Total Disability Benefits in Life Insurance

Based on Mead's Adjusted American-Maccabees Experience Tables and $3\frac{1}{2}$ per cent Interest

Computed by means of a new Commutation Column, devised by the Author

By

LUCIUS MCADAM, M.SC., F.A.I.A.

Ex-President and Life Governor of the American Institute of Actuaries

---

CHICAGO, ILLINOIS

1913

Published February 1913

Composed and Printed By
The University of Chicago Press
Chicago, Illinois, U.S.A.

TABLE OF CONTENTS

PART II. PAYMENT OF CLAIM BENEFIT

PART III. COMMUTATION COLUMNS AT 3 PER CENT INTEREST

INTRODUCTION

After his publication of some ordinary Commutation Columns, for use in computing the extra premiums for Total Disability Benefits, by the method of comparison of premiums, the author joined in the search for a more direct means of obtaining them.

This had been forecast as early as the year 1900 in a paper read before the Third International Congress of Actuaries at Paris, France, by M. Expédite Hamza, then actuary of a Russian Insurance Company at St. Petersburg. The suggestions contained in this paper were followed up in the year 1910 by Mr. Franklin B. Mead, an American actuary, in a paper read before the Actuarial Society of America and published in the Transactions of that Society. He had also availed himself of material collected by Messrs. Landis and Eldridge from the experience of the Knights of the Maccabees, a fraternal order in the United States of America, which had granted such benefits for many years.

In his paper, he published tables adjusting this experience in connection with the American Table of Mortality, for the purpose of making direct calculations of the extra premiums required for Total Disability Benefits, and prepared formulae to be used in connection therewith.

The author became convinced, however, that shorter and simpler methods were necessary, and that formulae could be found, analogous to those used in life insurance, as had been stated by M. Hamza.

After numerous computations and trials the author hit upon the device of a new Commutation Column for the purpose, the origin and development of which will now be explained.

THE NEW COMMUTATION COLUMN

The formula given by M. Hamza for the value of an annuity, the first payment payable at the end of the year in which an active life now aged x becomes totally disabled, and to continue thereafter as long as he lives, is

$$a_x^{ai} = \mathrm{a}_x - \mathrm{a}_x^{aa} + \frac{D_x^{i}}{D_x^{aa}}(\mathrm{a}_x - \mathrm{a}_x^{i})$$

(see *Documents, Third International Congress of Actuaries*, p. 166). The same formula is given by Mr. Mead, in the *Transactions of the Actuarial Society of America* for 1910, p. 320: Formula 30.

Now if we reduce this formula to the terms of Commutation Columns, we have

$$a_x^{ai}=\frac{N_x}{D_x}-\frac{N_x^{aa}}{D_x^{aa}}+\frac{(D_x-D_x^{aa})}{D_x^{aa}}\cdot\left(\frac{N_x}{D_x}-\frac{N_x^i}{D_x^i}\right)$$

$$=\frac{\frac{N_x}{D_x}\cdot D_x^{aa}}{D_x^{aa}}-\frac{N_x^{aa}}{D_x^{aa}}+\frac{D_x\cdot\frac{N_x}{D_x}-D_x\cdot\frac{N_x^i}{D_x^i}-\frac{N_x}{D_x}\cdot D_x^{aa}+\frac{N_x^i}{D_x^i}\cdot D_x^{aa}}{D_x^{aa}}$$

$$=\frac{N_x-N_x^{aa}-(D_x-D_x^{aa})\cdot\frac{N_x^i}{D_x^i}}{D_x^{aa}}$$

$$=\frac{N_x^{ii}-D_x^{ii}\cdot a_x^i}{D_x^{aa}}.$$

Designating this numerator by N_x^{ai}, we have the formula

$$a_x^{ai}=\frac{N_x^{ai}}{D_x^{aa}} \qquad (1)$$

By computing the value of this numerator for every age from 20 to 80, we form the new Commutation Column, to be used in connection with the common denominator D_x^{aa}.

This computation and the complete column appear in the tables hereinafter given as Tables E and F.

This column may be used to obtain the extra premiums and reserves necessary for the waiver of premiums in case of Total Disability upon the Ordinary Life policies; also to obtain the additional extra premium to provide for the payment of the claim in any form in case of Total Disability upon the Ordinary Life policies and upon the Limited-Payment Life policies.

THE NEW COMMUTATION COLUMNS

In forming the new Commutation Columns for this book, the author has made use of the tables of Mr. Mead as adjusted, for lives, deaths, and disability, with a slight correction found to be necessary from age 69 down to age 80, thus forming Table A.

In this table the column of disablements is designated d_x^h to avoid confusion with d_x^i, hereafter used to designate the deaths among disabled lives.

Table B, being the mortality table for invalid or disabled lives, was formed by taking a radix of 1,000,000 lives at age 20, and then applying the rate of mortality among invalids as given by Mr. Mead from the Maccabees experience.

Table C, being the Commutation Columns for invalid lives, was computed in the usual manner from Table B.

Table D, being the Commutation Columns M for active and disabled lives, separately and together, was computed in the usual manner from Table A, the letter h being used again to indicate column of disablements. This table is not used in the new formulae but may be found useful in Health insurance calculations, as the letter h might imply.

Table E, being the evolution of the new Commutation Columns N_x^{ai}, is the computation referred to on p. 2. It is also used as a table by itself in the calculation of extra premiums for Limited-Payment and Endowment policies.

Table F, or the final Commutation Columns for the new method, contains the new Column N_x^{ai}, the same as in Table E, but here repeated for convenience of calculation, in direct connection with Columns D_x^{aa} and N_x^{aa}, which latter were computed in the usual manner from Table A.

PRELIMINARY TABLES AND COMMUTATION COLUMNS

TABLE A

Lives, Deaths, and Disablements

Age	l_x^{aa}	d_x^{aa}	d_x^{h}	Expectancy of Death or Disability
20	92.637	721	11	39.20
21	91.905	717	12	38.51
22	91.176	714	14	37.82
23	90.448	712	16	37.12
24	89.720	710	19	36.41
25	88.991	707	22	35.71
26	88.262	705	26	35.00
27	87.531	703	28	34.29
28	86.800	701	30	33.57
29	86.069	702	30	32.85
30	85.337	700	32	32.13
31	84.605	701	32	31.40
32	83.872	702	33	30.67
33	83.137	704	34	29.94
34	82.399	704	36	29.20
35	81.659	706	39	28.46
36	80.914	710	42	27.72
37	80.162	713	45	26.98
38	79.404	718	48	26.23
39	78.638	723	51	25.48
40	77.864	729	54	24.73
41	77.081	736	56	23.97
42	76.289	745	59	23.23
43	75.485	755	62	22.46
44	74.668	767	64	21.70
45	73.837	781	66	20.94
46	72.990	799	69	20.18
47	72.122	817	71	19.41
48	71.234	841	75	18.65
49	70.318	870	79	17.88
50	69.369	902	86	17.12
51	68.381	937	95	16.36
52	67.349	975	106	15.61
53	66.268	1016	119	14.85
54	65.133	1061	137	14.10
55	63.935	1109	163	13.36
56	62.663	1158	201	12.62
57	61.304	1207	250	11.89
58	59.847	1257	302	11.16
59	58.288	1305	377	10.45

TABLE A—*Continued*

Age	l_x^{aa}	d_x^{aa}	d_x^h	Expectancy of Death or Disability
60	56.606	1350	470	9.75
61	54.786	1391	562	9.05
62	52.833	1427	671	8.37
63	50.735	1457	818	7.69
64	48.460	1478	1021	7.03
65	45.961	1489	1289	6.39
66	43.183	1484	1626	5.77
67	40.073	1460	2021	5.17
68	36.592	1413	2443	4.62
69	32.736	1338	2748	4.10
70	28.650	1238	3190	3.62
71	24.222	1106	3376	3.19
72	19.740	952	3350	2.80
73	15.438	786	3117	2.45
74	11.535	619	2706	2.09
75	8.210	464	2210	1.74
76	5.536	330	1727	1.34
77	3.479	218	1294	1.12
78	1.967	130	937	1.10
79	.900	62	557	0.80
80	.281	20	261	0.50

TABLE B

MORTALITY TABLE OF INVALID LIVES

Age	l_x^i	d_x^i	Age	l_x^i	d_x^i
20	1,000,000	400,000	57	1116	142
21	600,000	208,260	58	974	124
22	391,740	118,932	59	850	108
23	272,808	73,031			
24	199,777	47,667	60	742	94
			61	648	82
25	152,110	32,780	62	566	72
26	119,330	23,580	63	494	63
27	95,750	17,618	64	431	55
28	78,132	13,579			
29	64,513	10,722	65	376	48
			66	328	42
30	53,831	8,618	67	286	36
31	45,213	7,017	68	250	32
32	38,196	5,768	69	218	28
33	32,428	4,747			
34	27,681	3,967	70	190	24
			71	166	21
35	23,714	3,334	72	145	19
36	20,380	2,817	73	126	16
37	17,563	2,390	74	110	14
38	15,173	2,038			
39	13,135	1,744	75	96	12
			76	84	11
40	11,391	1,498	77	73	10
41	9,893	1,290	78	63	8
42	8,603	1,114	79	55	8
43	7,489	965			
44	6,524	836	80	47	7
			81	40	6
45	5,688	726	82	34	6
46	4,962	632	83	28	5
47	4,330	550	84	23	5
48	3,780	479			
49	3,301	418	85	18	4
			86	14	4
50	2,883	365	87	10	3
51	2,518	319	88	7	2
52	2,199	279	89	5	2
53	1,920	243			
54	1,677	213	90	3	1
			91	2	1
55	1,464	186	92	1	1
56	1,278	162			

TABLE C

Commutation Columns for Invalid Lives

Age	D_x^i	N_x^i	Age	D_x^i	N_x^i
20	502566.0	1503563.8	57	157.06	995.615
21	291342.6	1000997.8	58	132.44	838.555
22	183785.2	709655.2	59	117.67	706.115
23	123660.0	525870.0	60	94.185	594.445
24	87493.7	402210.0	61	79.472	500.260
25	64364.9	314716.3	62	67.068	420.788
26	48786.6	250351.4	63	56.557	353.720
27	37822.4	201564.8	64	47.676	297.163
28	29819.4	163742.4	65	40.185	249.487
29	23803.8	133923.0	66	33.8696	209.302
30	19178.8	110119.2	67	28.5339	175.4324
31	15563.7	90940.4	68	24.0988	146.8985
32	12703.6	75376.7	69	20.3036	122.7997
33	10420.5	62673.1	70	17.0973	102.4961
34	8594.3	52252.6	71	14.4325	85.3988
35	7113.7	43658.3	72	12.1804	70.9663
36	5906.8	36544.6	73	10.2264	58.7859
37	4918.2	30637.8	74	8.6260	48.5595
38	4105.2	25719.6	75	7.2735	39.9335
39	3433.7	21614.4	76	6.1491	32.6600
40	2877.1	18180.7	77	5.1631	26.5109
41	2414.2	15303.6	78	4.3052	21.3478
42	2028.4	12889.4	79	3.6314	17.0426
43	1706.0	10861.0	80	2.9983	13.4112
44	1435.9	9154.96	81	2.4654	10.4129
45	1209.6	7719.06	82	2.0247	7.9475
46	1019.5	6509.46	83	1.6111	5.9228
47	859.59	5489.96	84	1.2786	4.3117
48	725.03	4630.37	85	0.9668	3.0331
49	611.74	3905.34	86	.7265	2.0663
50	516.21	3293.60	87	.5014	1.3398
51	435.61	2777.39	88	.3391	0.8384
52	367.56	2341.78	89	.2340	.4993
53	310.07	1974.22	90	.1357	.2653
54	261.67	1664.15	91	.0874	.1296
55	220.71	1402.48	92	.0422	.0422
56	186.15	1181.77			

TABLE D

COMMUTATION COLUMNS—AM. MACCABEES, ADJUSTED TABLE

Age	M_x^a	M_x^h	M_x^{aa}	Age	M_x^a	M_x^h	M_x^{aa}
20...	10296.63	3720.70	14017.33	50...	3587.84	3394.36	6982.20
21...	9946.53	3715.36	13661.89	51...	3431.79	3379.48	6811.28
22...	9610.15	3709.73	13319.88	52...	3275.18	3363.60	6638.78
23...	9286.51	3703.38	12989.89	53...	3117.72	3346.48	6464.20
24...	8976.69	3694.37	12671.06	54...	2959.19	3327.91	6287.10
25...	8677.26	3686.33	12363.59	55...	2799.23	3307.26	6106.49
26...	8387.21	3677.34	12064.55	56...	2637.69	3283.52	5921.21
27...	8108.73	3667.07	11775.80	57...	2474.72	3255.23	5729.95
28...	7840.43	3656.38	11496.81	58...	2310.59	3221.24	5531.83
29...	7581.94	3645.32	11227.26	59...	2145.45	3181.56	5327.01
30...	7331.83	3634.63	10966.46	60...	1979.80	3133.71	5113.51
31...	7090.87	3623.61	10714.48	61...	1814.23	3076.07	4890.30
32...	6857.72	3612.97	10470.69	62...	1649.40	3009.48	4658.88
33...	6632.13	3602.37	10234.50	63...	1486.03	2932.66	4418.69
34...	6413.56	3591.81	10005.37	64...	1324.86	2842.18	4167.04
35...	6202.38	3581.01	9783.39	65...	1166.90	2733.06	3899.96
36...	5987.75	3579.71	9567.46	66...	1013.14	2599.96	3613.10
37...	5788.93	3567.95	9356.88	67...	865.08	2437.74	3302.82
38...	5596.02	3555.77	9151.79	68...	724.33	2242.93	2967.26
39...	5408.33	3543.22	8951.55	69...	592.73	2015.40	2608.13
40...	5225.72	3530.34	8756.06	70...	472.33	1768.12	2240.45
41...	5047.82	3517.16	8564.98	71...	364.70	1490.77	1855.47
42...	4874.28	3503.96	8378.24	72...	271.78	1207.18	1478.96
43...	4704.56	3490.52	8195.08	73...	194.52	935.29	1129.81
44...	4539.99	3476.87	8015.26	74...	132.88	690.86	823.74
45...	4375.28	3463.26	7838.54	75...	85.98	485.84	571.82
46...	4214.81	3449.70	7664.51	76...	52.01	324.06	376.07
47...	4056.16	3436.03	7472.19	77...	28.67	201.91	230.58
48...	3913.36	3422.41	7321.87	78...	13.77	113.49	127.26
49...	3757.76	3408.51	7152.12	79...	5.19	51.62	56.81
				80...	1.23	16.09	17.32

TABLE E

Evolution of the New Commutation Column

Age	$N^{ii}_x = N_x - N^{aa}_x$	$D^{ii}_x = D_x - D^{aa}_x$	$\frac{N^i_x}{D^i_x} = a^i_x$	$D^{ii}_x \cdot a^i_x$	$N^{ai}_x = N^{ii}_x - a^i_x \cdot D^{ii}_x$
20	22178.7	0.0	2.9918	0.00	22178.70
21	22178.7	4.4	3.4358	15.12	22163.58
22	22174.3	7.5	3.8613	28.96	22145.34
23	22166.8	10.4	4.2525	44.23	22122.57
24	22156.4	13.6	4.5970	62.52	22093.88
25	22142.8	17.3	4.8896	84.59	22058.21
26	22125.5	21.2	5.1316	108.79	22016.71
27	22104.3	25.7	5.3293	136.96	21967.34
28	22078.6	29.8	5.4912	163.64	21914.96
29	22048.8	33.5	5.6261	188.47	21860.33
30	22015.3	37.1	5.7417	213.02	21802.28
31	21978.2	39.9	5.8431	233.14	21745.06
32	21938.3	42.5	5.9335	252.17	21686.13
33	21895.8	45.0	6.0144	270.65	21625.15
34	21850.8	47.2	6.0799	286.97	21563.83
35	21803.6	48.9	6.1372	300.11	21503.49
36	21754.7	51.0	6.1869	315.53	21439.17
37	21703.7	53.5	6.2295	333.28	21370.42
38	21650.2	56.0	6.2651	350.85	21299.35
39	21594.2	58.5	6.2948	368.25	21225.95
40	21535.7	61.1	6.3191	386.10	21149.60
41	21474.6	63.4	6.3390	401.89	21072.71
42	21411.2	65.6	6.3544	416.85	20994.35
43	21345.6	67.7	6.3663	431.00	20914.60
44	21277.9	69.8	6.3757	445.02	20832.88
45	21208.1	71.5	6.3815	456.28	20751.82
46	21136.6	72.9	6.3849	465.46	20671.14
47	21063.7	74.4	6.3867	475.17	20588.53
48	20989.3	75.4	6.3864	481.53	20507.77
49	20913.9	76.6	6.3840	489.01	20424.89
50	20837.3	77.9	6.3803	497.03	20340.27
51	20759.4	79.8	6.3759	508.80	20250.60
52	20679.6	82.2	6.3711	523.70	20155.90
53	20597.4	85.4	6.3670	543.74	20063.66
54	20512.0	89.4	6.3597	568.56	19943.44
55	20422.6	94.69	6.3544	601.70	19820.90
56	20327.92	102.11	6.3485	648.25	19679.67
57	20225.82	112.61	6.3391	713.85	19511.97
58	20113.21	126.74	6.3316	802.47	19310.74
59	19986.47	144.13	6.3232	911.36	19075.11

TABLE E—*Continued*

Age	$N_x^{ii}=N_x-N_x^{aa}$	$D_x^{ii}=D_x-D_x^{aa}$	$\frac{N_x^i}{D_x^i}=a_x^i$	$D_x^{ii}\cdot a_x^i$	$N_x^{ai}=N_x^{ii}-a_x^i\cdot D_x^{ii}$
60.........	19842.34	166.42	6.3114	1050.34	18792.00
61.........	19675.92	194.38	6.2948	1223.58	18452.34
62.........	19481.54	226.30	6.2740	1419.81	18061.73
63.........	19255.24	262.77	6.2542	1643.42	17611.82
64.........	18992.47	306.40	6.2330	1909.79	17082.68
65.........	18686.07	361.25	6.2085	2242.82	16443.25
66.........	18324.82	431.43	6.1796	2666.06	15658.76
67.........	17893.39	520.61	6.1482	3200.81	14692.56
68.........	17372.78	630.53	6.0957	3843.52	13529.26
69.........	16742.25	759.42	6.0481	4593.05	12149.20
70.........	15982.83	892.57	5.9949	5350.87	10631.96
71.........	15090.26	1039.50	5.9171	6150.83	8939.43
72.........	14050.76	1175.20	5.8263	6847.07	7203.69
73.........	12875.56	1282.77	5.7484	7373.88	5501.68
74.........	11592.79	1349.02	5.6294	7594.17	3998.62
75.........	10243.77	1365.83	5.4902	7498.68	2745.09
76.........	8877.94	1334.133	5.3113	7085.98	1791.96
77.........	7543.81	1262.567	5.1347	6482.90	1060.91
78.........	6281.24	1161.311	4.9233	5717.48	563.76
79.........	5119.93	1041.227	4.6931	4886.58	233.35
80.........	4078.70	905.412	4.4370	4017.31	61.39

TABLE F

FINAL COMMUTATION COLUMNS—NEW METHOD

Age	D_x^{aa}	N_x^{aa}	N_x^{ai}
20	46556.2	962220.8	22178.70
21	44626.4	915664.6	22163.58
22	42775.3	871038.2	22145.34
23	40998.8	828262.9	22122.57
24	39293.5	787264.1	22093.88
25	37656.3	747970.6	22058.21
26	36084.9	710314.3	22016.71
27	34755.8	674229.4	21967.34
28	33127.6	639653.6	21914.96
29	31737.8	606526.0	21860.33
30	30403.7	574788.2	21802.28
31	29123.6	544384.5	21745.06
32	27895.0	515260.9	21686.13
33	26715.5	487365.9	21625.15
34	25582.9	460650.4	21563.83
35	24495.8	435067.5	21503.49
36	23451.5	410571.7	21439.17
37	22447.9	387120.2	21370.42
38	21483.7	364672.3	21299.35
39	20557.0	343188.6	21225.95
40	19666.3	322631.6	21149.60
41	18810.2	302965.3	21072.71
42	17987.3	284155.1	20994.35
43	17195.9	266167.8	20914.60
44	16434.6	248971.9	20832.88
45	15702.1	232537.3	20751.82
46	14997.1	216835.2	20671.14
47	14317.7	201838.1	20588.33
48	13663.1	187520.4	20507.77
49	13031.3	173857.3	20424.89
50	12420.7	160826.0	20340.27
51	11829.8	148405.3	20250.60
52	11257.3	136575.5	20155.90
53	10702.0	125318.2	20053.66
54	10163.0	114616.2	19943.44
55	9638.71	104453.2	19820.90
56	9127.49	94814.48	19679.67
57	8627.56	85686.99	19511.97
58	8137.70	77059.43	19310.74
59	7657.70	68921.73	19075.11

TABLE F—*Continued*

Age	D_x^{aa}	N_x^{aa}	N_x^{ai}
60	7185.23	61264.03	18792.00
61	6719.06	54078.80	18452.34
62	6260.45	47359.74	18061.73
63	5808.50	41099.29	17611.82
64	5360.45	35290.79	17082.68
65	4912.08	29930.34	16443.25
66	4459.12	25018.26	15658.76
67	3998.04	20559.14	14692.58
68	3527.29	16561.10	13520.26
69	3048.90	13033.81	12149.20
70	2578.10	9984.91	10631.96
71	2105.93	7406.81	8939.43
72	1658.22	5300.88	7203.69
73	1252.98	3642.66	5501.68
74	904.55	2389.68	3998.62
75	622.04	1485.13	2745.09
76	405.257	863.088	1791.96
77	246.063	457.831	1060.91
78	134.419	211.768	563.76
79	59.423	77.349	233.35
80	17.926	17.926	61.39

DERIVED TABLES

LIFE AND TEMPORARY ANNUITIES FOR PAYMENT SIDE AND BENEFIT SIDE

TABLE I

Immediate Annuities (to Age Limit)—Payment Side

Age	Life	To Age 70	To Age 69	To Age 65	To Age 64
20	20.668	20.454	20.388	20.025	19.910
21	20.519	20.295	20.227	19.848	19.728
22	20.363	20.130	20.058	19.663	19.538
23	20.202	19.959	19.884	19.472	19.341
24	20.036	19.781	19.704	19.274	19.137
25	19.863	19.598	19.517	19.068	18.926
26	19.685	19.408	19.324	18.855	18.707
27	19.489	19.211	19.123	18.634	18.479
28	19.309	19.007	18.915	18.405	18.243
29	19.111	18.796	18.700	18.168	17.999
30	18.905	18.580	18.477	17.921	17.744
31	18.692	18.349	18.245	17.665	17.480
32	18.472	18.113	18.004	17.399	17.206
33	18.243	17.869	17.755	17.123	16.922
34	18.006	17.616	17.497	16.836	16.627
35	17.761	17.354	17.229	16.539	16.320
36	17.507	17.082	16.951	16.231	16.002
37	17.245	16.800	16.665	15.912	15.673
38	16.974	16.510	16.368	15.581	15.332
39	16.695	16.209	16.060	15.239	14.978
40	16.405	15.898	15.743	14.886	14.611
41	16.107	15.576	15.414	14.515	14.230
42	15.798	15.242	15.073	14.134	13.836
43	15.479	14.898	14.721	13.738	13.426
44	15.149	14.542	14.356	13.328	13.002
45	14.809	14.173	13.979	12.903	12.562
46	14.459	13.793	13.589	12.463	12.105
47	14.097	13.400	13.185	12.007	11.632
48	13.725	12.994	12.771	11.534	11.142
49	13.342	12.575	12.341	11.045	10.633
50	12.948	12.144	11.898	10.539	10.107
51	12.545	11.701	11.443	10.015	9.562
52	12.132	11.245	10.794	9.473	8.997
53	11.710	10.777	10.492	8.913	8.412
54	11.278	10.295	9.995	8.333	7.805
55	10.837	9.801	9.485	7.732	7.176
56	10.388	9.294	8.960	7.109	6.521
57	9.932	8.771	8.418	6.463	5.841
58	9.467	8.242	7.868	5.791	5.133
59	9.000	7.696	7.298	5.092	4.392

TABLE I—*Continued*

Age	Life	To Age 70	To Age 69	To Age 65	To Age 64
60..............	8.526	7.137	6.712	4.361	3.615
61..............	8.049	6.563	6.109	3.594	2.796
62..............	7.565	5.970	5.483	2.784	1.928
63..............	7.076	5.357	4.832	1.923	1.000
64..............	6.584	4.721	4.152	1.000	.....
65..............	6.093	4.061	3.440		
66..............	5.611	3.371	2.688		
67..............	5.142	2.645	1.882		
68..............	4.695	1.864	1.000		
69..............	4.275	1.000	.....		
70..............	3.873	.....	.....		

Age	Life	Age	Life
71..	3.517	76..	2.130
72..	3.197	77..	1.861
73..	2.907	78..	1.575
74..	2.642	79..	1.302
75..	2.388	80..	1.000

TABLE I

Immediate Annuities (to Age Limit)—Payment Side

Age	60	59	58	57	56
20	19.352	19.188	19.013	18.828	18.631
21	19.146	18.974	18.792	18.598	18.394
22	18.931	18.752	18.562	18.360	18.147
23	18.708	18.521	18.323	18.112	17.890
24	18.476	18.282	18.074	17.855	17.623
25	18.236	18.033	17.817	17.588	17.345
26	17.987	17.775	17.549	17.310	17.057
27	17.728	17.507	17.271	17.022	16.758
28	17.495	17.228	16.983	16.722	16.447
29	17.180	16.939	16.683	16.411	16.123
30	16.890	16.638	16.371	16.087	15.767
31	16.589	16.326	16.044	15.750	15.437
32	16.275	16.001	15.709	15.400	15.073
33	15.950	15.663	15.358	15.035	14.694
34	15.611	15.312	14.994	14.657	14.300
35	15.260	14.947	14.615	14.263	13.890
36	14.895	14.568	14.221	13.853	13.464
37	14.516	14.175	13.812	13.428	13.022
38	14.123	13.766	13.388	12.986	12.561
39	13.714	13.342	12.946	12.526	12.082
40	13.290	12.901	12.487	12.048	11.584
41	12.850	12.442	12.010	11.551	11.066
42	12.392	11.966	11.513	11.034	10.526
43	11.916	11.471	10.997	10.496	9.965
44	11.422	10.956	10.460	9.935	9.380
45	10.908	10.420	9.902	9.352	8.771

See also Table II

TABLE I—*Continued*

Age	55	54	53	52	51
20	18.424	18.206	17.976	17.734	17.480
21	18.178	17.950	17.710	17.458	17.193
22	17.921	17.684	17.433	17.170	16.894
23	17.654	17.407	17.146	16.871	16.582
24	17.377	17.119	16.846	16.560	16.259
25	17.089	16.819	16.535	16.236	15.923
26	16.790	16.508	16.212	15.900	15.572
27	16.479	16.185	15.876	15.550	15.208
28	16.156	15.849	15.526	15.186	14.829
29	15.819	15.499	15.162	14.807	14.435
30	15.470	15.135	14.783	14.413	14.024
31	15.106	14.757	14.389	14.003	13.597
32	14.727	14.363	13.979	13.575	13.151
33	14.333	13.953	13.552	13.131	12.688
34	13.923	13.526	13.108	12.668	12.205
35	13.497	13.082	12.645	12.185	11.703
36	13.053	12.620	12.164	11.684	11.179
37	12.592	12.139	11.663	11.161	10.634
38	12.112	11.639	11.141	10.617	10.067
39	11.613	11.119	10.598	10.051	9.475
40	11.096	10.577	10.033	9.461	8.859
41	10.554	10.013	9.444	8.846	8.217
42	9.991	9.426	8.831	8.205	7.547
43	9.404	8.813	8.191	7.536	6.848
44	8.794	8.175	7.524	6.839	6.119
45	8.157	7.510	6.828	6.111	5.358

See also Table II

TABLE I—*Continued*

Age	50	49	48	47	46
20	17.231	16.934	16.640	16.333	16.010
21	16.915	16.623	16.316	15.996	15.660
22	16.603	16.299	15.979	15.645	15.294
23	16.279	15.962	15.628	15.279	14.913
24	15.943	15.619	15.263	14.890	14.517
25	15.592	15.246	14.883	14.503	14.105
26	15.228	14.867	14.488	14.091	13.676
27	14.849	14.472	14.077	13.663	13.229
28	14.454	14.061	13.648	13.216	12.763
29	14.043	13.633	13.202	12.751	12.278
30	13.616	13.187	12.738	12.267	11.773
31	13.170	12.723	12.253	11.762	11.247
32	12.706	12.239	11.749	11.236	10.698
33	12.223	11.735	11.224	10.688	10.126
34	11.720	11.210	10.676	10.117	9.530
35	11.195	10.664	10.106	9.521	8.909
36	10.649	10.094	9.511	8.901	8.261
37	10.081	9.500	8.892	8.254	7.586
38	9.488	8.882	8.246	7.579	6.881
39	8.871	8.237	7.573	6.876	6.147
40	8.228	7.566	6.870	6.143	5.380
41	7.557	6.864	6.137	5.376	4.579
42	6.857	6.132	5.372	4.576	3.743
43	6.126	5.368	4.574	3.741	2.869
44	5.363	4.571	3.739	2.868	1.955
45	4.567	3.737	2.867	1.955	1.000

See also Table II

TABLE I—*Continued*

Age	45	44	43	42	41
20	15.673	15.320	14.951	14.564	14.160
21	15.308	14.939	14.554	14.151	13.730
22	14.927	14.543	14.141	13.720	13.280
23	14.530	14.130	13.710	13.271	12.813
24	14.118	13.699	13.262	12.801	12.325
25	13.688	13.251	12.795	12.317	11.818
26	13.240	12.785	12.308	11.810	11.289
27	12.775	12.299	11.802	11.282	10.738
28	12.289	11.793	11.274	10.731	10.163
29	11.784	11.266	10.724	10.157	9.565
30	11.257	10.716	10.151	9.559	8.940
31	10.708	10.143	9.553	8.935	8.290
32	10.135	9.546	8.929	8.285	7.611
33	9.539	8.923	8.280	7.607	6.902
34	8.917	8.274	7.602	6.899	6.164
35	8.268	7.597	6.895	6.161	5.393
36	7.592	6.891	6.158	5.391	4.588
37	6.886	6.154	5.388	4.587	3.749
38	6.151	5.386	4.585	3.748	2.872
39	5.383	4.583	3.747	2.872	1.957
40	4.581	3.746	2.871	1.957	1.000
41	3.744	2.876	1.956	1.000	.....
42	2.870	1.956	1.000	.....	.....
43	1.956	1.000	.....	.....	.....
44	1.000	.....	.....	.....	.....

