

**TRANSACTIONS OF SOCIETY OF ACTUARIES
1950 REPORTS**

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

SECTION I—GROUP LIFE INSURANCE

THIS report adds the experience by number of lives of the calendar year 1949 under group life insurance policies to that previously reported in the 1949 report of the committee and covers the period 1946–1949. 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.

TABLE I

Type of Disability Clause	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
	Total	8,227,877	52,074	59.8%	4,211	2,762
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	—
	Total	9,801,724	74,265	65.3%	6,340	—
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
	Total	13,921,795	109,222	70.4%	7,183	14,025
Grand Total		31,951,396	235,561	66.2%	17,734	16,787

* 75% of Disability Claims on Waiver of Premium

† Expected Claims on CSO Mortality Table

Data is 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

TABLE II

Central Age	Waiver of Premium					Extended Death Benefit				Total and Permanent Disability				
	Years Exposed	Total Claims*	Ratio A/E†	Acc. Deaths	Dis. Clms.*	Years Exposed	Total Claims	Ratio A/E†	Acc. Deaths	Years Exposed	Total Claims	Ratio A/E†	Acc. Deaths	Dis. Clms.
Rated Industries														
18	9,269	17	81	14	2	19,652	37	83	26	14,952	22	65	13	3
23	41,904	78	71	44	9	79,456	126	60	73	79,647	145	69	77	16
28	57,954	113	61	59	8	112,867	211	59	121	124,002	201	51	87	37
33	60,654	132	54	54	15	143,931	315	54	130	130,683	261	50	89	44
38	54,071	165	57	48	19	151,827	444	55	128	116,267	334	54	61	54
43	48,575	271	77	34	23	169,133	807	65	156	103,222	566	75	78	123
48	42,301	368	84	43	40	179,687	1,315	71	146	92,430	895	94	65	206
53	39,388	510	87	44	44	175,175	2,149	82	175	84,163	1,267	101	61	333
58	33,472	668	90	50	73	156,822	2,802	81	165	69,120	1,592	104	64	482
18-58	387,588	2,322	78	390	233	1,188,550	8,206	73	1,120	814,486	5,283	84	595	1,298
63	24,450	638	79	34		119,294	3,290	84	171	49,799	1,266	77	58	
68	12,714	444	70	21		64,404	2,550	80	83	28,705	1,197	84	34	
73	5,078	259	68	9		30,321	1,962	86	53	15,557	953	81	26	
78	1,449	116	70	3		14,271	1,415	87	32	7,007	656	82	20	
83	309	30	56			5,806	839	83	29	2,591	387	86	8	
88	55	12	82			1,605	343	80	13	637	145	85	8	
93	3	1	83			202	68	83	2	97	19	48		
98	2	1	53			29	11	40		6	2	34		
63-98	44,060	1,501	73	67		235,932	10,478	83	383	104,399	4,625	81	154	
Total	431,648	3,823	76	457	233	1,424,482	18,684	79	1,503	918,885	9,908	83	749	1,298

Non-rated Industries

GROUP LIFE INSURANCE

18	335,080	331	43	160	33	324,572	303	41	179	539,827	591	48	295	108
23	891,854	979	42	391	124	893,596	1,027	44	522	1,458,932	1,709	44	637	336
28	994,394	1,267	40	416	136	1,015,668	1,205	37	525	1,603,484	2,151	42	614	466
33	1,035,163	1,660	40	430	168	1,103,235	1,673	38	487	1,713,158	3,044	44	722	636
38	1,017,056	2,503	46	409	202	1,102,821	2,618	45	543	1,716,487	4,537	50	670	921
43	924,893	3,536	52	353	287	1,026,971	3,861	52	475	1,590,045	6,726	58	608	1,310
48	783,349	4,969	61	313	392	883,946	5,496	60	459	1,338,157	9,857	71	599	1,988
53	663,498	6,714	68	322	544	758,252	7,806	69	455	1,110,810	13,430	81	511	2,937
58	515,604	7,864	69	323	643	583,466	9,098	71	414	843,946	16,396	88	560	4,025
18-58	7,160,891	29,823	57	3,117	2,529	7,692,527	33,087	58	4,059	11,914,855	58,441	67	5,216	12,727
63	349,039	7,403	64	257		387,108	8,916	70	351	558,078	12,757	69	404	
68	181,916	5,448	60	183		184,070	6,192	68	194	296,981	10,660	72	315	
73	74,150	3,276	59	124		77,371	3,933	68	119	144,771	8,081	74	201	
78	23,879	1,578	58	57		27,282	2,207	71	72	62,664	5,477	76	164	
83	5,408	530	56	12		7,350	899	70	31	20,063	2,701	77	85	
88	853	176	77	3		1,328	283	80	8	4,887	1,021	78	41	
93	85	16	46	1		192	58	74	3	581	160	68	7	
98	8	1	13			14	6	45		30	16	56	1	
63-98	635,338	18,428	61	637		684,715	22,494	69	778	1,088,055	40,873	73	1,218	
Total	7,796,229	48,251	59	3,754	2,529	8,377,242	55,581	62	4,837	13,002,910	99,314	69	6,434	12,727

