

**TRANSACTIONS OF SOCIETY OF ACTUARIES
1950 REPORTS**

**1950 REPORT OF THE COMMITTEE ON GROUP MORTALITY
AND MORBIDITY**

SECTION III—GROUP ANNUITY MORTALITY

THIS report deals with the experience on matured lives for the years 1948 and 1949, and brings forward the combined experience to the end of 1949. The Committee has decided to discontinue the active life study undertaken in previous years since the study had some limitations which made it subject to possible misunderstanding. Moreover, other sources of information regarding mortality on active lives are available.

The current study has been prepared on the same basis as the previous reports and is subdivided between cases of retirement on and after normal retirement date, and cases of retirement prior to normal retirement date. Tables I and II show the experience for the years 1948 and 1949 subdivided by attained age; Tables III and IV show the combined experience for the years 1948 and 1949 as well as the composite of the new experience with the experience for previous years. Attention is directed to the fact that there were a number of deaths reported in 1948 which were actually incurred prior to 1948. The figures in this report relating to the 1946-1947 experience have been adjusted to recognize these deaths and these figures are intended to supersede the comparable figures included in the last preceding report.

The mortality for the years 1948-1949 shows no significant variation from the experience of the two preceding years, although it indicates a continuance of a lower level of mortality than was experienced during the prewar years.

The following companies have contributed experience for the investigation covered by this section:

Aetna Life Insurance Company
Canada Life Assurance Company
Confederation Life Association
Connecticut General Life Insurance Company
Equitable Life Assurance Society
Great-West Life Assurance Company
John Hancock Life Insurance Company
Metropolitan Life Insurance Company
Prudential Insurance Company of America
Sun Life Assurance Company of Canada
Travelers Insurance Company

TABLE I

Inter-company Group Annuity Mortality Matured Life Experience for the Years 1948 and 1949 Combined
Retirement on or after Normal Retirement Date

Attained Age	Number of Lives		Amount of Annual Income (Dollars)		By Combined Annuity Table				By 1937 Standard Annuity Table			
					Number of Lives		Amount of Annual Income (Dollars)		Number of Lives		Amount of Annual Income (Dollars)	
	Exposed	Actual Deaths	Exposed	Actual Deaths	Expected Deaths	Ratio*	Expected Deaths	Ratio*	Expected Deaths	Ratio*	Expected Deaths	Ratio*
Men												
50 & under	9.25	2	16,000	1,023	.08	(†) †	161	(†) †	.08	(†) †	145	(†) †
51-55	73.85	—	153,830	—	1.00	(†) †	2,126	(†) †	.92	(†) †	1,879	(†) †
56-60	499.01	10	588,702	23,527	10.67	(201) 94	12,391	(160) 190	9.20	(233) 109	10,678	(185) 220
61-65	17,945.59	509	12,127,469	344,852	601.51	(76) 85	403,825	(75) 85	505.50	(91) 101	339,473	(89) 102
66-70	54,972.39	2,031	33,772,485	1,235,812	2,341.43	(83) 87	1,437,878	(91) 86	1,942.02	(100) 105	1,192,605	(110) 104
71-75	23,127.22	1,333	15,735,663	864,251	1,450.19	(91) 92	988,713	(95) 87	1,178.62	(112) 113	803,476	(116) 108
76-80	8,127.16	727	6,330,572	528,954	748.99	(96) 97	586,900	(86) 90	597.33	(120) 122	467,906	(108) 113
81-85	2,515.58	382	2,384,242	410,933	334.81	(104) 114	316,789	(106) 130	262.68	(132) 145	248,562	(135) 165
86-90	533.17	91	473,728	70,231	102.01	(95) 89	91,622	(85) 77	78.95	(123) 115	70,912	(110) 99
91-95	70.00	25	51,493	21,780	18.62	(129) 134	13,705	(138) 159	14.30	(168) 175	10,526	(179) 207
96 & over	28.00	3	16,500	1,068	12.65	(†) †	7,290	(†) †	10.61	(†) †	6,035	(†) †
Total.....	107,901.22	5,113	71,650,684	3,502,431	5,621.96	(88) 91	3,861,400	(91) 91	4,600.21	(108) 111	3,152,197	(112) 111

