES

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APPENDIX

The 18 Type Curves

The following section contains supplementary information on the 18 type curves. The final equations of the type frequency curves give the numerical values of the coefficients and constants in the general equations below. In Table 42 (page 124) is tabulated the percent surviving and probable lives corresponding to the 18 type curves which are illustrated in Figs. 28, 29, and 30.

General Equations of the 18 Type Frequency Curves

Left Mode Nos. 0 and 1

$$\begin{cases} y_x = y_0\left(1-\dfrac{(x \pm d_m)^2}{a^2}\right)^m & \text{for } x \text{ values to left of mode.} \\ y_x = y_0\left(1-\dfrac{(x \pm D_m)^2}{A^2}\right)^M & \text{for } x \text{ values to right of mode.} \end{cases}$$

Left Mode Nos. 2, 3, and 5 and
Right Mode Nos. 1, 2, 3, 4, and 5

$$y_x = Y_e\left(1+\frac{x \pm D_m}{A_1}\right)^{M_1}\left(1-\frac{x \pm D_m}{A_2}\right)^{M_2} + y_e\left(1+\frac{x \pm d_m}{a_1}\right)^{m_1}\left(1-\frac{x \pm d_m}{a_2}\right)^{m_2}$$

Left Mode No. 4

$$\begin{cases} y_x = Y_0\left(1-\left[\dfrac{x+D}{A_1}\right]^2\right)^{M_1} + y_0\left(1-\left[\dfrac{x+d}{a_1}\right]^2\right)^{m_1}, & -10 \leqq x \leqq -D \\ y_x = Y_0\left(1-\left[\dfrac{x+D}{A_2}\right]^2\right)^{M_2} + y_0\left(1-\left[\dfrac{x+d}{a_1}\right]^2\right)^{m_1}, & -D \leqq x \leqq -d \\ y_x = Y_0\left(1-\left[\dfrac{x+D}{A_2}\right]^2\right)^{M_2} + y_0\left(1-\left[\dfrac{x+d}{a_2}\right]^2\right)^{m_2}, & -d \leqq x \leqq (A_2-D) \end{cases}$$

Symmetrical Nos. 0, 1, 2, 3, 4, 5, and 6

$$y_x = y_0\left(1-\frac{x^2}{a^2}\right)^m$$

in which
- y_x = ordinate to the frequency curve at age x (origin at the mean age).
- y_0 = ordinate to the frequency curve at its mode.
- Y_e = ordinate to the major constituent curve at its mean.
- y_e = ordinate to the minor constituent curve at its mean.

x = age (in units equal to 10 percent of average life), measured from the average-life ordinate.

D_m, d_m = x distance from the mean of the type curve to the mean of the constituent curve.

A, A_1, A_2, a, a_1, a_2, M, M_1, M_2, m, m_1, m_2 are parameters.

Final Equations of the 18 Type Frequency Curves

In the following 18 equations, x is measured from the mean, or average life, negative values of x being to the left of 100 percent of average life and positive values to the right. An age interval of 10 percent of average life is equal to x. Therefore, if $x=-2.5$ the equivalent age is 75 percent of average life. When $x=+4.2$ the equivalent is 142 percent of average life.

Left Mode No. 0

$$y_x = 6.24256418\left(1-\frac{(x+5.06)^2}{24.60758105}\right)^{0.4611811}$$ for x values to left of 49.4 percent of average life, and

$$y_x = 6.24256418\left(1-\frac{(x+5.06)^2}{1569.183739}\right)^{7.73006308}$$ for x values to right of 49.4 percent of average life.

Left Mode No. 1

$$y_x = 7.45095687\left(1-\frac{(x+4)^2}{85.49500000}\right)^{4.77742941}$$ for x values to left of 60 percent of average life, and

$$y_x = 7.45095687\left(1-\frac{(x+4)^2}{697.8983268}\right)^{4.74147112}$$ for x values to right of 60 percent of average life.

Left Mode No. 2

$$y_x = 6.2\left(1+\frac{x-0.56632298}{10.56632298}\right)^{2.00691507}\left(1-\frac{x-0.56632298}{18.11962398}\right)^{4.15639335}$$

$$+4.03141046\left(1+\frac{x+1.98831766}{4.90258200}\right)^{2.73360830}\left(1-\frac{x+1.98831766}{12.07825433}\right)^{6.15831022}$$

Left Mode No. 3

$$y_x = 6.12\left(1+\frac{x-0.69997304}{9.94997304}\right)^{2.51767082}\left(1-\frac{x-0.69997304}{13.35543784}\right)^{2.72163230}$$

$$+8.19722280\left(1+\frac{x+1.22119072}{6.98766177}\right)^{10.13754029}\left(1-\frac{x+1.22119072}{16.85048078}\right)^{25.90596437}$$

Left Mode No. 4

$$\left|\begin{array}{l} y_x = 10.811999434\left(1-\dfrac{(x+0.600)^2}{51.8400}\right)^{25.300} \\ \quad +9.901828065\left(1-\dfrac{(x+0.300)^2}{56.2500}\right)^{3.650} \quad \text{Limits:} \quad -10 \leqq x \leqq -0.6 \\ y_x = 10.811999434\left(1-\dfrac{(x+0.600)^2}{184.9600}\right)^{62.000} \\ \quad +9.901828065\left(1-\dfrac{(x+0.300)^2}{56.2500}\right)^{3.650} \quad \text{Limits:} \quad -0.6 \leqq x \leqq -0.3 \\ y_x = 10.811999434\left(1-\dfrac{(x+0.600)^2}{184.9600}\right)^{62.000} \\ +9.901828065\left(1-\dfrac{(x+0.300)^2}{176.8900}\right)^{8.350} \quad \text{Limits:} \quad -0.3 \leqq x \leqq (13.6-0.6) \end{array}\right.$$