* 75% of Disability Claims on Waiver of Premium

† Expected Claims on CSO Mortality Table

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. Clms.	Years Exposed	Total Claims	Ratio A/E†	Acc. Deaths	Years Exposed	Total Claims	Ratio A/E†	Acc. Deaths	Dis. Clms.
Rated and Non-rated Industries Combined														
18	344,349	348	44	174	35	344,224	340	43	205	554,779	613	48	308	111
23	933,758	1,057	43	435	133	973,052	1,153	45	595	1,538,579	1,854	46	714	352
28	1,052,348	1,380	41	475	144	1,128,535	1,416	39	646	1,727,486	2,352	43	701	503
33	1,095,817	1,792	41	484	183	1,247,166	1,988	40	617	1,843,841	3,305	45	811	680
38	1,071,127	2,668	47	457	221	1,254,648	3,062	46	671	1,832,754	4,871	50	731	975
43	973,468	3,807	54	387	310	1,196,104	4,668	54	631	1,693,267	7,292	59	686	1,433
48	825,650	5,337	63	356	432	1,063,633	6,811	62	605	1,430,587	10,752	73	664	2,194
53	702,886	7,224	69	366	588	933,427	9,955	71	630	1,194,982	14,697	82	572	3,270
58	549,076	8,532	70	373	716	740,288	11,900	73	579	913,066	17,988	89	624	4,507
18-58	7,548,479	32,145	59	3,507	2,762	8,881,077	41,293	60	5,179	12,729,341	63,724	68	5,811	14,025
63	373,489	8,041	65	291		506,402	12,206	73	522	607,877	14,023	70	462	
68	194,630	5,892	61	204		248,474	8,742	71	277	325,686	11,857	73	349	
73	79,228	3,535	59	133		107,692	5,895	73	172	160,328	9,034	75	227	
78	25,328	1,694	58	60		41,553	3,622	76	104	69,671	6,133	77	184	
83	5,717	560	56	12		13,156	1,738	76	60	22,654	3,088	78	93	
88	908	188	78	3		2,933	626	80	21	5,524	1,166	79	49	
93	88	17	47	1		394	126	78	5	678	179	65	7	
98	10	2	21			43	17	41		36	18	52	1	
63-98	679,398	19,929	62	704		920,647	32,972	73	1,161	1,192,454	45,498	73	1,372	
Total	8,227,877	52,074	60	4,211	2,762	9,801,724	74,265	65	6,340	13,921,795	109,222	70	7,183	14,025

* 75% of Disability Claims on Waiver of Premium

† Expected Claims on CSO Mortality Table

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 fac-

TABLE III
Crude Quinquennial Death and Disability Rates

Central Age	Waiver of Premium		Extended Death Benefit	Total and Permanent Disability	
	Death	Disability*	Death	Death	Disability
18	.00089	.000094	.00093	.00089	.000200
23	.00096	.000135	.00115	.00094	.000230
28	.00114	.000137	.00119	.00105	.000291
33	.00144	.000170	.00152	.00141	.000371
38	.00226	.000205	.00237	.00211	.000537
43	.00351	.000303	.00376	.00341	.000824
48	.00584	.000507	.00622	.00588	.001486
53	.00930	.000812	.01029	.00945	.002644
58	.01400	.001239	.01559	.01466	.004769
63	.02121		.02303	.02286	
68	.02995		.03364	.03589	
73	.04418		.05083	.05582	
78	.06608		.08090	.08740	
83	.09800		.12231	.13463	
88	.20633		.21310	.20892	
93	.18824		.30208	.27539	
98	.12500		.42857	.53333	

* 75% of Disability Claims on Waiver of Premium

tor somewhat less than 75% may be more in accord with current experience, the factor was maintained at 75% in this report.