Women

50 & under	7.25	—	3,760	—	.07	(†%) † %	27	(†%) † %	.07	(†%) † %	23	(†%) † %
51-55	226.60	1	100,892	224	2.51	(†) †	1,106	(†) †	2.07	(†) †	916	(†) †
56-60	1,858.24	18	796,753	7,617	28.69	(†) 63	12,349	(†) 62	23.32	(†) 77	10,045	(†) 76
61-65	5,182.69	73	2,240,881	30,605	113.41	(53) 64	48,818	(61) 63	90.42	(67) 81	38,953	(76) 79
66-70	5,415.45	110	2,163,220	46,710	167.00	(70) 66	66,846	(64) 70	130.82	(89) 84	52,339	(82) 89
71-75	2,341.32	82	1,128,168	41,206	107.53	(113) 76	52,319	(113) 79	82.46	(147) 99	40,091	(147) 103
76-80	837.33	56	457,035	29,284	56.77	(94) 99	30,733	(86) 95	42.64	(125) 131	23,115	(115) 127
81-85	199.00	21	108,631	14,922	19.45	(161) 108	10,409	(177) 143	14.34	(218) 146	7,701	(240) 194
86-90	45.00	5	27,847	4,194	6.50	(†) †	3,916	(†) †	4.70	(†) †	2,849	(†) †
91-95	5.00	1	2,854	626	1.09	(†) †	616	(†) †	.78	(†) †	443	(†) †
96 & over	2.00	—	480	—	.76	(†) †	182	(†) †	.54	(†) †	132	(†) †
Total.....	16,119.88	367	7,030,521	175,388	503.78	(81) 73	227,321	(81) 77	392.16	(104) 94	176,607	(104) 99

* Percentages in parentheses are for the period 1946-47.

† Fewer than 10 deaths.

TABLE II
Inter-company Group Annuity Mortality Matured Life Experience for the Years 1948 and 1949 Combined
Retirement Prior to Normal Retirement Date

Attained Age	Number of Lives		Amount of Annual Income (Dollars)		By Combined Annuity Table				By 1937 Standard Annuity Table			
	Exposed	Actual Deaths	Exposed	Actual Deaths	Number of Lives		Amount of Annual Income (Dollars)		Number of Lives		Amount of Annual Income (Dollars)	
					Expected Deaths	Ratio*	Expected Deaths	Ratio*	Expected Deaths	Ratio*	Expected Deaths	Ratio*
<i>Men</i>												
50 & Under	208.10	4	30,558	214	1.86	(+%) † %	279	(+%) † %	1.66	(+%) † %	252	(+%) † %
51-55	984.50	33	383,711	9,662	14.17	(331) 233	5,565	(183) 174	12.46	(376) 265	4,898	(208) 197
56-60	5,408.85	235	2,508,166	90,240	109.92	(224) 214	51,048	(183) 177	94.92	(260) 248	44,088	(212) 205
61-65	10,937.02	524	6,104,860	244,793	323.65	(173) 162	180,948	(153) 135	273.79	(205) 191	153,061	(181) 160
66-70	6,753.39	354	3,918,514	186,500	287.25	(123) 123	166,787	(108) 112	238.26	(148) 149	138,341	(131) 135
71-75	2,919.64	200	2,043,643	124,409	182.91	(111) 109	128,351	(103) 97	148.68	(136) 135	104,311	(127) 119
76-80	971.75	105	842,484	92,276	88.63	(117) 118	78,051	(101) 118	70.68	(147) 149	62,229	(127) 148
81-85	135.92	12	155,992	11,795	17.74	(†) 68	19,992	(†) 59	13.90	(†) 86	15,708	(†) 75
86 & Over	12.00	2	5,405	1,258	2.84	(†) †	1,025	(†) †	2.27	(†) †	795	(†) †
Total	28,331.17	1,469	15,993,333	761,147	1,028.97	(148) 143	632,046	(125) 120	856.62	(178) 171	523,683	(151) 145

Women

50 & Under	71.15	—	15,300	—	.45	(†%)	† %	102	(†%)	† %	.37	(†%)	† %	87	(†%)	† %
51-55	504.40	5	131,727	647	5.06	(280)	†	1,334	(372)	†	4.22	(338)	†	1,109	(446)	†
56-60	1,264.72	23	368,402	6,570	18.50	(89)	124	5,440	(81)	121	15.12	(109)	152	4,439	(99)	148
61-65	1,356.42	26	456,970	6,798	28.72	(80)	91	9,701	(99)	70	22.93	(100)	113	7,755	(124)	88
66-70	722.89	27	249,700	10,830	22.48	(98)	120	7,775	(81)	139	17.58	(126)	154	6,083	(104)	178
71-75	339.33	15	146,922	5,433	15.38	(†)	98	6,760	(†)	80	11.82	(†)	127	5,181	(†)	105
76-80	76.58	9	40,798	4,399	5.21	(†)	†	2,702	(†)	†	3.88	(†)	†	2,034	(†)	†
81-85	14.00	2	10,386	1,567	1.31	(†)	†	1,000	(†)	†	.99	(†)	†	739	(†)	†
86 & Over	8.00	—	5,390	—	1.59	(†)	†	1,039	(†)	†	1.14	(†)	†	752	(†)	†
Total	4,357.49	107	1,425,595	36,244	98.70	(103)	108	35,853	(99)	101	78.05	(131)	137	28,179	(125)	129

* Percentages in parentheses are for the period 1946-47.

† Fewer than 10 deaths.