Left Mode No. 5

$$y = 12.76925713\left(1+\frac{x-0.088051975}{5.9500}\right)^{4.7715}\left(1-\frac{x-0.088051975}{10.7500}\right)^{9.4275}$$
$$+16.28938438\left(1+\frac{x+0.161460055}{4.0000}\right)^{11.8000}\left(1-\frac{x+0.161460055}{5.7000}\right)^{17.3400}$$

Symmetrical No. 0

$$y_x = 6.95219904\left(1-\frac{x^2}{100}\right)^{0.74837140}$$

Symmetrical No. 1

$$y_x = 9.08025966\left(1-\frac{x^2}{100}\right)^{1.52639970}$$

Symmetrical No. 2

$$y_x = 11.91103882\left(1-\frac{x^2}{100}\right)^{2.70009374}$$

Symmetrical No. 3

$$y_x = 15.61048797\left(1-\frac{x^2}{100}\right)^{6.9013915}$$

Symmetrical No. 4

$$y_x = 22.32936082\left(1-\frac{x^2}{81}\right)^{11.93337940}$$

Symmetrical No. 5

$$y_x = 33.22051575\left(1-\frac{x^2}{64}\right)^{21.43782170}$$

Symmetrical No. 6

$$y_x = 52.47259169\left(1-\frac{x^2}{49}\right)^{41.63414220}$$

Right Mode No. 1

$$y_x = 4.87234751\left(1+\frac{x+2.1173}{19.08200310}\right)^{2.16036968}\left(1-\frac{x+2.1173}{12.2}\right)^{1.03064945}$$
$$+2.95921394\left(1+\frac{x-2.03848}{9.25013197}\right)^{2.69374074}\left(1-\frac{x-2.03848}{6.76380495}\right)^{1.89831583}$$

Right Mode No. 2

$$y_x = 6.89465710\left(1+\frac{x+0.470}{30.05448169}\right)^{9.16816044}\left(1-\frac{x+0.470}{9.05171312}\right)^{2.06241419}$$
$$+3.34428110\left(1+\frac{x-0.470}{91.60465100}\right)^{100.000}\left(1-\frac{x-0.470}{7.80000000}\right)^{7.800}$$

Right Mode No. 3

$$y_x = 9.4035297069\left(1+\frac{x+0.235}{17.61801370}\right)^{7.350}\left(1-\frac{x+0.235}{7.18500000}\right)^{2.850}$$
$$+5.5945716839\left(1+\frac{x-0.698}{17.31323077}\right)^{27.300}\left(1-\frac{x-0.698}{6.25200000}\right)^{9.400}$$

Right Mode No. 4

$$y_x = 15.20129316\left(1+\frac{x+0.11}{17.92683200}\right)^{14.05850960}\left(1-\frac{x+0.11}{5.41801100}\right)^{2.58117010}$$
$$+5.85667821\left(1+\frac{x-0.70}{2.56783700}\right)^{3.66879450}\left(1-\frac{x-0.70}{3.45398750}\right)^{1.27997731}$$

Right Mode No. 5

$$y_x = 14.99330391\left(1+\frac{x+0.12869}{7.0000000}\right)^{5.79473120}\left(1-\frac{x+0.12869}{3.8764409}\right)^{2.76276990}$$
$$+15.44614441\left(1+\frac{x-0.2086}{4.2350000}\right)^{6.05833400}\left(1-\frac{x-0.2086}{2.4150000}\right)^{3.02500040}$$

