

**TRANSACTIONS OF SOCIETY OF ACTUARIES  
1951 REPORTS**

**1951 REPORT OF THE COMMITTEE ON GROUP  
MORTALITY AND MORBIDITY**

**SECTION I. GROUP LIFE INSURANCE**

**T**HIS report adds the experience by number of lives for the calendar year 1950 under group life insurance policies to that previously reported in the 1950 report of the committee and covers the period 1946-1950. Trusteeship and association cases insuring employees of member employers of the trusteeship or association and union cases where insurance depends on continued employment are excluded.

Data are included only with respect to policies containing one of the three common disability provisions briefly described as follows:

- i) The Waiver of Premium Disability Clause, in general, provides for waiver of premium on receipt of proof of permanent total disability in the event that disability occurs before age 60. Total disability is presumed to be permanent after it has continued for nine months and proof of continued total disability is required annually.

The actual waiver disability claims have been taken throughout as 75% of the number of approved claims, consistent with the practice established in preceding reports, although there are some indications, as described in Section II of the Committee's 1949 report, that a factor somewhat less than 75% may be more in accord with current experience.

- ii) The Extended Death Benefit Clause provides for payment of the full face amount, in general, upon death occurring within one year after termination of employment and prior to age 65 (or 60) if the employee was disabled at the time of termination of employment and continued disabled until death.
- iii) The Total and Permanent Disability Clause provides, upon an employee's disability prior to age 60, for payment of the face amount of insurance—in some instances in one sum, in others in installments over a short period, usually 60 months. This clause was discontinued by most companies in the early '30s and is not currently offered generally by many companies. The experience contained in this report therefore represents primarily older policies issued prior to 1932, under which the clause was retained, with the addition of such newer business as has been issued more recently containing the Total and Permanent Disability clause. Hence, the results of this study should be viewed in the light of the selective factors influencing this experience.

In Table I the data are shown for each calendar year under each disability provision in comparison with the Commissioners 1941 Standard Ordinary Mortality Table as the basis for expected claims.

In Table II, the aggregate data appear for each disability clause tabulated by quinquennial age groups. The data are shown separately for rated

TABLE I

Type of Disability Clause and Year	Years Exposed	Total Claims*	Ratio A/E†	Accident Claims	Disability Claims*
Waiver of Premium:					
1946.....	1,585,198	10,452	60.6%	833	548
1947.....	1,837,869	11,615	60.0	970	559
1948.....	2,328,059	14,724	60.5	1,217	770
1949.....	2,476,751	15,283	58.4	1,191	885
1950.....	2,552,163	15,605	57.5	1,205	1,059
Total.....	10,780,040	67,679	59.3%	5,416	3,821
Extended Death Benefit:					
1946.....	1,385,788	10,555	65.1%	901	
1947.....	2,569,819	20,118	67.6	1,899	
1948.....	3,017,791	22,546	65.3	1,960	
1949.....	2,828,326	21,046	63.3	1,580	
1950.....	2,648,727	19,091	60.9	1,441	
Total.....	12,450,451	93,356	64.3%	7,781	
Total and Permanent Disability:					
1946.....	2,440,388	19,553	71.8%	1,284	2,687
1947.....	3,512,520	28,074	71.9	2,008	3,607
1948.....	3,912,756	30,415	70.0	1,994	3,689
1949.....	4,056,131	31,180	68.8	1,897	4,042
1950.....	3,824,623	28,665	66.1	1,774	3,679
Total.....	17,746,418	137,887	69.5%	8,957	17,704
Grand Total.....	40,976,909	298,922	65.3%	22,154	21,525

\* 75% of Disability Claims on Waiver of Premium.

† Expected Claims on CSO Table.

and nonrated industries as well as for both combined. For this purpose, any industry code was considered rated if a majority of the contributing companies indicated that they charged extra premiums in underwriting such risks. On this basis the industry codes in the rated category are codes 10-23, 40, 42, 44, 61, 64, 110, 113, 115, 134, 220, 320-323, 331, 334, 338-340. Expected claims have been computed on the CSO Table.

The data for the nonrated industries shown in Table II were used to compute, separately for death and disability claims, ratios of actual