TABLE II

IMMEDIATE ANNUITIES (BY YEARS)—PAYMENT SIDE

Age	2	3	4	5	6
20	1.959	2.877	3.758	4.602	5.411
21	1.959	2.877	3.758	4.601	5.410
22	1.958	2.877	3.757	4.601	5.410
23	1.958	2.877	3.757	4.600	5.409
24	1.958	2.877	3.757	4.600	5.408
25	1.958	2.877	3.756	4.599	5.407
26	1.958	2.876	3.756	4.598	5.406
27	1.958	2.876	3.755	4.598	5.395
28	1.958	2.876	3.755	4.597	5.394
29	1.958	2.876	3.755	4.596	5.393
30	1.958	2.875	3.754	4.596	5.401
31	1.958	2.875	3.754	4.955	5.400
32	1.958	2.875	3.753	4.594	5.398
33	1.958	2.875	3.752	4.593	5.397
34	1.958	2.874	3.752	4.591	5.395
35	1.957	2.874	3.751	4.590	5.393
36	1.957	2.873	3.750	4.589	5.391
37	1.957	2.873	3.749	4.587	5.388
38	1.957	2.872	3.748	4.585	5.386
39	1.957	2.872	3.747	4.583	5.383
40	1.957	2.871	3.746	4.581	5.380
41	1.956	2.870	3.744	4.579	5.376
42	1.956	2.870	3.743	4.576	5.372
43	1.956	2.869	3.741	4.573	5.368
44	1.955	2.868	3.739	4.570	5.363
45	1.955	2.867	3.737	4.567	5.358
46	1.955	2.866	3.735	4.563	5.352
47	1.954	2.864	3.732	4.568	5.344
48	1.954	2.863	3.729	4.553	5.336
49	1.953	2.861	3.725	4.546	5.326
50	1.952	2.859	3.720	4.539	5.315
51	1.952	2.856	3.715	4.530	5.302
52	1.951	2.854	3.710	4.521	5.287
53	1.950	2.850	3.703	4.509	5.270
54	1.948	2.847	3.695	4.496	5.250
55	1.947	2.842	3.686	4.481	5.226
56	1.945	2.837	3.676	4.463	5.199
57	1.943	2.831	3.664	4.442	5.168
58	1.941	2.824	3.650	4.419	5.133
59	1.938	2.816	3.633	4.392	5.092

TABLE II—*Continued*

Age	2	3	4	5	6
60	1.935	2.807	3.615	4.361	5.045
61	1.932	2.796	3.594	4.325	4.989
62	1.928	2.784	3.569	4.281	4.920
63	1.923	2.769	3.536	4.225	4.832
64	1.916	2.748	3.494	4.152	4.721
65	1.908	2.722	3.440	4.061	4.585
66	1.897	2.688	3.371	3.950	4.422
67	1.882	2.645	3.290	3.816	4.231
68	1.864	2.595	3.192	3.662	4.018
69	1.846	2.536	3.080	3.491	3.788
70	1.817	2.460	2.946	3.297	3.538
71	1.787	2.382	2.812	3.107	3.300
72	1.756	2.301	2.676	2.921	3.069
73	1.722	2.218	2.542	2.738	2.846
74	1.688	2.136	2.408	2.556	2.622
75	1.652	2.047	2.263	2.359	.....
76	1.607	1.939	2.086	.....	.....
77	1.546	1.788	.....	.....	.....
78	1.442	.....	.....	.....	.....

TABLE II—*Continued*

Age	7	8	9	10	11
20	6.186	6.929	7.640	8.322	8.975
21	6.185	6.927	7.639	8.320	8.972
22	6.184	6.926	7.637	8.317	8.970
23	6.183	6.924	7.635	8.315	8.966
24	6.181	6.923	7.633	8.312	8.963
25	6.180	6.921	7.630	8.310	8.960
26	6.178	6.919	7.628	8.307	8.957
27	6.177	6.917	7.625	8.304	8.953
28	6.176	6.916	7.623	8.301	8.949
29	6.174	6.913	7.620	8.297	8.945
30	6.173	6.911	7.618	8.294	8.940
31	6.171	6.908	7.614	8.290	8.935
32	6.169	6.906	7.611	8.285	8.929
33	6.166	6.902	7.607	8.280	8.923
34	6.164	6.899	7.602	8.274	8.917
35	6.161	6.985	7.597	8.268	8.909
36	6.158	6.891	7.592	8.261	8.901
37	6.154	6.886	7.586	8.254	8.889
38	6.150	6.881	7.579	8.246	8.882
39	6.146	6.876	7.573	8.237	8.871
40	6.142	6.870	7.566	8.228	8.859
41	6.137	6.864	7.557	8.217	8.846
42	6.132	6.857	7.547	8.205	8.831
43	6.126	6.848	7.536	8.191	8.813
44	6.119	6.839	7.524	8.175	9.794
45	6.111	6.828	7.510	8.157	8.771
46	6.102	6.186	7.494	8.136	8.745
47	6.092	6.802	7.475	8.112	8.715
48	6.080	6.785	7.453	8.085	8.680
49	6.066	6.766	7.428	8.053	8.640
50	6.050	6.744	7.399	8.016	8.594
51	6.031	6.719	7.366	7.974	8.542
52	6.010	6.690	7.328	7.925	8.481
53	5.985	6.657	7.285	7.897	8.412
54	5.957	6.618	7.234	7.805	8.333
55	5.923	6.573	7.176	7.732	8.241
56	5.885	6.521	7.109	7.647	8.135
57	5.841	6.463	7.032	7.549	8.012
58	5.791	6.395	6.944	7.434	7.868
59	5.733	6.316	6.838	7.298	7.696

TABLE II—*Continued*

Age	7	8	9	10	11
60	5.665	6.222	6.712	7.137	7.496
61	5.584	6.109	6.563	6.946	7.260
62	5.483	5.970	6.382	6.718	6.983
63	5.357	5.801	6.163	6.449	6.664
64	5.202	5.595	5.904	6.138	6.307
65	5.014	5.352	5.607	5.791	5.918
66	4.794	5.075	5.278	5.417	5.508
67	4.545	4.771	4.926	5.028	5.089
68	4.274	4.450	4.565	4.635	4.673
69	3.992	4.125	4.206	4.250	4.269
70	3.695	3.791	3.843	3.866	.....
71	3.417	3.408	3.509	.....	.....
72	3.150	3.186	.....	.....	.....
73	2.893	.....	.....	.....	.....

TABLE II—*Continued*

Age	12	13	14	15	16
20	9.600	10.200	10.774	11.323	11.849
21	9.589	10.196	10.769	11.318	11.844
22	9.594	10.192	10.765	11.313	11.838
23	9.590	10.188	10.760	11.307	11.831
24	9.587	10.184	10.755	11.302	11.824
25	9.583	10.179	10.749	11.295	11.818
26	9.579	10.174	10.744	11.289	11.810
27	9.574	10.168	10.738	11.282	11.802
28	9.570	10.163	10.731	11.274	11.793
29	9.565	10.157	10.724	11.266	11.784
30	9.559	10.151	10.716	11.257	11.773
31	9.553	10.143	10.708	11.247	11.762
32	9.546	10.135	10.698	11.236	11.749
33	9.539	10.126	10.688	11.224	11.735
34	9.530	10.112	10.676	11.210	11.720
35	9.521	10.106	10.664	11.195	11.703
36	9.511	10.094	10.649	11.179	11.684
37	9.500	10.081	10.634	11.161	11.663
38	9.488	10.067	10.617	11.141	11.639
39	9.475	10.051	10.598	11.119	11.613
40	9.461	10.033	10.577	11.096	11.584
41	9.444	10.013	10.554	11.066	11.551
42	9.426	9.991	10.526	11.034	11.513
43	9.404	9.965	10.496	10.997	11.471
44	9.380	9.935	10.460	10.956	11.422
45	9.352	9.902	10.420	10.908	11.365
46	9.320	9.863	10.373	10.853	11.301
47	9.283	9.818	10.320	10.789	11.227
48	9.241	9.767	10.258	10.717	11.142
49	9.192	9.707	10.188	10.633	11.045
50	9.135	9.639	10.107	10.539	10.934
51	9.071	9.562	10.015	10.430	10.807
52	8.997	9.473	9.910	10.306	10.661
53	8.913	9.372	9.789	10.162	10.492
54	8.816	9.255	9.648	9.995	10.295
55	8.704	9.119	9.485	9.801	10.068
56	8.573	8.960	9.294	9.576	9.807
57	8.418	8.771	9.073	9.317	9.510
58	8.242	8.559	8.818	9.022	9.176
59	8.033	8.308	8.525	8.688	8.806

TABLE II—*Continued*

Age	12	13	14	15	16
60	7.789	8.019	8.194	8.320	8.406
61	7.506	7.693	7.828	7.920	7.980
62	7.183	7.328	7.427	7.492	7.531
63	6.820	6.927	6.997	7.039	7.062
64	6.423	6.498	6.544	6.569	6.580
65	6.000	6.050	6.078	6.090	.....
66	5.563	5.593	5.607	.....	.....
67	5.123	5.138	.....	.....	.....
68	4.690	.....	.....	.....	.....

TABLE II—*Continued*

Age	17	18	19	20
20	12.353	12.835	13.297	13.738
21	12.347	12.828	13.289	13.730
22	12.340	12.821	13.280	13.720
23	12.333	12.813	13.271	13.710
24	12.325	12.801	13.262	13.699
25	12.317	12.795	13.251	13.688
26	12.308	12.785	13.240	13.676
27	12.299	12.775	13.229	13.663
28	12.289	12.763	13.216	13.648
29	12.278	12.751	13.202	13.633
30	12.267	12.738	13.187	13.616
31	12.253	12.723	13.170	13.597
32	12.239	12.706	13.151	13.575
33	12.223	12.688	13.131	13.552
34	12.205	12.668	13.108	13.526
35	12.185	12.645	13.082	13.497
36	12.164	12.620	13.053	13.464
37	12.139	12.592	13.022	13.428
38	12.112	12.561	12.986	13.388
39	12.082	12.526	12.946	13.342
40	12.048	12.487	12.901	13.290
41	12.010	12.442	12.850	13.232
42	11.966	12.392	12.791	13.220
43	11.916	12.334	12.724	13.089
44	11.859	12.268	12.648	13.002
45	11.795	12.192	12.562	12.903
46	11.718	12.105	12.463	12.790
47	11.632	12.007	12.350	12.661
48	11.534	11.894	12.220	12.513
49	11.422	11.764	12.071	12.341
50	11.293	11.615	11.898	12.144
51	11.145	11.443	11.701	11.919
52	10.974	11.245	11.474	11.661
53	10.777	11.018	11.215	11.369
54	10.549	10.756	10.919	11.043
55	10.287	10.459	10.589	10.683
56	9.989	10.126	10.225	10.293
57	9.655	9.760	9.832	9.879
58	9.287	9.363	9.413	9.443
59	8.888	8.941	8.973	8.990
60	8.463	8.497	8.516	8.524
61	8.017	8.037	8.046	.....
62	7.553	7.562	.....	.....
63	7.074	.....	.....	.....

TABLE III

Net Single Premiums per Dollar—Life Plan

Total Disability to Occur within Age Limit

Age	Life	70	69	65	64
20.	.4764	.2480	.2154	.1232	.1095
21.	.4967	.2584	.2244	.1282	.1139
22.	.5178	.2692	.2337	.1333	.1184
23.	.5396	.2803	.2432	.1385	.1229
24.	.5623	.2917	.2531	.1438	.1275
25.	.5858	.3034	.2631	.1491	.1321
26.	.6102	.3156	.2735	.1545	.1367
27.	.6353	.3278	.2840	.1595	.1413
28.	.6616	.3406	.2948	.1652	.1459
29.	.6888	.3538	.3060	.1675	.1505
30.	.7172	.3674	.3175	.1763	.1552
31.	.7467	.3816	.3295	.1821	.1601
32.	.7775	.3963	.3419	.1880	.1650
33.	.8095	.4115	.3547	.1940	.1700
34.	.8430	.4273	.3680	.2002	.1752
35.	.8779	.4438	.3819	.2066	.1805
36.	.9143	.4608	.3961	.2130	.1858
37.	.9521	.4784	.4108	.2195	.1910
38.	.9915	.4965	.4259	.2260	.1963
39.	1.0326	.5153	.4415	.2327	.2016
40.	1.0755	.5348	.4578	.2393	.2068
41.	1.1204	.5551	.4743	.2461	.2121
42.	1.1673	.5761	.4918	.2530	.2175
43.	1.2164	.5980	.5097	.2600	.2228
44.	1.2676	.6207	.5284	.2671	.2282
45.	1.3217	.6445	.5479	.2744	.2336
46.	1.3783	.6694	.5682	.2819	.2393
47.	1.4380	.6954	.5895	.2895	.2449
48.	1.5010	.7228	.6118	.2975	.2507
49.	1.5674	.7515	.6350	.3055	.2565
50.	1.6376	.7816	.6595	.3138	.2623
51.	1.7101	.8114	.6849	.3202	.2661
52.	1.7905	.8460	.7113	.3298	.2730
53.	1.8738	.8804	.7386	.3374	.2776
54.	1.9623	.9162	.7669	.3444	.2815
55.	2.0564	.9533	.7959	.3504	.2841
56.	2.1561	.9913	.8250	.3546	.2845
57.	2.2616	1.0293	.8534	.3557	.2816
58.	2.3759	1.0665	.8800	.3524	.2738
59.	2.4910	1.1026	.9164	.3437	.2602

TABLE III—*Continued*

Age	Life	70	69	65	64
60...............	2.6154	1.1357	.9245	.3269	.2379
61...............	2.7463	1.1644	.9385	.2992	.2039
62...............	2.8851	1.1868	.9444	.2585	.1564
63...............	3.0321	1.2017	.9405	.2012	.0911
64...............	3.1868	1.2034	.9204	.1193	.....
65...............	3.3476	1.1183	.8742	.....	.....
66...............	3.5116	1.1273	.7871	.....	.....
67...............	3.6749	1.0157	.6362	.....	.....
68...............	3.8331	.8214	.3912	.....	.....
69...............	3.9848	.4976	.....	.....	.....
70...............	4.1240	......	.....	.....	.....
71...............	4.2449	......	.....	.....	.....
72...............	4.3442	......	.....	.....	.....
73...............	4.3909	......	.....	.....	.....
74...............	4.4205	......	.....	.....	.....
75...............	4.4130	......	.....	.....	.....
76...............	4.4217	......	.....	.....	.....
77...............	4.3115	......	.....	.....	.....
78...............	4.1941	......	.....	.....	.....
79...............	3.9269	......	.....	.....	.....
80...............	3.4246	......	.....	.....	.....

At age 81, the Net Single Premium for life, becomes the value of the ordinary life annuity at that age = 3.1577.

TABLE III—*Continued*

Age	60	59	58	57	56
20	.0727	.0666	.0616	.0573	.0537
21	.0756	.0692	.0639	.0594	.0557
22	.0784	.0718	.0663	.0616	.0576
23	.0812	.0743	.0686	.0637	.0596
24	.0840	.0768	.0709	.0658	.0615
25	.0867	.0792	.0730	.0676	.0632
26	.0894	.0815	.0750	.0694	.0648
27	.0918	.0837	.0768	.0710	.0662
28	.0943	.0857	.0786	.0725	.0675
29	.0967	.0878	.0803	.0740	.0687
30	.0990	.0897	.0820	.0753	.0698
31	.1014	.0917	.0836	.0767	.0709
32	.1038	.0936	.0852	.0779	.0719
33	.1065	.0955	.0866	.0792	.0728
34	.1084	.0973	.0881	.0802	.0737
35	.1107	.0991	.0895	.0813	.0742
36	.1129	.1008	.0908	.0822	.0750
37	.1149	.1023	.0918	.0828	.0753
38	.1167	.1035	.0926	.0832	.0754
39	.1184	.1046	.0932	.0834	.0752
40	.1199	.1055	.0935	.0833	.0747
41	.1213	.1062	.0937	.0830	.0741
42	.1224	.1067	.0935	.0824	.0737
43	.1234	.1070	.0933	.0816	.0718
44	.1242	.1070	.0926	.0804	.0702
45	.1248	.1068	.0918	.0790	.0683

See also Table IV

TABLE III—*Continued*

Age	55	54	53	52	51
20	.0506	.0480	.0457	.0435	.0414
21	.0525	.0498	.0473	.0450	.0429
22	.0543	.0515	.0489	.0465	.0443
23	.0561	.0532	.0505	.0480	.0457
24	.0579	.0547	.0519	.0493	.0469
25	.0594	.0562	.0532	.0505	.0480
26	.0609	.0575	.0544	.0516	.0489
27	.0621	.0585	.0554	.0524	.0497
28	.0632	.0595	.0562	.0531	.0502
29	.0643	.0604	.0569	.0537	.0507
30	.0652	.0611	.0575	.0542	.0510
31	.0661	.0619	.0581	.0546	.0513
32	.0669	.0625	.0585	.0549	.0515
33	.0675	.0630	.0588	.0550	.0515
34	.0681	.0633	.0589	.0550	.0513
35	.0687	.0637	.0592	.0550	.0512
36	.0690	.0638	.0591	.0547	.0507
37	.0690	.0636	.0587	.0541	.0499
38	.0688	.0631	.0580	.0532	.0488
39	.0684	.0624	.0570	.0521	.0475
40	.0676	.0613	.0557	.0505	.0457
41	.0666	.0600	.0542	.0487	.0437
42	.0652	.0584	.0523	.0466	.0414
43	.0636	.0465	.0510	.0441	.0386
44	.0616	.0541	.0474	.0412	.0354
45	.0593	.0521	.0445	.0380	.0319

See also Table IV

TABLE III—*Continued*

Age	50	49	48	47	46
20	.0395	.0377	.0359	.0342	.0324
21	.0409	.0390	.0371	.0353	.0335
22	.0422	.0402	.0383	.0364	.0345
23	.0435	.0414	.0394	.0374	.0354
24	.0446	.0425	.0404	.0383	.0362
25	.0456	.0434	.0412	.0390	.0368
26	.0465	.0441	.0418	.0396	.0373
27	.0469	.0446	.0422	.0399	.0375
28	.0475	.0450	.0425	.0400	.0376
29	.0479	.0452	.0426	.0401	.0375
30	.0481	.0453	.0426	.0399	.0372
31	.0482	.0453	.0425	.0397	.0369
32	.0483	.0452	.0422	.0394	.0364
33	.0481	.0449	.0418	.0388	.0357
34	.0478	.0445	.0413	.0381	.0349
35	.0475	.0440	.0407	.0374	.0340
36	.0469	.0433	.0397	.0363	.0328
37	.0459	.0421	.0384	.0348	.0312
38	.0446	.0407	.0368	.0331	.0292
39	.0431	.0390	.0349	.0310	.0270
40	.0412	.0369	.0326	.0285	.0243
41	.0389	.0344	.0300	.0247	.0214
42	.0364	.0317	.0271	.0226	.0180
43	.0334	.0285	.0237	.0190	.0142
44	.0300	.0248	.0198	.0149	.0098
45	.0262	.0208	.0155	.0104	.0051

See also Table IV

TABLE III—*Continued*

Age	45	44	43	42	41
20	.0307	.0289	.0272	.0254	.0238
21	.0316	.0298	.0280	.0262	.0244
22	.0326	.0307	.0288	.0269	.0251
23	.0334	.0315	.0295	.0275	.0256
24	.0342	.0321	.0300	.0280	.0260
25	.0347	.0325	.0304	.0283	.0262
26	.0351	.0328	.0305	.0283	.0262
27	.0352	.0328	.0305	.0281	.0259
28	.0351	.0327	.0302	.0278	.0254
29	.0349	.0324	.0298	.0273	.0248
30	.0346	.0319	.0292	.0266	.0240
31	.0341	.0313	.0285	.0258	.0231
32	.0335	.0306	.0277	.0248	.0220
33	.0327	.0297	.0266	.0236	.0207
34	.0317	.0286	.0254	.0223	.0192
35	.0307	.0274	.0240	.0208	.0176
36	.0293	.0259	.0224	.0190	.0156
37	.0276	.0240	.0203	0168	.0133
38	.0255	.0217	.0179	.0142	.0106
39	.0231	.0191	.0151	.0113	.0075
40	.0202	.0161	.0120	.0079	.0039
41	.0171	.0128	.0084	.0042	.....
42	.0135	.0090	.0044	.....	.....
43	.0095	.0048	.....	.....	.....
44	.0049	.....	.....	.....	.....

TABLE IV

Net Single Premiums Per Dollar—Life Plan
Total Disability to Occur within Term of Years

Age	1	2	3	4	5
20	.0003	.0007	.0012	.0018	.0026
21	.0004	.0009	.0016	.0024	.0033
22	.0005	.0012	.0020	.0030	.0042
23	.0007	.0016	.0026	.0038	.0051
24	.0009	.0020	.0032	.0046	.0060
25	.0011	.0024	.0038	.0053	.0068
26	.0014	.0028	.0043	.0059	.0075
27	.0015	.0031	.0048	.0064	.0081
28	.0017	.0034	.0051	.0069	.0088
29	.0018	.0036	.0055	.0074	.0093
30	.0019	.0038	.0058	.0078	.0098
31	.0020	.0041	.0062	.0083	.0105
32	.0022	.0044	.0066	.0089	.0113
33	.0023	.0047	.0070	.0095	.0122
34	.0025	.0050	.0076	.0103	.0132
35	.0026	.0054	.0083	.0113	.0145
36	.0029	.0060	.0091	.0124	.0156
37	.0032	.0064	.0098	.0133	.0168
38	.0034	.0070	.0106	.0142	.0179
39	.0037	.0075	.0113	.0151	.0191
40	.0039	.0079	.0120	.0161	.0202
41	.0042	.0084	.0128	.0171	.0214
42	.0044	.0090	.0135	.0180	.0226
43	.0048	.0095	.0142	.0190	.0237
44	.0050	.0098	.0149	.0198	.0248
45	.0053	.0104	.0155	.0208	.0262
46	.0055	.0109	.0164	.0221	.0280
47	.0058	.0114	.0173	.0236	.0302
48	.0061	.0123	.0188	.0258	.0332
49	.0065	.0134	.0260	.0285	.0370
50	.0072	.0148	.0231	.0320	.0418
51	.0080	.0167	.0243	.0346	.0483
52	.0091	.0189	.0298	.0423	.0572
53	.0103	.0218	.0350	.0506	.0694
54	.0121	.0260	.0425	.0622	.0854
55	.0147	.0321	.0529	.0774	.1068
56	.0184	.0404	.0662	.0973	.1345
57	.0233	.0506	.0835	.1228	.1681
58	.0290	.0638	.1055	.1535	.2088
59	.0370	.0813	.1323	.1911	.2602

TABLE IV—*Continued*

Age	1	2	3	4	5
60	.0473	.1016	.1643	.2379	.3269
61	.0582	.1251	.2039	.2992	.4160
62	.0719	.1564	.2585	.3838	.5382
63	.0911	.2012	.3363	.5026	.7029
64	.1193	.2657	.4463	.6629	.9204
65	.1597	.3568	.5932	.8742	1.1183
66	.2167	.4776	.7871	1.1273	1.5069
67	.2910	.6362	1.0157	1.4390	1.8732
68	.3912	.8214	1.3012	1.7933	2.2760
69	.4996	1.0528	1.6221	2.1803	2.6733
70	.6953	1.3298	1.9902	2.5730	3.0592
71	.8242	1.6324	2.3461	2.9413	3.3940
72	1.0264	1.9328	2.6888	3.2636	3.7044
73	1.1996	2.2000	2.9606	3.5442	3.9409
74	1.3858	2.4395	3.2477	3.7973	4.1626
75	1.5644	2.7075	3.5067	4.0378	4.3143
76	1.8039	3.0307	3.8460	4.2703	......
77	2.0204	3.3590	4.0621	......	......
78	2.4580	3.7373	......	......	......
79	2.8938	......	......	......	......

TABLE IV—*Continued*

Age	6	7	8	9	10
20	.0035	.0045	.0057	.0068	.0081
21	.0044	.0056	.0068	.0081	.0094
22	.0054	.0067	.0080	.0094	.0107
23	.0064	.0078	.0092	.0107	.0121
24	.0074	.0089	.0104	.0119	.0135
25	.0083	.0099	.0115	.0131	.0147
26	.0092	.0109	.0126	.0142	.0160
27	.0099	.0117	.0134	.0153	.0173
28	.0106	.0124	.0144	.0164	.0186
29	.0112	.0133	.0154	.0177	.0200
30	.0119	.0142	.0165	.0190	.0215
31	.0129	.0153	.0178	.0205	.0231
32	.0139	.0165	.0192	.0220	.0248
33	.0149	.0178	.0207	.0236	.0266
34	.0161	.0192	.0223	.0254	.0286
35	.0176	.0208	.0240	.0274	.0307
36	.0190	.0224	.0259	.0293	.0328
37	.0203	.0240	.0276	.0312	.0348
38	.0217	.0255	.0292	.0331	.0368
39	.0231	.0270	.0310	.0349	.0390
40	.0243	.0285	.0326	.0369	.0412
41	.0257	.0300	.0344	.0389	.0437
42	.0271	.0317	.0364	.0414	.0466
43	.0285	.0334	.0386	.0441	.0501
44	.0300	.0354	.0412	.0474	.0541
45	.0319	.0380	.0445	.0521	.0593
46	.0344	.0412	.0485	.0567	.0661
47	.0374	.0451	.0536	.0635	.0752
48	.0413	.0503	.0606	.0729	.0876
49	.0464	.0572	.0701	.0855	.1036
50	.0532	.0675	.0829	.1019	.1247
51	.0624	.0795	.0977	.1233	.1520
52	.0751	.0960	.1212	.1513	.1860
53	.0914	.1179	.1496	.1861	.2282
54	.1133	.1467	.1852	.2294	.2815
55	.1420	.1825	.2292	.2841	.3504
56	.1773	.2266	.2845	.3546	.4405
57	.2202	.2816	.3557	.4466	.5588
58	.2738	.3524	.4488	.5677	.7105
59	.3437	.4461	.5723	.7242	.9164

TABLE IV—*Continued*

Age	6	7	8	9	10
60..............	.4361	.5705	.7324	.9245	1.1357
61..............	.5598	.7330	.9385	1.1644	1.4164
62..............	.7240	.9444	1.1868	1.4571	1.7344
63..............	.9405	1.2017	1.4931	1.7918	2.0849
64..............	1.2034	1.5191	1.8429	2.1604	2.4409
65..............	1.5276	1.8810	2.2276	2.7371	2.7887
66..............	1.8961	2.2778	2.6149	3.1203	3.3340
67..............	2.2989	2.6748	2.9883	3.2268	3.4091
68..............	2.7020	3.0574	3.3276	3.5348	3.6758
69..............	3.0844	3.3970	3.6368	3.7999	3.9082
70..............	3.4289	3.7124	3.8815	4.0334	4.1001
71..............	3.7411	3.9772	4.1483	4.2157	......
72..............	4.0043	4.2035	4.3072	......	......
73..............	4.2047	4.3419	......	......	......
74..............	4.3527	......	......	......	......