- (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

TABLE IV

Ind. 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		Dia.		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 & Nurserymen	11873	107	117	3	73	6438	44	89	5925	59	80	7	—	— .2	21	8.7
2	Fruit Growing	1709	6	61	—	—	13983	82	84	1049	9	76	2	—	-1.3	11	6.6
3	Stock Ranging & Ranching	746	3	—	—	—	222	1	—	933	5	66	2	—	-2.6	1	.5
4	General Farming & all other Agriculture	16243	129	108	1	18	2818	18	80	3572	45	115	2	—	+ .2	19	8.4
Total		30571	245	108	4	39	23461	145	85	11479	118	89	13	95	— .4	52	7.9
	<i>Mining</i>																
10	Coal-Bit. (Surface)	6096	40	106	—	—	1924	17	116	2099	15	91	2	—	.0	16	15.8
11	Coal-Bit. (Underground)	22962	239	143	25	275	56343	462	116	12433	155	121	33	246	+2.2	168	18.3
12	Coal-Anthracite	11678	123	141	14	318	12209	149	131	1707	14	83	3	—	+3.1	38	14.8
13	Iron (Surface)	258	1	—	—	—	1912	16	114	24460	285	114	26	81	+1.1	37	13.9
14	Iron (Underground)	2327	23	173	3	—	20533	220	123	817	10	106	—	—	+2.2	51	21.5
15	Copper (Surface)	29451	264	132	23	228	92580	1295	127	19890	278	131	27	97	+3.0	150	10.6
16	Copper (Underground)	1341	18	202	3	—	12124	98	145	7574	56	110	17	—	+2.7	41	19.5
17	Lead & Zinc (Surface)	195	2	—	—	—	4289	36	131	—	—	—	—	—	+2.1	6	13.4
18	Lead & Zinc (Underground)	905	13	—	—	—	16233	116	106	2018	34	161	5	—	+1.6	34	17.7
19	Other Metals (Surface Only)	406	2	—	—	—	426	3	—	5623	45	138	1	—	+1.2	7	10.8
20	Other Metals (Incl. Surface & Underground)	10088	77	120	17	472	10311	54	100	6503	51	143	12	—	+1.8	40	14.9
21	Salt Production	1493	16	143	—	—	1845	13	94	8278	103	120	10	—	+1.8	11	9.5
22	Minerals (Clay, Shale, Talc, Phosphate, Feldspar, etc.)	4194	36	146	2	—	3351	37	141	24109	233	144	28	126	+3.1	44	13.9
23	Quarries (Slate, Stone & Marble)	7727	55	94	5	—	11643	125	132	16203	175	125	22	127	+1.9	48	13.5
Total		60791	600	123	62	261	245723	2641	124	131714	1454	125	186	124	+2.4	691	14.5