TABLE II  
CALENDAR YEARS 1946-1950

CENTRAL AGE	WAIVER OF PREMIUM					EXTENDED DEATH BENEFIT				TOTAL AND PERMANENT DISABILITY				
	Years Exposed	Total Claims*	Ratio A/E†	Acc. Deaths	Dis. Claims*	Years Exposed	Total Claims	Ratio A/E†	Acc. Deaths	Years Exposed	Total Claims	Ratio A/E†	Acc. Deaths	Dis. Claims
Rated Industries														
18.....	11,208	20	78	16	2	22,176	41	81	28	17,939	29	71	20	3
23.....	53,665	94	66	55	11	95,722	163	65	102	102,452	166	61	87	19
28.....	75,746	135	56	71	10	137,429	249	57	148	160,162	254	50	108	46
33.....	78,049	167	53	62	19	174,161	363	52	156	168,717	325	48	105	56
38.....	69,096	219	60	64	25	184,246	541	55	158	151,432	428	53	83	72
43.....	61,888	330	73	43	29	203,725	954	64	183	132,886	711	73	95	147
48.....	52,774	449	82	52	55	218,400	1,593	71	169	117,599	1,120	92	74	252
53.....	48,151	601	83	46	53	213,071	2,552	80	208	106,032	1,577	99	78	402
58.....	41,086	795	88	59	91	191,893	3,384	80	189	87,038	2,024	105	75	636
18-58...	491,663	2,810	76	468	295	1,440,823	9,840	72	1,341	1,044,257	6,634	83	725	1,633
63.....	29,906	765	78	42	.....	148,801	4,039	82	197	63,176	1,600	77	66	.....
68.....	15,491	546	71	26	.....	81,409	3,291	81	108	36,732	1,517	83	44	.....
73.....	6,038	299	66	10	.....	38,287	2,464	86	64	19,775	1,195	80	31	.....
78.....	1,736	141	71	3	.....	18,110	1,770	85	38	9,053	850	82	22	.....
83.....	389	39	57	2	.....	7,287	1,028	81	32	3,339	474	81	9	.....
88.....	69	15	82	0	.....	2,057	425	77	17	830	176	79	9	.....
93.....	3	1	.....	0	.....	269	92	84	3	126	34	66	2	.....
98.....	2	1	.....	0	.....	32	14	46	0	10	4	.....	0	.....
63-98...	53,634	1,807	72	83	.....	296,252	13,123	83	459	133,041	5,850	80	183	.....
Total	545,297	4,617	74	551	295	1,737,075	22,963	78	1,890	1,177,298	12,484	82	908	1,633
Nonrated Industries														
18.....	419,364	401	42	196	39	401,620	364	40	222	670,368	719	47	359	132
23.....	1,169,658	1,281	41	519	175	1,147,867	1,273	42	656	1,879,144	2,186	44	845	438
28.....	1,317,196	1,678	40	557	207	1,311,648	1,511	36	669	2,066,690	2,724	41	811	587
33.....	1,360,117	2,171	40	569	230	1,404,178	2,043	36	593	2,168,547	3,724	43	883	798
38.....	1,340,997	3,162	44	516	278	1,409,541	3,188	43	664	2,176,727	5,539	48	833	1,173
43.....	1,218,997	4,670	53	464	401	1,315,245	4,841	50	586	2,021,789	8,400	57	765	1,660
48.....	1,030,843	6,499	61	428	531	1,132,330	6,876	59	578	1,704,922	12,224	69	746	2,454
53.....	864,058	8,610	67	391	759	962,180	9,657	67	541	1,405,030	16,686	79	620	3,653
58.....	673,371	10,188	69	417	906	742,150	11,311	69	487	1,071,797	20,694	87	662	5,176
18-58...	9,394,601	38,660	57	4,057	3,526	9,826,759	41,064	56	4,996	15,165,014	72,896	66	6,524	16,071

\* 75% of Disability Claims on Waiver of Premium.

† Expected Claims on CSO Table; A/E in percent.

TABLE II--Continued

CENTRAL AGE	WAIVER OF PREMIUM					EXTENDED DEATH BENEFIT				TOTAL AND PERMANENT DISABILITY				
	Years Exposed	Total Claims*	Ratio A/E†	Acc. Deaths	Dis. Claims*	Years Exposed	Total Claims	Ratio A/E†	Acc. Deaths	Years Exposed	Total Claims	Ratio A/E†	Acc. Deaths	Dis. Claims
<i>Nonrated Industries--Continued</i>														
63.....	460,690	9,686	64	331	.....	495,888	11,408	70	438	717,140	16,268	69	514	.....
68.....	240,769	7,211	60	225	.....	241,052	8,081	67	251	384,843	13,664	71	387	.....
73.....	97,802	4,381	60	155	.....	101,595	5,175	68	156	187,239	10,333	73	259	.....
78.....	32,036	2,135	58	73	.....	36,186	2,915	70	86	81,065	7,119	77	200	.....
83.....	7,486	720	55	17	.....	9,839	1,275	74	39	26,514	3,555	77	106	.....
88.....	1,218	238	73	5	.....	1,792	392	82	12	6,462	1,310	76	48	.....
93.....	128	27	52	1	.....	247	73	72	3	799	236	72	10	.....
98.....	13	4	.....	1	.....	18	10	58	0	44	22	52	1	.....
63-98.....	840,142	24,402	61	808	.....	886,617	29,329	69	985	1,404,106	52,507	72	1,525	.....
Total	10,234,743	63,062	58	4,865	3,526	10,713,376	70,393	61	5,981	16,569,120	125,403	68	8,049	16,071
<i>Rated and Nonrated Industries Combined</i>														
18.....	430,572	421	43	212	41	423,796	405	42	250	688,307	748	48	379	135
23.....	1,223,323	1,375	43	574	186	1,243,589	1,436	44	758	1,981,596	2,352	45	932	457
28.....	1,392,942	1,813	41	628	217	1,449,077	1,760	38	817	2,226,852	2,978	42	919	633
33.....	1,438,166	2,338	40	631	249	1,578,339	2,406	38	749	2,337,264	4,049	43	988	854
38.....	1,410,093	3,381	45	580	303	1,593,787	3,729	44	822	2,328,159	5,967	48	916	1,245
43.....	1,280,885	5,000	54	507	430	1,518,970	5,795	52	769	2,154,675	9,111	58	860	1,807
48.....	1,083,617	6,948	62	480	586	1,350,730	8,469	61	747	1,822,521	13,344	71	820	2,706
53.....	912,209	9,211	67	437	812	1,175,251	12,209	69	749	1,511,062	18,263	81	698	4,055
58.....	714,457	10,983	70	476	997	934,043	14,695	71	676	1,158,835	22,718	89	737	5,812
18-58.....	9,886,264	41,470	58	4,525	3,821	11,267,582	50,904	59	6,337	16,209,271	79,530	67	7,249	17,704
63.....	490,596	10,451	65	373	.....	644,689	15,447	73	635	780,316	17,868	69	580	.....
68.....	256,260	7,757	61	251	.....	322,461	11,372	71	359	421,575	15,181	72	431	.....
73.....	103,840	4,680	60	165	.....	139,882	7,639	73	220	207,014	11,528	74	290	.....
78.....	33,772	2,276	59	76	.....	54,296	4,685	75	124	90,118	7,969	77	222	.....
83.....	7,875	759	55	19	.....	17,126	2,303	77	71	29,853	4,029	77	115	.....
88.....	1,287	253	74	5	.....	3,849	817	80	29	7,292	1,486	76	57	.....
93.....	131	28	52	1	.....	516	165	78	6	925	270	72	12	.....
98.....	15	5	.....	1	.....	50	24	50	0	54	26	50	1	.....
63-98.....	893,776	26,209	62	891	.....	1,182,869	42,452	73	1,444	1,537,147	58,357	73	1,708	.....
Total	10,780,040	67,679	59	5,416	3,821	12,450,451	93,356	64	7,781	17,746,418	137,887	69	8,957	17,704