TABLE IV—*Continued*

Age	11	12	13	14	15
20	.0093	.0106	.0119	.0132	.0145
21	.0107	.0121	.0134	.0148	.0162
22	.0122	.0136	.0150	.0165	.0181
23	.0136	.0151	.0167	.0184	.0201
24	.0150	.0167	.0184	.0202	.0221
25	.0164	.0183	.0201	.0221	.0241
26	.0179	.0199	.0219	.0240	.0262
27	.0193	.0214	.0237	.0259	.0281
28	.0208	.0231	.0254	.0278	.0302
29	.0224	.0248	.0273	.0298	.0324
30	.0240	.0266	.0292	.0319	.0346
31	.0258	.0285	.0313	.0341	.0369
32	.0277	.0306	.0335	.0364	.0394
33	.0297	.0327	.0357	.0388	.0418
34	.0317	.0349	.0381	.0413	.0445
35	.0340	.0374	.0407	.0440	.0475
36	.0363	.0397	.0432	.0469	.0507
37	.0384	.0421	.0459	.0499	.0541
38	.0407	.0446	.0488	.0532	.0580
39	.0431	.0475	.0521	.0570	.0624
40	.0457	.0505	.0557	.0613	.0676
41	.0487	.0542	.0600	.0666	.0741
42	.0523	.0584	.0652	.0737	.0824
43	.0565	.0636	.0718	.0816	.0933
44	.0616	.0702	.0824	.0926	.1070
45	.0683	.0790	.0913	.1068	.1248
46	.0773	.0907	.1064	.1253	.1479
47	.0892	.1057	.1255	.1492	.1765
48	.1049	.1256	.1504	.1790	.2119
49	.1253	.1514	.1813	.2159	.2565
50	.1520	.1835	.2197	.2623	.3138
51	.1850	.2231	.2661	.3202	.3882
52	.2260	.2730	.3298	.3995	.4853
53	.2776	.3374	.4107	.5009	.6087
54	.3444	.4216	.5167	.6311	.7669
55	.4318	.5323	.6528	.7959	.9533
56	.5466	.6738	.8250	.9913	1.767
57	.6934	.8534	1.0293	1.2254	1.4269
58	.8800	1.0665	1.2745	1.4878	1.6969
59	1.1026	1.3236	1.5502	1.7725	1.9688

TABLE IV—*Continued*

Age	11	12	13	14	15
60	1.3712	1.6378	1.8747	2.0839	2.2333
61	1.6749	1.9283	2.1521	2.3388	2.4807
62	2.0062	2.2463	2.4466	2.5988	2.7156
63	2.3437	2.5594	2.7236	2.8494	2.9350
64	2.6747	2.8525	2.9889	3.0816	3.1433
65	2.9827	3.1315	3.2328	3.3000	3.3350
66	3.5114	3.3852	3.4979	3.4979	......
67	3.5335	3.6161	3.6591	......	......
68	3.7694	3.8182	......	......	......
69	3.9646	......	......	......	......

TABLE IV—*Continued*

Age	16	17	18	19	20
20	.0159	.0174	.0189	.0205	.0221
21	.0178	.0194	.0210	.0227	.0244
22	.0198	.0215	.0233	.0251	.0269
23	.0219	.0237	.0256	.0275	.0295
24	.0240	.0260	.0280	.0300	.0321
25	.0262	.0283	.0304	.0325	.0347
26	.0283	.0305	.0328	.0351	.0373
27	.0305	.0328	.0352	.0375	.0399
28	.0327	.0351	.0376	.0400	.0425
29	.0349	.0375	.0401	.0426	.0452
30	.0372	.0399	.0426	.0453	.0481
31	.0397	.0425	.0453	.0482	.0513
32	.0422	.0452	.0482	.0515	.0549
33	.0449	.0481	.0515	.0550	.0588
34	.0478	.0513	.0550	.0589	.0633
35	.0512	.0550	.0592	.0637	.0687
36	.0547	.0591	.0638	.0690	.0750
37	.0587	.0636	.0690	.0753	.0828
38	.0631	.0688	.0754	.0832	.0926
39	.0684	.0752	.0834	.0932	.1046
40	.0747	.0833	.0935	.1055	.1199
41	.0830	.0937	.1062	.1213	.1393
42	.0935	.1067	.1224	.1413	.1630
43	.1070	.1234	.1432	.1659	.1921
44	.1241	.1448	.1686	.1960	.2282
45	.1464	.1713	.2000	.2336	.2744
46	.1740	.2040	.2393	.2819	.3342
47	.2079	.2449	.2895	.3443	.4118
48	.2507	.2975	.3549	.4256	.5108
49	.3055	.3657	.4399	.5292	.6350
50	.3769	.4547	.5484	.6595	.7816
51	.4698	.5682	.6849	.8114	.9562
52	.5887	.7113	.8460	.9964	1.1506
53	.7386	.8804	1.0385	1.2942	1.3597
54	.9162	1.0827	1.2535	1.4210	1.5689
55	1.1289	1.3090	1.4856	1.6415	1.7716
56	1.3668	1.5533	1.7180	1.8553	1.9597
57	1.6243	1.7985	1.9434	2.0539	2.1387
58	1.8816	2.0357	2.1538	2.2426	2.3037
59	2.1325	2.2570	2.3524	2.4174	2.4605
60	2.3660	2.4677	2.5620	2.6079	2.6066
61	2.5895	2.6636	2.7128	2.7384	......
62	2.7950	2.8478	2.8752	......	......
63	2.9919	3.0215	......	......	......
64	3.1755	......	......	......	......

TABLE V

IMMEDIATE TEMPORARY ANNUITIES—INVALID LIVES

Age	2	3	4	5	6
20	1.5797	1.0454	2.1915	2.5655	2.4036
21	1.6308	2.0553	2.3556	2.5765	2.7440
22	1.6729	2.1489	2.4991	2.7646	2.9704
23	1.7075	2.2280	2.6226	2.9284	3.1695
24	1.7357	2.2933	2.7255	3.0664	3.3384
25	1.7580	2.3456	2.8089	3.1787	3.4767
26	1.7753	2.3865	2.8744	3.2675	3.5865
27	1.7884	2.4178	2.9248	3.3363	3.6722
28	1.7983	2.4414	2.9634	3.3894	3.7388
29	1.8057	2.4595	2.9932	3.4310	3.7920
30	1.8115	2.4739	3.0172	3.4653	3.8362
31	1.8162	2.4858	3.0380	3.4950	3.8746
32	1.8203	2.4968	3.0568	3.5217	3.9089
33	1.8247	2.5074	3.0743	3.5462	3.9402
34	1.8277	2.5150	3.0873	3.5649	3.9645
35	1.8303	2.5217	3.0988	3.5815	3.9859
36	1.8326	2.5276	3.1089	3.5960	4.0047
37	1.8347	2.5329	3.1178	3.6087	4.0211
38	1.8364	2.5373	3.1254	3.6195	4.0350
39	1.8379	2.5410	3.1317	3.6286	4.0467
40	1.8391	2.5441	3.1371	3.6362	4.0566
41	1.8402	2.5468	3.1416	3.6427	4.0649
42	1.8411	2.5490	3.1453	3.6479	4.0717
43	1.8417	2.5507	3.1483	3.6522	4.0772
44	1.8424	2.5524	3.1510	3.6560	4.0820
45	1.8428	2.5535	3.1529	3.6886	4.0854
46	1.8431	2.5543	3.1544	3.6607	4.0880
47	1.8435	2.5551	3.1557	3.6624	4.0900
48	1.8437	2.5557	3.1565	3.6635	4.0912
49	1.8438	2.5559	3.1568	3.6636	4.0914
50	1.8439	2.5560	3.1566	3.6635	4.0910
51	1.8438	2.5556	3.1563	3.6630	4.0903
52	1.8437	2.5555	3.1560	3.6628	4.0900
53	1.8436	2.5554	3.1557	3.6626	4.0897
54	1.8435	2.5552	3.1554	3.6620	4.0880
55	1.8434	2.5550	3.1552	3.6610	4.0878
56	1.8435	2.5552	3.1551	3.6611	4.0880
57	1.8435	2.5554	3.1554	3.6614	4.0883
58	1.8436	2.5555	3.1557	3.6617	4.0886
59	1.8437	2.5557	3.1560	3.6621	4.0889
60	1.8438	2.5559	3.1564	3.6626	4.0892

TABLE V—*Continued*

Age	7	8	9	10	11
20	2.5907	2.6659	2.7253	2.7726	2.8108
21	2.8738	2.9761	3.0578	3.1237	3.1771
22	3.1326	3.2622	3.3665	3.4512	3.5203
23	3.3620	3.5171	3.6430	3.7457	3.8300
24	3.5576	3.7355	3.8807	3.9998	4.0980
25	3.7185	3.9158	4.0777	4.2113	4.3218
26	3.8469	4.0605	4.2367	4.3825	4.5036
27	3.9477	4.1749	4.3630	4.5192	4.6492
28	4.0270	4.2656	4.4637	4.6286	4.7663
29	4.0909	4.3390	4.5456	4.7181	4.8623
30	4.1442	4.4007	4.6147	4.7938	4.9438
31	4.1906	4.4543	4.6750	4.8598	5.0149
32	4.2321	4.5023	4.7288	4.9189	5.0785
33	4.2697	4.5458	4.7775	4.9721	5.1358
34	4.2992	4.5802	4.8162	5.0147	5.1817
35	4.3253	4.6104	4.8503	5.0521	5.2221
36	4.3481	4.6370	4.8801	5.0848	5.2574
37	4.3680	4.6600	4.9059	5.1132	5.2880
38	4.3848	4.6795	4.9278	5.1372	5.3138
39	4.3990	4.6959	4.9463	5.1574	5.3356
40	4.4109	4.7097	4.9617	5.1743	5.3537
41	4.4210	4.7213	4.9747	5.1885	5.3690
42	4.4291	4.7307	4.9852	5.2000	5.3812
43	4.4357	4.7383	4.9937	5.2091	5.3909
44	4.4415	4.7449	5.0009	5.2168	5.3990
45	4.4455	4.7494	5.0057	5.2220	5.4045
46	4.4485	4.7526	5.0093	5.2258	5.4084
47	4.4507	4.7552	5.0119	5.2285	5.4112
48	4.4521	4.7565	5.0133	5.2299	5.4125
49	4.4522	4.7565	5.0132	5.2297	5.4123
50	4.4516	4.7559	5.0125	5.2288	5.4112
51	4.4508	4.7549	5.0112	5.2274	5.4099
52	4.4500	4.7539	5.0101	5.2263	5.4088
53	4.4499	4.7536	5.0099	5.2262	5.4086
54	4.4479	4.7516	5.0079	5.2241	5.4063
55	4.4479	4.7517	5.0080	5.2240	5.4061
56	4.4483	4.7521	5.0082	5.2241	5.4060
57	4.4484	4.7519	5.0081	5.2238	5.4057
58	4.4485	4.7517	5.0080	5.2236	5.4054
59	4.4487	4.7516	5.0078	5.2234	5.4051
60	4.4488	4.7518	5.0076	5.2232	5.4047

TABLE V—*Continued*

Age	12	13	14	15	16
20	2.8418	2.8677	2.8878	2.9049	2.9190
21	3.2207	3.2565	3.2860	3.3104	3.3307
22	3.5770	3.6237	3.6625	3.6946	3.7214
23	3.8995	3.9570	4.0048	4.0446	4.0778
24	4.1793	4.2468	4.3031	4.3500	4.3892
25	4.4136	4.4900	4.5538	4.6071	4.6518
26	4.6044	4.6885	4.7589	4.8179	4.8674
27	4.7577	4.8485	4.9246	4.9884	5.0421
28	4.8814	4.9779	5.0589	5.1269	5.1841
29	4.9832	5.0846	5.1698	5.2415	5.3018
30	5.0697	5.1754	5.2644	5.3392	5.4023
31	5.1453	5.2549	5.3471	5.4249	5.4904
32	5.2128	5.3259	5.4211	5.5013	5.5690
33	5.2736	5.3897	5.4876	5.5700	5.6396
34	5.3225	5.4411	5.5411	5.6255	5.6967
35	5.3655	5.4863	5.5882	5.6742	5.7468
36	5.4030	5.5257	5.6293	5.7167	5.7904
37	5.4354	5.5598	5.6647	5.7533	5.8281
38	5.4628	5.5886	5.6947	5.7842	5.8597
39	5.4859	5.6128	5.7198	5.8101	5.8863
40	5.5052	5.6329	5.7407	5.8316	5.9083
41	5.5212	5.6497	5.7580	5.8495	5.9266
42	5.5340	5.6630	5.7718	5.8636	5.9410
43	5.5442	5.6736	5.7827	5.8748	5.9524
44	5.5527	5.6824	5.7918	5.8840	5.9618
45	5.5584	5.6882	5.7977	5.8901	5.9679
46	5.5624	5.6923	5.8019	5.8943	5.9722
47	5.5653	5.6952	5.8047	5.8972	5.9752
48	5.5666	5.6965	5.8061	5.8986	5.9766
49	5.5662	5.6961	5.8058	5.8982	5.9761
50	5.5652	5.6951	5.8047	5.8970	5.9749
51	5.5638	5.6937	5.8031	5.8954	5.9731
52	5.5627	5.6924	5.8017	5.8939	5.9715
53	5.5624	5.6920	5.8012	5.8932	5.9710
54	5.5598	5.6893	5.7983	5.8904	5.9680
55	5.5595	5.6889	5.7981	5.8901	5.9676
56	5.5593	5.6888	5.7978	5.8897	5.9672
57	5.5590	5.6884	5.7973	5.8892	5.9666
58	5.5587	5.6880	5.7968	5.8887	5.9660
59	5.5584	5.6876	5.7963	5.8881	5.9654
60	5.5580	5.6873	5.7959	5.8875	5.9647

TABLE V—*Continued*

Age	17	18	19	20
20	2.9308	2.9406	2.9488	2.9556
21	3.3475	3.3616	3.3734	3.3832
22	3.7437	3.7624	3.7781	3.7912
23	4.1055	4.1288	4.1483	4.1647
24	4.4221	4.4497	4.4729	4.4924
25	4.6893	4.7208	4.7473	4.7696
26	4.9089	4.9439	4.9733	4.9981
27	5.0872	5.1251	5.1571	5.1841
28	5.2323	5.2728	5.3070	5.3359
29	5.3527	5.3955	5.4316	5.4621
30	5.4555	5.5003	5.5381	5.5700
31	5.5456	5.5922	5.6315	5.6647
32	5.6261	5.6742	5.7149	5.7491
33	5.6983	5.7479	5.7897	5.8249
34	5.7567	5.8074	5.8502	5.8863
35	5.8080	5.8597	5.9033	5.9401
36	5.8526	5.9051	5.9494	5.9868
37	5.8911	5.9443	5.9892	6.0270
38	5.9235	5.9772	6.0226	6.0608
39	5.9506	6.0048	6.0506	6.0891
40	5.9730	6.0276	6.0737	6.1125
41	5.9916	6.0465	6.0927	6.1318
42	6.0063	6.0614	6.1078	6.1470
43	6.0179	6.0731	6.1197	6.1590
44	6.0274	6.0827	6.1294	6.1688
45	6.0336	6.0891	6.1358	6.1752
46	6.0380	6.0935	6.1402	6.1796
47	6.0410	6.0965	6.1432	6.1826
48	6.0424	6.0978	6.1445	6.1839
49	6.0418	6.0972	6.1438	6.1832
50	6.0405	6.0958	6.1425	6.1818
51	6.0386	6.0940	6.1406	6.1798
52	6.0370	6.0923	6.1388	6.1781
53	6.0364	6.0916	6.1381	6.1774
54	6.0333	6.0885	6.1351	6.1741
55	6.0329	6.0881	6.1345	6.1735
56	6.0327	6.0876	6.1339	6.1727
57	6.0321	6.0870	6.1330	6.1718
58	6.0314	6.0863	6.1322	6.1709
59	6.0308	6.0858	6.1314	6.1700
60	6.0300	6.0848	6.1305	6.1691

TABLE VI

SINGLE EXTRA PREMIUMS, FOR WAIVER OF ANNUAL PREMIUMS PER DOLLAR, UPON LIFE LIMITED-PAYMENT AND ENDOWMENT POLICIES

Term of Years

Age	2	3	4	5	6
20	.000095	.000256	.000479	.000771	.001143
21	.000106	.000297	.000572	.000938	.001397
22	.000125	.000360	.000703	.001152	.001717
23	.000152	.000442	.000859	.001409	.002074
24	.000186	.000532	.001037	.001677	.002435
25	.000215	.000627	.001206	.001926	.002774
26	.000257	.000723	.001365	.002162	.003081
27	.000276	.000778	.001473	.002321	.003301
28	.000293	.000835	.001569	.002469	.003513
29	.000319	.000886	.001661	.002617	.003723
30	.000322	.000912	.001729	.002734	.003870
31	.000341	.000969	.001833	.002885	.004117
32	.000363	.001025	.001925	.003045	.004373
33	.000378	.001058	.002012	.003220	.004652
34	.000384	.001110	.002145	.003453	.005002
35	.000425	.001228	.002362	.003787	.005474
36	.000471	.001347	.002578	.004124	.005938
37	.000505	.001447	.002775	.004430	.006369
38	.000543	.001560	.002978	.004744	.006812
39	.000588	.001671	.003181	.005060	.007266
40	.000617	.001762	.003362	.005361	.007690
41	.000656	.001873	.003579	.005691	.008144
42	.000696	.001995	.003795	.006015	.008606
43	.000745	.002112	.003999	.006342	.009053
44	.000773	.002193	.004178	.006621	.009473
45	.000805	.002307	.004379	.006955	.009973
46	.000863	.002433	.004624	.007357	.010601
47	.000883	.002535	.004855	.007796	.011315
48	.000950	.002723	.005258	.008466	.012356
49	.001018	.002956	.005732	.009306	.013652
50	.001132	.003284	.006393	.010411	.015354
51	.001257	.003674	.007179	.011866	.017615
52	.001426	.004170	.008196	.013569	.020452
53	.001619	.004887	.009637	.016118	.024552
54	.001897	.005687	.011487	.019506	.029933
55	.002308	.007001	.014254	.024238	.037311
56	.002898	.008825	.017904	.030477	.046997
57	.003684	.011109	.022571	.038497	.059154
58	.004579	.013955	.028495	.048417	.074057
59	.005858	.017847	.036094	.060878	.092853
60	.007509	.023511	.045174	.076092	.116488

TABLE VI—*Continued*

Age	7	8	9	10	11
20	.001598	.002150	.002790	.003510	.004307
21	.001960	.002617	.003360	.004185	.005074
22	.002385	.003145	.003994	.004912	.005894
23	.002842	.003708	.004649	.005660	.006736
24	.003304	.004258	.005289	.006393	.007560
25	.003723	.004761	.005881	.007073	.008321
26	.004105	.005227	.006432	.007701	.009043
27	.004397	.005594	.006868	.008227	.009678
28	.004679	.005940	.007302	.008768	.010335
29	.004949	.006294	.007761	.009344	.011035
30	.005192	.006638	.008219	.009925	.011751
31	.005521	.007083	.008789	.010634	.012598
32	.005888	.007573	.009418	.011402	.013510
33	.006287	.008109	.010092	.012220	.014478
34	.006773	.008733	.010862	.013142	.015562
35	.007385	.009493	.011778	.014225	.016805
36	.007989	.010247	.012695	.015299	.018032
37	.008558	.010972	.013571	.016324	.019222
38	.009148	.011709	.014475	.017372	.020421
39	.009742	.012443	.015350	.018417	.021636
40	.010296	.013151	.016202	.019437	.022841
41	.010899	.013895	.017113	.020534	.024168
42	.011494	.014653	.018056	.021876	.025618
43	.012096	.015435	.018969	.023002	.027263
44	.012686	.016253	.020167	.024446	.029112
45	.013415	.017266	.021538	.026247	.031446
46	.014330	.018546	.023259	.028521	.034443
47	.015405	.020067	.025347	.031353	.038269
48	.016908	.022158	.028215	.035261	.043530
49	.018797	.024844	.031977	.040430	.050417
50	.021313	.028471	.037065	.047313	.059567
51	.024702	.033365	.043819	.056429	.071629
52	.029080	.039664	.052577	.068265	.087035
53	.035146	.048273	.064390	.083810	.106908
54	.043143	.059597	.079610	.103563	.132109
55	.053940	.074434	.099178	.128844	.164534
56	.067760	.093150	.123854	.161017	.206249
57	.084911	.116462	.154995	.202186	.260157
58	.106102	.145769	.194801	.255421	.330070
59	.133255	.183886	.247061	.325338	.421087
60	.168204	.233641	.315470	.416168	.536187

TABLE VI—*Continued*

Age	12	13	14	15	16
20.........	.005164	.006077	.007043	.008057	.009107
21.........	.006022	.007027	.008081	.009175	.010316
22.........	.006936	.008031	.009167	.010354	.011600
23.........	.007870	.009048	.010280	.011574	.012932
24.........	.008777	.010051	.011393	.012802	.014277
25.........	.009633	.011019	.012477	.014006	.015621
26.........	.010467	.011969	.013549	.015208	.016935
27.........	.011217	.012841	.014552	.016338	.018175
28.........	.011997	.013755	.015596	.017515	.019507
29.........	.012832	.014723	.016700	.018757	.020893
30.........	.013683	.015712	.017830	.020034	.022309
31.........	.014672	.016847	.019117	.021465	.023879
32.........	.015732	.018062	.020481	.022972	.025536
33.........	.016859	.019340	.021903	.024544	.027255
34.........	.018097	.020728	.023452	.026243	.029106
35.........	.019494	.022299	.025165	.028121	.031156
36.........	.020888	.023836	.026877	.030009	.033251
37.........	.022230	.025345	.028566	.031909	.035393
38.........	.023599	.026897	.030334	.033927	.037706
39.........	.024998	.028518	.032213	.036110	.040242
40.........	.026428	.030211	.034218	.038482	.043058
41.........	.028025	.032132	.036520	.041245	.046414
42.........	.029808	.034308	.039175	.044517	.050496
43.........	.031858	.036855	.042364	.048550	.055614
44.........	.034221	.039884	.046271	.053591	.062031
45.........	.037248	.043829	.051402	.060160	.070404
46.........	.041202	.049022	.058099	.068749	.081330
47.........	.046320	.055711	.066766	.079861	.095261
48.........	.053228	.064691	.078313	.094366	.113167
49.........	.062283	.076436	.093157	.112778	.135833
50.........	.074251	.091656	.112124	.136214	.164810
51.........	.089721	.111058	.136220	.166135	.202081
52.........	.109253	.135524	.166816	.204468	.250147
53.........	.134311	.167032	.206473	.254385	.312681
54.........	.166205	.207617	.257884	.320004	.393157
55.........	.207439	.260529	.324872	.402757	.494594
56.........	.261571	.329203	.411185	.507946	.620966
57.........	.337238	.417573	.519608	.638896	.774098
58.........	.421003	.528676	.654719	.797700	.954131
59.........	.534764	.668078	.819491	.985281	1.159993
60.........	.677309	.837872	1.013775	1.199512	1.387813

TABLE VI—*Continued*

Age	17	18	19	20
20	.010203	.011352	.012555	.013811
21	.011513	.012766	.014076	.015444
22	.012905	.014270	.015695	.017175
23	.014352	.015836	.017378	.018973
24	.015821	.017425	.019086	.020802
25	.017288	.019015	.020801	.022644
26	.018729	.020585	.022502	.024468
27	.020120	.022111	.024155	.026243
28	.021571	.023692	.025862	.028082
29	.023092	.025343	.027650	.029993
30	.024642	.027034	.029468	.031949
31	.026358	.028883	.031459	.034088
32	.028152	.030824	.033555	.036364
33	.030023	.032855	.035772	.038709
34	.032040	.035066	.038200	.041472
35	.034291	.037544	.040943	.044519
36	.036621	.040148	.043864	.047821
37	.039047	.042903	.047014	.051443
38	.041701	.045968	.050603	.055745
39	.044665	.049478	.054826	.060881
40	.048049	.053606	.059907	.067115
41	.052182	.058734	.066221	.074956
42	.057304	.065116	.074198	.084862
43	.063738	.073199	.084320	.097325
44	.071878	.083471	.097042	.112864
45	.082484	.096644	.113166	.132500
46	.096099	.113360	.133595	.157451
47	.113272	.134384	.159372	.189300
48	.135230	.161364	.192682	.230568
49	.163169	.195950	.235627	.283781
50	.199133	.240701	.291173	.352068
51	.245637	.298575	.362456	.437643
52	.305680	.372736	.451685	.543738
53	.383120	.466082	.562842	.672340
54	.480408	.582205	.697430	.823307
55	.601803	.723186	.855815	.995391
56	.748987	.888912	1.036192	1.185393
57	.921931	1.077576	1.235282	1.389406
58	1.118889	1.285874	1.449096	1.603639
59	1.337126	1.510312	1.674316	1.825244
60	1.571978	1.746425	1.906992	2.051010

TABLE VII

SINGLE EXTRA PREMIUMS FOR WAIVER OF ANNUAL PREMIUMS, WHERE THE PREMIUM PAYMENTS EXTEND BEYOND THE AGE LIMIT 60 UPON LIFE LIMITED-PAYMENT AND ENDOWMENT POLICIES

Term of Years

Age	15	16	17	18	19	20
42	....	....	....	....	....	.081876
43	....	....	....	....	.081182	.087919
44	....	....	....	.080188	.087200	.093114
45	....	....	.079048	.086343	.092494	.097680
46	....	.077732	.085314	.091708	.097138	.101640
47	.076075	.083964	.090602	.096198	.100914	.104889
48	.082527	.089411	.095214	.100104	.104226	.107699
49	.087870	.093877	.098939	.103206	.106801	.109837
50	.092196	.097423	.101829	.105543	.108677	.111319
51	.095382	.099917	.103727	.106963	.109682	.111972
52	.097108	.101020	.104324	.107107	.109451	.111430
53	.097521	.100878	.103708	.106090	.108103	.109800
54	.096967	.098926	.101324	.103348	.105056	.106569
55	.092522	.094894	.096900	.098590	.100091	.101207
56	.085855	.087783	.089408	.090860	.091926	.092096
57	.074818	.076299	.077636	.078594	.079479	.080227
58	.057896	.059012	.059773	.060496	.061109	.061622
59	.034058	.034493	.034944	.035329	.035649	.035912

Age	9	10	11	12	13	14
48	....	....	....	....	....	.074364
49	....	....	....	....	.072295	.080745
50	....	....	....	.069907	.078634	.085992
51	....	....	.067069	.076048	.083620	.090003
52	....	.063472	.072667	.080420	.086956	.092465
53	.059349	.068696	.076579	.083223	.088823	.093543
54	.063694	.071626	.078312	.083848	.088697	.092700
55	.065503	.072121	.077697	.082050	.086359	.089703
56	.063953	.069316	.073838	.077647	.080862	.083574
57	.057981	.062102	.065575	.068507	.070978	.073059
58	.046285	.049127	.051523	.053546	.055246	.056685
59	.027836	.029333	.030597	.031561	.032561	.033318

Age	3	4	5	6	7	8
54	....	....	....	....	....	.054288
55	....	....	....	....	.048342	.057653
56	....	....	....	.041086	.050039	.057589
57	....	....	.032244	.040406	.047289	.053071
58	....	.021865	.028540	.034171	.038916	.042915
59	.010801	.014972	.018491	.021455	.023955	.026061

PART I

WAIVER OF PREMIUM BENEFITS

WAIVER OF PREMIUM BENEFITS

The extra premium required to enable a life insurance company to waive the annual premiums payable upon a policy after the occurrence of the total and permanent disability of the insured is obtained from the foregoing tables by means of appropriate formulae.

The first result of the computation is the *net* extra premium *per dollar* of premium to be waived, which must then be multiplied by the actual amount of the premium to be waived.

A loading for expense and contingencies should in some manner be provided for.

It is customary to multiply the extra premium per dollar by the net annual premium to be waived, which may then have a loading added to it.

The gross annual premium may also be used, and even a loading added to the result so obtained.

ORDINARY LIFE POLICIES

For this class of policies Table F and the new Commutation Column N_x^{ai} may properly be used.

Where there is no limitation of age, or what is the same thing, in Total Disability experience, where the age limit is 81 the following are the proper formulae.

