

**TRANSACTIONS OF SOCIETY OF ACTUARIES
1951 REPORTS**

SECTION IV. GROUP ANNUITY MORTALITY

THE current study has been prepared on the same basis as the previous reports. Tables I and II show the experience for the year 1950 by attained age respectively for lives retiring on and after normal retirement date and lives retiring prior to normal retirement date. Tables III and IV summarize similarly the experience for the years 1946

**TABLE I
INTERCOMPANY GROUP ANNUITY MORTALITY
MATURED LIFE EXPERIENCE FOR THE YEAR 1950
RETIREMENT ON OR AFTER NORMAL RETIREMENT DATE**

ATTAINED AGES	NUMBER OF LIVES		AMOUNT OF ANNUAL INCOME		COMPARISON WITH 1937 STANDARD ANNUITY TABLE			
					By Number of Lives		By Amount of Annual Income	
	Exposed	Actual Deaths	Exposed	Actual Deaths	Expected Deaths	Ratio# Act./Exp.	Expected Deaths	Ratio# Act./Exp.
MEN								
50 and under..	4 67		\$ 3,201		0.04	(*) * %	\$ 26	(*) * %
51-55.....	62 50		119,777		0.79	(*) *	1,498	(*) *
56-60.....	317 45	6	395,672	7,026	5.86	(109) *	7,225	(220) *
61-65.....	10,726 25	283	7,266,303	173,211	302.31	(101) 94	203,680	(102) 85
66-70.....	34,662 87	1,251	21,605,167	727,724	1,225.52	(105) 102	761,595	(104) 96
71-75.....	14,498 65	801	9,604,220	531,692	738.60	(113) 108	490,386	(108) 108
76-80.....	5,081 72	418	3,812,216	299,193	372.70	(122) 112	280,748	(113) 107
81-85.....	1,499 66	205	1,351,430	153,441	156.88	(145) 131	141,060	(165) 109
86-90.....	336 00	70	318,898	50,130	49.71	(115) 141	47,896	(99) 105
91-95.....	41 00	15	30,365	11,341	8.32	(175) 180	6,188	(207) 183
96 and over...	8 00	1	6,216	420	2.69	(*) *	2,200	(*) *
All.....	67,238 77	3,050	\$44,513,465	\$1,954,178	2,863.42	(111) 107%	\$1,942,502	(111) 101%
WOMEN								
50 and under..	6 50		\$ 2,050		0.03	(*) * %	\$ 10	(*) * %
51-55.....	156 19	2	68,263	548	1.42	(77) *	616	(*) *
56-60.....	1,097 23	5	497,916	2,206	13.82	(*) *	6,301	(76) *
61-65.....	3,277 96	39	1,376,683	21,145	57.23	(81) 68	23,885	(79) 89
66-70.....	3,819 02	62	1,487,351	22,837	92.29	(84) 67	36,075	(89) 63
71-75.....	1,446 75	59	626,310	22,275	51.24	(99) 115	22,330	(103) 100
76-80.....	589 00	32	332,024	18,771	29.85	(131) 107	16,764	(127) 112
81-85.....	180 00	20	91,047	9,023	13.16	(146) 152	6,665	(194) 135
86-90.....	47 00	11	22,500	5,170	4.97	(*) 221	2,405	(*) 215
91-95.....	3 00	2	1,208	949	0.43	(*) *	182	(*) *
96 and over...	2 00		718		0.50	(*) *	164	(*) *
All.....	10,624 65	232	\$ 4,506,070	\$ 102,924	264.94	(94) 88%	\$ 115,397	(99) 89%

Percentages in parentheses are for the period 1948-1949.
* Fewer than 10 deaths.

TABLE II
INTERCOMPANY GROUP ANNUITY MORTALITY
MATURED LIFE EXPERIENCE FOR THE YEAR 1950
RETIREMENT PRIOR TO NORMAL RETIREMENT DATE

ATTAINED AGES	NUMBER OF LIVES		AMOUNT OF ANNUAL INCOME		COMPARISON WITH 1937 STANDARD ANNUITY TABLE			
	Exposed	Actual Deaths	Exposed	Actual Deaths	By Number of Lives		By Amount of Annual Income	
					Expected Deaths	Ratio ^a Act./Exp.	Expected Deaths	Ratio ^a Act./Exp.
MEN								
50 and under	117.77	5	\$ 18,197	\$ 466	0.91	(*) * %	\$ 151	(*) * %
51-55	559.71	22	218,319	5,392	7.10	(265) 310	2,801	(197) 193
56-60	3,580.70	149	1,642,666	47,032	62.69	(248) 238	29,042	(205) 162
61-65	6,981.41	348	3,958,551	169,522	175.10	(191) 199	99,498	(160) 170
66-70	4,420.30	234	2,490,341	107,251	155.56	(149) 150	87,599	(135) 122
71-75	1,767.08	126	1,167,843	86,863	90.35	(135) 139	60,038	(119) 145
76-80	609.00	49	491,127	30,218	44.43	(149) 110	36,465	(148) 83
81-85	119.00	17	124,226	12,614	12.27	(86) 139	12,877	(75) 98
86 and over	9.00	1	6,279	245	1.31	(*) *	903	(*) *
All	18,163.97	951	\$10,117,549	\$459,603	549.72	(171) 173%	\$329,374	(145) 140%
WOMEN								
50 and under	49.69	1	\$ 8,150	0.26	(*) * %	\$ 47	(*) * %	
51-55	287.57	1	66,532	2.31	(*) *	557	(*) *	
56-60	790.93	9	225,071	3,802	9.43	(152) *	2,701	(148) *
61-65	931.75	17	302,271	3,396	15.77	(113) 108	5,126	(88) 66
66-70	482.09	11	169,411	4,501	11.70	(154) 94	4,121	(178) 109
71-75	211.25	11	81,603	3,853	7.51	(127) 146	2,914	(105) 132
76-80	49.41	4	30,443	1,192	2.45	(*) *	1,516	(*) *
81-85	12.25	1	6,179	0.88	(*) *	465	(*) *	
86 and over	4.00	1	2,695	399	0.63	(*) *	417	(*) *
All	2,818.94	54	\$ 892,355	\$ 17,374	51.04	(137) 106%	\$ 17,864	(129) 97%

