

# TRANSACTIONS OF SOCIETY OF ACTUARIES 1973 REPORTS

## IV. 1965-70 BASIC TABLES

### ABSTRACT

This report presents a new set of Select and Ultimate Basic Tables. Six tables have been constructed: select tables for the first fifteen policy years and ultimate tables for the sixteenth and later policy years, each for male lives, female lives, and male and female lives combined. The select tables are for issue age groups 0, 1, 2-4, 5-9, 10-14, and so on, through 70 and over, and the ultimate tables are for individual attained ages 15-100.

The tables are based on the combined intercompany mortality experience under Standard Ordinary insurance issues observed between 1965 and 1970 policy anniversaries. The select tables are based on medically examined issues, the ultimate tables on medical and nonmedical issues combined. All war deaths have been excluded in the construction of these tables.

These tables are intended to replace the 1955-60 Basic Tables in the analysis of future mortality trends in the intercompany experience and to provide companies with an up-to-date basis for mortality comparisons of various kinds.

### INTRODUCTION

THE 1955-60 Basic Tables and the 1959-62 Juvenile Extension of the 1955-60 Basic Tables were prepared by the Committee on Mortality under Ordinary Insurances and Annuities for the purpose of making mortality comparisons under Standard Ordinary insurance issues. These tables were published in *TSA, 1962 Reports*, pages 44-58, and in *TSA, 1963 Reports*, pages 37-43, respectively, and have been used extensively. In recent years, intercompany mortality on Standard Ordinary medically examined issues in the select policy years and on Standard Ordinary medical and nonmedical issues combined in the ultimate policy years has been, in the aggregate, at a level of about 90 per cent of that represented by these tables. Current intercompany mortality trends also indicate an increase in mortality rates at the younger ages (attained ages under 35) and a decrease at the older ages. Because of these changes in the mortality experience, the Committee decided to construct a new set of basic tables, to be called the 1965-70 Basic Tables.

Six tables have been constructed. Three select tables, for male lives, female lives, and male and female lives combined, show mortality rates for issue age groups 0, 1, 2-4, 5-9, 10-14, and so on, through 70 and over, for each of the first fifteen policy years separately. Three ultimate tables, for male lives, female lives, and male and female lives combined, show

mortality rates for attained ages 15–100 for policy years 16 and over combined. All six tables are based on the combined intercompany experience between 1965 and 1970 policy anniversaries.

Nineteen companies (eighteen in the 1967–68 experience) contributed data for these tables. The data are the same as were contributed to the annual intercompany study of mortality under Standard Ordinary insurance issues for each of the years of experience from 1965–66 through 1969–70. All nineteen companies were able to contribute all or part of their data to the sex-distinct experience in the select period. Only twelve companies were able to contribute all or part of their data to the sex-distinct experience in the ultimate period. Considerable difficulty was experienced in the construction of the tables for female lives and at the younger ages (ages under 20) for all lives because of the relatively small volume of data.

The select tables are based on the intercompany experience under standard medically examined issues only. The ultimate tables are based on the intercompany experience under medical and nonmedical issues combined. All war deaths have been excluded in the construction of these tables.

Since the select and ultimate experience was generally underwritten at different times, the ultimate rates do not necessarily represent the level to which the select rates would be expected to rise. Therefore, as in the 1955–60 Basic Tables, the select rates do not always grade smoothly into the ultimate rates.

These tables have been constructed to facilitate the analysis by the Committee of future mortality trends and to provide companies with an up-to-date basis for mortality comparisons. The tables should be recognized as a composite of the experience of a number of life insurance companies, each of whose underwriting standards and characteristics differ from those of the others. A given company's underwriting standards and characteristics also may have changed over the many years of issue covered by the data.

#### SELECT BASIC TABLES (TABLE 1)

The select crude mortality rates (Table 2) for issue age groups 0, 1, 2–4, 5–9, 10–14, and so on, through 70 and over, are based on the intercompany experience under medically examined issues for each of the first fifteen policy years.