Single Premium for waiver of premium in case of total and permanent disability:

$$\frac{N_x^{ai}}{D_x^{aa}} \tag{2}$$

For the annual premium divide $\frac{N_x^{ai}}{D_x^{aa}}$ by the Life Annuity payment side $\frac{N_x^{aa}}{D_x^{aa}}$ which reduces to

$$\frac{N_x^{ai}}{N_x^{aa}} \tag{3}$$

Where there is a limit of age $x+t$, the formulae become:

Single Premium, $$\frac{N^{ai}_x - N^{ai}_{x+t}}{D^{aa}_x} \tag{4}$$

Annual Premium, $$\frac{N^{ai}_x - N^{ai}_{x+t}}{N^{aa}_x - N^{aa}_{x+t}} \tag{5}$$

In practice it is simpler to compute the Single Premiums and the Annuities for the payment side separately, and divide one by the other for the annual premium.

At first, it was thought that formulae similar to the above could be used for Limited-Payment Life and Endowment policies. This however proved to be erroneous, because, while in the case of an ordinary life policy the waiver for disability continues for life, in the case of Limited-Payment policies the waiver only continues for the period of limitation requiring the use of temporary annuities. Hence we must resort to other formulae and the use of the columns contained in Table E.

LIMITED-PAYMENT LIFE AND ENDOWMENT POLICIES

The formula for the waiver of premium benefit under this class of policies is given by M. Hamza at p. 171 of his article, but also in our notation by Mr. Mead at p. 321 of his paper, Formula (38), to wit:

$$a_{x\,\overline{n}|} - a^{aa}_{x\,\overline{n}|} + \frac{D^{ii}_x}{D^{aa}_x}(a_{x\,\overline{n}|} - a^{i}_{x\,\overline{n}|})$$

Substituting in this formula the values of the annuities in terms of the Commutation Columns, it will be found that the formula reduces to Single Premium,

$$\frac{N^{ii}_x - N^{ii}_{x+n} - D^{ii}_x \cdot a^{i}_{x\,\overline{n}|}}{D^{aa}_x} \tag{6}$$

and the annual premium will be

$$\frac{N^{ii}_x - N^{ii}_{x+n} - D^{ii}_x \cdot a^{i}_{x\,\overline{n}|}}{N^{aa}_x - N^{aa}_{x+n-1}} \tag{7}$$

In the denominator I make the annuity run for one year less than the term, because that is the limit of the risk of the company. As the nth premium is paid in advance, it could not be waived, even if the insured became disabled in the nth year, and hence, the company is not at risk during the last year in these cases.

The use of this denominator also reduces the number and amount of negative values in the reserve which are often produced by the fact that one more premium is provided for than the risk actually runs.

Where the term approaches and passes the limit of age $x+t$, so that n is greater than t, we must add a correction to the formula, for Single Premium as follows:

$$\frac{N_x^{ii}-N_{x+n}^{ii}-D_x^{ii}\cdot a_{x\overline{n}|}^{i}}{D_x^{aa}}-\frac{N_{x+t}^{ii}-N_{x+n}^{ii}-D_{x+t}^{ii}\cdot a_{x+t\,\overline{n-t}|}}{D_x^{aa}}$$

$$=\frac{N_x^{ii}-N_{x+t}^{ii}-D_x^{ii}\cdot a_{x\overline{n}|}^{i}+D_{x+t}^{ii}\cdot a_{x+t\,\overline{n-t}|}^{i}}{D_x^{aa}} \qquad (8)$$

and the annual premium will be

$$\frac{N_x^{ii}-N_{x+t}^{ii}-D_x^{ii}\cdot a_{x\,\overline{n}|}^{i}+D_{x+t}^{ii}\cdot a_{x+t\,\overline{n-t}|}^{i}}{N_x^{aa}-N_{x+t}^{aa}} \qquad (9)$$

It will be noted in the above denominator that the term of payment is taken for the number of years the risk has to run, as it should be.

The pages following give the annual extra premiums required for the waiver of one dollar on each of the ordinary plans for limit of age 81 and 60; also the annual extra for the waiver of the net premiums based on the Illinois Standard, for the same limits of age.

The extra premiums for any other limit of age may be found from the Commutation Columns, by using the proper formulae as herein given.

The net extra premium for the use of a company should properly be based on the gross premiums used and loaded for expense and taxes.

The method and amount of this loading is left to the judgment of the actuary of the company.

It may also here be said, that the reserves based on net premiums to be waived should be increased, in the proportion which the gross premium bears to the net premium. This may more conveniently be done after the aggregate reserve has been computed.

TABLES OF NET EXTRA PREMIUMS FOR WAIVER OF PREMIUM BENEFIT PER DOLLAR OF PREMIUM AND FOR PREMIUMS BASED ON THE STANDARD OF THE STATE OF ILLINOIS, AGE LIMITS 81 AND 60

WAIVER OF PREMIUM

Net Annual Extra Premium per Dollar of Annual Premium to Be Waived in Case of Total Disability Occurring Before Age 81

Age	Life	20 Premiums	15 Premiums	10 Premiums
20	.02305	.00104	.00075	.00046
21	.02421	.00116	.00085	.00055
22	.02543	.00129	.00096	.00064
23	.02671	.00143	.00108	.00074
24	.02806	.00157	.00119	.00084
25	.02949	.00171	.00130	.00093
26	.03100	.00185	.00142	.00101
27	.03260	.00198	.00152	.00108
28	.03426	.00213	.00163	.00115
29	.03604	.00227	.00175	.00123
30	.03974	.00242	.00187	.00130
31	.03995	.00259	.00201	.00140
32	.04209	.00277	.00215	.00150
33	.04437	.00295	.00230	.00161
34	.04682	.00316	.00246	.00173
35	.04943	.00340	.00264	.00187
36	.05223	.00363	.00282	.00202
37	.05521	.00395	.00300	.00215
38	.05841	.00429	.00320	.00229
39	.06185	.00470	.00341	.00243
40	.06556	.00520	.00364	.00257
41	.06956	.00583	.00391	.00272
42	.07389	.00663	.00423	.00290
43	.07858	.00765	.00462	.00305
44	.08369	.00892	.00513	.00325
45	.08925	.01055	.00577	.00350
46	.09534	.01263	.00663	.00381
47	.10201	.01533	.00774	.00421
48	.10937	.01887	.00920	.00473
49	.11749	.02350	.01107	.00544
50	.12649	.02959	.01348	.00639
51	.13633	.03739	.01658	.00765
52	.14759	.04739	.02063	.00932
53	.16004	.05994	.02598	.01159
54	.17402	.07540	.03308	.01432
55	.18978	.09400	.04246	.01796
56	.20756	.11575	.05465	.02265
57	.22771	.14131	.07041	.02875
58	.25096	.17036	.09046	.03678
59	.27677	.20342	.11558	.04758
60	.30674	.24084	.14639	.06200

WAIVER OF PREMIUM

Net Annual Extra Premium per Dollar of Annual Premium to Be Waived in Case of Total Disability Occurring Before Age 60

Age	Life	20 Premiums	15 Premiums	10 Premiums
20	.00376	.00104	.00075	.00046
21	.00395	.00116	.00085	.00055
22	.00414	.00129	.00096	.00064
23	.00434	.00143	.00108	.00074
24	.00455	.00157	.00119	.00084
25	.00476	.00171	.00130	.00093
26	.00497	.00185	.00142	.00101
27	.00518	.00198	.00152	.00108
28	.00539	.00213	.00163	.00115
29	.00563	.00227	.00175	.00123
30	.00586	.00242	.00187	.00130
31	.00611	.00259	.00201	.00140
32	.00638	.00277	.00215	.00150
33	.00668	.00295	.00230	.00161
34	.00694	.00316	.00246	.00173
35	.00721	.00340	.00264	.00187
36	.00758	.00363	.00282	.00198
37	.00791	.00395	.00300	.00215
38	.00826	.00429	.00320	.00229
39	.00863	.00470	.00341	.00243
40	.00902	.00520	.00364	.00257
41	.00944	.00583	.00391	.00272
42	.00988	.00661	.00423	.00290
43	.01036	.00738	.00462	.00305
44	.01087	.00815	.00513	.00325
45	.01144	.00896	.00577	.00350
46	.01208	.00980	.00663	.00381
47	.01278	.01068	.00775	.00421
48	.01359	.01165	.00893	.00473
49	.01450	.01271	.01017	.00544
50	.01555	.01389	.01150	.00639
51	.01651	.01519	.01294	.00765
52	.01811	.01666	.01452	.00949
53	.01970	.01833	.01628	.01152
54	.02158	.02028	.01830	.01364
55	.02382	.02259	.02077	.01610
56	.02646	.02527	.02336	.01886
57	.02948	.02833	.02642	.02193
58	.03284	.03174	.02982	.02530
59	.03697	.03592	.03396	.02934

WAIVER OF PREMIUM

NET ANNUAL EXTRA PREMIUM, FOR WAIVER OF PREMIUMS ON THE ILLINOIS STANDARD, IN CASE OF TOTAL DISABILITY OCCURRING BEFORE AGE 81

Age	Life	20 P.L.	15 P.L.	10 P.L.	20 Yr. E.	15 Yr. E.	10 Yr. E.
20.......	0.32	0.03	0.02	0.02	0.04	0.04	0.04
21.......	.34	.03	.02	.02	.04	.04	.04
22.......	.36	.03	.03	.03	.05	.05	.05
23.......	.39	.03	.03	.03	.06	.06	.06
24.......	.42	.03	.04	.03	.06	.07	.07
25.......	.46	.04	.04	.04	.07	.08	.08
26.......	.50	.04	.04	.04	.07	.09	.08
27.......	.54	.05	.05	.05	.08	.09	.09
28.......	.58	.06	.05	.05	.08	.10	.10
29.......	.62	.06	.06	.06	.09	.10	.11
30.......	.67	.07	.06	.06	.10	.11	.12
31.......	.73	.07	.07	.07	.11	.11	.13
32.......	.79	.08	.07	.07	.12	.12	.14
33.......	.86	.08	.08	.08	.13	.13	.15
34.......	.93	.09	.08	.08	.14	.14	.16
35.......	1.02	.10	.09	.09	.14	.15	.17
36.......	1.11	.10	.10	.10	.15	.16	.18
37.......	1.21	.11	.11	.11	.16	.17	.19
38.......	1.33	.13	.12	.12	.18	.18	.20
39.......	1.45	.15	.13	.13	.20	.19	.21
40.......	1.60	.17	.14	.14	.22	.21	.23
41.......	1.76	.19	.16	.15	.25	.23	.25
42.......	1.94	.23	.18	.16	.29	.25	.27
43.......	2.14	.27	.20	.17	.34	.28	.29
44.......	2.37	.32	.22	.18	.40	.31	.30
45.......	2.63	.39	.25	.21	.48	.35	.32
46.......	2.93	.48	.30	.23	.58	.40	.35
47.......	3.27	.60	.36	.26	.71	.47	.39
48.......	3.66	.77	.44	.30	.89	.57	.44
49.......	4.11	.98	.54	.35	1.13	.69	.51
50.......	4.63	1.28	.68	.43	1.45	.85	.60
51.......	5.22	1.67	.86	.53	1.87	1.06	.73
52.......	5.92	2.19	1.11	.66	2.42	1.33	.89
53.......	6.73	2.87	1.44	.84	3.13	1.70	1.12
54.......	7.68	3.75	1.89	1.07	4.04	2.21	1.39
55.......	8.79	4.85	2.51	1.37	5.18	2.88	1.76
56.......	10.11	6.21	3.33	1.78	6.57	3.78	2.25
57.......	11.67	7.89	4.45	2.33	8.27	4.98	2.88
58.......	13.54	9.91	5.92	3.07	10.28	6.54	3.72
59.......	15.73	12.35	7.84	4.09	12.69	8.58	4.90
60.......	18.38	15.28	10.31	5.49	15.88	11.14	6.48

WAIVER OF PREMIUM

Net Annual Extra Premium, for Waiver of Premium on the Illinois Standard, in Case of Total Disability Occurring Before Age 60

Age	Life	20 P.L.	15 P.L.	10 P.L.	20 Yr. E.	15 Yr. E.	10 Yr. E.
20	0.05	0.03	0.02	0.02	0.04	0.04	0.04
21	.06	.03	.02	.02	.04	.04	.04
22	.06	.03	.03	.03	.05	.05	.05
23	.06	.03	.03	.03	.06	.06	.06
24	.07	.03	.04	.03	.06	.07	.07
25	.07	.04	.04	.04	.07	.08	.08
26	.08	.04	.04	.04	.07	.09	.08
27	.08	.05	.05	.05	.08	.09	.09
28	.09	.06	.05	.05	.08	.10	.10
29	.09	.06	.06	.06	.09	.10	.11
30	.10	.07	.06	.06	.10	.11	.12
31	.11	.07	.07	.07	.11	.11	.13
32	.12	.08	.07	.07	.12	.12	.14
33	.13	.08	.08	.08	.13	.13	.15
34	.14	.09	.08	.08	.14	.14	.16
35	.15	.10	.09	.09	.14	.15	.17
36	.16	.10	.10	.10	.15	.16	.18
37	.17	.11	.11	.11	.16	.17	.19
38	.18	.13	.12	.12	.18	.18	.20
39	.20	.15	.13	.13	.20	.19	.21
40	.22	.17	.14	.14	.22	.21	.23
41	.24	.19	.16	.15	.25	.23	.25
42	.26	.23	.18	.16	.29	.25	.27
43	.28	.26	.20	.17	.33	.28	.29
44	.31	.29	.22	.18	.36	.31	.30
45	.34	.33	.25	.21	.40	.35	.32
46	.37	.37	.30	.23	.45	.40	.35
47	.41	.42	.36	.26	.50	.47	.39
48	.45	.47	.43	.30	.55	.55	.44
49	.51	.53	.50	.35	.61	.63	.51
50	.57	.60	.58	.42	.68	.72	.60
51	.63	.68	.67	.53	.76	.82	.73
52	.73	.77	.78	.67	.84	.94	.91
53	.83	.88	.90	.83	.96	1.07	1.11
54	.95	1.01	1.05	1.02	1.09	1.22	1.33
55	1.10	1.17	1.23	1.23	1.24	1.41	1.58
56	1.29	1.36	1.43	1.48	1.43	1.62	1.87
57	1.51	1.58	1.67	1.78	1.66	1.87	2.20
58	1.77	1.85	1.95	2.11	1.92	2.16	2.57
59	2.10	2.18	2.30	2.52	2.24	2.52	3.02

WAIVER OF PREMIUM BENEFIT

MEAN RESERVES

MEAN RESERVES FOR WAIVER OF PREMIUM

Ordinary Life, Illinois Standard, Age Limit 81. In Year

Age	1	2	3	4	5
20	0.33	0.66	1.01	1.36	1.73
25	0.46	0.93	1.42	1.92	2.44
30	0.67	1.35	2.06	2.79	3.56
35	1.01	2.04	3.10	4.21	5.36
40	1.59	3.19	4.86	6.60	8.42
45	2.62	5.27	8.05	10.95	13.94
50	4.58	9.26	14.19	19.31	24.67
55	8.68	17.41	26.55	35.96	45.64
60	17.49	34.40	51.90	69.96	88.45

Age	6	7	8	9	10
20	2.12	2.52	2.93	3.36	3.81
25	2.98	3.55	4.13	4.75	5.39
30	4.35	5.18	6.04	6.94	7.87
35	6.56	7.81	9.12	10.48	11.91
40	10.32	12.31	14.39	16.57	18.85
45	17.15	20.48	23.99	27.65	31.50
50	30.27	36.11	42.27	48.62	55.18
55	55.74	66.22	77.12	88.42	100.05
60	107.12	125.67	143.72	160.97	177.24

Age	11	12	13	14	15
20	4.27	4.76	5.26	5.79	6.33
25	6.05	6.75	7.47	8.21	8.99
30	8.84	9.86	10.92	12.02	13.18
35	13.39	14.95	16.58	18.30	20.09
40	21.23	23.84	26.40	29.18	32.10
45	35.53	39.74	44.25	48.81	53.58
50	62.05	69.21	76.69	84.48	92.53
55	111.86	123.63	135.11	146.10	156.45
60	192.03	204.84	214.79	222.18	227.61

Age	16	17	18	19	20
20	6.90	7.57	8.18	8.75	9.42
25	9.81	10.66	11.54	12.46	13.43
30	14.36	15.66	16.99	18.38	19.85
35	21.96	23.95	26.06	28.26	30.57
40	35.29	38.51	41.80	45.34	49.00
45	58.65	63.84	69.34	75.09	81.04
50	100.72	108.91	116.91	124.59	131.81
55	165.81	173.89	179.95	184.16	186.95
60	232.36	234.16	232.44	226.06	208.29

MEAN RESERVES FOR WAIVER OF PREMIUM

TWENTY-PAYMENT LIFE, ILLINOIS STANDARD, AGE LIMIT 81. IN YEAR

Age	1	2	3	4	5
20	0.02	0.04	0.05	0.06	0.07
25	.03	.05	.06	.07	.08
30	.04	.06	.07	.08	.09
35	.07	.09	.11	.12	.12
40	.11	.16	.20	.25	.26
45	.31	.52	.74	.97	1.19
50	1.16	2.31	3.36	4.32	5.39
55	4.60	8.99	13.43	17.90	22.36
60	14.28	22.65	41.31	55.21	69.11

Age	6	7	8	9	10
20	0.07	0.07	0.07	0.07	0.06
25	.08	.08	.08	.07	.06
30	.09	.09	.09	.08	.07
35	.12	.12	.11	.10	.08
40	.29	.32	.34	.36	.37
45	1.40	1.61	1.80	1.97	2.11
50	6.44	7.44	8.35	9.14	9.83
55	26.74	31.02	35.17	39.08	42.54
60	82.69	95.52	107.11	116.81	124.24

Age	11	12	13	14	15
20	0.05	0.04	0.03	0.02	0.02
25	.05	.04	.03	.02	.02
30	.05	.04	.03	.03	.03
35	.07	.06	.05	.05	.05
40	.38	.37	.35	.32	.27
45	2.20	2.23	2.18	2.03	1.77
50	10.04	10.21	10.25	9.82	8.96
55	45.24	46.78	46.74	44.65	40.33
60	128.70	129.29	124.98	114.94	101.15

Age	16	17	18	19	20
20	0.02	0.02	0.02	0.02	0.00
25	.02	.02	.02	.02	0.00
30	.03	.03	.03	.03	0.00
35	.05	.05	.05	.05	0.00
40	.22	.15	.10	.09	0.00
45	1.40	0.96	0.56	.20	0.00
50	7.56	5.61	3.33	.64	0.00
55	33.52	24.29	13.89	2.43	0.00
60	84.70	63.71	36.51	7.64	0.00

MEAN RESERVES FOR WAIVER OF PREMIUM

Fifteen-Payment Life, Illinois Standard, Age Limit 81. In Year

Age	1	2	3	4	5
20	0.02	0.03	0.04	0.05	0.05
25	.06	.12	.13	.10	.05
30	.06	.09	.11	.09	.05
35	.08	.13	.15	.12	.07
40	.07	.07	.07	.07	.07
45	.15	.20	.24	.28	.31
50	.61	.92	.94	.96	.95
55	2.16	3.94	5.60	7.10	8.41
60	9.03	16.73	24.30	31.57	38.24

Age	6	7	8	9	10
20	0.05	0.04	0.04	0.03	0.02
25	.02	.02	.02	.02	.02
30	.04	.03	.03	.03	.03
35	.05	.05	.05	.05	.05
40	.07	.07	.07	.07	.07
45	.35	.35	.34	.32	.28
50	.93	.91	.87	.81	.74
55	9.21	9.90	10.46	10.38	9.73
60	43.88	47.94	49.84	48.94	45.01

Age	11	12	13	14	15
20	0.01	0.01	0.01	0.01	0.00
25	.02	.02	.02	.02	.00
30	.03	.03	.03	.03	.00
35	.05	.05	.05	.05	.00
40	.07	.07	.07	.07	.00
45	.23	.16	.13	.13	.00
50	.65	.55	.46	.38	.00
55	8.38	6.31	3.83	1.91	.00
60	37.75	27.36	15.72	7.52	.00

MEAN RESERVES FOR WAIVER OF PREMIUM

TEN-PAYMENT LIFE, ILLINOIS STANDARD, AGE LIMIT 81. IN YEAR

Age	1	2	3	4	5
20..............	0.02	0.02	0.02	0.02	0.02
25..............	.02	.02	.02	.02	.02
30..............	.03	.03	.03	.03	.03
35..............	.05	.05	.05	.05	.05
40..............	.07	.07	.07	.07	07
45..............	.11	.11	.11	.11	.11
50..............	.51	.93	1.13	1.11	.85
55..............	.95	1.39	1.66	1.76	1.65
60..............	3.57	5.67	7.63	8.66	8.89

Age	6	7	8	9	10
20..............	0.02	0.01	0.01	0.01	0.00
25..............	.02	.02	.02	.02	0.00
30..............	.03	.03	.03	.03	0.00
35..............	.05	.05	.05	.05	0.00
40..............	.07	.07	.07	.07	0.00
45..............	.11	.11	.11	.11	0.00
50..............	.45	.22	.22	.22	0.00
55..............	1.34	.92	.69	.69	0.00
60..............	8.13	6.37	4.12	4.12	0.00

MEAN RESERVES FOR WAIVER OF PREMIUM

TWENTY-YEAR ENDOWMENT, ILLINOIS STANDARD, AGE LIMIT 81. IN YEAR

Age	1	2	3	4	5
20	0.04	0.06	0.09	0.11	0.13
25	.05	.07	.08	.12	.13
30	.07	.09	.11	.13	.14
35	.09	.13	.15	.17	.17
40	.14	.20	.26	.31	.35
45	.38	.64	.91	1.18	1.43
50	1.31	2.62	3.81	4.88	6.09
55	4.92	9.60	14.34	19.11	23.88
60	14.43	27.95	41.75	55.80	69.84

Age	6	7	8	9	10
20	0.04	0.14	0.14	0.13	0.11
25	.14	.14	.14	.13	.11
30	.15	.15	.14	.13	.11
35	.17	.17	.16	.14	.11
40	.39	.42	.45	.47	.49
45	1.71	1.95	2.19	2.40	2.57
50	7.28	8.41	9.44	10.33	11.05
55	28.55	33.13	37.56	41.74	45.44
60	83.57	96.53	108.24	118.04	125.55

Age	11	12	13	14	15
20	0.09	0.08	0.06	0.04	0.03
25	.09	.08	.06	.05	.03
30	.09	.08	.06	.06	.05
35	.09	.08	.07	.07	.07
40	.49	.48	.46	.42	.36
45	2.68	2.72	2.65	2.46	2.15
50	11.36	11.54	11.59	11.10	10.43
55	48.34	49.96	49.92	47.69	43.07
60	130.05	130.65	126.30	116.15	102.22

Age	16	17	18	19	20
20	0.03	0.03	0.03	0.03	0.00
25	.03	.03	.03	.03	0.00
30	.05	.05	.05	.05	0.00
35	.07	.07	.07	.07	0.00
40	.29	.20	.13	.11	0.00
45	1.70	1.17	.68	.20	0.00
50	8.55	6.35	3.77	.73	0.00
55	35.80	25.95	14.84	2.59	0.00
60	85.60	64.39	36.88	7.72	0.00

MEAN RESERVES FOR WAIVER OF PREMIUM

FIFTEEN-YEAR ENDOWMENT, ILLINOIS STANDARD, AGE LIMIT 81. IN YEAR

Age	1	2	3	4	5
20	0.04	0.06	0.08	0.09	0.10
25	.12	.23	.24	.20	.10
30	.10	.16	.24	.17	.09
35	.12	.21	.25	.20	.11
40	.11	.11	.11	.11	.11
45	.21	.28	.34	.39	.44
50	.77	1.13	1.17	1.20	1.19
55	2.49	4.53	6.43	8.17	9.67
60	9.76	18.09	26.27	34.12	41.33

Age	6	7	8	9	10
20	0.10	0.08	0.07	0.05	0.03
25	.04	.04	.04	.04	.04
30	.07	.06	.06	.06	.06
35	.08	.08	.08	.08	.08
40	.11	.11	.11	.11	.11
45	.47	.48	.47	.44	.39
50	1.16	1.13	1.08	1.01	.93
55	10.60	11.39	12.03	11.94	11.19
60	47.44	51.82	53.38	52.90	48.66

Age	11	12	13	14	15
20	0.02	0.02	0.02	0.02	0.00
25	.04	.04	.04	.04	0.00
30	.06	.06	.06	.06	0.00
35	.08	.08	.08	.08	0.00
40	.11	.11	.11	.11	0.00
45	.31	.22	.18	.18	0.00
50	.82	.69	.57	.47	0.00
55	9.63	7.25	4.40	2.19	0.00
60	40.81	29.58	17.00	8.13	0.00

MEAN RESERVES FOR WAIVER OF PREMIUM

TEN-YEAR ENDOWMENT, ILLINOIS STANDARD, AGE LIMIT 81. IN YEAR

Age	1	2	3	4	5
20	0.03	.05	0.05	0.05	0.05
25	.04	.04	.04	.04	.04
30	.06	.06	.06	.06	.06
35	.09	.09	.09	.09	.09
40	.12	.12	.12	.12	.12
45	.16	.16	.16	.16	.16
50	.71	1.30	1.59	1.56	1.19
55	1.21	1.78	2.13	2.25	2.12
60	4.21	6.67	8.98	10.19	10.46

Age	6	7	8	9	10
20	0.03	0.02	0.02	0.02	0.00
25	.04	.04	.04	.04	0.00
30	.06	.06	.06	.06	0.00
35	.09	.09	.09	.09	0.00
40	.12	.12	.12	.12	0.00
45	.16	.16	.16	.16	0.00
50	.62	.30	.30	.30	0.00
55	1.72	1.18	.89	.89	0.00
60	9.57	7.50	4.85	3.38	0.00

MEAN RESERVES FOR WAIVER OF PREMIUM

Ordinary Life, Illinois Standard, Age Limit 60. In Year

Age	1	2	3	4	5
20	0.05	0.10	0.15	0.20	0.25
21	.05	.10	.15	.20	.25
22	.06	.11	.16	.21	.26
23	.06	.11	.16	.22	.26
24	.07	.12	.17	.23	.27
25	.07	.12	.18	.24	.28
26	.07	.12	.19	.25	.30
27	.08	.13	.20	.26	.32
28	.08	.14	.21	.28	.34
29	.08	.15	.22	.30	.36
30	.09	.16	.24	.32	.39
31	.09	.17	.25	.34	.41
32	.10	.18	.27	.36	.44
33	.11	.19	.29	.38	.47
34	.12	.21	.31	.40	.50
35	.13	.23	.33	.43	.53
36	.13	.23	.33	.44	.54
37	.14	.25	.36	.47	.57
38	.16	.27	.39	.50	.61
39	.17	.28	.40	.52	.64
40	.18	.31	.44	.57	.69
41	.19	.33	.47	.60	.74
42	.21	.36	.51	.66	.86
43	.22	.38	.55	.71	.88
44	.25	.42	.60	.78	.96
45	.27	.46	.66	.86	1.05
46	.29	.51	.72	.94	1.14
47	.33	.57	.81	1.04	1.25
48	.36	.62	.88	1.12	1.35
49	.41	.70	.97	1.23	1.45
50	.45	.77	1.06	1.32	1.55
51	.49	.87	1.17	1.46	1.65
52	.56	.92	1.25	1.50	1.63
53	.63	1.02	1.33	1.52	1.52
54	.68	1.07	1.37	1.46	1.30
55	.77	1.14	1.34	1.27	0.85
56	.86	1.16	1.20	0.90	....
57	.93	1.12	0.95	....	....
58	1.00	1.00	....	....	....
59	1.05	....	....	....	....

MEAN RESERVES FOR WAIVER OF PREMIUM—*Continued*

Age	6	7	8	9	10
20	0.30	0.35	0.40	0.44	0.49
21	.31	.36	.41	.46	.51
22	.32	.37	.42	.48	.53
23	.33	.38	.44	.50	.55
24	.34	.40	.46	.52	.57
25	.36	.42	.48	.54	.60
26	.38	.44	.50	.57	.63
27	.40	.46	.53	.60	.66
28	.42	.49	.56	.63	.69
29	.44	.52	.59	.66	.72
30	.47	.55	.62	.69	.76
31	.50	.58	.65	.73	.80
32	.53	.61	.68	.77	.84
33	.56	.64	.72	.81	.88
34	.59	.67	.76	.85	.93
35	.62	.71	.80	.89	.98
36	.65	.73	.83	.93	1.02
37	.68	.78	.88	.98	1.09
38	.72	.83	.94	1.05	1.16
39	.76	.88	1.00	1.12	1.24
40	.82	.95	1.08	1.20	1.33
41	.88	1.02	1.16	1.29	1.42
42	.96	1.11	1.25	1.39	1.52
43	1.04	1.20	1.35	1.49	1.61
44	1.14	1.30	1.45	1.59	1.70
45	1.28	1.40	1.56	1.64	1.78
46	1.33	1.51	1.65	1.76	1.81
47	1.44	1.61	1.74	1.81	1.77
48	1.55	1.70	1.79	1.77	1.61
49	1.63	1.76	1.77	1.63	1.28
50	1.70	1.75	1.63	1.29	0.68
51	1.72	1.63	1.32	0.71	....
52	1.59	1.32	0.75	....	....
53	1.32	0.78	....	....	....
54	0.82	....	....	....	....