30	<i>Oil</i> Mineral Oil Prod. Refining & Distribution	193319	1342	112	66	98	571536	3404	102	415358	2981	104	660	146	+ .4	854	7.2
	<i>Construction</i>																
40	Steel (Incl. Steel Bridges)	3330	28	151		—	4924	44	135	18286	152	102	24	124	+1.0	24	9.0
41	Wood, Brick & Stone	24561	140	106	6	78	8296	70	107	5722	54	103	1	—	+ .2	37	9.6
42	Shipbldg. (Iron & Steel)	47454	447	126	48	274	23136	224	122	8876	75	118	9	—	+2.2	47	5.9
43	Shipbuilding (Wood)	2478	12	76		—	1344	13	89	483	7	117	3	—	— .7	2	4.6
44	Roads (Incl. Sewers, Bridges, etc.)	11381	84	104	5	125	23715	222	132	5942	76	113	6	—	+1.6	37	9.0
Total		89204	711	118	59	189	61415	573	123	39309	364	107	43	95	+1.4	147	7.7
	<i>Iron and steel and other metal industries (except lead)</i>																
60	Steel Works (with or without Rolling Mills)	164255	1347	123	45	79	691673	5415	117	224205	2046	126	299	123	+1.4	1059	9.8
61	Steel & Iron Foundries	123875	954	121	37	89	95563	953	121	117194	1053	113	145	111	+1.4	252	7.5
62	Steel Rolling	6014	36	109	1	—	6000	49	120	24682	223	118	13	45	+ .8	24	6.5
63	Tube, Rod & Pipe Mills	13592	110	129	3	71	146812	997	106	41672	371	111	21	44	+ .4	158	7.8
64	Malleable Iron Works	13229	129	123	9	184	22900	188	115	28683	274	113	28	89	+1.2	49	7.6
65	Wire Drawing & Wire Products	34791	211	112	16	148	50132	249	96	85738	831	111	94	102	+ .6	84	4.9
66	Smelting (Electric Process) & Refining	4764	34	152	4	—	32138	177	101	34759	337	110	36	95	+ .7	60	8.4
67	Other Smelting & Refining	87302	388	100	19	69	5746	48	127	75608	437	98	242	353	+1.0	120	7.1
68	Non-ferrous Metal Foundries	17882	144	127	7	121	14665	123	125	42312	266	108	39	96	+1.0	57	7.6
Total		465704	3353	119	141	91	1065629	8199	115	674853	5838	115	917	127	+1.2	1863	8.4
	<i>Metal Products</i>																
79	Airplane Mfg.	127281	436	94	75	217	94692	364	80	118311	460	83	93	85	— .6	126	3.7
80	Automobiles & Agriculture Implements	58600	385	109	21	111	353873	2782	112	479311	2836	104	624	125	+ .6	519	5.8

* 75% of Disability Claims on Waiver of Premium

† Expected Claims Calculated from Table III

TABLE IV—Continued

Ind. 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>Metal Products</i>																
81	Car & Railroad Shops	88763	810	112	26	83	42245	414	113	11992	175	121	13	88	+1.1	105	7.3
82	Sheet Metal Products (Stamping & Pressing)	103849	680	109	19	57	139081	870	100	184759	1255	101	116	66	.0	217	5.1
83	Steel Fabrication (Excluding Erecting)	28193	183	106	10	106	18323	117	91	39527	358	114	50	111	+ .6	71	8.3
84	Drop Forging	11765	82	109	4	105	17816	141	118	28555	198	103	25	79	+ .5	28	4.8
85	Heavy Machinery & Other Metal Products	308555	2067	104	85	83	397217	3209	104	580314	4617	105	374	62	+ .1	697	5.4
86	Light Metal Prod. & Mach. (Tools, Hardware, Instruments of Precision, etc.)	1043520	5556	99	383	120	698915	4609	100	1738773	10613	102	1150	70	-.1	1430	4.1
88	Boiler Making (Heavy Tanks, etc.)	28166	170	109	6	70	33459	206	103	25039	216	101	29	105	+ .2	58	6.7
89	Mfg. Radio, Television, Electronic Equipment	13207	22	50	2	61	7793	34	104	41966	138	81	35	107	-.8	22	3.5
Total		1811899	10391	102	631	112	1803444	12746	103	3248547	20866	102	2509	79	+ .1	3273	4.8
100	<i>Lead Industry</i> Mfg. White and Red Lead-Foundry Work & Mfg. Lead Supplies Incl. Batteries	1077	4	83	1	—	30000	208	133	38186	301	105	38	91	+ .2	51	7.4
	<i>Chemical and allied industries</i>																
110	Fertilizer Production	9443	67	102	4	—	17357	164	138	10605	147	112	21	159	+1.9	40	10.7
111	Paint & Varnish Factories	24895	181	113	6	71	23835	194	116	53763	394	105	56	108	+ .6	57	5.6
112	Aniline Dyes (Coal Tar)	256	2	—	—	—	4761	41	111	3013	28	137	4	—	+1.6	4	5.0