TABLE 42. PERCENT SURVIVING AND PROBABLE LIVES OF THE 18 TYPE CURVES

Age, percent of average life	Type curve L_0		Type curve L_1		Type curve L_2		Type curve L_3	
	Percent surviving	Probable life, percent of average life	Percent surviving	Probable life, percent of average life	Percent surviving	Probable life, percent of average life	Percent surviving	Probable life, percent of average life
0	100.00000	99.99089	100.00000	100.00351	100.00000	100.00021	100.00000	99.99845
5	98.88950	101.08161	99.63717	100.36022	99.98516	100.01451	100.00000	99.99845
10	97.09985	102.80445	99.05431	100.90562	99.88940	100.10272	99.99965	99.99876
15	94.91674	104.88011	98.10015	101.68240	99.64732	100.31485	99.98571	100.01084
20	92.45291	107.20770	96.98956	102.72297	99.20930	100.67961	99.92003	100.06478
25	89.77813	109.73060	95.40973	104.04967	98.53977	101.20981	99.75597	100.19186
30	86.94316	112.41127	93.42541	105.67380	97.61555	101.90662	99.44760	100.41659
35	83.98860	115.22191	91.03275	107.59530	96.41791	102.76752	98.95304	100.75520
40	80.94912	118.13988	88.25133	109.80281	94.85656	103.83997	98.23067	101.21934
45	77.85578	121.14498	85.12428	112.27369	92.77820	105.21155	97.22244	101.82694
50	74.73764	124.21747	81.71638	114.97383	90.07738	106.93905	95.82788	102.61565
55	71.61815	127.34132	78.11040	117.85716	86.72860	109.03813	93.88854	103.64810
60	68.50728	130.51283	74.40204	120.86522	82.78113	111.49302	91.20570	105.00185
65	65.41269	133.73056	70.67865	123.93996	78.33876	114.26913	87.59534	106.74906
70	62.34191	136.99306	66.96789	127.06747	73.53626	117.32197	82.95922	108.93749
75	59.30233	140.29892	63.28229	130.24572	68.51802	120.60387	77.33872	111.58081
80	56.30114	143.64678	59.63417	133.47273	63.42158	124.06752	70.92603	114.65849
85	53.34328	147.03529	56.03557	136.74659	58.36648	127.66832	64.02853	118.12085
90	50.44141	150.46313	52.49810	140.06547	53.44823	131.36588	57.00209	121.89571
95	47.59585	153.92902	49.03293	143.42757	48.73660	135. 2517	50.17916	125.80546
100	44.81457	157.43172	45.65060	146.83119	44.27685	139.12062	43.81420	130.02557
105	42.10313	160.97001	42.36105	150.27465	40.09316	142.72029	38.03845	134.19523
110	39.46668	164.54272	39.17345	153.75638	36.19309	146.51867	32.96348	138.32936
115	36.90985	168.14870	36.09618	157.27483	32.57226	150.30366	28.50446	142.37842
120	34.43690	171.78684	33.13678	160.82853	29.21877	154.07214	24.61134	146.32230
125	32.05150	175.45606	30.30187	164.41606	26.11696	157.82557	21.19779	150.16671
130	29.75687	179.15533	27.59711	168.03608	23.25024	161.56858	18.18205	153.93424
135	27.55566	182.88363	25.02721	171.68727	20.60301	165.30765	15.49809	157.65409
140	25.45004	186.63999	22.59584	175.36838	18.16176	169.04987	13.06864	161.35412
145	23.44162	190.42346	20.30567	179.07823	15.91540	172.80201	10.95300	165.03640
150	21.53151	194.23313	18.15836	182.81566	13.85508	176.56980	9.04239	168.77609
155	19.72030	198.06812	16.15455	186.57958	11.97372	180.35762	7.35497	172.52213
160	18.00807	201.92758	14.29388	190.36804	10.26528	184.16841	5.88180	176.29886
165	16.39443	205.81068	12.57504	194.18272	8.72414	188.00373	4.61406	180.10757
170	14.87851	209.71662	10.99380	198.01998	7.34447	191.86401	3.54138	183.94776
175	13.43001	213.64466	9.55304	201.87979	6.11983	195.74884	2.65120	187.81802
180	12.13419	217.59403	8.24285	205.76127	5.04292	199.65727	1.92866	191.71659
185	10.90195	221.56404	7.06053	209.66358	4.10549	203.58804	1.35694	195.64161
190	9.73982	225.55399	6.00073	213.58591	3.29841	207.53975	0.91776	199.59130
195	8.70500	229.56322	5.05748	217.52750	2.61180	211.51131	0.59197	203.56400
200	7.73441	233.59110	4.22433	221.48760	2.03322	215.50128	0.36025	207.55823
205	6.84472	237.63700	3.49436	225.46551	1.55792	219.50860	0.20376	211.57267
210	6.03238	241.70032	2.86034	229.46057	1.16899	223.53224	0 10480	215.60622
215	5.29368	245.78053	2.31483	233.47212	0.85763	227.57124	4.7392*-1	219.65804
220	4.62473	249.87702	1.85022	237.49955	0.61326	231.62472	1.7822*-1	223.72779
225	4.02158	253.98930	1.45887	241.54228	0.42576	235.69186	5.0302*-1	227.81621
230	3.48020	258.11684	1.13330	245.59973	0.28560	239.77193	8.5317*-1	231.92737
235	2.99653	262.25915	0.86577	249.67137	0.18396	243.86424	4.5269*-1	236.08217
240	2.56949	266.41576	0.64937	253.75670	0.11287	247.96820	1.2840*-1	240.50000
245	2.18608	270.58622	0.47711	257.85521	6.5248*-1	252.08326		
250	1.85133	274.76467	0.34247	261.96644	3.5011*-1	256.20897	Absolute zero at age 256.29	
255	1.53837	278.96689	0.23940	266.08995	1.7066*-1	260.34501		
260	1.30345	283.17628	0.16234	270.22531	7.3138*-1	264.49126		
265	1.09297	287.39783	0.10626	274.37212	2.6141*-1	268.64793		
270	0.89347	291.63117	6.6733*-1	278.53000	7.0921*-1	272.81610		

L_0, L_1 and L_2 concluded on page 128.

*Condensed from the usual form 6.6733×10^{-1}.

TABLE 42. PERCENT SURVIVING AND PROBABLE LIVES OF THE 18 TYPE CURVES, CONT.