MEAN RESERVES FOR WAIVER OF PREMIUM—*Continued*

ORDINARY LIFE, ILLINOIS STANDARD, AGE LIMIT 60. IN YEAR

Age	11	12	13	14	15
20	0.54	0.59	0.64	0.69	0.73
21	.56	.61	.66	.72	.76
22	.58	.63	.69	.75	.79
23	.60	.66	.72	.78	.82
24	.63	.69	.75	.81	.85
25	.66	.72	.78	.84	.89
26	.69	.75	.81	.88	.93
27	.72	.78	.85	.92	.97
28	.75	.82	.89	.96	1.01
29	.79	.86	.93	1.00	1.05
30	.83	.90	.97	1.04	1.10
31	.87	.95	1.02	1.09	1.16
32	.92	1.00	1.07	1.14	1.22
33	.97	1.05	1.12	1.20	1.28
34	1.02	1.10	1.18	1.26	1.34
35	1.07	1.16	1.24	1.32	1.41
36	1.12	1.21	1.31	1.45	1.48
37	1.19	1.29	1.38	1.47	1.55
38	1.27	1.37	1.47	1.56	1.62
39	1.35	1.45	1.55	1.63	1.68
40	1.44	1.54	1.63	1.70	1.73
41	1.54	1.63	1.70	1.73	1.73
42	1.63	1.71	1.76	1.75	1.66
43	1.71	1.77	1.77	1.68	1.48
44	1.78	1.79	1.71	1.51	1.13
45	1.81	1.74	1.54	1.17	0.55
46	1.76	1.57	1.19	0.57	....
47	1.59	1.22	0.60	....	....
48	1.29	0.62	....	....	....
49	0.65	....	....	....	....

MEAN RESERVES FOR WAIVER OF PREMIUM—*Continued*

Age	16	17	18	19	20
20	0.78	0.83	0.88	0.93	0.97
21	.81	.86	.91	.96	1.01
22	.84	.89	.94	.99	1.05
23	.87	.92	.97	1.02	1.09
24	.90	.95	1.00	1.05	1.14
25	.94	.99	1.04	1.09	1.19
26	.98	1.03	1.08	1.14	1.23
27	1.02	1.07	1.13	1.19	1.27
28	1.06	1.12	1.18	1.24	1.31
29	1.11	1.17	1.23	1.29	1.35
30	1.16	1.22	1.28	1.34	1.40
31	1.22	1.28	1.34	1.39	1.44
32	1.28	1.34	1.40	1.44	1.48
33	1.34	1.41	1.46	1.50	1.52
34	1.41	1.48	1.53	1.56	1.57
35	1.48	1.55	1.60	1.62	1.62
36	1.55	1.60	1.63	1.63	1.59
37	1.61	1.65	1.66	1.61	1.51
38	1.67	1.68	1.65	1.54	1.32
39	1.70	1.67	1.57	1.33	0.99
40	1.70	1.60	1.37	1.02	0.45
41	1.64	1.45	1.05	0.47	....
42	1.45	1.07	0.49	....	....
43	1.10	0.51	....	....	....
44	0.53	....	....	....	....

MEAN RESERVES FOR WAIVER OF PREMIUM

TWENTY-PAYMENT LIFE, ILLINOIS STANDARD, AGE LIMIT 60. IN YEAR

Age	1	2	3	4	5	6	7
20	0.02	0.04	0.05	0.06	0.07	0.07	0.07
21	.02	.04	.05	.06	.07	.07	.07
22	.02	.04	.05	.06	.07	.07	.07
23	.02	.04	.05	.06	.07	.07	.07
24	.03	.05	.05	.06	.07	.07	.07
25	.03	.05	.05	.06	.07	.07	.07
26	.03	.05	.05	.07	.07	.07	.07
27	.03	.05	.05	.07	.07	.07	.07
28	.04	.06	.07	.08	.08	.08	.08
29	.04	.06	.07	.08	.08	.08	.08
30	.04	.06	.07	.08	.09	.09	.09
31	.05	.07	.08	.09	.09	.09	.09
32	.05	.07	.08	.09	.09	.09	.09
33	.06	.08	.09	.10	.10	.10	.10
34	.06	.08	.10	.11	.11	.11	.11
35	.07	.09	.11	.12	.12	.12	.12
36	.07	.10	.12	.13	.13	.14	.13
37	.07	.10	.12	.13	.14	.15	.14
38	.08	.11	.14	.16	.17	.18	.18
39	.10	.13	.16	.19	.21	.22	.23
40	.11	.16	.20	.25	.26	.29	.32
41	.13	.19	.24	.30	.35	.39	.44
42	.16	.24	.32	.39	.46	.54	.61
43	.18	.29	.39	.49	.58	.68	.77
44	.21	.34	.47	.59	.72	.83	.94
45	.25	.40	.55	.70	.85	.99	1.11
46	.28	.46	.64	.82	.99	1.14	1.27
47	.32	.54	.75	.95	1.13	1.30	1.43
48	.36	.61	.85	1.07	1.27	1.44	1.57
49	.41	.69	.95	1.19	1.42	1.58	1.67
50	.46	.77	1.05	1.31	1.52	1.66	1.69
51	.52	.86	1.16	1.42	1.61	1.68	1.59
52	.58	.95	1.27	1.52	1.64	1.59	1.32
53	.65	1.05	1.37	1.56	1.56	1.34	0.80
54	.74	1.14	1.41	1.50	1.34	0.85	....
55	.82	1.20	1.38	1.30	0.89	....	....
56	.90	1.20	1.25	0.94	....	....	....
57	.96	1.16	0.99	....	....	....	....
58	1.04	1.04	....	....	....	....	....
59	1.09	....	....	....	....	....	....

MEAN RESERVES FOR WAIVER OF PREMIUM—*Continued*

Age	8	9	10	11	12	13	14
20.......	0.07	0.07	0.06	0.05	0.05	0.04	0.03
21.......	.07	.07	.06	.05	.05	.04	.03
22.......	.07	.07	.06	.05	.05	.04	.03
23.......	.07	.07	.06	.05	.05	.04	.03
24.......	.07	.07	.06	.05	.05	.04	.03
25.......	.07	.07	.06	.05	.05	.04	.03
26.......	.07	.07	.06	.05	.05	.04	.03
27.......	.07	.07	.06	.05	.05	.04	.03
28.......	.08	.07	.06	.05	.05	.04	.03
29.......	.08	.07	.06	.05	.05	.04	.03
30.......	.09	.08	.07	.05	.05	.04	.03
31.......	.09	.08	.07	.05	.05	.04	.03
32.......	.10	.09	.07	.06	.05	.04	.04
33.......	.10	.09	.07	.06	.05	.04	.04
34.......	.11	.10	.08	.07	.06	.05	.05
35.......	.11	.10	.08	.07	.06	.05	.05
36.......	.12	.11	.10	.08	.07	.06	.05
37.......	.14	.13	.12	.10	.09	.08	.06
38.......	.18	.18	.17	.16	.15	.14	.11
39.......	.24	.25	.25	.25	.24	.22	.20
40.......	.34	.36	.37	.38	.37	.35	.32
41.......	.48	.51	.54	.55	.54	.53	.49
42.......	.72	.72	.76	.79	.79	.72	.72
43.......	.85	.92	.97	1.00	.97	.96	.88
44.......	1.04	1.11	1.17	1.19	1.17	1.08	.91
45.......	1.22	1.30	1.34	1.34	1.26	1.08	.80
46.......	1.38	1.45	1.47	1.40	1.22	0.96	.46
47.......	1.52	1.56	1.52	1.34	1.01	0.51	....
48.......	1.63	1.60	1.43	1.10	0.57	....	....
49.......	1.66	1.51	1.18	0.62	....	....	....
50.......	1.56	1.24	0.66	....	....	....	....
51.......	1.28	0.71	....	....	....	....	....
52.......	0.76	....	....	....	....	....	....

MEAN RESERVES FOR WAIVER OF PREMIUM—*Continued*

TWENTY-PAYMENT LIFE, ILLINOIS STANDARD, AGE LIMIT 60. IN YEAR

Age	15	16	17	18	19
20	0.02	0.02	0.02	0.02	0.02
21	.02	.02	.02	.02	.02
22	.02	.02	.02	.02	.02
23	.02	.02	.02	.02	.02
24	.02	.02	.02	.02	.02
25	.02	.02	.02	.02	.02
26	.02	.02	.02	.02	.02
27	.03	.03	.03	.03	.03
28	.03	.03	.03	.03	.03
29	.03	.03	.03	.03	.03
30	.03	.03	.03	.03	.03
31	.04	.04	.04	.04	.04
32	.04	.04	.04	.04	.04
33	.04	.04	.04	.04	.04
34	.05	.05	.05	.05	.05
35	.05	.05	.05	.05	.05
36	.06	.06	.06	.06	.05
37	.06	.06	.06	.06	.06
38	.09	.07	.07	.07	.07
39	.17	.13	.09	.08	.08
40	.27	.22	.15	.10	.09
41	.43	.35	.24	.14	.10
42	.63	.50	.32	.19	....
43	.73	.52	.27	....	....
44	.66	.33	....	....	....
45	.55	....	....	....	....

MEAN RESERVES FOR WAIVER OF PREMIUM

FIFTEEN-PAYMENT LIFE, ILLINOIS STANDARD, AGE LIMIT 60. IN YEAR

Age	1	2	3	4	5	6	7
20	0.03	0.03	0.03	0.03	0.03	0.02	0.02
21	.03	.03	.03	.03	.03	.02	.02
22	.03	.03	.03	.03	.03	.02	.02
23	.03	.03	.03	.03	.03	.02	.02
24	.03	.03	.03	.03	.03	.02	.02
25	.03	.03	.03	.03	.03	.02	.02
26	.03	.03	.03	.03	.03	.02	.02
27	.03	.03	.03	.03	.03	.02	.02
28	.03	.03	.03	.03	.03	.02	.02
29	.03	.03	.03	.03	.03	.02	.02
30	.04	.04	.04	.03	.03	.03	.03
31	.04	.04	.04	.04	.04	.04	.04
32	.04	.04	.04	.04	.04	.04	.04
33	.04	.04	.04	.04	.04	.04	.04
34	.05	.05	.05	.04	.04	.04	.04
35	.05	.05	.05	.05	.05	.05	.05
36	.05	.05	.05	.05	.05	.05	.05
37	.06	.06	.06	.06	.06	.06	.06
38	.06	.06	.06	.06	.06	.06	.06
39	.07	.07	.07	.07	.07	.07	.07
40	.07	.07	.07	.07	.07	.07	.07
41	.08	.08	.08	.08	.08	.08	.08
42	.09	.09	.09	.09	.09	.09	.09
43	.11	.12	.13	.13	.13	.13	.13
44	.13	.15	.17	.19	.21	.22	.22
45	.15	.20	.24	.28	.31	.35	.35
46	.19	.27	.35	.41	.47	.51	.53
47	.25	.37	.49	.59	.68	.75	.80
48	.30	.47	.63	.77	.89	.98	1.04
49	.36	.58	.77	.94	1.09	1.19	1.24
50	.43	.68	.90	1.10	1.26	1.36	1.35
51	.49	.79	1.05	1.27	1.42	1.46	1.36
52	.57	.91	1.18	1.40	1.51	1.44	1.19
53	.65	1.02	1.32	1.49	1.42	1.20	0.77
54	.75	1.14	1.39	1.46	1.30	0.84	....
55	.83	1.19	1.39	1.30	0.91	....	....
56	.93	1.23	1.27	0.97	....	....	....
57	1.01	1.20	1.03	....	....	....	....
58	1.09	1.09	....	....	....	....	....
59	1.15	....	....	....	....	....	....

MEAN RESERVES FOR WAIVER OF PREMIUM—*Continued*

FIFTEEN-PAYMENT LIFE, ILLINOIS STANDARD, AGE LIMIT 60. IN YEAR

Age	8	9	10	11	12	13	14
20	0.02	0.02	0.02	0.01	0.01	0.01	0.01
21	.02	.02	.02	.01	.01	.01	.01
22	.02	.02	.02	.01	.01	.01	.01
23	.02	.02	.02	.01	.01	.01	.01
24	.02	.02	.02	.01	.01	.01	.01
25	.02	.02	.02	.02	.02	.02	.02
26	.02	.02	.02	.02	.02	.02	.02
27	.02	.02	.02	.02	.02	.02	.02
28	.02	.02	.02	.02	.02	.02	.02
29	.02	.02	.02	.02	.02	.02	.02
30	.03	.03	.03	.03	.03	.03	.03
31	.03	.03	.03	.03	.03	.03	.03
32	.03	.03	.03	.03	.03	.03	.03
33	.04	.04	.04	.04	.04	.04	.04
34	.04	.04	.04	.04	.04	.04	.04
35	.05	.05	.05	.05	.05	.05	.05
36	.05	.05	.05	.05	.05	.05	.05
37	.06	.06	.06	.06	.06	.06	.06
38	.06	.06	.06	.06	.06	.06	.06
39	.07	.07	.07	.07	.07	.07	.07
40	.07	.07	.07	.07	.07	.07	.07
41	.08	.08	.08	.08	.08	.08	.08
42	.09	.09	.09	.09	.09	.09	.09
43	.12	.11	.10	.10	.10	.10	.10
44	.20	.18	.15	.12	.11	.11	.11
45	.34	.32	.28	.23	.16	.13	.13
46	.54	.51	.46	.38	.26	.18	.18
47	.81	.79	.72	.58	.41	.25	....
48	1.05	.99	.85	.63	.36	....	....
49	1.20	1.06	.81	.46	....	....	....
50	1.23	.96	.59	....	....	....	....
51	1.09	.62	....	....	....	....	....
52	0.70	....	....	....	....	....	....

MEAN RESERVES FOR WAIVER OF PREMIUM

TEN-PAYMENT LIFE, ILLINOIS STANDARD, AGE LIMIT 60. IN YEAR

Age	1	2	3	4	5
20	0.02	0.02	0.02	0.02	0.02
21	.02	.02	.02	.02	.02
22	.02	.02	.02	.02	.02
23	.02	.02	.02	.02	.02
24	.02	.02	.02	.02	.02
25	.02	.02	.02	.02	.02
26	.02	.02	.02	.02	.02
27	.02	.02	.02	.02	.02
28	.02	.02	.02	.02	.02
29	.02	.02	.02	.02	.02
30	.03	.03	.03	.03	.03
31	.03	.03	.03	.03	.03
32	.03	.03	.03	.03	.03
33	.04	.04	.04	.04	.04
34	.04	.04	.04	.04	.04
35	.05	.05	.05	.05	.05
36	.05	.05	.05	.05	.05
37	.05	.05	.05	.05	.05
38	.06	.06	.06	.06	.06
39	.06	.06	.06	.06	.06
40	.07	.07	.07	.07	.07
41	.07	.07	.07	.07	.07
42	.08	.08	.08	.08	.08
43	.09	.09	.09	.09	.09
44	.10	.10	.10	.10	.10
45	.11	.11	.11	.11	.11
46	.12	.12	.12	.12	.12
47	.14	.15	.15	.15	.15
48	.17	.18	.19	.19	.19
49	.20	.23	.24	.24	.23
50	.25	.29	.30	.30	.28
51	.31	.40	.45	.47	.45
52	.42	.58	.69	.76	.75
53	.53	.75	.92	.98	.92
54	.67	.95	1.11	1.12	.98
55	.82	1.11	1.20	1.11	.82
56	.92	1.24	1.26	.94	....
57	1.18	1.35	1.06	....	....
58	1.25	1.25	....	....	....
59	1.26	......	....	....	....

MEAN RESERVES FOR WAIVER OF PREMIUM—*Continued*

TEN-PAYMENT LIFE, ILLINOIS STANDARD, AGE LIMIT 60. IN YEAR

Age	6	7	8	9
20	0.02	0.01	0.01	0.01
21	.02	.01	.01	.01
22	.02	.01	.01	.01
23	.02	.01	.01	.01
24	.02	.01	.01	.01
25	.02	.02	.02	.02
26	.02	.02	.02	.02
27	.02	.02	.02	.02
28	.03	.03	.03	.03
29	.03	.03	.03	.03
30	.03	.03	.03	.03
31	.03	.03	.03	.03
32	.04	.04	.04	.04
33	.04	.04	.04	.04
34	.04	.04	.04	.04
35	.05	.05	.05	.05
36	.05	.05	.05	.05
37	.05	.05	.05	.05
38	.06	.06	.06	.06
39	.06	.06	.06	.06
40	.07	.07	.07	.07
41	.07	.07	.07	.07
42	.08	.08	.08	.08
43	.09	.09	.09	.09
44	.10	.10	.10	.10
45	.11	.11	.11	.11
46	.12	.12	.12	.12
47	.14	.14	.14	.14
48	.17	.16	.16	.16
49	.20	.19	.19	.19
50	.24	.22	.22	.22
51	.38	.30	.27	.27
52	.65	.45	.38	....
53	.77	.54	....	....
54	.69	....	....	....

MEAN RESERVES FOR WAIVER OF PREMIUM

Twenty-Year Endowment, Illinois Standard, Age Limit 60. In Year

Age	1	2	3	4	5	6	7
20	0.04	0.06	0.08	0.09	0.10	0.11	0.11
21	.04	.06	.08	.09	.10	.11	.11
22	.04	.06	.08	.09	.10	.11	.11
23	.05	.07	.09	.10	.11	.12	.12
24	.05	.07	.09	.10	.11	.12	.12
25	.06	.08	.10	.11	.12	.13	.13
26	.06	.08	.10	.11	.12	.13	.13
27	.06	.08	.10	.12	.12	.13	.13
28	.07	.09	.11	.12	.13	.14	.14
29	.07	.09	.11	.12	.13	.14	.14
30	.07	.09	.11	.13	.14	.15	.15
31	.08	.10	.12	.13	.14	.15	.15
32	.08	.10	.12	.14	.14	.15	.15
33	.08	.11	.13	.15	.15	.16	.16
34	.09	.12	.14	.16	.16	.16	.16
35	.09	.13	.15	.17	.17	.17	.17
36	.10	.14	.15	.18	.18	.18	.18
37	.10	.14	.16	.18	.20	.20	.20
38	.11	.15	.19	.21	.23	.24	.24
39	.13	.18	.22	.26	.28	.30	.32
40	.14	.20	.26	.31	.35	.39	.42
41	.17	.25	.32	.39	.45	.51	.57
42	.20	.31	.40	.50	.59	.68	.77
43	.23	.36	.49	.62	.74	.86	.97
44	.26	.42	.58	.73	.89	1.03	1.17
45	.30	.48	.67	.85	1.03	1.20	1.35
46	.34	.56	.77	.98	1.19	1.37	1.58
47	.38	.64	.88	1.12	1.34	1.53	1.69
48	.42	.71	.98	1.24	1.48	1.68	1.83
49	.47	.79	1.09	1.36	1.63	1.82	1.91
50	.52	.87	1.19	1.48	1.72	1.88	1.91
51	.58	.96	1.30	1.59	1.80	1.88	1.78
52	.64	1.04	1.40	1.67	1.80	1.75	1.45
53	.71	1.14	1.49	1.69	1.70	1.46	0.87
54	.79	1.23	1.52	1.61	1.44	0.92	....
55	.87	1.27	1.47	1.39	0.95	....	....
56	.94	1.27	1.32	0.99	....	....	....
57	1.01	1.22	1.09	....	....	....	....
58	1.08	1.08	....	....	....	....	....
59	1.12	....	....	....	....	....	....

MEAN RESERVES FOR WAIVER OF PREMIUM—*Continued*

TWENTY-YEAR ENDOWMENT, ILLINOIS STANDARD, AGE LIMIT 60. IN YEAR

Age	8	9	10	11	12	13	14
20.......	0.14	0.13	0.11	0.09	0.07	0.05	0.04
21.......	.14	.13	.11	.09	.07	.05	.04
22.......	.14	.13	.11	.09	.07	.05	.04
23.......	.14	.13	.11	.09	.07	.05	.04
24.......	.14	.13	.11	.09	.07	.05	.04
25.......	.14	.13	.11	.09	.07	.05	.04
26.......	.14	.13	.11	.09	.07	.05	.04
27.......	.14	.13	.11	.09	.07	.05	.04
28.......	.14	.13	.11	.09	.07	.05	.05
29.......	.14	.13	.11	.09	.07	.05	.05
30.......	.14	.13	.11	.09	.07	.05	.05
31.......	.14	.13	.11	.09	.07	.05	.05
32.......	.14	.13	.11	.09	.07	.05	.05
33.......	.15	.13	.11	.09	.07	.05	.05
34.......	.15	.13	.11	.09	.07	.06	.06
35.......	.16	.14	.11	.09	.07	.07	.07
36.......	.18	.16	.14	.12	.10	.09	.08
37.......	.20	.19	.17	.15	.13	.11	.09
38.......	.24	.24	.24	.22	.21	.19	.15
39.......	.33	.33	.33	.33	.32	.30	.26
40.......	.45	.47	.49	.48	.46	.42	.36
41.......	.62	.66	.69	.71	.71	.69	.64
42.......	.85	.92	.97	1.00	1.01	.99	.92
43.......	1.08	1.16	1.22	1.26	1.26	1.21	1.10
44.......	1.25	1.38	1.44	1.46	1.44	1.34	1.13
45.......	1.48	1.58	1.63	1.62	1.53	1.31	0.97
46.......	1.66	1.74	1.76	1.68	1.46	1.10	.55
47.......	1.80	1.84	1.79	1.58	1.20	0.61	....
48.......	1.90	1.87	1.67	1.28	0.66	....	....
49.......	1.91	1.73	1.35	0.71	....	....	....
50.......	1.77	1.40	0.75	....	....	....	....
51.......	1.44	0.79	....	....	....	....	....
52.......	0.83	....	....	....	....	....	....

MEAN RESERVES FOR WAIVER OF PREMIUM—*Continued*

Age	15	16	17	18	19
20	0.03	0.02	0.02	0.02	0.02
21	.03	.02	.02	.02	.02
22	.03	.02	.02	.02	.02
23	.03	.03	.03	.03	.03
24	.03	.03	.03	.03	.03
25	.04	.04	.04	.04	.04
26	.04	.04	.04	.04	.04
27	.04	.04	.04	.04	.04
28	.04	.04	.04	.04	.04
29	.04	.04	.04	.04	.04
30	.05	.05	.05	.05	.05
31	.05	.05	.05	.05	.05
32	.05	.05	.05	.05	.05
33	.06	.06	.06	.06	.06
34	.06	.06	.06	.06	.06
35	.07	.07	.07	.07	.07
36	.08	.08	.08	.08	.08
37	.08	.08	.08	.08	.08
38	.12	.10	.09	.09	.09
39	.22	.17	.12	.10	.10
40	.36	.29	.20	.13	.11
41	.56	.45	.31	.18	.13
42	.81	.64	.43	.24	....
43	.91	.66	.33	....	....
44	.82	.41	....	....	....
45	.48	....	....	....	....

MEAN RESERVES FOR WAIVER OF PREMIUM

FIFTEEN-YEAR ENDOWMENT, ILLINOIS STANDARD, AGE LIMIT 60. IN YEAR

Age	1	2	3	4	5	6	7
20	0.05	0.06	0.06	0.06	0.05	0.04	0.04
21	.05	.06	.06	.06	.05	.04	.04
22	.05	.06	.06	.06	.05	.04	.04
23	.05	.06	.06	.06	.05	.04	.04
24	.05	.06	.06	.06	.05	.04	.04
25	.05	.06	.06	.06	.05	.04	.04
26	.05	.06	.06	.06	.05	.05	.05
27	.05	.06	.06	.06	.05	.05	.05
28	.06	.07	.07	.07	.06	.06	.05
29	.06	.07	.07	.07	.06	.06	.06
30	.06	.07	.07	.07	.06	.06	.06
31	.06	.07	.07	.07	.06	.06	.06
32	.07	.08	.08	.08	.07	.07	.07
33	.07	.08	.09	.08	.07	.07	.07
34	.08	.09	.09	.09	.08	.08	.07
35	.08	.09	.10	.09	.08	.08	.08
36	.09	.09	.10	.09	.08	.08	.08
37	.09	.09	.10	.09	.09	.09	.09
38	.10	.10	.10	.10	.09	.09	.09
39	.10	.10	.10	.10	.10	.10	.10
40	.11	.11	.11	.11	.11	.11	.11
41	.12	.12	.13	.14	.14	.14	.14
42	.13	.14	.15	.17	.17	.17	.16
43	.15	.16	.18	.19	.19	.19	.18
44	.18	.21	.24	.27	.29	.30	.30
45	.21	.28	.34	.39	.44	.47	.48
46	.25	.36	.46	.55	.63	.68	.71
47	.32	.49	.64	.78	.90	.99	1.00
48	.38	.60	.81	.99	1.15	1.26	1.34
49	.46	.73	.97	1.19	1.37	1.48	1.57
50	.53	.84	1.13	1.38	1.58	1.69	1.69
51	.60	.97	1.29	1.55	1.74	1.79	1.67
52	.69	1.09	1.43	1.68	1.81	1.74	1.43
53	.78	1.22	1.56	1.86	1.69	1.43	0.92
54	.87	1.32	1.62	1.70	1.51	0.98	....
55	.95	1.37	1.57	1.49	1.04	....	....
56	1.05	1.40	1.44	1.10	....	....	....
57	1.13	1.34	1.15	....	....	....	....
58	1.21	1.21	....	....	....	....	....
59	1.26	....	....	....	....	....	....

MEAN RESERVES FOR WAIVER OF PREMIUM—*Continued*

Age	8	9	10	11	12	13	14
20........	0.04	0.04	0.04	0.04	0.04	0.04	0.04
21........	.04	.04	.04	.04	.04	.04	.04
22........	.04	.04	.04	.04	.04	.04	.04
23........	.04	.04	.04	.04	.04	.04	.04
24........	.04	.04	.04	.04	.04	.04	.04
25........	.04	.04	.04	.04	.04	.04	.04
26........	.05	.05	.05	.05	.05	.05	.05
27........	.05	.05	.05	.05	.05	.05	.05
28........	.05	.05	.05	.05	.05	.05	.05
29........	.06	.06	.06	.06	.06	.06	.06
30........	.06	.06	.06	.06	.06	.06	.06
31........	.06	.06	.06	.06	.06	.06	.06
32........	.07	.07	.07	.07	.07	.07	.07
33........	.07	.07	.07	.07	.07	.07	.07
34........	.07	.07	.07	.07	.07	.07	.07
35........	.08	.08	.08	.08	.08	.08	.08
36........	.08	.08	.08	.08	.08	.08	.08
37........	.09	.09	.09	.09	.09	.09	.09
38........	.09	.09	.09	.09	.09	.09	.09
39........	.10	.10	.10	.10	.10	.10	.10
40........	.11	.11	.11	.11	.11	.11	.11
41........	.13	.12	.12	.12	.12	.12	.12
42........	.15	.14	.13	.13	.13	.13	.13
43........	.16	.15	.14	.14	.14	.14	.14
44........	.29	.26	.21	.17	.16	.16	.16
45........	.47	.44	.39	.31	.22	.18	.18
46........	.71	.68	.62	.50	.35	.24	.24
47........	1.07	1.04	.94	.76	.54	.33	....
48........	1.35	1.27	1.09	.81	.46	....	....
49........	1.52	1.34	1.03	.58	....	....	....
50........	1.53	1.20	0.68	....	....	....	....
51........	1.33	0.76	....	....	....	....	....
52........	0.85	....	....	....	....	....	....

MEAN RESERVES FOR WAIVER OF PREMIUM

TEN-YEAR ENDOWMENT, ILLINOIS STANDARD, AGE LIMIT 60. IN YEAR

Age	1	2	3	4	5
20	0.04	0.04	0.04	0.04	0.04
21	.04	.04	.04	.04	.04
22	.04	.04	.04	.04	.04
23	.04	.04	.04	.04	.04
24	.04	.04	.04	.04	.04
25	.04	.04	.04	.04	.04
26	.04	.04	.04	.04	.04
27	.04	.04	.04	.04	.04
28	.05	.05	.05	.05	.05
29	.05	.05	.05	.05	.05
30	.06	.06	.06	.06	.06
31	.06	.06	.06	.06	.06
32	.07	.07	.07	.07	.07
33	.07	.07	.07	.07	.07
34	.08	.08	.08	.08	.08
35	.09	.09	.09	.09	.09
36	.10	.10	.10	.10	.10
37	.10	.10	.10	.10	.10
38	.11	.11	.11	.11	.11
39	.11	.11	.11	.11	.11
40	.12	.12	.12	.12	.12
41	.12	.12	.12	.12	.12
42	.13	.13	.13	.13	.13
43	.14	.14	.14	.14	.14
44	.15	.15	.15	.15	.15
45	.16	.16	.16	.16	.16
46	.18	.18	.18	.18	.18
47	.20	.20	.20	.20	.20
48	.22	.22	.22	.22	.22
49	.26	.26	.26	.26	.26
50	.30	.30	.30	.30	.30
51	.43	.55	.62	.65	.62
52	.57	.78	.94	1.02	1.01
53	.71	1.00	1.22	1.30	1.22
54	.88	1.24	1.45	1.46	1.28
55	1.02	1.39	1.54	1.43	1.05
56	1.16	1.56	1.59	1.18	....
57	1.44	1.63	1.30	....	....
58	1.52	1.52	....	....	....
59	1.51	....	....	....	....