113	Explosives	6556	50	126	7	—	11368	64	109	192946	1086	96	193	110	—	.1	127	6.0	
114	Soap, Tallow & Glue	6401	42	101	—	—	26319	135	93	36729	245	106	46	135	+	.2	27	3.9	
115	Heavy Acids (Sulphuric, Nitric, Hydrofluoric, etc.)	3569	18	93	—	—	1208	10	167	11802	109	142	22	179	+	2.6	10	6.0	
116	Light Acids (Acetic, Citric, etc.)	4719	23	116	2	—	1363	14	122	788	10	169	—	—	+	1.4	2	2.9	
117	General Chemical Mfg.	251738	1381	102	136	169	97224	667	105	327720	1716	106	394	140	+	.5	559	8.3	
Total		307577	1764	103	155	156	183435	1289	110	637366	3735	104	736	129	+	.5	826	7.3	
<i>Clay, glass and stone</i>																			
129	Brick, Tile, Terra Cotta & Pottery Glazed	2077	15	121	—	—	883	9	—	4967	26	75	1	—	—	.9			
130	Brick, Tile, Terra Cotta & Pottery—Other	52310	332	104	12	72	56864	489	115	59133	445	104	41	70	+	.4	136	8.1	
131	Glass Factories (Excl. Polished Plate Glass)	49482	302	94	24	155	28880	181	88	220626	1185	99	352	195	+	.4	145	4.8	
132	Polished Plate Glass	2270	11	80	—	—	1510	10	61	20107	163	112	11	56	—	.0	15	6.3	
133	Lime, Cement & Gypsum	21462	120	93	3	44	35109	326	109	35328	314	97	28	67	—	.1	103	11.2	
134	Marble & Stone Yards	3741	20	97	2	—	793	5	—	3331	27	108	9	—	+	1.1	5	6.4	
Total		131342	800	98	41	99	124039	1020	106	343492	2160	100	442	144	+	.3	404	6.7	
<i>Clothing industries</i>																			
160	Hat Factories (Felt)	15704	112	91	5	89	3275	26	97	24181	268	109	11	40	—	.2	13	3.0	
161	Furriers	4558	32	109	5	—	1396	1	11	2589	51	142	2	—	+	1.3	3	3.5	
162	All other Clothing	222340	853	73	33	48	121430	448	69	80141	453	76	87	113	—	1.6	119	2.8	
Total		242602	997	75	43	57	126101	475	69	106911	772	88	100	93	—	1.4	135	2.8	
<i>Food and kindred industries</i>																			
180	Dairy Products	49717	246	93	6	38	130126	847	87	249258	1464	98	185	73	—	.6	161	3.8	
181	Flour & Grain Mills and Elevators	24515	146	91	6	71	12316	90	90	72807	504	95	87	113	—	.4	76	6.9	

* 75% of Disability Claims on Waiver of Premium

† Expected Claims Calculated from Table III

TABLE IV—Continued

Ind. 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>Food and Kindred Industries</i>																	
182	Canneries (Fish)	2091	22	124	3	—	542	6	—	1590	11	71	—	—	.7	2	4.7	
183	Canneries (Meat, Fruit & Vegetables)	30007	185	81	8	75	18317	121	87	37822	261	95	35	91	—	.9	42	4.9
184	Slaughter & Packing Houses & Stock Yards	27611	197	118	6	65	32641	195	102	388025	3031	110	696	170	+1.3	285	6.4	
185	Sugar Factories & Refineries	4765	43	94	—	—	26647	295	116	24220	276	118	15	54	+1.2	40	7.2	
186	Mfg. & Bottling Bev.	19767	93	109	8	151	16764	113	140	46642	221	108	22	63	+	.6	35	4.2
187	Cereals, Prepared Food & All other Foods	162332	858	97	54	107	124662	741	94	494554	3210	100	521	111	—	.0	346	4.4
191	Beer & Other Malt Bev. Mfg. & Bottling	70204	613	129	23	88	49354	452	118	16437	126	124	5	31	+1.6	64	4.7	
192	Wines—Mfg. & Bottling	1825	16	128	1	—	1598	20	164						+3.4	5	14.6	
193	Distilled Liquors—Mfg. & Bottling	16707	111	131	2	38	31236	189	121	4826	36	129	3	—	+1.2	39	7.4	
194	Wholesale Dealers in Alcoholic Beverages	10541	77	134	—	—	4135	27	124	1036	4	74	—	—	+1.2	6	3.8	
195	Retail Dealers in Alcoholic Beverages	291	2	—	—	—	86	—	—						+5.0			
Total		420373	2609	105	117	85	448424	3097	100	1337217	9144	103	1569	118	+	.3	1101	5.0
	<i>Leather industries (excl. artificial leather)</i>																	
200	Heavy Leather Goods	11294	89	94	4	98	6896	50	84	14281	151	112	10	62	—	.2	13	4.0
201	Shoes & Other Light Leather Goods	121808	597	85	37	94	290547	1417	85	44384	317	90	27	60	—	.9	170	3.7
202	Tanneries	37368	361	116	16	117	25505	240	103	31280	353	104	34	99	+	.8	60	6.4
Total		170470	1047	95	57	100	322948	1707	87	89945	821	99	71	74	—	.6	243	4.2