Age, percent of average life	Type curve L_1		Type curve L_2		Type curve S_0		Type curve S_1	
	Percent surviving	Probable life, percent of average life	Percent surviving	Probable life, percent of average life	Percent surviving	Probable life, percent of average life	Percent surviving	Probable life, percent of average life
0	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000
5	100.00000	100.00000	100.00000	100.00000	99.64988	100.34029	99.97697	100.02220
10	100.00000	100.00000	100.00000	100.00000	98.83704	101.10222	99.84198	100.14667
15	100.00000	100.00000	100.00000	100.00000	97.66579	102.16343	99.51978	100.42955
20	100.00000	100.00000	100.00000	100.00000	96.18813	103.46285	98.95479	100.90197
25	99.99994	100.00004	100.00000	100.00000	94.44074	104.95979	98.10589	101.57914
30	99.99491	100.00364	100.00000	100.00000	92.45276	106.62440	96.94397	102.46569
35	99.95580	100.02975	100.00000	100.00000	90.24878	108.43369	95.45014	103.55926
40	99.81999	100.11433	100.00000	100.00000	87.85047	110.36934	93.61458	104.85306
45	99.49620	100.30086	99.99994	100.00003	85.27737	112.41641	91.43547	106.33757
50	98.87810	100.62951	99.99221	100.00400	82.54749	114.56250	88.91814	108.00180
55	97.85817	101.12929	99.91441	100.04046	79.67788	116.79719	86.07422	109.83412
60	96.33923	101.81492	99.59667	100.17473	76.68385	119.11161	82.92102	111.82276
65	94.23074	102.69191	98.77418	100.48580	73.58124	121.49814	79.48078	113.95626
70	91.40395	103.77670	97.15592	101.03139	70.38447	123.95016	75.78013	116.22361
75	87.59685	105.13067	94.48180	101.83388	67.10774	126.46193	71.84942	118.61443
80	82.36077	106.87908	90.38589	102.92896	63.76487	129.02839	67.72221	121.11903
85	75.23825	109.17620	84.04805	104.45606	60.36941	131.64506	63.43466	123.72839
90	66.20766	112.12265	74.41381	106.63177	56.93468	134.30800	59.02506	126.43422
95	56.03106	115.68281	61.43633	109.59890	53.47385	137.01367	54.53322	129.22889
100	45.92922	119.68734	46.93011	113.33734	50.00000	139.75891	50.00000	132.10541
105	36.82670	123.94999	33.60849	117.66137	46.52615	142.54086	45.46678	135.05737
110	29.20175	128.26669	23.35329	122.24209	43.06532	145.35702	40.97494	138.07892
115	23.07537	132.47687	15.99530	126.73263	39.63039	148.20503	36.56533	141.16474
120	18.18649	136.32655	11.00040	130.99004	36.23513	151.08280	32.27779	144.30994
125	14.22200	140.45874	7.44648	135.10346	32.89226	153.98841	28.15058	147.51008
130	10.95212	144.35016	4.86568	139.20493	29.61532	156.92014	24.21987	150.76110
135	8.24831	148.26014	3.02930	143.35703	26.41876	159.87638	20.51922	154.05930
140	6.04296	152.21838	1.78262	147.56930	23.31614	162.85568	17.07898	157.40128
145	4.28876	156.23332	0.98432	151.83527	20.32232	165.85670	13.92578	160.78396
150	2.93706	160.30381	0.50537	156.14726	17.45251	168.87822	11.08186	164.20450
155	1.93260	164.42557	0.23884	160.49880	14.72263	171.91911	8.56453	167.66033
160	1.21574	168.56388	0.10227	164.88452	12.14953	174.97833	6.38542	171.14910
165	0.72670	172.80433	3.8912**†	169.29999	9.75122	178.05493	4.54986	174.66867
170	0.40962	177.05300	1.2804**†	173.74155	7.54724	181.14740	3.05603	178.21712
175	0.21565	181.33633	3.5047**†	178.20627	5.55926	184.25699	1.89410	181.79275
180	0.10473	185.65127	7.5300**†	182.69165	3.81187	187.38111	1.04521	185.39421
185	4.6162*††	189.99496	1.1578*††	187.19677	2.33421	190.52013	0.48022	189.02070
190	1.8002*††	194.36507	1.0982*††	191.71987	1.16296	193.67471	0.15802	192.67315
195	6.0815*††	198.75944	4.5233*††	196.26370	0.35012	196.85095	2.3033*††	196.36205
200	1.6836*††	203.17626	3.8160*††	200.83860	0.00000	200.00000	0.00000	200.00000
205	3.5703*††	207.61398	2.4958*††	205.51817	Absolute zero at age 200.0		Absolute zero at age 200.0	
210	5.1465*††	212.07250	Absolute zero at age 208.38					
215	4.0358*††	216.55238						
220	1.0376*††	221.05924						
225	1.6690*††	225.62577						
230	0.00000	230.00000						
	Absolute zero at age 230.0							

*Condensed from the usual form 4.6162x10⁺⁴.

TABLE 42. PERCENT SURVIVING AND PROBABLE LIVES OF THE 18 TYPE CURVES, CONT.