TABLE III
Intercompany Group Annuity Mortality Matured Life Experience to December 31, 1949
Retirement on or after Normal Retirement Date

Calendar Year	Number of Lives		Amount of Annual Income (Dollars)		By Combined Annuity Table				By 1937 Standard Annuity Table			
					Number of Lives		Amount of Annual Income (Dollars)		Number of Lives		Amount of Annual Income (Dollars)	
	Exposed	Actual Deaths	Exposed	Actual Deaths	Expected Deaths	Ratio	Expected Deaths	Ratio	Expected Deaths	Ratio	Expected Deaths	Ratio
<i>Men</i>												
1924-1940	56,449.77	2,909	59,602,837	2,970,512	2,905.31	100%	3,136,516	95%	2,377.66	122%	2,563,378	116%
1941-1945	114,011.55	5,830	86,617,580	4,763,390	5,999.22	97	4,809,318	99	4,903.63	119	3,918,008	122
1946-1947	79,933.88	3,674	54,388,301	2,712,996	4,175.81	88	2,976,659	91	3,415.82	108	2,427,470	112
1948	50,058.67	2,399	33,333,648	1,733,749	2,611.52	92	1,806,696	96	2,136.66	112	1,474,305	118
1949	57,842.55	2,714	38,317,036	1,768,682	3,010.44	90	2,054,704	86	2,463.55	110	1,677,892	105
1948-1949	107,901.22	5,113	71,650,684	3,502,431	5,621.96	91	3,861,400	91	4,600.21	111	3,152,197	111
1924-1949	358,296.42	17,526	272,259,402	13,949,329	18,702.30	94	14,783,893	94	15,297.32	115	12,061,053	116
<i>Women</i>												
1925-1940	9,905.51	274	5,821,092	153,349	282.42	97%	162,575	94%	220.89	124%	127,330	120%
1941-1945	17,451.84	480	8,915,053	234,277	531.27	90	274,306	85	413.97	116	213,750	110
1946-1947	11,644.92	292	5,404,541	140,533	361.71	81	173,087	81	281.67	104	134,552	104
1948	7,326.10	167	3,246,790	82,212	229.06	73	105,266	78	178.28	94	81,769	101
1949	8,793.78	200	3,783,731	93,176	274.72	73	122,055	76	213.88	94	94,838	98
1948-1949	16,119.88	367	7,030,521	175,388	503.78	73	227,321	77	392.16	94	176,607	99
1925-1949	55,122.15	1,413	27,171,207	703,547	1,679.18	84	837,289	84	1,308.69	108	652,239	108

TABLE IV
Intercompany Group Annuity Mortality Matured Life Experience to December 31, 1949
Retirement Prior to Normal Retirement Date

Calendar Year	Number of Lives		Amount of Annual Income (Dollars)		By Combined Annuity Table				By 1937 Standard Annuity Table			
					Number of Lives		Amount of Annual Income (Dollars)		Number of Lives		Amount of Annual Income (Dollars)	
	Exposed	Actual Death	Exposed	Actual Deaths	Expected Deaths	Ratio	Expected Deaths	Ratio	Expected Deaths	Ratio	Expected Deaths	Ratio
<i>Men</i>												
1924-1940	16,844.97	741	14,831,901	606,021	560.79	132%	490,188	124%	469.98	158%	411,125	147%
1941-1945	26,414.88	1,473	17,961,619	785,776	979.97	150	700,468	112	815.75	181	581,375	135
1946-1947	19,463.48	1,057	11,555,808	577,231	714.66	148	462,127	125	594.87	178	382,751	151
1948	12,885.12	642	7,347,146	353,610	468.54	137	291,383	121	390.03	165	241,395	146
1949	15,446.05	827	8,646,187	407,537	560.43	148	340,663	120	466.59	177	282,288	144
1948-1949	28,331.17	1,469	15,993,333	761,147	1,028.97	143	632,046	120	856.62	171	523,683	145
1924-1949	91,054.50	4,740	60,342,661	2,730,175	3,284.39	144	2,284,829	119	2,737.22	173	1,898,934	144
<i>Women</i>												
1927-1940	1,923.08	45	808,383	20,465	34.17	132%	15,094	136%	27.41	164%	12,098	169%
1941-1945	3,899.75	100	1,447,564	37,805	82.66	121	33,121	114	65.75	152	26,211	144
1946-1947	3,127.54	71	1,063,905	25,507	68.63	103	25,841	99	54.36	131	20,343	125
1948	1,998.73	54	663,806	18,322	45.01	120	16,578	111	35.61	152	13,032	141
1949	2,358.76	53	761,789	17,922	53.69	99	19,275	93	42.44	125	15,147	118
1948-1949	4,357.49	107	1,425,595	36,244	98.70	108	35,853	101	78.05	137	28,179	129
1927-1949	13,307.86	323	4,745,447	120,021	284.16	114	109,909	109	225.57	143	86,831	138