220	<i>Lumber and furniture</i>																	
	Woodsmen & Loggers	10376	72	98	3	81	20000	111	72	1749	21	91	4	—	-1.4	41	12.8	
221	Lumber Yds. & Saw & Planing Mills	104021	655	91	21	60	75558	616	98	81400	758	103	100	110	—	.2	263	10.1
222	Furniture & Woodworking (Carriages & Musical Instruments)	158278	1027	96	41	80	171433	1207	94	171404	1444	99	149	84	—	.3	281	5.6
Total		272675	1754	94	65	73	266991	1934	94	254553	2223	100	253	94	—	.4	585	7.4
<i>Paper and pulp manufacturing</i>																		
240	Paper & Ground Wood Pulp Mills	92508	678	110	42	135	92925	616	99	334684	2281	97	490	150	+	.3	378	7.3
241	Sulphide Soda Pulp Mills	2571	9	95	—	—	1029	7	90	17426	187	92	16	81	-1.0	—	19	9.0
242	Paper Boxes	62211	346	105	6	32	47932	283	97	99609	591	103	73	79	—	.0	104	5.0
243	All other Paper Mfg.	84172	486	96	17	63	70298	480	100	146412	926	97	112	85	—	.3	163	5.4
Total		241462	1519	104	65	84	212184	1386	99	598131	3985	97	691	121	—	.0	664	6.3
<i>Printing</i>																		
260	Printing, Bookbinding & Publishing	188036	1308	111	39	64	151716	1215	108	399331	3160	103	227	57	+	.1	295	4.0
<i>Textile industries</i>																		
270	Bleaching, Dyeing, Printing & Finishing	57710	411	105	17	86	51836	292	91	32776	343	113	16	47	+	.1	74	5.2
271	Hemp, Jute, Rope & Cordage	18941	153	114	4	59	18836	136	97	64768	505	105	109	158	+	.7	46	4.5
272	All Other Textiles (Wool, Silk etc.)	696826	3730	87	184	79	503109	2516	85	453597	2536	90	445	106	—	.8	599	3.6
Total		773477	4294	89	205	79	573781	2944	86	551141	3384	94	570	109	—	.7	719	3.8
<i>Miscellaneous industries</i>																		
289	Plastic Products	34984	165	106	4	41	10797	55	96	4672	29	95	1	—	—	.1	16	3.2
290	Artificial Leather (Using Pyroxylin)	704	7	—	—	—	3357	43	185	14	—	—	—	—	+	5.5	3	7.4
291	Cigars & Tobacco	92796	464	104	93	333	32925	220	93	83825	403	96	273	368	+	1.2	82	3.9