claims to exposed to risk for each quinquennial age group. These ratios appear in Table III for each disability clause. In the case of the Waiver of Premium clause it should be kept in mind that the actual disability claims shown represent three-fourths of the approved claims. These ratios for each disability clause were in turn used as a standard of comparison for an analysis of the variation in experience by industry code. The ratios were applied for each quinquennial age group to the data with respect to

TABLE III  
1946-1950 CRUDE QUINQUENNIAL DEATH AND DISABILITY RATES

CENTRAL AGE	WAIVER OF PREMIUM		EXTENDED DEATH BENEFIT	TOTAL AND PERMANENT DISABILITY	
	Death	Disability*	Death	Death	Disability
18	0.00086	0.000093	0.00091	0.00088	0.000197
23	.00095	.000150	.00111	.00093	.000233
28	.00112	.000157	.00115	.00103	.000284
33	.00143	.000169	.00145	.00135	.000368
38	.00215	.000207	.00226	.00201	.000539
43	.00350	.000329	.00368	.00333	.000821
48	.00579	.000515	.00607	.00573	.001439
53	.00909	.000878	.01004	.00928	.002600
58	.01379	0.001345	.01524	.01448	0.004829
63	.02102	.....	.02301	.02268	.....
68	.02995	.....	.03352	.03551	.....
73	.04479	.....	.05094	.05519	.....
78	.06664	.....	.08056	.08782	.....
83	.09618	.....	.12959	.13408	.....
88	.19540	.....	.21875	.20272	.....
93	.21094	.....	.29555	.29537	.....
98	0.30769	.....	0.55556	0.50000	.....

\* 75% of Disability Claims on Waiver of Premium.

each industry code to calculate expected death and expected disability claims. Table IV sets forth the results of this analysis. For each disability clause, separately, the ratios of actual to expected death claims and actual to expected disability claims are shown for each industry code. In addition, the excess of the total number of actual claims, death and disability combined, over the expected claims is given per 1,000 of exposed to risk for the three disability clauses combined. In viewing the death and disability experience separately for a given industry, it should be kept in mind that the experience is influenced by employer and insurance company practices in permitting the continuance of insurance on disabled lives and that, accordingly, for some purposes the combined death and

TABLE IV  
CALENDAR YEARS 1946-1950

INDUSTRY CODE	INDUSTRY	WAIVER OF PREMIUM				EXTENDED DEATH BENEFIT			TOTAL AND PERMANENT DISABILITY				ALL CLAUSES COMBINED				
		Years Exposed	Deaths		Dis.*		Years Exposed	Deaths		Years Exposed	Deaths		Dis.		A-E† per M	Acc. Deaths	
			No.	A/E†	No.	A/E†		No.	A/E†		No.	A/E†	No.	Per 10 M			
	<i>Agriculture</i>																
1	Florists and Nurserymen	15,652	132	111	5	93	9,233	65	92	7,409	73	80	9	-0.3	26	8.1	
2	Fruit Growing	2,607	11	75	0	.....	19,559	115	84	1,360	11	70	3	-1.3	13	5.5	
3	Stock Ranging and Ranching	1,094	5	68	0	.....	418	2	.....	987	6	.....	2	-1.9	1	4.0	
4	General Farming and All Other Agriculture	19,855	154	106	1	14	3,949	22	70	4,734	62	119	2	.....	26	9.1	
	Total .....	39,208	302	106	6	43	33,159	204	84	14,490	152	91	16	91	-0.5	66	7.6
	<i>Mining</i>																
10	Coal—Bit. (Surface)	8,470	50	101	0	.....	2,842	24	111	3,403	21	85	3	-0.3	21	14.3	
11	Coal—Bit. (Underground)	26,969	268	140	25	219	62,320	502	117	16,494	190	115	44	247	+2.0	183	17.3
12	Coal—Anthracite	16,887	186	150	24	333	16,389	205	131	2,311	20	85	4	+3.5	47	13.2	
13	Iron (Surface)	258	1	.....	0	.....	1,912	16	116	24,460	285	116	26	82	+1.3	37	13.9
14	Iron (Underground)	3,079	30	173	3	.....	26,235	279	122	1,098	16	126	0	+2.2	57	18.7	
15	Copper (Surface)	29,451	264	133	23	215	121,619	1,820	136	21,060	285	132	31	109	+3.7	194	11.3
16	Copper (Underground)	1,512	20	206	4	.....	17,676	129	138	8,963	70	115	18	196	+2.4	52	18.5
17	Lead and Zinc (Surface)	1,190	2	.....	0	.....	4,289	36	134	.....	.....	.....	.....	+2.2	6	13.4	
18	Lead and Zinc (Underground)	1,190	14	206	0	.....	21,162	144	106	2,730	42	153	5	+1.3	49	19.5	
19	Other Metals (Surface Only)	450	2	.....	0	.....	486	4	.....	7,429	60	144	2	+1.6	8	9.6	
20	Other Metals (Incl. Surface and Underground)	13,409	103	126	19	380	12,694	81	122	8,598	59	129	14	179	+2.0	59	17.0
21	Salt Production	1,821	16	118	1	.....	2,333	17	100	8,587	107	121	10	101	+1.7	11	8.6
22	Minerals (Clay, Shale, Talc, Phosphate, Feldspar, etc.)	6,622	46	123	2	.....	4,231	40	122	29,564	279	140	35	130	+2.6	54	13.4
23	Quarries (Slate, Stone and Marble)	11,000	75	90	7	184	14,963	162	134	20,109	211	123	28	131	+1.8	61	13.2
	Total .....	121,316	1,077	132	108	234	309,151	3,459	129	154,806	1,645	124	220	127	+2.5	839	14.3
	<i>Oil</i>																
30	Mineral Oil Prod., Refining and Distribution	256,974	1,804	114	92	97	758,771	4,670	105	530,676	3,717	101	862	150	+0.5	1,072	6.9
	<i>Construction</i>																
40	Steel (Incl. Steel Bridges)	4,638	35	136	0	.....	6,018	53	135	23,450	200	105	28	113	+1.0	37	10.8
41	Wood, Brick and Stone	33,140	187	106	9	80	11,095	95	110	7,474	67	102	3	+0.2	45	8.7	
42	Shipbuilding (Iron and Steel)	53,817	488	123	52	248	25,901	250	122	11,740	88	110	11	82	+1.9	56	6.1
43	Shipbuilding (Wood)	2,965	16	84	0	.....	1,774	18	94	526	10	143	3	.....	0	0	
44	Roads (Incl. Sewers, Bridges, etc.)	16,164	121	111	8	133	25,824	233	127	7,762	96	111	7	+1.4	44	8.8	
	Total .....	110,724	847	117	69	169	70,612	649	122	50,952	461	107	52	90	+1.3	185	8.0