^a Percentages in parentheses are for the period 1948-1949.

* Fewer than 10 deaths.

TABLE III
INTERCOMPANY GROUP ANNUITY MORTALITY
MATURED LIFE EXPERIENCE FOR THE YEARS 1946-1950 COMBINED
RETIREMENT ON OR AFTER NORMAL RETIREMENT DATE

ATTAINED AGES	NUMBER OF LIVES		AMOUNT OF ANNUAL INCOME		COMPARISON WITH 1937 STANDARD ANNUITY TABLE			
	Exposed	Actual Deaths	Exposed	Actual Deaths	By Number of Lives		By Amount of Annual Income	
					Expected Deaths	Ratio# Act./Exp.	Expected Deaths	Ratio# Act./Exp.
MEN								
50 and under	30.34	2*	60,432*	1,023	0.27	(*) * %*	531	(*) * %
51-55	186.45	1	370,738	2,098	2.33	(359) *	4,541	(243) *
56-60	1,288.11	36	1,564,856	49,591	23.66	(142) 152	28,196	(198) 176
61-65	42,150.93	1,135	28,395,096	742,293	1,186.64	(103) 96	793,865	(109) 94
66-70	129,871.92	4,697	80,523,597	2,944,849	4,587.82	(112) 102	2,846,997	(110) 103
71-75	54,522.25	3,102	37,172,639	2,100,535	2,777.73	(119) 112	1,898,850	(130) 111
76-80	19,632.90	1,714	15,574,606	1,262,242	1,442.49	(131) 119	1,151,134	(129) 110
81-85	5,906.38	849	5,512,046	815,206	617.62	(151) 137	575,179	(131) 142
86-90	1,259.93	232	1,177,913	182,989	186.50	(142) 124	175,857	(147) 104
91-95	170.42	61	163,711	64,567	35.11	(126) 174	34,262	(94) 188
96 and over	54.24	8	36,816	4,212	19.28	(*) *	12,757	(*) *
All	255,073.87	11,837	\$170,552,450	\$8,169,605	10,879.45	(119) 109%*	\$7,522,169	(122) 109%*
WOMEN								
50 and under	19.58	5*	9,217	1,258	0.13	(*) * %*	51	(*) * %
51-55	576.83	31	247,464*	11,779	5.28	(*) *	2,246	(*) *
56-60	4,323.08	31	1,887,785	101,527	54.27	(59) 57	23,813	(51) 49
61-65	12,276.88	156	5,413,709	75,177	213.47	(100) 73	93,659	(98) 80
66-70	13,023.63	254	5,254,349	101,527	315.37	(102) 81	127,574	(99) 80
71-75	5,473.72	228	2,667,787	111,094	192.98	(137) 118	94,779	(118) 117
76-80	2,027.07	126	1,111,208	66,775	102.78	(156) 123	56,184	(150) 119
81-85	519.16	63	273,021	37,000	37.59	(189) 168	19,805	(176) 187
86-90	131.00	24	68,441	12,347	13.59	(220) 177	7,079	(231) 174
91-95	13.00	4	6,593	1,888	1.90	(*) *	982	(*) *
96 and over	5.50	1	1,558	1,558	1.41	(*) *	384	(*) *
All	38,389.45	891	\$16,941,132	\$1,418,845	938.77	(116) 95%*	\$426,556	(110) 98%*

* Percentages in parentheses are for the period 1941-1945.

* Fewer than 10 deaths.

through 1950 combined. Table V compares the combined experience for the year 1950 of lives retiring on and after normal retirement date with that for previous periods, and shows the composite of the new experience with the experience of previous years. The expected deaths shown are according to the 1937 Standard Annuity Table.