* 75% of Disability Claims on Waiver of Premium

† Expected Claims Calculated from Table III

TABLE IV—Continued

Ind. 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			
292	Miscellaneous Industries Elec. Cables & Supplies (Not Falling Under In- dustry Code No. 100)	110456	376	88	61	211	55148	321	111	226464	1537	105	117	58	.0	168	4.3
293	Rubber	370259	2025	107	145	122	48327	240	96	144314	876	95	101	71	+ .1	276	4.9
294	Brooms & Brushes	11193	46	80	2	59	2315	20	94	13292	82	85	16	119	-1.0	13	4.9
295	Buttons (Excluding Metal, Rubber & Composition)	2124	15	97	1	—	3440	28	113	1272	9	71	—	—	.3	5	7.3
296	Celluloid & Celluloid Articles (Pyroxylin Composition)	3896	23	91	—	—	1666	21	148	14525	56	93	5	43	— .4	7	3.5
297	Drugs (Sundries, Incl. Perfumes, Chewing Gum, etc.)	52543	253	94	27	176	73212	424	98	120029	611	91	111	106	— .3	78	3.2
298	Cotton Seed Oil & Other Vegetable Oil Produc- tion	6644	52	103	1	—	11687	69	79	3750	45	125	3	68	— .5	17	7.7
299	Ice (Mfg., Harvesting & Distributing)	7694	72	129	2	—	3191	29	114	11205	144	119	18	—	+2.1	16	7.2
300	Miscellaneous Mfg. & Processing	148979	967	107	37	75	124688	876	104	115069	940	106	108	91	+ .3	265	6.8
Total		842272	4465	104	373	143	370753	2346	102	738431	4732	100	753	109	+ .2	946	4.8
310	Transportation and public service City Employees (Incl. More than One Class)	52332	590	115	39	183	34638	403	120	59876	697	114	103	149	+1.9	124	8.4
320	Elec. & Street Railways (Population of City 500,000 or More)	4814	75	144	—	—	88070	1095	127	111893	1623	123	244	182	+3.2	117	5.7

321	Elec. & Street Railways (Population of City 250,000 to 500,000)	680	3	—	—	—	22200	346	122	23377	285	95	60	217	+1.7	34	7.4
322	Elec. & Street Railways (Smaller Towns & In- terurban)	5226	67	133	—	—	5236	62	136	32647	389	109	51	144	+1.8	30	7.0
323	Airplane Trans.	59233	163	128	16	138	30652	62	92	129731	299	110	35	53	+ .1	192	8.7
325	Auto Sales & Service Sta- tions	86928	353	97	12	46	94368	546	96	33409	177	97	17	50	— .3	115	5.4
326	Taxicabs & Buses	98776	675	133	20	61	44328	339	125	120371	553	112	138	144	+1.2	137	5.2
327	Truck, Transfer, etc.	74905	378	126	17	77	62941	392	121	46996	261	118	26	62	+ .9	163	8.8
330	Water Trans. (Vessels Other Than River)	7059	67	127	7	—	6870	51	137	14608	151	125	13	87	+2.1	14	4.9
331	Water Trans. (Harbor & Dock Vessels on Rivers)	7170	88	153	—	—	5876	84	150	10555	144	138	4	32	+3.7	50	21.2
334	Steam Railroads	19651	381	136	9	99	776815	12013	119	60329	1170	118	201	231	+2.7	915	10.7
335	Express Companies	1686	13	176	—	—	155377	767	95	9316	50	98	1	—	— .3	72	4.3
336	Telegraph	119097	638	94	114	259	162	—	—	15572	114	113	41	224	+ .5	33	2.4
337	Telephone	4594	18	72	1	—	33216	130	88	45684	189	80	40	103	— .9	28	3.4
338	Subway & Elevated	—	—	—	—	—	20339	292	129	4630	54	123	15	—	+3.4	20	8.0
339	Police	2641	35	180	1	—	6343	55	110	8745	80	137	31	—	+3.6	16	9.0
340	Firemen	158	—	—	—	—	2264	49	166	5850	92	168	10	—	+7.1	12	14.5
341	Gas Works	15466	105	112	2	41	10919	77	95	79944	771	103	79	88	+ .2	59	5.5
342	Electric Light & Power	59166	406	123	13	68	200520	1892	117	680722	6449	109	892	117	+1.1	828	8.8
350	Miscellaneous Trans. & Public Service	1399	15	152	3	—	1222	9	94	3328	34	96	3	—	+ .9	1	1.7
Total		620981	4070	117	254	125	1602356	18664	117	1497583	13582	111	2004	128	+1.4	2960	8.0
360	<i>Clerical and professional</i> Clerical (Banks, Insur- ance, & other Office Forces)	372054	2036	99	116	98	589263	3836	98	1090894	6643	89	758	73	— .6	619	3.0
361	Medical (Nurses, Sani- taria, Hospitals, etc.)	25241	140	76	8	94	36242	243	79	34598	202	73	38	96	-1.9	40	4.2
362	Theatrical	33035	224	115	19	183	48957	389	110	104173	905	116	146	125	+1.2	80	4.3