\* 75% of Disability Claims on Waiver of Premium.

† Expected Claims Calculated from Table III; A/E in percent.

TABLE IV—Continued

INDUS- TRY CODE	INDUSTRY	WAIVER OF PREMIUM				EXTENDED DEATH BENEFIT				TOTAL AND PERMANENT DISABILITY				ALL CLAUSES COMBINED			
		Years Exposed	Deaths		Dis.*		Years Exposed	Deaths		Years Exposed	Deaths		Dis.		A—E† per M	Acc. Deaths	
			No.	A/E†	No.	A/E†		No.	A/E†		No.	A/E†	No.	A/E†		No.	Per 10 M
	<i>Iron and steel and other metal industries (except lead)</i>																
60	Steel Works (with or without Rolling Mills)	183,832	1,491	122	55	81	716,156	5,617	119	241,974	2,163	127	320	123	+1.5	1,101	9.6
61	Steel and Iron Foundries	153,610	1,188	121	36	102	110,956	1,127	122	141,795	1,278	113	167	106	+1.4	297	7.3
62	Steel Rolling	8,083	48	108		2	6,238	51	141	27,848	251	119	15	47	+0.9	25	5.9
63	Tube, Rod and Pipe Mills	16,753	129	123	6	109	154,688	1,065	109	49,691	423	108	28	51	+0.5	171	7.7
64	Malleable Iron Works	18,657	167	119	11	155	28,498	218	110	34,792	330	113	35	93	+1.0	57	7.0
65	Wire Drawing and Wire Products	45,899	287	115	22	148	61,585	307	95	104,518	1,011	110	110	98	+0.6	108	5.1
66	Smelting (Electric Process) and Refining	5,290	36	145	5	97	41,849	224	101	35,322	341	112	36	94	+0.6	65	7.9
67	Other Smelting and Refining	128,784	553	96	42	97	8,197	63	118	97,395	546	96	299	343	+0.8	165	7.0
68	Nonferrous Metal Foundries	21,554	169	125	7	91	17,782	146	122	49,107	304	108	46	99	+0.9	62	7.0
	Total .....	582,462	4,071	117	206	100	1,145,949	8,818	116	782,442	6,647	115	1,056	128	+1.2	2,051	8.2
	<i>Metal products</i>																
79	Airplane Mfg.	172,766	619	98	89	177	116,887	430	77	205,404	685	74	125	68	-0.8	202	4.1
80	Automobiles and Agriculture Implements	75,652	487	108	28	108	484,565	3,760	112	530,975	3,120	105	675	124	+0.7	646	5.9
81	Car and Railroad Shops	97,406	877	110	33	90	43,624	455	121	14,481	213	122	18	103	+1.2	122	7.8
82	Sheet Metal Products (Stamping and Pressing)	164,560	1,025	109	46	83	178,217	1,085	99	227,200	1,594	103	150	70	+0.1	288	5.1
83	Steel Fabrication (Excluding Erecting)	41,093	266	106	18	124	21,880	135	80	50,123	445	112	70	125	+0.6	87	7.7
84	Drop Forging	15,473	110	111	6	111	22,920	175	114	34,996	244	103	29	74	+0.4	35	4.8
85	Heavy Machinery and Other Metal Products	397,028	2,609	103	117	83	477,109	3,916	106	716,374	5,728	105	482	65	+0.2	830	5.2
86	Light Metal Prod. and Mach. (Tools, Hard- ware, Instruments of Precision, etc.)	1,348,762	7,161	99	544	123	877,846	5,673	99	2,091,035	12,858	102	1,389	70	-0.1	1,746	4.0
88	Boiler Making (Heavy Tanks, etc.)	39,813	227	105	13	103	36,859	225	101	31,253	284	105	39	115	+0.3	67	6.2
89	Mfg. Radio, Television, Electronic Equipment	25,143	54	61	5	75	17,252	68	92	53,749	192	88	43	102	-0.7	34	3.5
	Total .....	2,377,696	13,435	101	899	114	2,277,159	15,922	103	3,955,590	25,363	102	3,020	78	+0.1	4,057	4.7
	<i>Lead industry</i>																
100	Mfg. White and Red Lead—Foundry Work and Mfg. Lead Supplies Incl. Batteries	1,714	8	104	1	.....	39,535	370	129	48,211	392	108	44	84	+1.2	64	7.2
	<i>Chemical and allied industries</i>																
110	Fertilizer Production	12,381	98	113	5	109	24,084	223	135	13,576	171	103	29	174	+1.7	58	11.6
111	Paint and Varnish Factories	38,016	294	120	15	97	30,931	246	115	71,196	515	104	71	104	+0.7	75	5.4
112	Aniline Dyes (Coal Tar)	484	2	.....	0	.....	5,363	45	116	4,508	39	124	8	.....	+1.6	5	4.8
113	Explosives	8,440	59	117	8	.....	12,756	72	109	280,177	1,579	97	264	104	-0.1	173	5.7
114	Soap, Tallow and Glue	9,101	61	102	1	.....	36,263	167	88	46,412	299	103	54	127	0.0	36	3.9
115	Heavy Acids (Sulphuric, Nitric, Hydrofluoric, etc.)	6,169	37	107	3	.....	1,264	10	152	14,555	133	141	23	152	+2.4	14	6.4
116	Light Acids (Acetic, Citric, etc.)	5,366	25	105	2	.....	1,655	18	128	1,087	11	139	0	.....	+1.0	2	2.5
117	General Chemical Mfg.	327,409	1,788	103	190	170	119,370	822	107	428,668	2,231	104	536	145	+0.5	686	7.8
	Total .....	407,366	2,364	105	222	159	231,686	1,603	110	860,179	4,978	103	985	128	+0.5	1,049	7.0