Age, percent of average life	Type curve S_2		Type curve S_3		Type curve S_4		Type curve S_5	
	Percent surviving	Probable life, percent of average life	Percent surviving	Probable life, percent of average life	Percent surviving	Probable life, percent of average life	Percent surviving	Probable life, percent of average life
0	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000
5	99.99977	100.00022	100.00000	100.00000	100.00000	100.00000	100.00000	100.00000
10	99.99438	100.00516	99.99998	100.00002	100.00000	100.00000	100.00000	100.00000
15	99.95508	100.03065	99.99955	100.00339	100.00000	100.00000	100.00000	100.00000
20	99.87562	100.10424	99.99626	100.00308	100.00000	100.00000	100.00000	100.00000
25	99.67336	100.26114	99.98158	100.01439	100.00000	100.00000	100.00000	100.00000
30	99.29313	100.53891	99.93451	100.04835	99.99994	100.00004	100.00000	100.00000
35	98.66236	100.97274	99.81435	100.12926	99.99925	100.00050	100.00000	100.00000
40	97.70666	101.59210	99.55468	100.29188	99.99445	100.00347	100.00000	100.00000
45	96.35547	102.41897	99.06070	100.57890	99.97162	100.01648	100.00000	100.00000
50	94.54722	103.46727	98.21171	101.03602	99.89006	100.05898	99.99986	100.00007
55	92.23388	104.74343	96.86915	101.70637	99.65644	100.16958	99.99803	100.00092
60	89.38348	106.24745	94.88992	102.62546	99.09588	100.40916	99.98250	100.00741
65	85.98454	107.97422	92.14318	103.81800	97.93460	100.85553	99.86372	100.04020
70	82.04539	109.91488	88.52850	105.29680	95.81171	101.58974	99.52630	100.15847
75	77.50546	112.05802	83.99263	107.06350	92.33195	102.67936	98.36721	100.47958
80	72.68428	114.39069	78.54224	109.11051	87.15666	104.16613	95.47669	101.16553
85	67.37969	116.89776	72.25073	111.42339	80.11173	106.06203	89.62837	102.36758
90	61.76531	119.56988	65.25765	113.98329	71.27816	108.35315	79.84902	104.16759
95	55.93719	122.38914	57.76056	116.76904	61.03029	111.00766	66.16179	106.56047
100	50.00000	125.34413	50.00000	119.75873	50.00000	113.98428	50.00000	109.47834
105	44.06281	128.42274	42.23944	122.93091	38.96971	117.23905	33.83821	112.82728
110	38.23469	131.61370	34.74235	126.26526	28.72184	120.72977	20.15088	116.51424
115	32.62031	134.90665	27.74927	129.74306	19.88827	124.41839	10.37163	120.45888
120	27.31572	138.29213	21.45776	133.34737	12.84334	128.27194	4.52331	124.60162
125	22.40454	141.76152	16.00737	137.06307	7.66805	132.26258	1.63279	128.89201
130	17.95461	145.30705	11.47150	140.87676	4.18829	136.38718	0.47370	133.29585
135	14.01546	148.92167	7.85682	144.77670	2.06540	140.56669	0.10628	137.78717
140	10.61652	152.59905	5.11008	148.75260	0.90412	144.84554	1.7505^{*3}	142.34693
145	7.76632	156.33349	3.13085	152.79550	0.34356	149.19105	1.9664^{*3}	146.96095
150	5.45278	160.11988	1.78829	156.89763	0.10994	153.59287	1.3506^{*4}	151.61900
155	3.64433	163.95363	0.93930	161.05224	2.8348^{*3}	158.04267	4.7901^{*4}	156.31432
160	2.29334	167.83069	0.44532	165.25372	5.5528^{*3}	162.53372	6.5855^{*4}	161.04285
165	1.33764	171.74735	0.18565	169.49539	7.4641^{*4}	167.06104	2.0400^{*5}	165.80504
170	0.70687	175.70044	6.5494^{*3}	173.77668	5.8485^{*4}	171.62133	4.1151^{*5}	170.61149
175	0.32664	179.68720	1.8423^{*4}	178.09091	1.9628^{*4}	176.21146	8.2575^{*5}	175.50323
180	0.12438	183.70344	3.7393^{*4}	182.43656	1.3859^{*4}	180.84334	0.00000	180.00000
185	3.4916^{*3}	187.73240	4.5414^{*4}	186.81280	2.0195^{*5}	185.55252		
190	5.6228^{*4}	191.83362	2.1671^{*4}	191.22341	0.00000	190.00000	Absolute zero at age 180.0	
195	2.3407^{*4}	195.96419	1.0622^{*4}	195.69685				
200	0.00000	200.00000	0.00000	200.00000	Absolute zero at age 190.0			
205								
	Absolute zero at age 200.0		Absolute zero at age 200.0					

*Condensed from the usual form 3.4916×10^{-3}.

TABLE 42. PERCENT SURVIVING AND PROBABLE LIVES OF THE 18 TYPE CURVES, CONT.

Age, percent of average life	Type curve S_4		Type curve R_1		Type curve R_2		Type curve R_3	
	Percent surviving	Probable life, percent of average life	Percent surviving	Probable life, percent of average life	Percent surviving	Probable life, percent of average life	Percent surviving	Probable life, percent of average life
0	100.00000	100.00000	100.00000	100.00180	100.00000	100.00000	100.00000	100.00000
5	100.00000	100.00000	98.67319	101.31249	99.49224	100.49725	99.90802	100.09961
10	100.00000	100.00000	97.25548	102.67964	98.89359	101.05981	99.77155	100.21605
15	100.00000	100.00000	95.74739	104.09966	98.19184	101.69229	99.57488	100.38902
20	100.00000	100.00000	94.14988	105.56867	97.37369	102.39917	99.29891	100.61902
25	100.00000	100.00000	92.46439	107.08252	96.42474	103.18491	98.92096	100.91703
30	100.00000	100.00000	90.69276	108.63674	95.32938	104.05390	98.41475	101.29408
35	100.00000	100.00000	88.83506	110.22850	94.07074	105.01055	97.75059	101.76079
40	100.00000	100.00000	86.88515	111.86026	92.63063	106.05929	96.89555	102.32699
45	100.00000	100.00000	84.83266	113.53789	90.98955	107.20471	95.81369	103.00148
50	100.00000	100.00000	82.66538	115.26865	89.12668	108.45158	94.46607	103.79204
55	100.00000	100.00000	80.37080	117.06003	87.02008	109.80490	92.81029	104.70569
60	100.00000	100.00000	77.93721	118.91905	84.64706	111.26991	90.79048	105.74941
65	99.99996	100.00001	75.35462	120.85185	81.98479	112.85214	88.38061	106.93117
70	99.99835	100.00052	72.61549	122.86346	79.01133	114.55726	85.49283	108.26067
75	99.96681	100.00889	69.71522	124.95773	75.70717	116.39102	82.06693	109.75071
80	99.64167	100.07979	66.65272	127.13731	72.05731	118.35898	78.02814	111.41669
85	97.71260	100.41499	63.43064	129.40376	68.05401	120.46632	73.30461	113.27609
90	90.70910	101.37934	60.05571	131.75762	63.70000	122.71746	67.84370	115.34643
95	74.50386	103.25562	56.53884	134.19860	59.01217	125.11571	61.63582	117.64274
100	50.00000	106.03512	52.89519	136.72566	54.02510	127.66288	54.74208	120.17476
105	25.49614	109.51346	49.14416	139.33722	48.79396	130.35885	47.31746	122.94457
110	9.29090	113.46679	45.30930	142.03122	43.39604	133.20108	39.61801	125.94491
115	2.28740	117.72783	41.41805	144.80529	37.92987	136.18423	31.98179	129.15823
120	0.35833	122.18704	37.50154	147.65686	32.51131	139.29962	24.78027	132.55624
125	3.3192^{*1}	126.77740	33.59414	150.58322	27.26603	142.53491	18.34962	136.10033
130	1.6488^{*1}	131.45697	29.73303	153.58167	22.31913	145.87373	12.92397	139.74426
135	3.8261^{*0}	136.19977	25.95763	156.76125	17.78236	149.29606	8.59763	143.44083
140	3.3790^{*0}	140.98968	22.30885	159.78422	13.74239	152.77927	5.33296	147.15341
145	8.2277^{*0}	145.81720	18.82834	162.98331	10.25227	156.30063	3.00720	150.86725
150	3.1928^{*0}	150.67814	15.55747	166.24450	7.32937	159.84111	1.46794	154.59151
155	6.9354^{*0}	155.57400	12.53623	169.56552	4.96076	163.38985	0.56322	158.34810
160	7.5148^{*0}	160.51341	9.80182	172.94384	3.11416	166.94690	0.13638	162.15692
165	1.0945^{*0}	165.50004	7.38707	176.37592	1.74922	170.52220	9.9847^{*4}	166.03924
170	0.00000	170.00000	5.31532	179.85535	0.82235	174.13012		
175	Absolute zero at age 170.0		3.61284	183.36828	0.28040	177.78323	Absolute zero at age 169.50	
180			2.27508	186.89301	4.5610^{*3}	181.49239		
185			1.29047	190.33183	6.5960^{*4}	185.50000		
190			0.61061	193.65695	Absolute zero at age 185.82			
195			0.17949	196.99140				
200			4.5573^{*4}	200.50000				
205			0.00000	205.00000				
210			Absolute zero at age 200.83					