MEAN RESERVES FOR WAIVER OF PREMIUM—*Continued*

TEN-YEAR ENDOWMENT, ILLINOIS STANDARD, AGE LIMIT 60. IN YEAR

Age	6	7	8	9
20	0.02	0.02	0.02	0.02
21	.02	.02	.02	.02
22	.03	.03	.03	.03
23	.03	.03	.03	.03
24	.03	.03	.03	.03
25	.04	.04	.04	.04
26	.04	.04	.04	.04
27	.04	.04	.04	.04
28	.05	.05	.05	.05
29	.05	.05	.05	.05
30	.06	.06	.06	.06
31	.06	.06	.06	.06
32	.07	.07	.07	.07
33	.07	.07	.07	.07
34	.08	.08	.08	.08
35	.09	.09	.09	.09
36	.09	.09	.09	.09
37	.10	.10	.10	.10
38	.10	.10	.10	.10
39	.11	.11	.11	.11
40	.12	.12	.12	.12
41	.12	.12	.12	.12
42	.13	.13	.13	.13
43	.14	.14	.14	.14
44	.15	.15	.15	.15
45	.16	.16	.16	.16
46	.18	.18	.18	.18
47	.20	.20	.20	.20
48	.22	.22	.22	.22
49	.26	.26	.26	.26
50	.30	.30	.30	.30
51	.52	.41	.37	.37
52	.88	.68	.52	....
53	1.02	.72	....	....
54	0.90	....	....	....

PART II

PAYMENT OF SUM INSURED IN CASE OF TOTAL DISABILITY

ADDITIONAL EXTRA PREMIUM REQUIRED FOR THIS PURPOSE

PAYMENT OF SUM INSURED IN CASE OF TOTAL DISABILITY

Where the benefit is extended from waiver of premiums, to the payment of the sum insured in case of total disability, whether in one sum or by instalments or in any other form, an additional extra premium must be computed to cover the case and be added to the extra for the waiver of premiums.

It is evident that in this case the company loses not only the future premiums on the policy, but also the interest on the sum insured, from the time of payment to the probable date of death.

The formulae used are substantially the same, but instead of being multiplied by the premium to be waived, are multiplied by the discount d on the sum insured. At $3\frac{1}{2}$ per cent, this discount factor is .033816 or $33.82 per $1,000.

In the case of Life policies, whether ordinary or limited-payment policies, we can use the new Commutation Column N_x^{ai} and the formulae will be as follows:

Single Premium, no age limit:

$$\frac{N_x^{ai}}{D_x^{aa}} \cdot d \qquad (10)$$

Annual Premium, ordinary Life:

$$\frac{N_x^{ai}}{N_x^{aa}} \cdot d \qquad (11)$$

Annual Premium, Limited-Payment Life:

$$\frac{N_x^{ai}}{N_x^{aa}-N_{x+n}^{aa}} \cdot d \qquad (12)$$

Where there is a limit of age $(x+t)$, the above formulae become:

$$\frac{N_x^{ai}-N_{x+t}^{ai}}{D_x^{aa}} \cdot d \qquad (13)$$

$$\frac{N_x^{ai}-N_{x+t}^{ai}}{N_x^{aa}-N_{x+t}^{aa}} \cdot d \qquad (14)$$

$$\frac{N_x^{ai}-N_{x+t}^{ai}}{N_x^{aa}-N_{x+n}^{aa}} \cdot d \qquad (15)$$

Upon Limited-Payment Life plans, when $x+n$ reaches the age limit, $x+t$, the latter must be substituted in the denominator of formula 15 above.

Upon Endowment policies the risk of the company is limited to the Endowment term, and we must resort to the other columns and formulae:

Single Premium, within the age limit:

$$\frac{N_x^{ii}-N_{x+n}^{ii}-D^{ii}\cdot \mathrm{a}_{x\,\overline{n}|}^{i}}{D_x^{aa}}\cdot d \qquad (16)$$

Annual Premium, within the age limit:

$$\frac{N_x^{ii}-N_{x+n}^{ii}-D^{ii}\cdot \mathrm{a}_{x\,\overline{n}|}^{i}}{N_x^{aa}-N_{x+n-1}^{aa}}\cdot d \qquad (17)$$

Single Premium, when age limit is passed:

$$\frac{N_x^{ii}-N_{x+t}^{ii}-D_x^{ii}\cdot \mathrm{a}_{x\,\overline{n}|}^{i}+D_{x+t}^{ii}\cdot \mathrm{a}_{x+t\,\overline{n-t}|}^{i}}{D_x^{aa}}\cdot d \qquad (18)$$

Annual Premium for same:

$$\frac{N_x^{ii}-N_{x+t}^{ii}-D_x^{ii}\cdot \mathrm{a}_{x\,\overline{n}|}^{i}+D_{x+t}^{ii}\cdot \mathrm{a}_{x+t\,\overline{n-t}|}^{i}}{N_x^{aa}-N_{x+t}^{aa}}\cdot d \qquad (19)$$

In the following tables are given the figures for limits of age 81 and 60. For any other age limit use the foregoing formulae, with the Commutation Columns. If the sum insured is to be paid by instalments, both premiums and reserves should be multiplied by the discount factor.

The instalment factors for $3\frac{1}{2}$ per cent interest may be shortened up as follows:

25	instalments	0.682
20	"	0.736
15	"	0.795
10	"	0.861
5	"	0.935

For any other method of payment the premiums and reserves may be modified as the case requires.

PAYMENT OF SUM INSURED

ADDITIONAL NET ANNUAL EXTRA PREMIUM (ILLINOIS STANDARD) PER THOUSAND DOLLARS OF INSURANCE, PAYABLE IN CASE OF TOTAL DISABILITY OCCURRING BEFORE AGE 81

Age	Life	20 P. L.	15 P. L.	10 P. L.	20 Yr. E.	15 Yr. E.	10 Yr. E.
20.......	0.78	1.17	1.42	1.94	0.04	0.03	0.02
21.......	.82	1.22	1.48	2.02	.04	.03	.02
22.......	.86	1.27	1.55	2.11	.04	.03	.02
23.......	.90	1.33	1.61	2.19	.05	.04	.03
24.......	.95	1.39	1.68	2.29	.05	.04	.03
25.......	1.00	1.45	1.76	2.38	.06	.04	.03
26.......	1.05	1.51	1.83	2.49	.06	.05	.03
27.......	1.10	1.57	1.90	2.59	.07	.05	.04
28.......	1.16	1.64	1.98	2.70	.07	.06	.04
29.......	1.22	1.71	2.07	2.81	.08	.06	.04
30.......	1.28	1.78	2.15	2.93	.08	.06	.04
31.......	1.35	1.86	2.25	3.05	.09	.07	.05
32.......	1.42	1.94	2.34	3.17	.09	.07	.05
33.......	1.50	2.02	2.44	3.31	.10	.08	.05
34.......	1.58	2.11	2.54	3.45	.11	.08	.06
35.......	1.67	2.20	2.65	3.59	.11	.09	.06
36.......	1.77	2.30	2.77	3.74	.12	.10	.07
37.......	1.87	2.40	2.88	3.90	.13	.10	.07
38.......	1.98	2.51	3.01	4.06	.14	.11	.08
39.......	2.09	2.62	3.14	4.24	.16	.12	.08
40.......	2.22	2.74	3.28	4.42	.18	.12	.09
41.......	2.35	2.86	3.43	4.61	.20	.13	.09
42.......	2.50	2.99	3.58	4.81	.22	.14	.10
43.......	2.66	3.14	3.74	5.02	.26	.16	.10
44.......	2.83	3.30	3.91	5.24	.30	.18	.11
45.......	3.02	3.46	4.10	5.48	.36	.20	.12
46.......	3.22	3.67	4.29	5.73	.43	.22	.14
47.......	3.45	3.84	4.51	6.00	.52	.26	.16
48.......	3.70	4.06	4.74	6.28	.64	.31	.18
49.......	3.97	4.29	4.98	6.58	.79	.38	.20
50.......	4.28	4.56	5.26	6.91	1.00	.46	.22
51.......	4.61	4.85	5.55	7.25	1.26	.56	.26
52.......	4.99	5.19	5.87	7.64	1.60	.70	.32
53.......	5.41	5.57	6.24	8.02	2.03	.88	.39
54.......	5.88	6.01	6.64	8.50	2.55	1.12	.48
55.......	6.42	6.51	7.09	9.00	3.18	1.44	.61
56.......	7.05	7.12	7.65	9.58	3.91	1.85	.77
57.......	7.74	7.80	8.25	10.19	4.78	2.38	.97
58.......	8.52	8.54	8.94	10.85	5.76	3.06	1.24
59.......	9.42	9.43	9.76	11.62	6.88	3.91	1.61
60.......	10.38	10.38	10.63	12.39	8.18	4.95	2.10

PAYMENT OF SUM INSURED

TOTAL NET EXTRA ANNUAL PREMIUM (ILLINOIS STANDARD) PER THOUSAND DOLLARS OF INSURANCE, PAYABLE IN CASE OF TOTAL DISABILITY OCCURRING BEFORE AGE 81

Age	Life	20 P. L.	15 P. L.	10 P. L.	20 Yr. E.	15 Yr. E.	10 Yr. E.
20.......	1.10	1.20	1.44	1.96	0.08	0.07	0.06
21.......	1.16	1.25	1.50	2.04	.08	.07	.06
22.......	1.22	1.30	1.58	2.14	.09	.08	.07
23.......	1.29	1.36	1.64	2.22	.11	.10	.09
24.......	1.37	1.42	1.72	2.32	.11	.11	.10
25.......	1.46	1.49	1.80	2.42	.13	.12	.11
26.......	1.55	1.55	1.87	2.53	.13	.14	.11
27.......	1.64	1.62	1.95	2.64	.15	.14	.13
28.......	1.74	1.70	2.03	2.75	.15	.16	.14
29.......	1.84	1.77	2.13	2.87	.17	.16	.15
30.......	1.95	1.85	2.21	2.99	.18	.17	.16
31.......	2.08	1.93	2.32	3.12	.20	.18	.18
32.......	2.21	2.02	2.41	3.24	.21	.19	.19
33.......	2.36	2.10	2.52	3.39	.23	.21	.20
34.......	2.51	2.20	2.62	3.53	.25	.22	.22
35.......	2.69	2.30	2.74	3.68	.25	.24	.23
36.......	2.88	2.40	2.87	3.84	.27	.26	.25
37.......	3.08	2.51	2.99	4.01	.29	.27	.26
38.......	3.31	2.64	3.13	4.18	.32	.29	.28
39.......	3.54	2.77	3.27	4.37	.36	.31	.29
40.......	3.82	2.91	3.42	4.56	.40	.33	.32
41.......	4.11	3.05	3.59	4.76	.45	.36	.34
42.......	4.44	3.22	3.76	4.97	.51	.39	.37
43.......	4.80	3.41	3.94	5.19	.60	.44	.39
44.......	5.20	3.62	4.13	5.42	.70	.49	.41
45.......	5.65	3.85	4.35	5.69	.84	.55	.44
46.......	6.15	4.15	4.59	5.96	1.01	.62	.49
47.......	6.72	4.44	4.87	6.26	1.23	.73	.55
48.......	7.36	4.83	5.18	6.58	1.53	.88	.62
49.......	8.08	5.27	5.52	6.93	1.92	1.07	.73
50.......	8.91	5.84	5.94	7.34	2.45	1.31	.82
51.......	9.83	6.52	6.41	7.78	3.13	1.62	.99
52.......	10.91	7.38	6.98	8.30	4.02	2.03	1.21
53.......	12.14	8.44	7.68	8.86	5.16	2.58	1.51
54.......	13.56	9.76	8.53	9.57	6.59	3.33	1.87
55.......	15.21	11.36	9.60	10.37	8.36	4.32	2.37
56.......	17.13	13.33	10.98	11.36	10.48	5.63	3.02
57.......	19.37	15.69	12.70	12.52	13.05	7.36	3.85
58.......	22.03	18.45	14.86	13.92	16.04	9.60	4.96
59.......	25.09	21.78	17.60	15.71	19.57	12.49	6.51
60.......	28.75	25.66	20.94	17.88	23.62	16.09	8.58

PAYMENT OF SUM INSURED

Additional Net Annual Extra Premium (Illinois Standard) per Thousand Dollars of Insurance, Payable in Case of Total Disability Occurring Before Age 60

Age	Life	20 P. L.	15 P. L.	10 P. L.	20 Yr. E.	15 Yr. E.	10 Yr. E.
20........	0.13	0.18	0.22	0.29	0.04	0.03	0.02
21........	.13	.18	.22	.30	.04	.03	.02
22........	.14	.19	.23	.31	.04	.03	.02
23........	.15	.20	.24	.32	.05	.04	.03
24........	.15	.20	.25	.33	.05	.04	.03
25........	.16	.21	.26	.35	.06	.04	.03
26........	.16	.21	.26	.36	.06	.05	.03
27........	.17	.22	.27	.37	.07	.05	.04
28........	.17	.23	.27	.38	.07	.06	.04
29........	.18	.24	.28	.39	.08	.06	.04
30........	.19	.25	.29	.40	.08	.06	.04
31........	.20	.25	.29	.41	.09	.07	.05
32........	.21	.26	.30	.42	.09	.07	.05
33........	.22	.26	.31	.43	.10	.08	.05
34........	.23	.27	.32	.44	.11	.08	.06
35........	.24	.28	.33	.45	.11	.09	.06
36........	.25	.28	.33	.45	.12	.10	.07
37........	.26	.29	.34	.46	.13	.10	.07
38........	.27	.29	.35	.47	.14	.11	.08
39........	.29	.30	.36	.48	.16	.12	.08
40........	.31	.31	.37	.49	.18	.12	.09
41........	.33	.33	.37	.49	.20	.13	.09
42........	.35	.35	.38	.50	.22	.14	.10
43........	.37	.37	.38	.50	.25	.16	.10
44........	.38	.38	.38	.51	.28	.18	.11
45........	.39	.39	.39	.52	.30	.20	.12
46........	.41	.41	.41	.52	.33	.22	.14
47........	.43	.43	.43	.53	.36	.26	.16
48........	.46	.46	.46	.53	.39	.30	.18
49........	.49	.49	.49	.53	.43	.34	.20
50........	.53	.53	.53	.53	.47	.39	.22
51........	.56	.56	.56	.56	.51	.44	.26
52........	.61	.61	.61	.61	.56	.49	.32
53........	.67	.67	.67	.67	.62	.55	.39
54........	.73	.73	.73	.73	.69	.62	.46
55........	.81	.81	.81	.81	.76	.67	.54
56........	.89	.89	.89	.89	.85	.79	.64
57........	1.00	1.00	1.00	1.00	.96	.89	.74
58........	1.11	1.11	1.11	1.11	1.07	1.01	.86
59........	1.25	1.25	1.25	1.25	1.21	1.15	.99

PAYMENT OF SUM INSURED

TOTAL NET EXTRA ANNUAL PREMIUM (ILLINOIS STANDARD) PER THOUSAND DOLLARS OF INSURANCE, PAYABLE IN CASE OF TOTAL DISABILITY OCCURRING BEFORE AGE 60

Age	Life	20 P. L.	15 P. L.	10 P. L.	20 Yr. E.	15 Yr. E.	10 Yr. E.
20	0.18	0.21	0.24	0.31	0.08	0.07	0.06
21	.19	.22	.24	.38	.08	.07	.06
22	.20	.22	.26	.36	.09	.08	.07
23	.21	.23	.27	.36	.11	.10	.09
24	.22	.23	.29	.37	.11	.11	.10
25	.23	.25	.30	.39	.13	.12	.11
26	.24	.25	.30	.40	.13	.14	.11
27	.25	.27	.32	.42	.15	.14	.13
28	.26	.29	.32	.43	.15	.16	.14
29	.27	.30	.34	.45	.17	.16	.15
30	.29	.32	.35	.46	.18	.17	.16
31	.31	.32	.36	.48	.20	.18	.18
32	.33	.34	.37	.49	.21	.19	.19
33	.35	.34	.39	.51	.23	.21	.20
34	.37	.36	.40	.52	.25	.22	.22
35	.39	.38	.42	.54	.25	.24	.23
36	.41	.38	.43	.55	.27	.26	.25
37	.43	.40	.45	.57	.29	.27	.26
38	.45	.42	.47	.59	.32	.29	.28
39	.49	.45	.49	.61	.36	.31	.29
40	.53	.48	.51	.63	.40	.33	.32
41	.57	.52	.53	.64	.45	.36	.34
42	.61	.58	.56	.66	.51	.39	.37
43	.65	.63	.58	.67	.58	.44	.39
44	.69	.67	.60	.69	.64	.49	.41
45	.73	.72	.64	.73	.70	.55	.44
46	.78	.78	.71	.74	.78	.62	.49
47	.84	.85	.79	.79	.86	.73	.55
48	.91	.93	.89	.83	.94	.85	.62
49	1.00	1.02	.99	.88	1.04	.97	.71
50	1.10	1.12	1.11	.95	1.15	1.11	.82
51	1.19	1.24	1.23	1.08	1.27	1.26	.99
52	1.34	1.38	1.39	1.28	1.40	1.43	1.23
53	1.50	1.55	1.57	1.50	1.58	1.62	1.50
54	1.68	1.74	1.78	1.75	1.78	1.84	1.81
55	1.91	1.90	2.04	2.04	2.00	2.02	2.12
56	2.18	2.25	2.32	2.37	2.28	2.41	2.51
57	2.51	2.58	2.67	2.78	2.62	2.76	2.94
58	2.82	2.96	3.06	3.22	2.99	3.17	3.43
59	3.35	3.43	3.55	3.77	3.65	3.67	4.01

PAYMENT OF CLAIM

TABLES OF MEAN RESERVES, AGE LIMITS 81 AND 60

MEAN RESERVES FOR PAYMENT OF CLAIM, AND WAIVER OF PREMIUM

Ordinary Life, Illinois Standard, Age Limit 81. In Year

Age	1	2	3	4	5
20	1.12	2.27	3.56	4.70	5.99
25	1.46	2.96	4.51	6.10	7.76
30	1.95	3.92	5.98	8.12	10.36
35	2.67	5.39	8.20	11.13	14.18
40	3.79	5.62	11.61	15.77	20.11
45	5.62	11.31	17.27	23.50	29.97
50	8.81	17.82	27.30	37.16	47.47
55	15.02	30.12	45.93	62.21	78.95
60	27.37	53.82	81.35	109.45	138.37

Age	6	7	8	9	10
20	7.32	8.67	10.13	11.61	13.16
25	8.99	11.29	13.16	15.12	17.15
30	12.67	15.09	17.59	20.21	22.92
35	17.35	20.66	24.12	27.77	31.49
40	24.64	29.39	34.36	39.56	45.02
45	36.80	43.95	51.48	61.60	67.60
50	58.25	69.49	81.34	93.56	107.78
55	96.42	114.54	133.40	152.95	173.07
60	167.58	196.60	224.83	251.82	277.27

Age	11	12	13	14	15
20	14.76	16.44	18.17	19.99	21.78
25	19.27	21.48	23.79	26.20	28.63
30	25.75	28.71	31.80	35.01	38.38
35	36.43	40.56	43.86	48.40	53.15
40	50.69	56.79	63.04	69.68	76.65
45	76.24	85.28	94.90	104.74	114.98
50	119.40	133.17	147.55	162.56	178.04
55	193.49	213.85	233.70	252.72	270.62
60	300.39	320.43	336.02	347.58	356.07

Age	16	17	18	19	20
20	24.35	26.15	28.27	30.25	32.56
25	31.23	33.93	36.78	39.68	42.76
30	41.88	45.61	49.48	53.54	57.82
35	58.10	63.35	68.93	74.75	80.88
40	84.28	91.97	99.82	108.27	117.02
45	125.81	137.01	148.81	161.14	173.90
50	203.81	209.57	224.96	239.74	253.63
55	286.81	300.78	311.27	318.55	323.38
60	363.50	366.31	363.62	353.64	325.84

TOTAL MEAN RESERVES FOR PAYMENT OF CLAIM

Twenty-Payment Life, Illinois Standard, Age Limit 81. In Year

Age	1	2	3	4	5
20	1.20	2.44	3.71	5.04	6.42
25	1.48	2.98	4.52	6.13	7.81
30	1.81	3.63	5.52	7.48	9.54
35	2.32	4.57	6.84	9.22	11.72
40	2.83	5.60	8.52	11.55	14.68
45	3.75	7.43	11.28	15.31	19.50
50	5.63	11.34	17.20	23.16	29.47
55	10.99	21.76	32.87	44.23	55.78
60	24.09	41.87	70.27	94.21	118.41

Age	6	7	8	9	10
20	7.84	9.32	10.52	12.12	14.11
25	9.54	11.34	13.22	15.17	17.21
30	11.67	13.88	16.19	18.58	20.98
35	14.37	17.09	19.93	22.90	25.88
40	17.97	21.41	25.00	28.76	32.70
45	23.85	28.43	33.23	38.37	43.57
50	36.00	42.57	49.49	56.69	63.87
55	67.55	79.51	91.66	103.87	115.89
60	142.39	165.42	187.07	206.48	222.97

Age	11	12	13	14	15
20	15.83	17.47	19.34	21.45	23.51
25	19.34	21.55	23.85	26.26	28.77
30	23.58	26.40	29.24	32.23	35.36
35	29.22	32.62	36.18	39.94	43.89
40	36.81	41.13	45.70	50.48	55.50
45	48.81	54.43	60.29	66.30	72.44
50	70.88	78.17	85.67	93.08	100.41
55	127.31	137.57	146.71	152.37	156.03
60	235.65	243.39	244.67	238.78	233.10

Age	16	17	18	19	20
20	25.65	27.88	30.21	32.63	35.14
25	31.41	34.16	37.04	40.04	42.27
30	38.63	42.07	45.68	49.47	53.43
35	48.00	52.38	57.00	61.90	67.00
40	60.79	66.36	72.33	78.61	85.13
45	78.92	85.67	92.88	100.59	108.93
50	107.36	114.14	122.27	128.45	135.18
55	156.66	154.29	149.82	148.81	147.26
60	214.41	194.64	166.94	135.39	122.30

TOTAL MEAN RESERVES FOR PAYMENT OF CLAIM

FIFTEEN-PAYMENT LIFE, ILLINOIS STANDARD, AGE LIMIT 81. IN YEAR

Age	1	2	3	4	5
20	1.45	2.84	4.40	6.11	7.75
25	1.82	3.70	5.56	7.48	9.36
30	2.21	4.44	6.75	9.12	11.57
35	2.73	5.48	8.30	11.20	14.19
40	3.34	6.66	10.12	13.56	17.33
45	4.22	8.41	12.78	17.35	22.15
50	5.81	11.43	17.03	22.87	28.99
55	9.32	18.33	27.30	36.46	45.48
60	19.10	36.49	54.10	71.75	89.07

Age	6	7	8	9	10
20	9.49	11.51	13.18	14.97	16.99
25	11.44	13.75	16.05	18.45	20.95
30	14.58	17.27	19.66	22.60	25.66
35	17.35	20.67	24.14	27.77	31.56
40	21.44	25.57	29.40	34.44	39.10
45	27.13	32.36	37.87	43.12	49.00
50	35.51	42.40	49.40	56.80	64.28
55	54.22	63.48	73.02	82.34	91.48
60	105.52	120.38	132.88	142.31	148.35

Age	11	12	13	14	15
20	19.26	21.47	23.78	26.19	28.69
25	23.56	26.28	29.12	32.08	34.99
30	28.70	32.05	35.71	39.37	43.18
35	35.49	39.70	44.07	48.66	53.44
40	44.09	49.45	55.03	60.89	67.01
45	56.03	63.07	70.18	77.78	85.42
50	72.04	80.52	89.52	99.09	108.95
55	100.26	108.60	116.74	125.74	135.20
60	150.54	149.04	148.46	147.88	147.30

TOTAL MEAN RESERVES FOR PAYMENT OF CLAIM

Ten-Payment Life, Illinois Standard, Age Limit 81. In Year

Age	1	2	3	4	5
20	1.98	3.99	5.65	8.29	10.59
25	2.32	4.78	7.42	10.13	12.91
30	2.97	5.97	9.10	12.37	15.78
35	3.65	7.33	11.17	15.17	19.35
40	4.49	9.01	13.73	18.66	23.81
45	5.59	11.20	17.06	23.20	29.64
50	7.39	14.87	22.50	30.26	38.16
55	10.05	18.06	27.81	39.55	49.63
60	15.45	29.17	43.26	55.28	68.67

Age	6	7	8	9	10
20	12.96	15.41	17.98	20.66	23.45
25	16.10	18.83	21.93	25.28	27.48
30	19.34	23.05	26.93	30.97	35.21
35	23.71	28.27	33.03	38.02	42.69
40	29.20	34.85	40.77	46.99	53.30
45	36.19	43.47	50.96	58.83	67.03
50	46.52	55.53	65.07	75.21	82.54
55	59.94	71.01	82.95	96.05	109.14
60	83.23	95.59	107.90	123.12	133.57

TOTAL MEAN RESERVES FOR PAYMENT OF CLAIM

TWENTY-YEAR ENDOWMENT, ILLINOIS STANDARD, AGE LIMIT 81. IN YEAR

Age	1	2	3	4	5
20	0.08	0.13	0.17	0.19	0.21
25	.10	.14	.18	.21	.23
30	.12	.16	.20	.24	.25
35	.17	.23	.27	.31	.31
40	.26	.37	.46	.55	.63
45	.66	1.06	1.58	2.05	2.68
50	2.20	4.40	6.40	8.21	10.24
55	7.79	15.31	23.01	30.18	38.32
60	21.83	42.29	63.17	84.43	105.67

Age	6	7	8	9	10
20	0.23	0.24	0.26	0.24	0.21
25	.25	.25	.26	.24	.21
30	.27	.27	.26	.24	.21
35	.31	.31	.29	.25	.21
40	.70	.75	.80	.84	.88
45	3.15	3.56	3.96	4.30	4.55
50	12.24	14.14	15.87	17.38	18.59
55	45.82	53.17	60.28	66.98	72.97
60	126.44	146.05	163.77	178.59	189.95

Age	11	12	13	14	15
20	0.17	0.13	0.09	0.08	0.06
25	.17	.13	.09	.08	.08
30	.17	.13	.09	.09	.09
35	.17	.13	.13	.13	.13
40	.87	.84	.78	.69	.65
45	4.69	4.68	4.47	4.04	3.35
50	19.10	19.40	19.49	18.67	17.33
55	77.57	80.18	80.11	76.53	72.47
60	196.77	197.67	191.09	175.73	154.66

Age	16	17	18	19	20
20	0.05	0.05	0.05	0.05	0.03
25	.07	.07	.07	.07	.03
30	.09	.09	.09	.09	.04
35	.13	.13	.13	.13	.06
40	.52	.36	.24	.20	.09
45	2.56	1.64	.94	.38	.18
50	14.36	10.68	6.34	2.66	1.20
55	60.78	41.64	23.81	10.44	5.66
60	129.51	97.42	55.80	23.47	11.81

TOTAL MEAN RESERVES FOR PAYMENT OF CLAIM

FIFTEEN-YEAR ENDOWMENT, ILLINOIS STANDARD, AGE LIMIT 81. IN YEAR

Age	1	2	3	4	5
20	0.07	0.08	0.08	0.08	0.07
25	.08	.09	.09	.08	.08
30	.10	.11	.11	.10	.09
35	.13	.14	.14	.14	.13
40	.17	.17	.17	.17	.17
45	.34	.43	.53	.61	.68
50	1.19	1.74	1.80	1.85	1.83
55	3.74	6.80	9.65	12.26	14.51
60	14.15	26.23	38.09	49.47	59.93

Age	6	7	8	9	10
20	0.06	0.06	0.06	0.06	0.06
25	.07	.07	.07	.07	.07
30	.09	.09	.09	.10	.11
35	.13	.13	.13	.13	.13
40	.17	.17	.17	.17	.17
45	.73	.71	.73	.68	.61
50	1.79	1.74	1.66	1.56	1.43
55	15.90	17.09	18.05	17.91	16.79
60	68.79	75.14	77.40	76.71	70.56

Age	11	12	13	14	15
20	0.06	0.06	0.06	0.06	0.02
25	.07	.07	.07	.07	.03
30	.11	.10	.09	.09	.04
35	.13	.13	.13	.13	.05
40	.17	.17	.17	.17	.06
45	.49	.35	.28	.26	.10
50	1.26	1.06	.88	.72	.23
55	14.45	10.88	6.60	3.39	.72
60	59.17	42.89	24.65	11.79	2.48

TOTAL MEAN RESERVES FOR PAYMENT OF CLAIM

TEN-YEAR ENDOWMENT, ILLINOIS STANDARD, AGE LIMIT 81. IN YEAR

Age	1	2	3	4	5
20	0.05	0.07	0.07	0.07	0.07
25	.06	.07	.07	.07	.07
30	.08	.08	.08	.08	.08
35	.12	.12	.12	.12	.12
40	.17	.17	.17	.17	.17
45	.22	.22	.22	.22	.22
50	.47	.55	.59	.59	.53
55	1.62	2.39	2.85	3.02	2.84
60	5.56	8.80	11.85	13.45	13.81

Age	6	7	8	9	10
20	0.05	0.04	0.03	0.03	0.01
25	.06	.06	.06	.06	.02
30	.08	.07	.07	.07	.02
35	.12	.12	.12	.12	.03
40	.17	.17	.17	.17	.05
45	.22	.22	.22	.22	.06
50	.45	.41	.41	.41	.11
55	1.58	1.19	1.19	1.19	.30
60	12.63	9.90	6.40	4.46	1.04

TOTAL MEAN RESERVES FOR PAYMENT OF CLAIM

Ordinary Life, Illinois Standard, Age Limit 60. In Year

Age	1	2	3	4	5
20	0.18	0.35	0.52	0.69	0.86
21	.18	.35	.53	.70	.87
22	.19	.36	.54	.71	.88
23	.20	.37	.55	.72	.89
24	.21	.38	.56	.74	.91
25	.22	.39	.57	.76	.93
26	.23	.40	.58	.79	.97
27	.24	.41	.59	.82	1.01
28	.25	.43	.61	.85	1.05
29	.26	.45	.63	.89	1.09
30	.27	.47	.65	.93	1.14
31	.28	.49	.68	.97	1.19
32	.29	.51	.72	1.01	1.24
33	.30	.54	.76	1.05	1.29
34	.31	.57	.81	1.09	1.34
35	.33	.60	.86	1.13	1.39
36	.35	.61	.88	1.15	1.41
37	.36	.64	.91	1.19	1.46
38	.39	.67	.96	1.24	1.52
39	.41	.69	.98	1.28	1.57
40	.43	.74	1.05	1.36	1.65
41	.45	.77	1.09	1.41	1.75
42	.47	.81	1.15	1.50	1.89
43	.49	.84	1.23	1.59	1.96
44	.53	.92	1.32	1.71	2.10
45	.58	.99	1.37	1.84	2.26
46	.61	1.07	1.52	1.97	2.40
47	.68	1.16	1.65	2.13	2.57
48	.73	1.25	1.77	2.25	2.72
49	.80	1.37	1.91	2.41	2.85
50	.87	1.48	2.04	2.54	2.98
51	.93	1.61	2.21	2.75	3.11
52	1.03	1.70	2.30	2.76	3.00
53	1.13	1.84	2.40	2.76	2.76
54	1.21	1.91	2.42	2.58	2.30
55	1.33	1.97	2.32	2.20	1.48
56	1.45	1.96	2.03	1.53	....
57	1.54	1.86	1.58	....	....
58	1.63	1.63	....	....	....
59	1.68	....	....	....	....