\* 75% of Disability Claims on Waiver of Premium.

† Expected Claims Calculated from Table III; A/E in percent.

TABLE IV—Continued

INDUSTRY CODE	INDUSTRY	WAIVER OF PREMIUM				EXTENDED DEATH BENEFIT			TOTAL AND PERMANENT DISABILITY				ALL CLAUSES COMBINED				
		Years Exposed	Deaths		Dis.*		Years Exposed	Deaths		Years Exposed	Deaths		Dis.		A-E† per M	Acc. Deaths	
			No.	A/E†	No.	A/E†		No.	A/E†		No.	A/E†	No.	Per 10 M			
	<i>Clay, glass, and stone</i>																
129	Brick, Tile, Terra Cotta and Pottery—Glazed	4,706	29	103	1	1,661	15	122	10,340	60	85	7	76	-0.6	5	3.0	
130	Brick, Tile, Terra Cotta and Pottery—Other	67,831	427	102	15	70,829	576	111	70,380	526	102	45	65	+0.2	162	7.7	
131	Glass Factories (Excl. Polished Plate Glass)	56,271	344	94	26	36,156	220	86	266,587	1,487	101	407	185	+0.4	173	4.8	
132	Polished Plate Glass	4,360	266	97	1	1,994	15	70	20,250	165	114	11	56	+0.2	17	6.4	
133	Lime, Cement and Gypsum	26,265	151	95	4	46,182	424	109	49,911	433	98	36	63	-0.1	127	10.4	
134	Marble and Stone Yards	4,656	26	97	2	1,237	8	125	3,704	30	105	10	244	+0.9	6	6.3	
	Total	164,089	1,003	98	49	158,059	1,258	105	421,172	2,701	101	516	136	+0.3	490	6.6	
	<i>Clothing industries</i>																
160	Hat Factories (Felt)	20,481	153	94	7	4,913	36	90	32,751	352	107	14	39	-0.2	22	3.8	
161	Furriers	5,672	38	102	5	1,814	1	8	3,354	62	131	2	.....	+0.5	4	3.7	
162	All Other Clothing	290,175	1,130	75	48	167,456	625	70	108,147	626	80	108	105	-1.5	175	3.1	
	Total	316,328	1,321	77	60	174,183	662	70	144,252	1,040	90	124	87	-1.4	201	3.2	
	<i>Food and kindred industries</i>																
180	Dairy Products	64,465	315	94	8	153,448	947	87	320,931	1,867	98	263	82	-0.5	200	3.7	
181	Flour and Grain Mills and Elevators	31,993	183	88	8	16,363	122	94	90,567	620	95	105	111	-0.4	87	6.3	
182	Canneries (Fish)	2,901	27	111	3	1,575	26	147	2,063	16	80	0	.....	+1.1	4	6.1	
183	Canneries (Meat, Fruit and Vegetables)	37,253	225	81	9	25,807	138	72	54,634	379	97	52	94	-1.1	59	5.0	
184	Slaughter and Packing Houses and Stock Yards	40,174	273	113	7	40,465	241	103	489,749	3,781	111	849	167	+1.3	386	6.8	
185	Sugar Factories and Refineries	6,281	65	106	0	36,204	350	107	32,769	375	119	23	63	+0.9	59	7.8	
186	Mfg. and Bottling Bev.	25,178	113	106	11	22,916	149	139	60,089	273	105	27	60	+0.4	49	4.5	
187	Cereals, Prepared Food and All Other Foods	218,610	1,135	96	73	170,230	983	94	630,446	3,956	98	667	113	-0.1	439	4.3	
191	Beer and Other Malt Bev.—Mfg. and Bottling	91,843	787	128	33	64,554	579	117	23,698	185	124	8	34	+1.5	89	4.9	
192	Wines—Mfg. and Bottling	2,433	22	136	1	2,249	22	130	.....	.....	.....	.....	.....	+2.4	7	15.0	
193	Distilled Liquors—Mfg. and Bottling	23,048	153	130	4	38,045	232	120	5,271	39	130	4	.....	+1.2	45	6.8	
194	Wholesale Dealers in Alcoholic Beverages	13,718	90	121	1	5,445	40	145	1,553	7	89	0	.....	+1.1	9	4.3	
195	Retail Dealers in Alcoholic Beverages	437	4	.....	0	86	1	.....	.....	.....	.....	.....	.....	+6.1	1	19.1	
	Total	558,334	3,392	104	158	577,387	3,830	99	1,711,770	11,498	103	1,998	119	+0.3	1,434	5.0	
	<i>Leather industries (excl. artificial leather)</i>																
200	Heavy Leather Goods	14,472	122	98	5	9,056	75	95	18,633	190	111	13	63	+0.1	18	4.3	
201	Shoes and Other Light Leather Goods	156,840	771	86	50	359,948	1,810	86	59,429	413	88	37	61	-0.9	220	3.8	
202	Tanneries	45,110	426	115	19	33,239	313	103	41,108	452	102	52	116	+0.7	77	6.4	
	Total	216,422	1,319	95	74	402,243	2,198	89	119,170	1,055	97	102	81	-0.6	315	4.3	