* 75% of Disability Claims on Waiver of Premium

† Expected Claims Calculated from Table III

TABLE IV—Continued

Ind. 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			
363	Clerical and professional Conference of Methodist Ministers & Similar Organizations	38544	250	89	2	15	13359	143	80	23577	271	80	28	101	-1.9	37	4.9
Total		468874	2650	97	145	96	687821	4611	97	1253242	8021	90	970	80	- .6	776	3.2
370	Trade and service Wholesale Merchants & Dealers	152178	927	107	41	86	170812	1095	91	204199	1667	100	180	81	- .2	226	4.3
371	Retail Merchants & Dealers	464666	2424	81	97	63	579380	2069	81	1180044	4317	79	962	99	-1.1	658	3.0
372	Warehouses & Cold Storage Plants	21945	150	117	4	55	12574	118	111	22936	261	120	23	86	+1.2	35	6.1
373	Hotels & Restaurants	136359	1060	103	34	68	109404	993	109	94756	841	100	56	49	+ .1	144	4.2
374	Laundries (incl. Dry Cleaning)	34345	158	85	8	71	31999	161	75	27718	186	83	29	90	-1.3	33	3.5
375	Coal Delivery	6926	58	131		—	6063	77	129	7432	81	105	3	—	+1.3	16	7.8
376	Operation & Maintenance of Office & Apartment Buildings	16023	165	106	18	231	15126	112	81	12823	155	93	19	96	- .5	21	4.8
380	Miscellaneous Trade & Service	12661	95	112	3	71	2476	31	150	3927	27	75	1	—	+ .4	13	6.8
390	Miscellaneous not other- wise classified	11738	43	71	4	100	2133	15	89	1171	21	184		—	- .8	3	2.0
Total		856841	5080	92	209	72	929967	5571	88	1555006	7556	87	1273	91	- .8	1149	3.4
Grand Total		8227877	49312	102	2762	104	9801724	74265	104	13921795	95197	101	14025	103	+ .2	17734	5.6

* 75% of Disability Claims on Waiver of Premium

† Expected Claims Calculated from Table III

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 containing the Total and Permanent Disability clause more recently. Hence, the results of this study should be viewed in the light of the selective factors influencing this experience.

In Table I the data is shown for each calendar year under each disability provision in comparison with the Commissioner's Standard Ordinary Table as the basis for expected claims. The latter standard has been substituted for the American Men Ultimate Table of Mortality used in previous reports.

In Table II, the aggregate data appears for each disability clause tabulated by quinquennial age groups. The data is shown separately for rated and non-rated 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 Commissioner's Standard Ordinary Table.

The data for the non-rated industries shown in Table II was used to compute, separately for death and disability claims, ratios of actual 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 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 disability experience is

TABLE V
Experience Under Non-Rated 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	5100	5	128		—	2856	4	190	897		—			+ .2	4
23	14010	13	101	2	182	7917	12	140	1749	2	154			+ .2	10
28	16352	20	108	3	200	9745	11	97	1756	2	182			+ .1	14
33	16107	27	117	1	53	10058	10	67	1928	2	95			- .1	14
38	15168	34	100	2	87	9812	26	113	2259	5	111			+ .1	16
43	14169	28	57	2	57	8785	38	118	2232	5	68	1	—	- .8	6
48	11656	72	107	3	57	7060	50	115	1907	11	102			+ .3	8
53	9436	107	122	2	—	5943	71	115	1759	12	72	1	—	+ .9	9
58	6814	99	103	5	—	4387	74	109	1542	15	66	2	—	- .5	4
18-58	108812	405	103	20	66	66563	296	111	16029	54	80	4	23	.0	85
63	4582	95	98			2896	63	95	1251	27	95			- .8	6
68	2450	66	90			1559	44	84	714	21	—			—	4
73	1027	37	82			638	26	—	353	11	—			—	3
78	310	23	—			200	12	—	117	12	—			—	1
83	46	3	—			53	7	—	30	6	—			—	1
88	11	1	—			1	2	—	2		—			—	
93	1	—	—							1	—			—	
63-93	8427	225	93			5347	154	88	2467	78	88			-3.1	15
Total	117239	630	99	20	66	71910	450	102	18496	132	85	4	23	- .2	100

* 75% of Disability Claims on Waiver of Premium

† Expected Claims Calculated from Table III

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

In Table V, the non-rated experience under the cases with fewer than 50 lives at issue that remain in that class is set forth with the experience of all non-rated 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 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.