*Condensed from the usual form 3.3192×10^{-1}.

TABLE 42. PERCENT SURVIVING AND PROBABLE LIVES OF THE 18 TYPE CURVES, CONT.

Age, percent of average life	Type curve R_4		Type curve R_5	
	Percent surviving	Probable life, percent of average life	Percent surviving	Probable life, percent of average life
0	100.00000	100.00049	100.00000	99.99926
5	99.99432	100.00601	100.00000	99.99926
10	99.98287	100.01658	100.00000	99.99926
15	99.96090	100.03575	100.00000	99.99926
20	99.92061	100.06894	100.00000	99.99926
25	99.84968	100.12389	100.00000	99.99926
30	99.72952	100.21114	100.00000	99.99926
35	99.53311	100.34439	99.99998	99.99929
40	99.22264	100.54048	99.99916	99.99978
45	98.74727	100.81910	99.99100	100.00441
50	98.04124	101.20197	99.95114	100.02514
55	97.02304	101.71159	99.82089	100.08662
60	95.59608	102.36961	99.49249	100.22610
65	93.65182	103.19487	98.80274	100.48760
70	91.07592	104.20140	97.53512	100.91344
75	87.75801	105.39634	95.39673	101.54592
80	83.60332	106.77778	91.94655	102.44128
85	78.55460	108.33401	86.55794	103.67210
90	72.42015	110.09162	78.54068	105.30800
95	64.75218	112.16416	67.46899	107.39151
100	55.38004	114.63438	53.61839	109.92926
105	44.79042	117.49630	38.27696	112.90149
110	33.97478	120.68231	23.63847	116.27958
115	24.00508	124.10272	12.08071	120.03018
120	15.63853	127.67001	4.95374	124.03417
125	9.26945	131.31951	1.61653	127.91040
130	4.80402	135.02206	0.29276	131.69264
135	2.02527	138.78538	5.3622*-1	135.63094
140	0.59682	142.63490	0.00000	140.00000
145	8.5247*-1	146.58440	Absolute zero at age 137.48	
150	1.2803*-1	150.66375		
155	0.00000	155.00000		
	Absolute zero at age 153.08			

Continuation of Left Mode Types

	Type curve L_1		Type curve L_2	
275	3.9886*-1	282.69860	1.2032*-1	276.99972
280	2.2451*-1	286.87760	7.6517*-2	281.21830
285	1.1731*-1	291.06671	2.6860*-2	285.92359
290	5.5762*-2	295.26570	Absolute zero at age 286.86	
295	2.3399*-2	299.47442		
300	8.2700*-3	303.69289		
305	2.2723*-3	307.92147		
310	4.1607*-4	312.16147		
315	3.5342*-5	316.41771		
320	3.8022*-6	320.71968		
	Absolute zero at age 324.18			

Age, percent of average life	Type curve L_3, concluded	
	Percent surviving	Probable life, percent of average life
275	0.73167	295.87593
280	0.59449	300.13177
285	0.47904	304.39833
290	0.38262	308.67529
295	0.30276	312.96234
300	0.23719	317.25916
305	0.18385	321.56548
310	0.14089	325.88100
315	0.10666	330.20545
320	7.9690*-2	334.53858
325	5.8700*-2	338.88014
330	4.2579*-2	343.22988
335	3.0373*-2	347.58758
340	2.1275*-2	351.95302
345	1.4608*-2	356.32609
350	9.8117*-3	360.70651
355	6.4322*-3	365.09417
360	4.1041*-3	369.48863
365	2.5406*-3	373.88746
370	1.5200*-3	378.29492
375	8.7481*-4	382.70842
380	4.8165*-4	387.12827
385	2.5188*-4	391.55417
390	1.2402*-4	395.98600
395	5.6842*-5	400.42364
400	2.3894*-5	404.86698
405	9.0286*-6	409.31583
410	2.9812*-6	413.77071
415	8.2579*-7	418.23126
420	1.8014*-7	422.69784
425	2.7860*-8	427.17126
430	2.5148*-9	431.65335
435	8.6258*-11	436.14968
440	2.9897*-12	440.68596
445	1.1790*-∞	445.50000
	Absolute zero at age 445.53	

*Condensed from the usual form 8.5247x10^{-1}.