TABLE IV—Continued

INDUS- TRY CODE	INDUSTRY	WAIVER OF PREMIUM					EXTENDED DEATH BENEFIT			TOTAL AND PERMANENT DISABILITY					ALL CLAUSES COMBINED		
		Years Exposed	Deaths		Dis *		Years Exposed	Deaths		Years Exposed	Deaths		Dis.		A—E† per M	Acc. Deaths	
			No.	A/E†	No.	A/E†		No.	A/E†		No.	A/E†	No.	Per 10M			
220 221 222	<i>Lumber and furniture</i>																
	Woodsmen and Loggers	13,532	94	100	4	83	20,081	111	73	1,868	21	87	4	.....	-1.2	44	12.4
	Lumber Yds. and Saw and Planing Mills	140,563	906	94	34	68	99,151	784	97	104,580	957	101	127	111	-0.2	343	10.0
	Furniture and Woodworking (Carriages and Musical Instruments)	210,844	1,347	95	55	77	226,225	1,607	96	215,199	1,818	100	187	85	-0.3	365	5.6
	Total .....	364,939	2,347	95	93	74	345,457	2,502	95	321,647	2,796	101	318	94	-0.3	752	7.3
240 241 242 243	<i>Paper and pulp manufacturing</i>																
	Paper and Ground Wood Pulp Mills	125,368	909	110	58	130	115,876	742	97	421,147	2,898	98	606	148	+0.3	470	7.1
	Sulphide Soda Pulp Mills	3,069	12	110	1	.....	1,485	11	102	22,594	239	93	18	73	-0.8	23	8.5
	Paper Boxes	78,287	432	104	12	48	63,978	370	97	126,302	730	101	103	89	-0.1	124	4.6
	All Other Paper Mfg.	116,752	658	96	26	66	89,267	625	101	192,561	1,180	96	149	87	-0.3	201	5.0
	Total .....	323,476	2,011	104	97	89	270,606	1,748	98	762,604	5,047	97	876	122	0.0	818	6.0
260	<i>Printing</i>																
	Printing, Bookbinding and Publishing	254,784	1,750	110	57	65	203,061	1,581	106	538,565	4,287	105	323	60	+0.2	378	3.8
270 271 272	<i>Textile industries</i>																
	Bleaching, Dyeing, Printing and Finishing	76,388	541	106	27	98	64,363	372	93	41,028	421	112	21	50	+0.1	91	5.0
	Hemp, Jute, Rope and Cordage	27,255	219	113	5	49	23,476	182	104	82,125	627	104	128	148	+0.7	59	4.4
	All Other Textiles (Wool, Silk, etc.)	914,309	4,903	88	264	82	656,864	3,372	87	597,812	3,334	90	596	108	-0.7	805	3.7
	Total .....	1,017,952	5,663	90	296	82	744,703	3,926	88	720,965	4,382	93	745	110	-0.6	955	3.8
289 290 291 292 293 294 295 296 297 298 299 300	<i>Miscellaneous industries</i>																
	Plastic Products	43,138	213	110	6	47	15,192	72	92	6,717	39	91	1	.....	-0.1	24	3.7
	Artificial Leather (Using Pyroxylin)	821	8	.....	1	.....	4,610	54	173	28	0	0	0	.....	+4.9	3	5.5
	Cigars and Tobacco	128,187	649	104	137	332	43,406	301	97	108,332	538	99	349	362	+1.3	113	4.0
	Elec. Cables and Supplies (Not Falling Under Industry Code No. 100)	139,457	488	90	81	207	80,786	483	113	245,719	1,650	105	137	62	+0.1	197	4.2
	Rubber	395,175	2,156	108	152	113	64,940	333	99	203,076	1,218	94	144	72	+0.1	329	5.0
	Brooms and Brushes	15,451	69	89	2	42	3,026	27	101	17,781	118	92	19	108	-0.5	17	4.7
	Buttons (Excluding Metal, Rubber and Composition)	2,661	15	81	1	.....	4,534	31	102	1,541	12	76	0	.....	-1.0	6	6.9
	Celluloid and Celluloid Articles (Pyroxylin Composition)	5,492	34	91	0	.....	1,660	21	152	14,553	56	94	5	43	-0.4	8	3.7
	Drugs (Sundries, Incl. Perfumes, Chewing Gum, etc.)	70,951	334	94	33	153	95,925	343	96	156,393	798	92	131	97	-0.3	103	3.2
	Cotton Seed Oil and Other Vegetable Oil Production	9,235	89	127	1	.....	16,987	113	90	4,773	51	113	4	.....	+0.3	30	9.7
	Ice (Mfg., Harvesting and Distributing)	10,000	97	131	4	105	4,431	42	120	14,642	187	119	21	109	+2.1	19	6.5
	Miscellaneous Mfg. and Processing	187,860	1,223	110	47	71	165,151	1,071	100	143,105	1,177	110	129	89	+0.4	320	6.5
	Total .....	1,008,428	5,375	105	465	141	500,654	3,094	101	916,660	5,844	101	940	110	+0.2	1,169	4.8

\* 75% of Disability Claims on Waiver of Premium.