The mortality rates for the year 1950, as indicated by the tables, are somewhat lower than those for the preceding years. Some of this decrease may be due to statistical fluctuation, especially with respect to female

TABLE IV
INTERCOMPANY GROUP ANNUITY MORTALITY
MATURED LIFE EXPERIENCE FOR THE YEARS 1946-1950 COMBINED
RETIREMENT PRIOR TO NORMAL RETIREMENT DATE

ATTAINED AGES	NUMBER OF LIVES		AMOUNT OF ANNUAL INCOME		COMPARISON WITH 1937 STANDARD ANNUITY TABLE			
					By Number of Lives		By Amount of Annual Income	
	Exposed	Actual Deaths	Exposed	Actual Deaths	Expected Deaths	Ratio [#] Act./Exp.	Expected Deaths	Ratio [#] Act./Exp.
MEN								
50 and under	471.62	12	\$ 79,975	\$ 898	3.72	(*) 323%	\$ 667	(*) 135%
51-55.....	2,245.47	88	1,015,533	25,893	28.34	(343) 311	12,911	(308) 201
56-60.....	12,462.67	543	5,741,463	196,735	218.78	(315) 248	101,202	(226) 194
61-65.....	25,200.37	1,245	14,230,809	603,964	631.12	(200) 197	357,379	(156) 169
66-70.....	16,099.10	847	9,435,483	435,826	568.89	(151) 149	334,497	(113) 130
71-75.....	6,915.13	480	4,794,536	313,735	352.31	(141) 136	244,896	(112) 128
76-80.....	2,217.09	221	2,020,972	185,363	160.78	(152) 137	148,154	(122) 125
81-85.....	319.59	37	330,814	31,648	32.68	(*) 113	33,672	(*) 94
86 and over	27.58	4	17,105	3,919	4.59	(*) *	2,430	(*) *
All.....	65,958.62	3,477	\$37,666,690	\$1,797,981	2,001.21	(181) 174%	\$1,235,808	(135) 145%
WOMEN								
50 and under	173.16	2	\$ 36,901	\$ 417	0.94	(*) * %	\$ 211	(*) * %
51-55.....	1,225.04	18	312,216	5,076	10.18	(*) 177	2,607	(*) 195
56-60.....	2,985.23	44	883,817	13,790	35.52	(153) 124	10,599	(156) 130
61-65.....	3,176.08	58	1,067,183	16,664	53.68	(135) 108	18,078	(126) 92
66-70.....	1,758.97	55	625,037	20,580	42.82	(160) 128	15,264	(171) 135
71-75.....	755.84	35	325,205	12,980	26.43	(177) 132	11,495	(156) 113
76-80.....	177.82	16	96,458	7,292	8.92	(*) 179	4,804	(*) 152
81-85.....	36.25	3	24,334	1,927	2.62	(*) *	1,770	(*) *
86 and over	15.58	1	10,704	399	2.34	(*) *	1,558	(*) *
All.....	10,303.97	232	\$ 3,381,855	\$ 79,125	183.45	(152) 126%	\$ 66,386	(144) 119%

Percentages in parentheses are for the period 1941-1945.

* Fewer than 10 deaths.

lives, but it is quite probable that some of the decrease is also due to the long-range downward trend in mortality rates which has been observed in other studies, and which is illustrated in the comparison of 1941-1945 with 1946-1950 experience shown in Tables III and IV.

TABLE V
INTERCOMPANY GROUP ANNUITY MORTALITY
MATURED LIFE EXPERIENCE TO 12/31/50
RETIREMENT ON OR AFTER NORMAL RETIREMENT DATE

CALENDAR YEARS	NUMBER OF LIVES		AMOUNT OF ANNUAL INCOME		COMPARISON WITH 1937 STANDARD ANNUITY TABLE			
					By Number of Lives		By Amount of Annual Income	
	Exposed	Actual Deaths	Exposed	Actual Deaths	Expected Deaths	Ratio Act./Exp.	Expected Deaths	Ratio Act./Exp.
MEN								
1924-1940.....	56,449.77	2,909	\$ 59,602,837	\$ 2,970,512	2,377.66	122%	\$ 2,563,378	116%
1941-1945.....	114,011.55	5,830	86,617,580	4,763,390	4,903.63	119	3,918,008	122
1946-1949.....	187,835.10	8,787	126,038,985	6,215,427	8,016.03	110	5,579,667	111
1950.....	67,238.77	3,050	44,513,465	1,954,178	2,863.42	107	1,942,502	101
1924-1950..	425,535.19	20,576	\$316,772,867	\$15,903,507	18,160.74	113%	\$14,003,555	114%
WOMEN								
1925-1940.....	9,905.51	274	\$ 5,821,092	\$ 153,349	220.89	124%	\$ 127,330	120%
1941-1945.....	17,451.84	480	8,915,053	234,277	413.97	116	213,750	110
1946-1949.....	27,764.80	659	12,435,062	315,921	673.83	98	311,159	102
1950.....	10,624.65	232	4,506,070	102,924	264.94	88	115,397	89
1925-1950..	65,746.80	1,645	\$ 31,677,277	\$ 806,471	1,573.63	105%	\$ 767,636	105%

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 Mutual Life Insurance Company
Metropolitan Life Insurance Company
Prudential Insurance Company of America
Sun Life Assurance Company of Canada
The Travelers Insurance Company