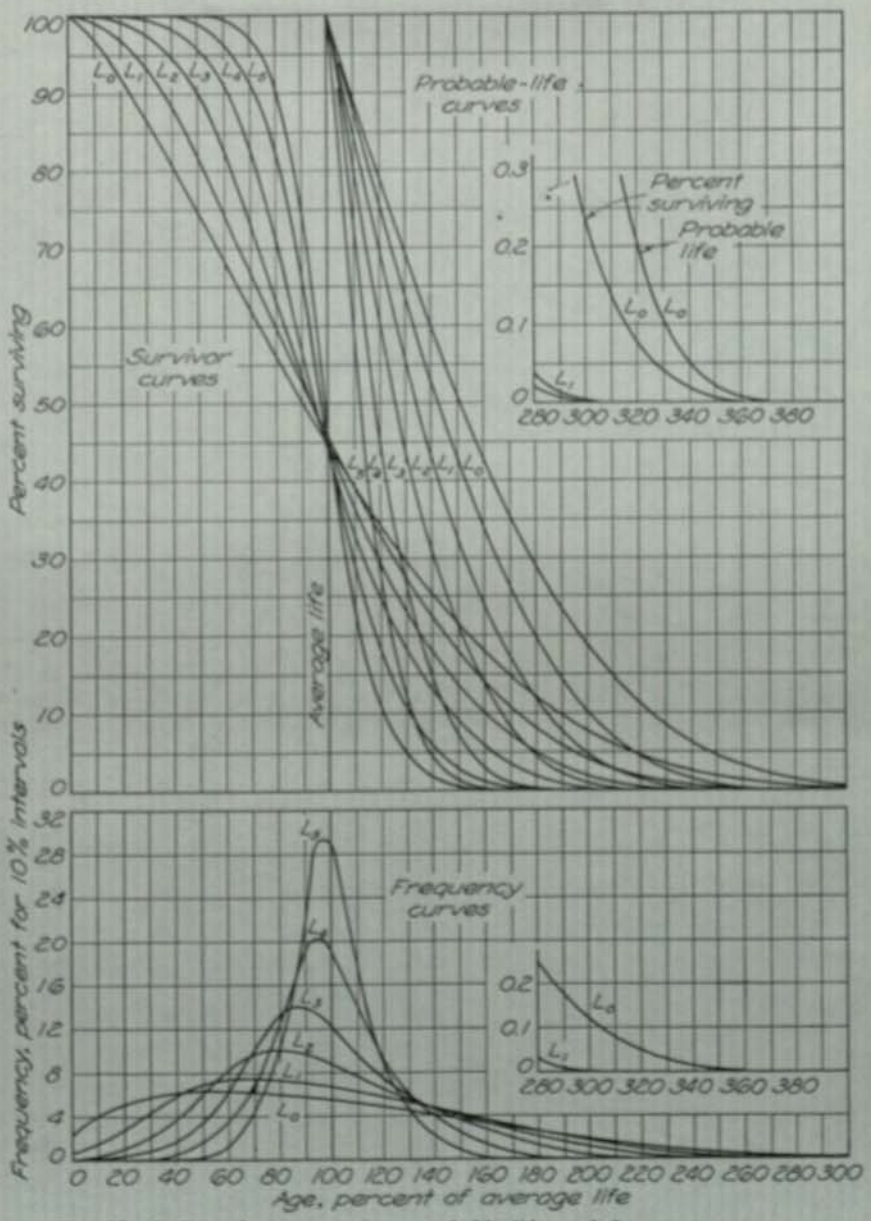

Fig. 28. Left mode type survivor, probable life, and frequency curves.