† Expected Claims Calculated from Table III; A/E in percent.

TABLE IV—Continued

INDUSTRY CODE	INDUSTRY	WAIVER OF PREMIUM					EXTENDED DEATH BENEFIT			TOTAL AND PERMANENT DISABILITY					ALL CLAUSES COMBINED				
		Years Exposed	Deaths		Dis.*		Years Exposed	Deaths		Years Exposed	Deaths		Dis.		A—E† per M	Acc. Deaths			
			No.	A/E†	No.	A/E†		No.	A/E†		No.	A/E†	No.	A/E†		No.	A/E†	No.	Per 10 M
<i>Transportation and public service</i>																			
310	City Employees (Incl. More than One Class)	79,082	855	114	64	188	48,252	545	117	78,676	922	117	129	144	+1.9	179	8.7		
320	Elec. and Street Railways (Population of City 500,000 or More)	5,227	77	139	3	.....	93,540	1,179	129	135,073	1,969	123	311	192	+3.5	132	5.6		
321	Elec. and Street Railways (Population of City 250,000 to 500,000)	720	3	.....	0	.....	27,551	446	125	30,362	373	97	81	229	+2.1	44	7.5		
322	Elec. and Street Railways (Smaller Towns and Interurban)	6,442	78	129	0	.....	6,776	79	130	42,132	506	111	61	134	+1.8	40	7.2		
323	Airplane Trans.	84,228	202	113	23	130	40,242	78	89	165,790	471	134	43	51	+0.3	233	8.0		
325	Auto Sales and Service Stations	122,201	501	99	24	61	115,834	653	98	45,727	247	101	25	55	-0.2	149	5.3		
326	Taxicabs and Buses	130,142	879	131	35	76	60,203	457	120	156,269	750	115	177	141	+1.2	175	5.0		
327	Truck, Transfer, etc.	107,546	506	117	22	64	86,202	526	121	63,136	358	120	36	64	+0.7	204	7.9		
330	Water Trans. (Vessels other than River)	9,093	88	132	8	.....	10,894	70	121	19,542	184	118	16	80	+1.6	18	4.6		
331	Water Trans. (Harbor and Dock Vessels on Rivers)	9,835	119	156	1	.....	7,149	98	147	13,536	173	130	6	38	+3.3	58	19.0		
334	Steam Railroads	21,712	409	138	10	93	964,257	14,891	117	77,026	1,476	115	262	237	+2.5	1,075	10.1		
335	Express Companies	2,421	18	170	0	.....	182,371	939	97	14,384	78	102	1	8	-0.2	87	4.4		
336	Telegraph	143,263	789	96	153	264	312	0	.....	20,115	140	107	47	200	+0.5	43	2.6		
337	Telephone	6,227	27	81	1	.....	44,848	172	89	60,633	242	80	56	110	-0.8	35	3.1		
338	Subway and Elevated	.....	.....	.....	.....	.....	20,339	292	131	6,067	80	138	18	205	+3.8	20	7.6		
339	Police	3,387	43	171	1	.....	8,403	79	120	11,173	110	146	40	342	+4.1	18	7.8		
340	Firemen	366	1	.....	0	.....	3,048	57	147	7,914	122	171	13	144	+6.4	14	12.4		
341	Gas Works	22,102	151	111	7	92	16,275	108	92	106,297	1,019	104	90	104	+0.2	85	5.9		
342	Electric Light and Power	82,628	541	118	20	70	260,637	2,411	115	894,937	8,372	109	1,141	115	+1.0	1,055	8.5		
350	Miscellaneous Trans. and Public Service	3,820	28	114	4	.....	3,058	26	102	6,969	73	99	5	.....	+0.3	10	7.2		
Total.....		840,442	5,315	115	376	128	2,000,191	23,106	116	1,955,758	17,665	112	2,572	127	+1.3	3,674	7.7		
<i>Clerical and professional</i>																			
360	Clerical (Banks, Insurance, and other Office Forces)	506,437	2,733	98	151	89	800,603	5,225	99	1,472,081	8,806	89	970	71	-0.6	856	3.1		
361	Medical (Nurses, Sanitaria, Hospitals, etc.)	34,854	210	84	11	87	49,151	312	76	44,812	272	78	51	101	-1.7	52	4.0		
362	Theatrical	45,042	328	124	24	155	63,952	493	109	136,226	1,197	117	174	113	+1.3	98	4.0		
363	Conference of Methodist Ministers and Similar Organizations	58,376	373	88	4	18	17,749	196	84	33,287	361	79	32	81	-1.9	49	4.5		
Total.....		644,709	3,644	98	190	86	931,455	6,226	97	1,686,406	10,636	91	1,227	76	-0.5	1,055	3.2		