TOTAL MEAN RESERVES FOR PAYMENT OF CLAIM—*Continued*

Age	6	7	8	9	10
20	1.04	1.21	1.38	1.54	1.70
21	1.06	1.23	1.40	1.57	1.74
22	1.08	1.25	1.43	1.60	1.78
23	1.10	1.27	1.46	1.63	1.82
24	1.12	1.30	1.49	1.67	1.86
25	1.14	1.33	1.52	1.71	1.90
26	1.16	1.37	1.56	1.76	1.95
27	1.18	1.42	1.61	1.82	2.01
28	1.21	1.47	1.66	1.88	2.08
29	1.24	1.53	1.72	1.94	2.16
30	1.27	1.59	1.80	2.01	2.26
31	1.32	1.64	1.87	2.08	2.34
32	1.39	1.70	1.94	2.15	2.41
33	1.47	1.76	2.00	2.22	2.47
34	1.55	1.82	2.06	2.29	2.53
35	1.63	1.88	2.12	2.35	2.59
36	1.67	1.91	2.16	2.41	2.65
37	1.72	1.98	2.24	2.50	2.77
38	1.79	2.06	2.34	2.61	2.89
39	1.86	2.15	2.44	2.73	3.02
40	1.96	2.27	2.58	2.87	3.17
41	2.06	2.39	2.71	3.02	3.32
42	2.19	2.53	2.86	3.18	3.47
43	2.33	2.69	3.03	3.34	3.61
44	2.49	2.85	3.19	3.49	3.73
45	2.70	3.01	3.35	3.57	3.82
46	2.80	3.17	3.48	3.70	3.80
47	2.96	3.31	3.57	3.70	3.64
48	3.11	3.42	3.60	3.56	3.23
49	3.21	3.46	3.48	3.20	2.51
50	3.27	3.37	3.14	2.49	1.31
51	3.24	3.07	2.49	1.34	....
52	2.93	2.43	1.38	....	....
53	2.39	1.41	....	....	....
54	1.45	....	....	....	....

TOTAL MEAN RESERVES FOR PAYMENT OF CLAIM—*Continued*

ORDINARY LIFE, ILLINOIS STANDARD, AGE LIMIT 60. IN YEAR

Age	11	12	13	14	15
20	1.87	2.04	2.21	2.38	2.54
21	1.91	2.09	2.26	2.43	2.59
22	1.95	2.14	2.31	2.48	2.64
23	2.00	2.19	2.36	2.53	2.70
24	2.05	2.24	2.41	2.59	2.76
25	2.10	2.29	2.47	2.65	2.82
26	2.16	2.35	2.54	2.72	2.89
27	2.22	2.41	2.61	2.79	2.96
28	2.28	2.48	2.68	2.86	3.04
29	2.35	2.55	2.75	2.94	3.12
30	2.42	2.62	2.82	3.02	3.20
31	2.50	2.70	2.91	3.11	3.30
32	2.58	2.79	3.00	3.21	3.41
33	2.66	2.88	3.09	3.31	3.52
34	2.74	2.97	3.19	3.41	3.63
35	2.83	3.06	3.29	3.51	3.73
36	2.91	3.15	3.39	3.67	3.83
37	3.03	3.28	3.52	3.74	3.94
38	3.16	3.41	3.66	3.87	4.04
39	3.29	3.55	3.98	3.97	4.10
40	3.44	3.69	3.90	4.05	4.13
41	3.59	3.81	3.97	4.06	4.04
42	3.72	3.91	4.02	4.00	3.80
43	3.83	3.96	3.97	3.78	3.31
44	3.90	3.93	3.76	3.31	2.48
45	3.88	3.74	3.31	2.51	1.18
46	3.70	3.30	2.50	1.20	....
47	3.27	2.51	1.23	....	....
48	2.53	1.25	....	....	....
49	1.28	....	....	....	....

TOTAL MEAN RESERVES FOR PAYMENT OF CLAIM—*Continued*

Age	16	17	18	19	20
20	2.71	2.87	3.03	3.19	3.34
21	2.76	2.92	3.08	3.24	3.39
22	2.81	2.98	3.14	3.30	3.45
23	2.87	3.04	3.20	3.36	3.51
24	2.93	3.10	3.26	3.42	3.57
25	2.99	3.16	3.32	3.48	3.63
26	3.06	3.24	3.40	3.56	3.72
27	3.14	3.32	3.48	3.64	3.81
28	3.22	3.40	3.56	3.73	3.90
29	3.30	3.48	3.65	3.82	3.99
30	3.38	3.56	3.74	3.91	4.08
31	3.48	3.66	3.83	3.99	4.12
32	3.59	3.76	3.92	4.07	4.16
33	3.70	3.87	4.02	4.14	4.20
34	3.81	3.98	4.12	4.21	4.24
35	3.92	4.09	4.22	4.28	4.28
36	4.01	4.15	4.23	4.24	4.13
37	4.10	4.20	4.22	4.11	3.84
38	4.15	4.18	4.10	3.83	3.29
39	4.15	4.08	3.83	3.24	2.42
40	4.07	3.82	3.29	2.44	1.08
41	3.82	3.35	2.45	1.10	....
42	3.31	2.45	1.12	....	....
43	2.47	1.14	....	....	....
44	1.16	....	....	....	....

TOTAL MEAN RESERVES FOR PAYMENT OF CLAIM

Twenty-Payment Life, Illinois Standard, Age Limit 60, per Thousand Dollars of Insurance. In Year

Age	1	2	3	4	5	6	7
20.......	0.20	0.39	0.58	0.78	0.98	1.17	1.35
21.......	.20	.40	.58	.78	.99	1.18	1.36
22.......	.21	.41	.59	.79	1.00	1.19	1.37
23.......	.22	.42	.60	.80	1.01	1.20	1.39
24.......	.23	.43	.61	.81	1.02	1.21	1.41
25.......	.24	.44	.62	.82	1.03	1.23	1.43
26.......	.24	.44	.63	.83	1.04	1.24	1.44
27.......	.25	.45	.64	.84	1.05	1.25	1.45
28.......	.25	.45	.65	.85	1.06	1.26	1.47
29.......	.26	.46	.66	.87	1.07	1.28	1.49
30.......	.27	.47	.67	.89	1.09	1.30	1.51
31.......	.27	.48	.68	.90	1.10	1.30	1.51
32.......	.28	.49	.69	.91	1.11	1.31	1.52
33.......	.29	.50	.70	.92	1.12	1.32	1.52
34.......	.30	.51	.72	.93	1.13	1.33	1.53
35.......	.31	.53	.74	.95	1.14	1.34	1.54
36.......	.32	.53	.75	.97	1.15	1.35	1.57
37.......	.33	.54	.76	.99	1.17	1.37	1.60
38.......	.34	.55	.77	1.01	1.19	1.39	1.63
39.......	.35	.57	.79	1.03	1.21	1.41	1.66
40.......	.36	.59	.81	1.05	1.23	1.43	1.69
41.......	.38	.61	.84	1.09	1.28	1.50	1.76
42.......	.41	.65	.90	1.19	1.39	1.63	1.90
43.......	.45	.72	1.00	1.32	1.56	1.82	2.11
44.......	.50	.82	1.14	1.49	1.79	2.09	2.39
45.......	.57	.95	1.32	1.70	2.07	2.42	2.73
46.......	.60	1.01	1.43	1.85	2.25	2.61	2.93
47.......	.66	1.13	1.59	2.03	2.44	2.82	3.13
48.......	.72	1.24	1.74	2.20	2.63	3.05	3.29
49.......	.80	1.26	1.89	2.37	2.82	3.16	3.37
50.......	.88	1.48	2.03	2.54	2.95	3.23	3.30
51.......	.96	1.52	2.22	2.71	3.07	3.20	3.03
52.......	1.05	1.73	2.32	2.78	3.01	2.93	2.43
53.......	1.15	1.97	2.44	2.79	2.80	2.41	1.43
54.......	1.28	1.98	2.46	2.62	2.34	1.48	....
55.......	1.39	2.04	2.35	2.23	1.52	....	....
56.......	1.50	2.01	2.09	1.57	....	....	....
57.......	1.57	1.90	1.62	....	....	....	....
58.......	1.67	1.67	....	....	....	....	....
59.......	1.72	....	....	....	....	....	....

TOTAL MEAN RESERVES FOR PAYMENT OF CLAIM—*Continued*

Age	8	9	10	11	12	13	14
20	1.54	1.73	1.92	2.10	2.31	2.52	2.72
21	1.56	1.75	1.94	2.13	2.34	2.55	2.75
22	1.58	1.77	1.96	2.16	2.37	2.58	2.78
23	1.60	1.79	1.98	2.19	2.40	2.61	2.81
24	1.62	1.82	2.01	2.22	2.43	2.64	2.84
25	1.64	1.85	2.04	2.25	2.47	2.67	2.88
26	1.66	1.86	2.05	2.26	2.48	2.68	2.89
27	1.68	1.87	2.06	2.27	2.49	2.69	2.90
28	1.70	1.88	2.07	2.28	2.50	2.70	2.91
29	1.72	1.89	2.09	2.29	2.51	2.71	2.92
30	1.74	1.91	2.11	2.31	2.52	2.72	2.94
31	1.75	1.92	2.11	2.30	2.51	2.71	2.93
32	1.76	1.93	2.11	2.29	2.50	2.70	2.91
33	1.77	1.93	2.11	2.28	2.49	2.69	2.89
34	1.78	1.94	2.11	2.27	2.48	2.68	2.87
35	1.78	1.94	2.11	2.27	2.46	2.67	2.85
36	1.79	1.95	2.12	2.29	2.47	2.66	2.82
37	1.80	1.96	2.13	2.31	2.48	2.65	2.79
38	1.81	1.97	2.14	2.33	2.49	2.64	2.75
39	1.82	1.98	2.16	2.36	2.50	2.63	2.71
40	1.83	1.99	2.18	2.39	2.52	2.61	2.67
41	1.90	2.07	2.26	2.46	2.57	2.63	2.69
42	2.05	2.23	2.42	2.60	2.67	2.66	2.71
43	2.28	2.48	2.66	2.81	2.82	2.71	2.74
44	2.59	2.81	2.98	3.08	3.02	2.77	2.78
45	2.97	3.24	3.38	3.41	3.26	2.85	2.10
46	3.20	3.39	3.46	3.33	2.94	2.27	1.09
47	3.35	3.46	3.39	3.02	2.30	1.14	....
48	3.44	3.39	3.05	2.36	1.20	....	....
49	3.37	3.08	2.41	1.25	....	....	....
50	3.06	2.44	1.29	....	....	....	....
51	2.45	1.34	....	....	....	....	....
52	1.39	....	....	....	....	....	....

TOTAL MEAN RESERVES FOR PAYMENT OF CLAIM—*Continued*

TWENTY-PAYMENT LIFE, ILLINOIS STANDARD, AGE LIMIT 60, PER THOUSAND DOLLARS OF INSURANCE. IN YEAR

Age	15	16	17	18	19	20
20	2.92	3.14	3.37	3.59	3.82	4.03
21	2.94	3.16	3.39	3.61	3.84	4.05
22	2.97	3.19	3.42	3.64	3.87	4.08
23	3.01	3.23	3.46	3.68	3.91	4.12
24	3.05	3.27	3.50	3.72	3.96	4.17
25	3.10	3.32	3.54	3.77	4.01	4.23
26	3.11	3.32	3.54	3.77	4.01	4.23
27	3.12	3.33	3.55	3.78	4.02	4.23
28	3.13	3.34	3.56	3.79	4.02	4.23
29	3.14	3.35	3.57	3.80	4.03	4.23
30	3.15	3.36	3.58	3.81	4.03	4.23
31	3.13	3.34	3.54	3.79	4.00	4.20
32	3.11	3.32	3.50	3.76	3.95	4.14
33	3.09	3.30	3.46	3.71	3.88	4.04
34	3.07	3.27	3.43	3.65	3.79	3.90
35	3.05	3.24	3.41	3.57	3.69	3.72
36	3.02	3.20	3.34	3.47	3.49	3.57
37	2.97	3.12	3.20	3.27	3.17	2.93
38	2.89	2.99	2.91	2.96	2.73	1.90
39	2.79	2.82	2.63	2.54	1.97	1.45
40	2.66	2.58	2.37	2.01	1.50	0.63
41	2.75	2.48	2.13	1.54	0.73	....
42	2.77	2.36	1.70	0.82	....	....
43	2.56	1.88	0.90	....	....	....
44	1.98	0.98	....	....	....	....
45	1.05	....	....	....	....	....

TOTAL MEAN RESERVES FOR PAYMENT OF CLAIM

FIFTEEN-PAYMENT LIFE, ILLINOIS STANDARD, AGE LIMIT 60, PER THOUSAND DOLLARS OF INSURANCE. IN YEAR

Age	1	2	3	4	5	6	7
20	0.24	0.48	0.71	0.95	1.18	1.42	1.64
21	.24	.48	.71	.95	1.19	1.43	1.65
22	.25	.48	.72	.96	1.20	1.44	1.67
23	.26	.49	.72	.96	1.21	1.45	1.69
24	.27	.49	.73	.97	1.22	1.46	1.71
25	.28	.50	.74	.98	1.23	1.47	1.73
26	.28	.51	.75	.99	1.24	1.49	1.76
27	.29	.52	.76	1.01	1.26	1.51	1.79
28	.29	.53	.77	1.03	1.28	1.54	1.82
29	.30	.54	.79	1.05	1.30	1.57	1.85
30	.31	.55	.81	1.07	1.32	1.60	1.88
31	.31	.56	.82	1.08	1.33	1.62	1.88
32	.32	.57	.83	1.09	1.34	1.64	1.89
33	.32	.58	.84	1.10	1.35	1.66	1.90
34	.33	.59	.85	1.11	1.36	1.68	1.91
35	.34	.60	.86	1.12	1.38	1.71	1.92
36	.34	.60	.86	1.12	1.38	1.70	1.92
37	.35	.61	.86	1.12	1.38	1.69	1.91
38	.36	.61	.87	1.12	1.37	1.67	1.91
39	.37	.62	.87	1.12	1.37	1.65	1.90
40	.38	.63	.87	1.12	1.37	1.63	1.89
41	.39	.64	.87	1.11	1.35	1.60	1.86
42	.40	.65	.87	1.11	1.36	1.61	1.86
43	.42	.67	.91	1.15	1.38	1.63	1.86
44	.46	.70	.95	1.20	1.45	1.69	1.91
45	.57	.95	1.22	1.49	1.74	2.02	2.23
46	.62	1.05	1.38	1.68	1.98	2.25	2.47
47	.71	1.21	1.59	1.94	2.28	2.57	2.81
48	.80	1.37	1.81	2.21	2.57	2.78	3.12
49	.90	1.56	2.03	2.46	2.85	3.16	3.34
50	1.02	1.74	2.25	2.71	3.10	3.36	3.42
51	1.12	1.93	2.48	2.96	3.31	3.45	3.30
52	1.26	2.14	2.71	3.17	3.41	3.34	2.80
53	1.41	2.36	2.94	3.29	3.27	2.91	1.73
54	1.58	2.58	3.07	3.24	3.01	1.83	....
55	1.74	2.73	3.10	3.00	1.94	....	....
56	1.92	2.83	2.98	2.05	....	....	....
57	2.08	2.89	2.16	....	....	....	....
58	2.36	2.36	....	....	....	....	....
59	2.40	....	....	....	....	....	....

TOTAL MEAN RESERVES FOR PAYMENT OF CLAIM—*Continued*

FIFTEEN-PAYMENT LIFE, ILLINOIS STANDARD, AGE LIMIT 60, PER THOUSAND DOLLARS OF INSURANCE. IN YEAR

Age	8	9	10	11	12	13	14	15
20	1.88	2.12	2.36	2.61	2.88	3.16	3.44	3.71
21	1.88	2.15	2.40	2.65	2.93	3.21	3.50	3.77
22	1.89	2.18	2.44	2.70	2.98	3.26	3.56	3.83
23	1.90	2.21	2.48	2.75	3.03	3.32	3.62	3.89
24	1.91	2.24	2.52	2.80	3.09	3.38	3.68	3.96
25	1.92	2.28	2.56	2.85	3.15	3.44	3.74	4.03
26	1.96	2.31	2.59	2.86	3.18	3.47	3.77	4.06
27	2.01	2.34	2.62	2.89	3.21	3.50	3.80	4.09
28	2.06	2.37	2.65	2.93	3.24	3.53	3.84	4.13
29	2.11	2.40	3.68	2.97	3.27	3.57	3.88	4.17
30	2.16	2.44	2.72	3.02	3.31	3.61	3.92	4.21
31	2.16	2.44	2.72	3.02	3.31	3.61	3.92	4.21
32	2.17	2.45	2.73	3.03	3.32	3.62	3.93	4.21
33	2.18	2.46	2.74	3.04	3.33	3.63	3.94	4.22
34	2.19	2.47	2.75	3.05	3.34	3.64	3.95	4.22
35	2.20	2.48	2.76	3.06	3.35	3.65	3.96	4.23
36	2.19	2.47	2.75	3.04	3.32	3.61	3.90	4.13
37	2.18	2.46	2.74	3.02	3.29	3.57	3.84	4.03
38	2.17	2.45	2.72	3.00	3.26	3.52	3.77	3.93
39	2.16	2.44	2.70	2.97	3.23	3.47	3.70	3.83
40	2.15	2.42	2.68	2.94	3.19	3.42	3.63	3.73
41	2.12	2.36	2.63	2.87	3.09	3.29	3.44	3.45
42	2.10	2.34	2.53	2.77	2.96	3.10	3.15	3.06
43	2.09	2.30	2.48	2.65	2.73	2.79	2.79	2.49
44	2.09	2.26	2.38	2.47	2.50	2.41	2.33	1.71
45	2.40	2.54	2.62	2.62	2.49	2.25	1.84	0.82
46	2.66	2.76	2.78	2.67	2.35	1.88	1.01	....
47	2.98	3.05	2.96	2.65	2.11	1.09	....	....
48	3.23	3.18	2.90	2.34	1.22	....	....	....
49	3.33	3.08	2.52	1.33	....	....	....	....
50	3.21	2.66	1.48	....	....	....	....	....
51	2.79	1.53	....	....	....	....	....	....
52	1.63	....	....	....	....	....	....	....

TOTAL MEAN RESERVES FOR PAYMENT OF CLAIM

TEN-PAYMENT LIFE, ILLINOIS STANDARD, AGE LIMIT 60, PER THOUSAND DOLLARS OF INSURANCE. IN YEAR

Age	1	2	3	4	5	6
20	0.32	0.63	0.94	1.26	1.58	1.92
21	.33	.64	.96	1.28	1.61	1.96
22	.34	.65	.98	1.30	1.64	2.00
23	.35	.66	1.00	1.33	1.67	2.04
24	.36	.68	1.02	1.36	1.71	2.08
25	.37	.70	1.04	1.39	1.75	2.12
26	.38	.71	1.06	1.42	1.78	2.16
27	.39	.72	1.08	1.45	1.81	2.20
28	.40	.74	1.10	1.48	1.85	2.24
29	.41	.76	1.13	1.51	1.89	2.29
30	.42	.78	1.16	1.54	1.93	2.34
31	.43	.79	1.17	1.56	1.95	2.37
32	.44	.80	1.18	1.58	1.97	2.40
33	.45	.81	1.20	1.60	1.99	2.43
34	.46	.82	1.22	1.62	2.02	2.45
35	.47	.83	1.24	1.64	2.05	2.47
36	.47	.84	1.24	1.64	2.05	2.47
37	.48	.85	1.25	1.65	2.06	2.47
38	.48	.86	1.25	1.65	2.06	2.47
39	.49	.87	1.26	1.66	2.06	2.47
40	.50	.88	1.27	1.67	2.07	2.47
41	.51	.88	1.27	1.67	2.07	2.47
42	.52	.88	1.27	1.67	2.06	2.46
43	.53	.89	1.27	1.66	2.06	2.45
44	.54	.89	1.28	1.66	2.05	2.44
45	.55	.89	1.28	1.66	2.05	2.43
46	.56	.91	1.28	1.65	2.01	2.37
47	.58	.93	1.29	1.63	1.98	2.30
48	.61	.96	1.30	1.63	1.91	2.18
49	.62	.97	1.29	1.58	1.83	2.03
50	.84	1.35	1.65	1.91	2.12	2.24
51	.94	1.54	1.88	2.16	2.34	2.37
52	1.11	1.81	2.22	2.53	2.65	2.55
53	1.29	2.09	2.54	2.78	2.77	2.48
54	1.50	2.39	2.79	2.90	2.69	1.68
55	1.73	2.65	2.91	2.81	1.85	....
56	1.91	2.86	2.97	2.02	....	....
57	2.25	3.04	2.29	....	....	....
58	2.52	2.52	....	....	....	....
59	2.51	....	....	....	....	....

TOTAL MEAN RESERVES FOR PAYMENT OF CLAIM—*Continued*

TEN-PAYMENT LIFE, ILLINOIS STANDARD, AGE LIMIT 60, PER THOUSAND DOLLARS OF INSURANCE. IN YEAR

Age	7	8	9	10
20	2.25	2.59	2.95	3.31
21	2.30	2.65	3.02	3.38
22	2.35	2.71	3.09	3.46
23	2.40	2.77	3.16	3.54
24	2.45	2.83	3.23	3.62
25	2.50	2.90	3.31	3.70
26	2.55	2.96	3.37	3.77
27	2.60	3.02	3.43	3.84
28	2.65	3.07	3.49	3.91
29	2.70	3.12	3.55	3.97
30	2.76	3.18	3.60	4.03
31	2.78	3.22	3.64	4.07
32	2.81	3.25	3.68	4.10
33	2.84	3.28	3.72	4.13
34	2.87	3.31	3.76	4.17
35	2.90	3.34	3.80	4.21
36	2.90	3.34	3.81	4.21
37	2.90	3.33	3.81	4.22
38	2.91	3.33	3.82	4.22
39	2.91	3.32	3.82	4.23
40	2.91	3.31	3.83	4.23
41	2.89	3.29	3.76	4.13
42	2.87	3.26	3.70	4.03
43	2.85	3.23	3.64	3.93
44	2.83	3.20	3.58	3.82
45	2.81	3.17	3.52	3.71
46	2.81	3.03	3.34	3.45
47	2.60	2.87	3.09	3.06
48	2.43	2.62	2.71	2.50
49	2.19	2.25	2.17	1.71
50	2.29	2.20	1.92	1.11
51	2.24	1.97	1.18	....
52	2.16	1.31	....	....
53	1.50	....	....	....

TOTAL MEAN RESERVES FOR PAYMENT OF CLAIM

TWENTY-YEAR ENDOWMENT, ILLINOIS STANDARD, AGE LIMIT 60. IN YEAR

Age	1	2	3	4	5	6	7
20.......	0.08	0.13	0.17	0.19	0.21	0.23	0.24
21.......	.08	.13	.17	.19	.21	.23	.24
22.......	.08	.13	.17	.20	.21	.23	.24
23.......	.09	.14	.18	.20	.22	.24	.24
24.......	.09	.14	.18	.21	.22	.24	.24
25.......	.10	.14	.18	.21	.23	.25	.25
26.......	.10	.14	.18	.22	.23	.25	.25
27.......	.11	.15	.19	.23	.24	.26	.26
28.......	.11	.15	.19	.23	.24	.26	.26
29.......	.12	.16	.20	.24	.25	.26	.26
30.......	.12	.16	.20	.24	.25	.27	.27
31.......	.13	.17	.21	.25	.26	.27	.27
32.......	.14	.18	.22	.26	.27	.28	.28
33.......	.15	.19	.23	.27	.28	.29	.29
34.......	.16	.21	.25	.29	.29	.30	.30
35.......	.17	.23	.27	.31	.31	.31	.31
36.......	.17	.24	.28	.32	.33	.34	.32
37.......	.18	.25	.30	.33	.36	.37	.36
38.......	.20	.27	.33	.37	.41	.43	.43
39.......	.23	.32	.39	.46	.50	.54	.57
40.......	.26	.37	.46	.55	.63	.70	.75
41.......	.30	.44	.57	.70	.81	.91	1.01
42.......	.35	.54	.71	.88	1.04	1.21	1.36
43.......	.41	.64	.87	1.09	1.31	1.52	1.72
44.......	.46	.74	1.02	1.29	1.57	1.82	2.06
45.......	.52	.84	1.16	1.53	1.80	2.09	2.35
46.......	.59	.97	1.28	1.70	2.06	2.37	2.69
47.......	.65	1.09	1.51	1.93	2.30	2.63	2.91
48.......	.72	1.21	1.68	2.09	2.52	2.86	3.12
49.......	.80	1.33	1.84	2.30	2.96	3.08	3.24
50.......	.87	1.46	2.00	2.49	2.89	3.16	3.21
51.......	.97	1.60	2.17	2.66	3.02	3.15	2.98
52.......	1.06	1.73	2.32	2.77	3.00	2.91	2.36
53.......	1.17	1.88	2.45	2.79	2.81	2.40	1.43
54.......	1.29	2.01	2.48	2.63	2.35	1.50	....
55.......	1.40	2.05	2.37	2.24	1.53	....	....
56.......	1.50	2.03	2.11	1.58	....	....	....
57.......	1.60	1.93	1.62	....	....	....	....
58.......	1.66	1.66	....	....	....	....	....
59.......	1.72	....	....	....	....	....	....