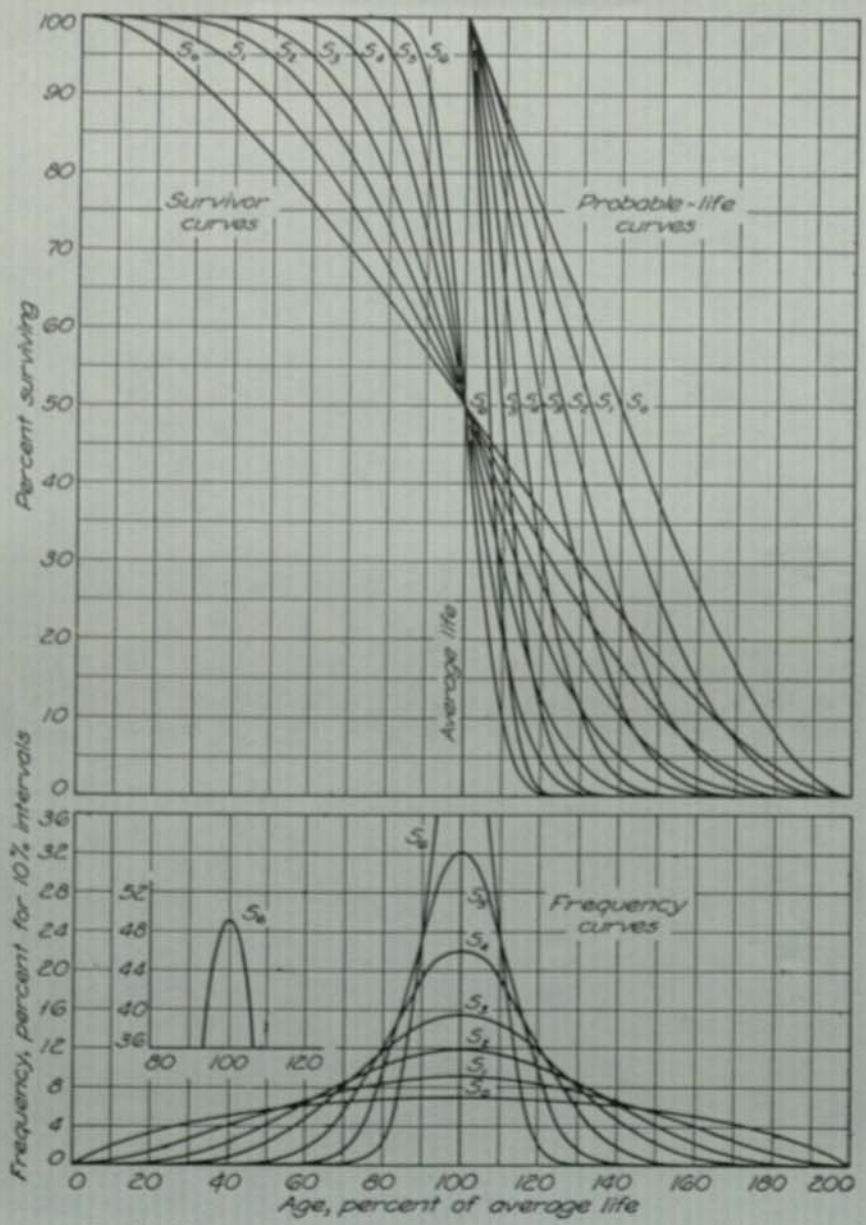

Fig. 23. Symmetrical type survivor, probable life, and frequency curves.

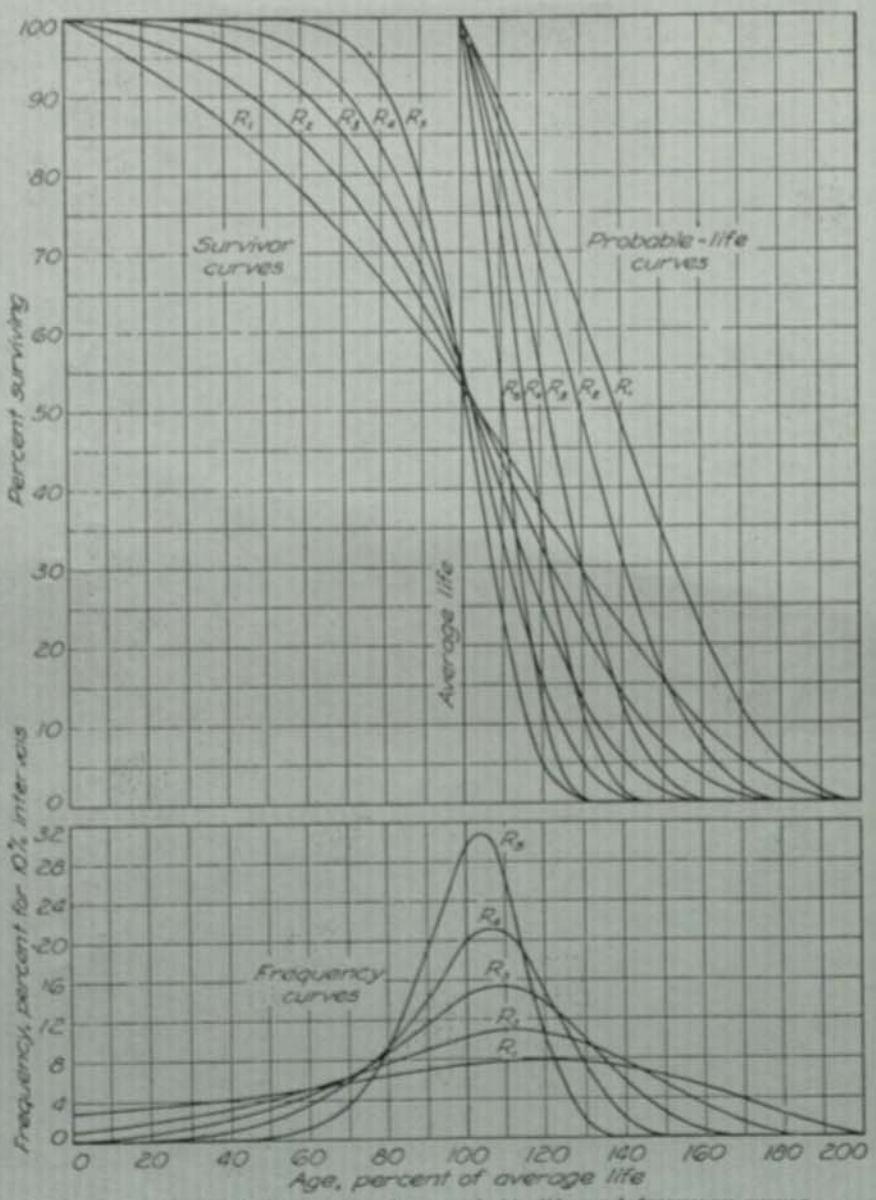

Fig. 30. Right mode type survivor, probable life, and frequency curves.