TABLE IV—Continued

INDUS- TRY CODE	INDUSTRY	WAIVER OF PREMIUM				EXTENDED DEATH BENEFIT			TOTAL AND PERMANENT DISABILITY				ALL CLAUSES COMBINED				
		Years Exposed	Deaths		Dis.*		Years Exposed	Deaths		Years Exposed	Deaths		Dis.		A—E† per M	Acc. Deaths	
			No.	A/E†	No.	A/E†		No.	A/E†		No.	A/E†	No.	A/E†		No.	Per 10 M
370	<i>Trade and service</i> Wholesale Merchants and Dealers	209,955	1,227	104	61	88	246,190	1,521	90	263,218	2,105	99	226	80	-0.3	305	4.2
371	Retail Merchants and Dealers	626,242	3,230	81	141	64	781,380	3,950	81	1,561,322	5,689	80	1,308	102	-1.1	873	2.9
372	Warehouses and Cold Storage Plants	29,099	193	114	5	48	17,458	164	113	30,345	334	118	28	80	+1.0	44	5.7
373	Hotels and Restaurants	177,049	1,379	105	49	71	142,799	1,288	110	119,471	1,057	101	74	52	+0.2	179	4.1
374	Laundries (incl. Dry Cleaning)	47,151	224	88	10	60	43,673	225	77	37,041	260	87	39	91	-1.1	42	3.3
375	Coal Delivery	10,901	89	124	2	49	8,806	106	126	9,085	98	107	4	.....	+1.3	22	7.6
376	Operation and Maintenance of Office and Apartment Buildings	19,054	189	102	18	188	22,049	165	82	17,696	218	94	23	85	-0.7	30	5.1
380	Miscellaneous Trade and Service	29,695	200	104	8	72	6,532	59	115	8,104	60	82	4	.....	-0.1	27	6.1
390	Miscellaneous not otherwise classified	23,531	79	62	9	106	7,543	52	101	3,821	56	134	2	.....	-1.0	8	2.3
	Total .....	1,172,677	6,810	91	303	72	1,276,430	7,530	88	2,050,103	9,877	87	1,708	93	-0.8	1,530	3.4
Grand Total	.....	10,780,040	63,858	101	3,821	103	12,450,451	93,356	104	17,746,418	120,183	101	17,704	103	+0.2	22,154	5.4

\* 75% of Disability Claims on Waiver of Premium.

† Expected Claims Calculated from Table III; A/E in percent.

disability experience is more significant. The number of accidental death claims and the number per 10,000 of exposed to risk are also shown for the combined data.

In Table V, the nonrated experience under the cases with fewer than 50

TABLE V  
1947-1950 EXPERIENCE UNDER NONRATED POLICIES WITH  
FEWER THAN 50 LIVES AT ISSUE#

CENTRAL AGE	WAIVER OF PREMIUM					EXTENDED DEATH BENEFIT			TOTAL AND PERMANENT DISABILITY					ALL CLASSES	
	Years Exposed	Deaths		Dis.*		Years Exposed	Deaths		Years Exposed	Deaths		Dis.		A-E† per M	Acc. Deaths
		No.	A/E†	No.	A/E†		No.	A/E†		No.	A/E†	No.	A/E†		
18...	7,932	8	131	0	...	4,765	7	189	1,299	1	167	0	...	+ 0.3	8
23...	22,949	18	85	3	107	14,215	17	113	2,703	2	95	0	...	- 0.0	17
28...	27,110	31	102	8	211	17,254	16	82	2,711	3	158	0	...	+ 0.1	23
33...	26,735	42	110	2	50	17,819	20	78	2,840	4	114	1	...	- 0.1	25
38...	25,714	57	104	4	85	17,178	47	121	3,330	5	79	0	...	+ 0.2	28
43...	24,007	68	81	3	43	15,400	62	111	3,247	10	96	3	...	- 0.3	18
48...	19,938	114	99	8	83	12,658	81	105	2,840	16	98	2	...	- 0.0	14
53...	15,972	160	110	6	45	10,287	126	122	2,571	17	71	1	...	+ 0.6	18
58...	11,646	166	103	9	60	7,742	121	102	2,250	28	86	4	...	+ 0.9	9
18-58	182,003	664	101	43	71	117,318	497	109	23,791	86	88	11	43	+ 0.1	160
63...	7,932	167	100	...	...	5,068	93	80	1,811	42	102	...	...	- 1.4	8
68...	4,230	112	89	...	...	2,825	82	87	1,066	36	95	...	...	- 3.5	9
73...	1,751	70	89	...	...	1,065	48	87	502	21	75	...	...	- 6.8	4
78...	562	34	90	...	...	351	24	84	179	18	113	...	...	- 5.6	1
83...	90	6	...	...	...	82	13	125	45	7	...	...	...	+ 4.1	1
88...	20	1	...	...	...	2	2	...	5	1	...	...	...	- 51.9	0
93...	1	...	...	...	...	...	...	...	...	1	...	...	...	+ 800.0	0
63-93	14,586	390	92	...	...	9,393	262	86	3,608	126	97	...	...	- 2.8	23
Total	196,589	1,054	98	43	71	126,711	759	99	27,399	212	93	11	43	- 0.1	183

# Experience not contributed for 1946.  
\* 75% of Disability Claims on Waiver of Premium.  
† Expected Claims Calculated from Table III; A/E in percent.

lives at issue that remain in that class is set forth with the experience of all nonrated industries as the standard of comparison.

The following companies contributed experience to this study: Aetna Life Insurance Company, Connecticut General Life Insurance Company, Continental Assurance Company, Equitable Life Assurance Society, John Hancock Mutual Life Insurance Company, Metropolitan Life Insurance Company, Occidental Life Insurance Company of California, Prudential Insurance Company of America, Sun Life Assurance Company of Canada, and The Travelers Insurance Company.