TOTAL MEAN RESERVES FOR PAYMENT OF CLAIM—*Continued*

TWENTY-YEAR ENDOWMENT, ILLINOIS STANDARD, AGE LIMIT 60. IN YEAR

Age	8	9	10	11	12	13	14
20	0.26	0.24	0.21	0.17	0.13	0.09	0.08
21	.26	.24	.21	.17	.13	.09	.08
22	.26	.24	.21	.17	.13	.09	.08
23	.26	.24	.21	.17	.13	.09	.08
24	.26	.24	.21	.17	.13	.09	.08
25	.26	.24	.21	.17	.13	.09	.08
26	.26	.24	.21	.17	.13	.09	.08
27	.26	.24	.21	.17	.13	.09	.08
28	.26	.24	.21	.17	.13	.09	.08
29	.26	.24	.21	.17	.13	.09	.08
30	.26	.24	.21	.17	.13	.09	.09
31	.26	.24	.21	.17	.13	.10	.10
32	.26	.24	.21	.17	.13	.11	.11
33	.27	.25	.21	.17	.13	.12	.12
34	.28	.25	.21	.17	.13	.13	.13
35	.29	.25	.21	.17	.13	.13	.13
36	.32	.29	.25	.21	.18	.16	.14
37	.35	.33	.30	.27	.24	.20	.16
38	.43	.43	.42	.40	.37	.33	.27
39	.59	.59	.59	.59	.58	.54	.47
40	.80	.84	.88	.87	.84	.78	.69
41	1.10	1.18	1.24	1.27	1.27	1.23	1.14
42	1.50	1.63	1.72	1.77	1.79	1.75	1.63
43	1.90	2.05	2.16	2.21	2.22	2.14	1.95
44	2.23	2.43	2.54	2.57	2.53	2.36	1.99
45	2.58	2.75	2.83	2.83	2.67	2.28	1.69
46	2.87	3.01	3.04	3.01	2.53	1.90	0.95
47	3.10	3.17	3.06	2.72	2.06	1.05	....
48	3.25	3.19	3.08	2.61	1.08	....	....
49	3.23	2.99	2.28	1.20	....	....	....
50	2.97	2.35	1.26	....	....	....	....
51	2.41	1.32	....	....	....	....	....
52	1.38	....	....	....	....	....	....

TOTAL MEAN RESERVES FOR PAYMENT OF CLAIM—*Continued*

Age	15	16	17	18	19	20
20	0.06	0.05	0.05	0.05	0.05	0.03
21	.06	.05	.05	.05	.05	.03
22	.07	.06	.06	.06	.06	.03
23	.07	.06	.06	.06	.06	.03
24	.07	.06	.06	.06	.06	.03
25	.08	.07	.07	.07	.07	.03
26	.08	.07	.07	.07	.07	.03
27	.08	.07	.07	.07	.07	.03
28	.08	.08	.08	.08	.08	.03
29	.09	.09	.09	.09	.09	.03
30	.09	.09	.09	.09	.09	.04
31	.09	.09	.09	.09	.09	.04
32	.10	.10	.10	.10	.10	.04
33	.11	.11	.11	.11	.11	.05
34	.12	.12	.12	.12	.12	.05
35	.13	.13	.13	.13	.13	.06
36	.14	.14	.14	.14	.14	.06
37	.15	.15	.15	.15	.15	.07
38	.17	.16	.15	.15	.15	.07
39	.39	.29	.20	.18	.18	.08
40	.65	.52	.36	.24	.20	.09
41	1.01	.81	.76	.33	.23	....
42	1.44	1.14	.77	.42	....	....
43	1.61	1.16	.59	....	....	....
44	1.45	0.73	....	....	....	....
45	0.84	....	....	....	....	....

TOTAL MEAN RESERVES FOR PAYMENT OF CLAIM

FIFTEEN-YEAR ENDOWMENT, ILLINOIS STANDARD, AGE LIMIT 60. IN YEAR

Age	1	2	3	4	5	6	7	8
20	0.07	0.08	0.08	0.08	0.07	0.06	0.06	0.06
21	.07	.08	.08	.08	.07	.06	.06	.06
22	.07	.08	.08	.08	.07	.06	.06	.06
23	.07	.08	.08	.08	.07	.06	.06	.06
24	.07	.08	.08	.08	.07	.06	.06	.06
25	.08	.09	.09	.09	.08	.07	.07	.07
26	.08	.09	.09	.09	.08	.07	.07	.07
27	.09	.10	.10	.10	.09	.08	.08	.08
28	.09	.10	.10	.10	.09	.08	.08	.08
29	.10	.11	.11	.10	.09	.09	.09	.09
30	.10	.11	.11	.10	.09	.09	.09	.09
31	.11	.12	.12	.11	.10	.10	.10	.10
32	.11	.12	.12	.11	.10	.10	.10	.10
33	.12	.13	.13	.12	.11	.11	.11	.11
34	.12	.13	.14	.13	.12	.12	.12	.12
35	.13	.14	.15	.14	.13	.13	.13	.13
36	.13	.14	.15	.14	.13	.13	.13	.13
37	.14	.14	.15	.14	.14	.14	.14	.14
38	.15	.15	.15	.15	.15	.15	.15	.15
39	.16	.16	.16	.16	.16	.16	.16	.16
40	.17	.17	.17	.17	.17	.17	.17	.17
41	.20	.20	.21	.22	.22	.22	.22	.19
42	.22	.23	.24	.26	.26	.25	.24	.23
43	.25	.27	.29	.30	.30	.30	.29	.27
44	.31	.36	.41	.46	.50	.52	.52	.49
45	.34	.43	.53	.61	.68	.73	.71	.73
46	.39	.56	.72	.85	.99	1.07	1.11	1.11
47	.50	.76	.99	1.21	1.37	1.53	1.58	1.67
48	.55	.83	1.09	1.32	1.48	1.62	1.65	1.66
49	.60	.91	1.19	1.43	1.60	1.71	1.72	1.65
50	.66	.99	1.29	1.54	1.72	1.81	1.80	1.64
51	.75	1.16	1.51	1.78	1.96	1.98	1.82	1.46
52	.89	1.37	1.76	2.04	2.17	2.05	1.67	1.03
53	1.03	1.57	1.99	2.32	2.12	1.79	1.23	....
54	1.17	1.75	2.12	2.20	1.95	1.30	....	....
55	1.30	1.84	2.09	2.07	1.40	....	....	....
56	1.45	1.93	1.98	1.51	....	....	....	....
57	1.61	1.85	1.62	....	....	....	....	....
58	1.71	1.71	....	....	....	....	....	....
59	2.02	....	....	....	....	....	....	....

TOTAL MEAN RESERVES FOR PAYMENT OF CLAIM—*Continued*

Age	9	10	11	12	13	14	15
20.......	0.06	0.06	0.06	0.06	0.06	0.06	0.02
21.......	.06	.06	.06	.06	.06	.06	.02
22.......	.06	.06	.06	.06	.06	.06	.02
23.......	.06	.06	.06	.06	.06	.06	.02
24.......	.06	.06	.06	.06	.06	.06	.02
25.......	.07	.07	.07	.07	.07	.07	.03
26.......	.07	.07	.07	.07	.07	.07	.03
27.......	.08	.08	.08	.08	.08	.08	.03
28.......	.08	.09	.09	.09	.08	.08	.03
29.......	.09	.10	.10	.10	.09	.09	.03
30.......	.10	.11	.11	.10	.09	.09	.04
31.......	.10	.11	.11	.10	.09	.09	.04
32.......	.11	.11	.11	.11	.10	.10	.04
33.......	.11	.12	.12	.11	.11	.11	.04
34.......	.12	.12	.12	.12	.12	.12	.04
35.......	.13	.13	.13	.13	.13	.13	.05
36.......	.13	.13	.13	.13	.13	.13	.05
37.......	.14	.14	.14	.14	.14	.14	.05
38.......	.15	.15	.15	.15	.15	.15	.05
39.......	.16	.16	.16	.16	.16	.16	.05
40.......	.17	.17	.17	.17	.17	.17	.06
41.......	.19	.19	.19	.19	.19	.19	.06
42.......	.22	.22	.22	.22	.22	.22	.07
43.......	.26	.25	.25	.25	.25	.25	.08
44.......	.44	.36	.29	.27	.27	.26	.09
45.......	.68	.61	.49	.35	.28	.27	.10
46.......	1.06	.97	.78	.50	.37	.35	....
47.......	1.61	1.46	1.18	.84	.42	....	....
48.......	1.51	1.32	1.25	1.01	....	....	....
49.......	1.41	1.18	0.99	....	....	....	....
50.......	1.31	.89	....	....	....	....	....
51.......	0.79	....	....	....	....	....	....

TOTAL MEAN RESERVES FOR PAYMENT OF CLAIM

Ten-Year Endowment, Illinois Standard, Age Limit 60. In Year

Age	1	2	3	4	5	6
20	0.05	0.07	0.07	0.07	0.07	0.05
21	.05	.07	.07	.07	.07	.05
22	.05	.07	.07	.07	.07	.05
23	.05	.07	.07	.07	.07	.05
24	.05	.07	.07	.07	.07	.05
25	.06	.07	.07	.07	.07	.06
26	.06	.07	.07	.07	.07	.07
27	.06	.07	.07	.07	.07	.07
28	.07	.08	.08	.08	.08	.08
29	.07	.08	.08	.08	.08	.08
30	.08	.08	.08	.08	.08	.08
31	.08	.08	.08	.08	.08	.08
32	.09	.09	.09	.09	.09	.09
33	.10	.10	.10	.10	.10	.10
34	.11	.11	.11	.11	.11	.11
35	.12	.12	.12	.12	.12	.12
36	.13	.13	.13	.13	.13	.13
37	.14	.14	.14	.14	.14	.14
38	.15	.15	.15	.15	.15	.15
39	.16	.16	.16	.16	.16	.16
40	.17	.17	.17	.17	.17	.17
41	.18	.18	.18	.18	.18	.18
42	.19	.19	.19	.19	.19	.19
43	.20	.20	.20	.20	.20	.20
44	.21	.21	.21	.21	.21	.21
45	.22	.22	.22	.22	.22	.22
46	.27	.28	.29	.29	.28	.26
47	.32	.33	.36	.36	.34	.30
48	.37	.40	.43	.43	.40	.35
49	.42	.47	.51	.51	.46	.40
50	.47	.55	.59	.59	.53	.45
51	.58	.74	.84	.98	.84	.71
52	.77	1.06	1.27	1.38	1.37	1.19
53	.96	1.35	1.65	1.76	1.65	1.38
54	1.18	1.67	1.95	1.96	1.72	1.22
55	1.37	1.86	2.06	2.05	1.41	....
56	1.56	2.09	2.13	1.58	....	....
57	1.92	2.17	1.67	....	....	....
58	2.02	2.02	....	....	....	....
59	2.27	....	....	....	....	....

TOTAL MEAN RESERVES FOR PAYMENT OF CLAIM—*Continued*

Age	7	8	9	10
20	0.04	0.03	0.03	0.01
21	.04	.03	.03	.01
22	.04	.04	.04	.01
23	.05	.04	.04	.01
24	.05	.05	.05	.01
25	.06	.06	.06	.02
26	.07	.06	.06	.02
27	.07	.06	.06	.02
28	.08	.07	.07	.02
29	.08	.07	.07	.02
30	.08	.07	.07	.02
31	.08	.08	.08	.02
32	.09	.09	.09	.02
33	.10	.10	.10	.02
34	.11	.11	.11	.02
35	.12	.12	.12	.03
36	.13	.13	.13	.03
37	.14	.14	.14	.04
38	.15	.15	.15	.04
39	.16	.16	.16	.04
40	.17	.17	.17	.05
41	.18	.18	.18	.05
42	.19	.19	.19	.05
43	.20	.20	.20	.05
44	.21	.21	.21	.05
45	.22	.22	.22	.06
46	.25	.25	.25	.07
47	.29	.29	.29	.08
48	.33	.33	.33	.09
49	.37	.37	.37	.10
50	.41	.41	.41	.11
51	.56	.50	.50	...
52	.92	.70	...	...
53	1.03	...	...	...

PART III

COMMUTATION COLUMNS AT 3 PER CENT INTEREST

APPLICATION OF NEW COLUMN N_x^{ai} TO WORKMEN'S COMPENSATION AND OLD AGE PENSIONS

and the annuity we have been seeking is

$$a_x^{ai} = \frac{N_{x+1}^{ii} - D_x^{ii} \cdot a_x^i}{l_x^{aa} \cdot v^x}$$

This may be expressed more symmetrically by writing $a_x^i = \mathrm{a}_{x-1}^i$ (that is to say, by using the immediate annuity), and the formula becomes

$$\frac{N_x^{ii} - D_x^{ii} \cdot \mathrm{a}_x^i}{D_x^{aa}}.$$

To gain this vantage ground, we assumed that waiver is allowed, regardless of the age at which (x) may become disabled.

This will not conform to the practice of most companies, as they usually set an age t (from ten to twenty-five years below ω, the age at which all lives are assumed to become disabled), above which the occurrence of total disability does not secure cessation of premium payments.

Our formula may be adjusted to this condition by the subtraction of an annuity similar in form to the first one, deferred $(t-x)$ years; i.e., an annuity at age x first payment due at the end of that year above age $(t-1)$, in which x may become totally disabled and to continue throughout life. This will give us a third annuity, first payment due at the end of the year in which a now active life (x^{aa}) becomes totally disabled and to continue throughout life, provided the disability occurs before age t.

Algebraically expressed this will be $a_x^{ai} - {}_{t-x|}a_x^{ai} = a_{x\,\overline{t-x}|}^{ai}$ or in commutation symbols,

$$\frac{N_x^{ii} - D_x^{ii} \cdot \mathrm{a}_x^i}{D_x^{aa}} - \frac{N_t^{ii} - D_t^{ii} \cdot \mathrm{a}_t^i}{D_x^{aa}} = \frac{N_x^{ii} - N_t^{ii} - (D_x^{ii} \cdot \mathrm{a}_x^i - D_t^{ii} \cdot \mathrm{a}_t^i)}{D_x^{aa}}$$

Companies having an age limit t may simplify this formula by the preparation of Special Commutation Columns, in which no lives are transferred from column l_x^{aa} to column l_x^{ii}, after the age t. In this case $\dfrac{N_t^{ii} - D_t^{ii} \cdot \mathrm{a}_t^i}{D_x^{aa}}$ becomes zero, and the formula reduces to $\dfrac{N_x^{ii} - D_x^{ii} \cdot \mathrm{a}_x^i}{D_x^{aa}}$ as before.

In converting the Single Premium into the annual premium, one point needs consideration. When a life attains age t, the term during which he might have secured the disability benefit ceases and the premium should also cease. Hence the Single Premium should be divided by $a^{aa}_{x\,\overline{t-x}|}=\dfrac{N^{aa}_{x}-N^{aa}_{t}}{D^{aa}_{x}}$ to produce the annual premium.

The derivation of the corresponding formulae for waiver of premium on a limited-payment policy, we will divide into two cases, (1) where the payment to be waived does not extend beyond the limiting age; i.e., $x+n<t$, and (2) where the payment term extends beyond that age; i.e., $x+n>t$.

Case (1) requires an annuity in which the first payment is due at the end of the year in which (x) becomes totally disabled, to continue until he reaches age $x+n$.

The formula will evidently be

$$\frac{N^{ii}_{x}-N^{ii}_{x+n}-D^{ii}_{x}\cdot a^{i}_{x\,\overline{n}|}}{D^{aa}_{x}}$$

for the Single Premium.

Case (2) in which $x+n>t$, presents a slight complication:

The waiver of premium offered in this case is equal to an annuity of π, first payment to be made at the end of the year, in which (x) becomes disabled and to continue until he attains age $(x+n)$, provided he becomes disabled before age t.

This is conveniently expressed as the difference of two annuities: (a), the case (1) annuity, first payment due at the end of the year in which (x) becomes disabled to continue to age $(x+n)$; and (b), a similar annuity at age (x) deferred $(t-x)$ years, to continue to age $(x+n)$, that is, first payment due at the end of that year above age $(t-1)$ in which (x) becomes disabled, to continue to age $(x+n)$.

Algebraically expressed this gives,

$$\frac{N^{ii}_{x}-N^{ii}_{x+n}-D^{ii}_{x}\cdot a^{i}_{x\,\overline{n}|}}{D^{aa}_{x}}-\frac{N^{ii}_{t}-N^{ii}_{x+n}-D^{ii}_{t}\cdot a^{i}_{t\,\overline{x+n-t}|}}{D^{aa}_{x}}$$

$$=\frac{N^{ii}_{x}-N^{ii}_{t}-D^{ii}_{x}\cdot a^{i}_{x\,\overline{n}|}+D^{ii}_{t}\cdot a^{i}_{t\,\overline{x+n-t}|}}{D^{aa}_{x}}$$

If special Commutation Columns were formed with reference to the limiting age t, this formula would reduce to that of case (1).

Here again the annual premium is obtained by dividing the Single Premium by the payment annuity for the term only during which the risk of total disability runs.

This annuity in case (1) is $a^{aa}_{x\,\overline{n-1}|}$ and in case (2) it is $a^{aa}_{x\,\overline{t-x}|}$.

In connection with the above, reference may be made to the article read by Mr. Arthur Hunter before the Actuarial Society of America, *Transactions* of May 18 and 19, 1911; also to the article of Franklin B. Mead, read before the same Society, *Transactions* of May 19 and 20, 1910, as well as the original paper by M. Hamza in the *Proceedings of the Third International Congress of Actuaries.* Reference may also be made to an article on this subject read by Lucius McAdam before the American Institute of Actuaries June 11, 1912, and printed in the *Record* of that Institute, Vol. I, No. 4, 1912.

WORKMEN'S COMPENSATION AND OLD AGE PENSIONS

It would seem that the new Commutation Column N_x^{ai} might be used in connection with the Calculation of Workmen's Compensation benefits and Old Age pensions.

For example, the annual premium to secure an annuity of one dollar per annum for life, in case of total disability occurring before attaining the age of $x+t$, will be

$$\frac{N_x^{ai}-N_{x+t}^{ai}}{N_x^{aa}-N_{x+t}^{aa}}.$$

The reserves may likewise be obtained from the Single Premiums and temporary annuities as heretofore shown.

The formula for an Old Age pension or deferred annuity by the ordinary tables will be $\frac{N_{x+t}}{N_x-N_{x+t}}$, which may be combined with the total disability benefit above mentioned.

In order to make the premiums payable by the lives l_x^{aa}, it may be necessary to divide the Single Premium in each case by the temporary annuity,

$$\frac{N_x^{aa}-N_{x+t}^{aa}}{D_x^{aa}}$$

The net premiums should be loaded for practical use, to cover expenses, taxes, and contingencies.

Inasmuch as these benefits are usually based on 3 per cent interest, the Commutation Columns have been computed for that rate also and are herewith given.

Table C′ was computed from the column q_x' as given by Mr. Mead, by starting at age 20 with a radix of 1,000,000.0 for D_x' and applying the formula $D_{x+1}'=D_x'(1-q_x')\cdot v$.

This method seems to produce smoother results, than to form columns of lives and deaths for the invalid lives, from which to compute Column D in the ordinary way.

COMMUTATION COLUMNS FOR TOTAL DISABILITY BENEFITS

BASED UPON MEAD'S ADJUSTED AMERICAN-MACCABEES TABLE AND 3 PER CENT INTEREST

TABLE C′

Commutation Columns for Invalid Lives—3 Per Cent

Age	D_x^i	N_x^i	Age	D_x^i	N_x^i
20	1000000.0	3034850.8	60	227.656	1473.434
21	582524.4	2034850.8	61	192.955	1245.778
22	369252.7	1452326.4	62	163.543	1052.823
23	249657.9	1083073.7	63	138.599	889.280
24	177499.5	833415.8	64	117.459	750.681
25	131211.8	655916.3	65	99.5323	633.2222
26	99937.6	524704.5	66	84.3416	533.6899
27	77854.3	424766.9	67	71.4611	449.3483
28	61678.8	346912.6	68	60.5477	377.8872
29	49474.8	285233.8	69	51.2951	317.3395
30	40055.4	235759.0	70	43.4514	266.0444
31	32662.7	195703.6	71	36.8029	222.5930
32	26789.8	163040.9	72	31.1646	185.7901
33	22082.1	136251.1	73	26.3810	154.6255
34	18300.3	114169.0	74	22.3214	128.2445
35	15221.2	95868.7	75	18.8757	104.9231
36	12700.1	80647.3	76	15.9491	86.0474
37	10626.2	67947.4	77	13.4607	70.0983
38	8912.6	57321.2	78	11.3410	56.6376
39	7490.9	48408.6	79	9.5286	45.2966
40	6306.9	40917.7	80	7.9698	35.7680
41	5318.0	34610.8	81	6.6196	27.7982
42	4489.8	29292.8	82	5.4075	21.1786
43	3794.5	24803.0	83	4.3349	15.7711
44	3209.5	21008.5	84	3.4023	11.4362
45	2716.5	17799.0	85	2.6049	8.0339
46	2300.6	15082.5	86	1.9332	5.4290
47	1949.3	12781.9	87	1.3782	3.4958
48	1652.2	10832.63	88	0.93263	2.11766
49	1400.7	9180.43	89	.59154	1.24393
50	1187.6	7779.73	90	.34694	0.652388
51	1006.9	6592.13	91	.18374	.305448
52	853.715	5585.23	92	.083397	.121708
53	723.834	4731.515	93	.029610	.038311
54	613.643	4007.681	94	.007641	.008701
55	520.226	3394.038	95	.001060	.001060
56	441.031	2873.812			
57	373.849	2432.781			
58	316.901	2058.932			
59	268.597	1742.031			

TABLE E′

Evolution of the New Column—3 Per Cent

Age	$N^{ii}_x = N_x - N^{aa}_x$	$D^{ii}_x = D_x - D^{aa}_x$	$\frac{N^i_x}{D^i_x} = a^i_x$	$D^{ii}_x \cdot a^i_x$	$N^{ai}_x = N^{ii}_x - a^i_x \cdot D^{ii}_x$
20	31457.76	0.00	3.0349	0.00	31457.76
21	31457.78	4.87	3.4932	17.01	31440.77
22	31452.91	8.01	3.9331	31.50	31421.41
23	31444.90	11.63	4.3382	50.45	31394.45
24	31433.27	15.23	4.6953	71.51	31361.76
25	31418.04	19.54	4.9989	97.68	31320.36
26	31398.50	24.10	5.2503	126.53	31271.97
27	31374.40	29.27	5.4547	159.66	31214.74
28	31345.13	34.07	5.6245	191.63	31153.50
29	31311.06	38.65	5.7652	222.82	31088.24
30	31272.41	42.83	5.8858	252.09	31020.32
31	31229.58	46.41	5.9917	278.07	30951.51
32	31183.17	49.71	6.0859	302.53	30880.64
33	31133.46	52.81	6.1702	325.85	30807.61
34	31080.65	55.63	6.2386	347.05	30733.60
35	31025.02	57.96	6.2984	365.06	30660.14
36	30967.06	60.76	6.3501	385.83	30581.23
37	30906.30	63.97	6.3943	409.04	30487.26
38	30842.33	67.33	6.4315	433.03	30409.30
39	30775.00	70.69	6.4623	456.82	30318.18
40	30704.31	74.18	6.4877	481.26	30223.05
41	30630.13	77.38	6.5082	503.60	30126.53
42	30552.75	80.35	6.5243	524.23	30028.54
43	30472.40	83.31	6.5366	544.56	29927.84
44	30389.09	86.33	6.5457	565.09	29824.00
45	30302.76	88.82	6.5522	581.97	29720.79
46	30213.94	91.11	6.5559	597.31	29616.63
47	30122.83	93.45	6.5572	612.77	29510.06
48	30029.38	95.09	6.5565	623.46	29405.92
49	29934.29	97.06	6.5542	636.15	29298.14

TABLE E′—*Continued*

Age	$N_x^{ii}=N_x-N_x^{aa}$	$D_x^{ii}=D_x-D_x^{aa}$	$\frac{N_x^i}{D_x^i}=a_x^i$	$D_x^{ii}\cdot a_x^i$	$N_x^{ai}=N_x^{ii}-a_x^i\cdot D_x^{ii}$
50.	29837.23	99.24	6.5508	650.10	29187.13
51.	29737.99	102.11	6.5469	668.50	29069.49
52.	29635.88	105.77	5.5423	691.98	28943.90
53.	29530.11	110.44	6.5368	721.92	28808.19
54.	29419.67	116.14	6.5309	758.50	28661.17
55.	29303.53	123.58	6.5242	806.26	28497.27
56.	29179.95	133.92	6.5161	872.64	28307.31
57.	29046.03	148.37	6.5074	965.50	28080.53
58.	28897.66	167.82	6.4971	1090.34	27807.32
59.	28729.84	191.79	6.4857	1243.89	27485.95
60.	28538.05	222.826	6.4722	1442.14	27095.91
61.	28315.224	261.213	6.4563	1686.47	26628.75
62.	28054.011	305.566	6.4376	1967.11	26086.90
63.	27748.445	356.472	6.4162	2278.20	25461.25
64.	27391.973	417.715	6.3910	2669.62	24722.35
65.	26974.258	494.887	6.3620	3148.47	23825.79
66.	26479.371	593.889	6.3277	3757.95	22721.42
67.	25885.482	720.108	6.2880	4528.05	21357.43
68.	25165.374	876.417	6.2412	5469.89	19695.48
69.	24288.957	1060.733	6.1865	6562.22	17726.74
70.	23228.324	1265.384	6.1228	7747.69	15480.63
71.	21962.940	1477.184	6.0483	8934.45	13028.49
72.	20485.756	1674.290	5.9616	9981.45	10504.31
73.	18811.466	1833.445	5.8612	10746.19	8065.28
74.	16978.021	1935.117	5.7454	11118.02	5860.00
75.	15042.904	1967.661	5.5586	10937.44	4105.46
76.	13075.243	1930.128	5.3951	10413.23	2662.01
77.	11145.115	1834.582	5.2076	9553.77	1591.35
78.	9310.533	1695.005	4.9940	8464.85	845.68
79.	7615.528	1526.770	4.7538	7257.96	357.57
80.	6088.758	1333.910	4.4879	5986.45	102.31

TABLE F'

FINAL COMMUTATION COLUMNS, NEW METHOD—3 PER CENT

Age	D_x^{aa}	N_x^{aa}	N_x^{ai}
20	51290.88	1146751.85	31457.76
21	49403.44	1095460.97	31440.77
22	47584.41	1046057.53	31421.41
23	45829.28	998473.12	31394.45
24	44136.32	952643.84	31361.76
25	42502.64	908507.52	31320.36
26	40926.65	866004.88	31271.97
27	39405.49	825078.23	31214.74
28	37938.28	785672.74	31153.50
29	36523.04	747734.46	31088.24
30	35157.73	711211.42	31020.32
31	33840.90	676053.69	30951.51
32	32570.60	642212.79	30880.64
33	31344.81	609642.19	30807.61
34	30161.74	578297.38	30733.60
35	29020.22	548135.64	30660.14
36	27917.92	519115.42	30581.23
37	26852.91	491197.50	30497.26
38	25824.25	464344.59	30409.30
39	24830.26	438520.34	30318.18
40	23869.75	413690.08	30223.05
41	22941.46	389820.33	30126.53
42	22044.39	366878.87	30028.54
43	21176.79	344834.48	29927.84
44	20337.47	323657.69	29824.00
45	19525.38	303320.22	29720.79
46	18739.23	283794.84	29616.63
47	17977.06	265055.61	29510.06
48	17238.56	247078.55	29405.92
49	16521.21	229839.99	29298.14

TABLE F′—*Continued*

Age	D_x^{aa}	N_x^{aa}	N_x^{ai}
50	15823.55	213318.78	29178.13
51	15143.86	197495.23	29069.49
52	14480.91	182351.37	28943.90
53	13833.45	167870.46	28808.19
54	13200.51	154037.01	28661.17
55	12580.30	140836.50	28497.27
56	11970.89	128256.20	28307.31
57	11370.18	116285.31	28080.53
58	10776.65	104915.13	27807.32
59	10190.20	94138.48	27485.95
60	9607.606	83948.28	27095.91
61	9028.130	74340.675	26628.75
62	8452.752	65312.545	26086.90
63	7880.668	56859.793	25461.25
64	7308.059	48979.125	24722.35
65	6729.288	41671.066	23825.79
66	6138.420	34941.778	22721.42
67	5530.435	28803.358	21357.43
68	4902.925	23272.923	19695.48
69	4258.495	18369.998	17726.74
70	3605.779	14111.403	15480.63
71	2958.919	10505.624	13028.49
72	2341.178	7546.705	10504.31
73	1777.620	5205.527	8065.28
74	1289.676	3427.907	5860.00
75	890.734	2138.231	4105.46
76	583.121	1247.497	2662.01
77	355.824	664.376	1591.35
78	195.412	308.552	845.68
79	86.826	113.140	357.57
80	26.314	26.314	102.31