The calculation of select crude mortality rates presented the problem of combining data from companies whose contributions were on different age

TABLE 1  
1965-70 SELECT BASIC TABLES  
GRADUATED MORTALITY RATES PER 1,000

ISSUE AGE GROUP	POLICY YEAR														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Male and Female Lives Combined															
0.....	5.39	1.28	.79	.61	.52	.46	.41	.37	.34	.31	.29	.29	.32	.39	.47
1.....	1.28	.79	.61	.52	.46	.41	.37	.34	.31	.29	.29	.32	.39	.47	.57
2-4.....	.61	.52	.46	.41	.37	.34	.31	.29	.29	.32	.39	.47	.57	.68	.80
5-9.....	.37	.34	.31	.29	.29	.32	.39	.47	.57	.68	.80	.92	1.01	1.07	1.09
10-14.....	.32	.39	.47	.57	.68	.80	.92	1.01	1.07	1.09	1.08	1.07	1.06	1.04	1.02
15-19.....	.79	.86	.91	.97	1.02	1.01	1.00	.99	.99	1.00	1.02	1.07	1.13	1.17	1.18
20-24.....	.67	.70	.79	.80	.80	.80	.80	.81	.84	.88	.95	1.03	1.12	1.23	1.35
25-29.....	.56	.61	.73	.75	.78	.82	.89	.98	1.10	1.21	1.38	1.61	1.82	2.03	2.26
30-34.....	.73	.86	.97	1.09	1.18	1.29	1.45	1.66	1.91	2.16	2.46	2.74	3.05	3.38	3.76
35-39.....	.85	1.10	1.39	1.65	1.89	2.14	2.45	2.76	3.13	3.57	4.04	4.50	4.97	5.62	6.41
40-44.....	1.32	1.83	2.32	2.72	2.95	3.49	4.10	4.62	5.17	5.77	6.49	7.20	8.13	9.18	10.23
45-49.....	1.92	2.68	3.52	4.19	4.58	5.35	6.38	7.05	7.68	8.48	9.46	10.76	12.47	14.13	15.89
50-54.....	2.56	4.02	5.30	6.26	6.92	8.45	9.92	10.82	11.80	13.15	14.47	16.27	18.65	21.09	23.29
55-59.....	3.51	5.38	7.53	8.88	9.67	11.18	13.50	14.57	15.88	18.09	20.92	24.26	27.55	31.52	34.93
60-64.....	5.37	8.03	11.21	14.16	15.56	16.94	18.84	21.15	24.11	27.79	32.48	38.09	42.32	45.77	49.39
65-69.....	8.97	12.65	16.38	19.62	22.92	25.05	27.72	30.03	34.60	41.07	49.10	55.86	60.70	64.63	70.50
70 and over.....	9.34	13.27	17.38	21.83	28.77	36.46	44.92	54.34	64.91	76.38	87.56	100.71	112.16	120.65	131.13

TABLE 1—Continued

ISSUE AGE GROUP	POLICY YEAR														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	Male Lives														
0.....	5.80	1.33	.84	.65	.53	.48	.42	.39	.35	.32	.31	.31	.33	.42	.52
1.....	1.33	.84	.65	.53	.48	.42	.39	.35	.32	.31	.31	.33	.42	.52	.67
2-4.....	.65	.53	.48	.42	.39	.35	.32	.31	.31	.33	.42	.52	.67	.81	.95
5-9.....	.39	.35	.32	.31	.31	.33	.42	.52	.67	.81	.95	1.07	1.16	1.19	1.16
10-14.....	.33	.42	.52	.67	.81	.95	1.07	1.16	1.19	1.16	1.13	1.11	1.10	1.08	1.07
15-19.....	.92	.99	1.03	1.07	1.11	1.10	1.09	1.08	1.07	1.06	1.04	1.09	1.13	1.18	1.23
20-24.....	.69	.74	.81	.84	.83	.82	.83	.86	.90	.95	1.01	1.11	1.22	1.36	1.50
25-29.....	.57	.63	.75	.77	.80	.84	.91	1.00	1.12	1.24	1.41	1.63	1.84	2.08	2.37
30-34.....	.75	.87	.98	1.10	1.19	1.33	1.46	1.68	1.92	2.17	2.47	2.75	3.06	3.46	3.96
35-39.....	.86	1.11	1.41	1.66	1.90	2.16	2.46	2.77	3.14	3.58	4.05	4.53	4.99	5.64	6.54
40-44.....	1.36	1.89	2.35	2.80	3.10	3.67	4.13	4.64	5.20	5.79	6.51	7.21	8.15	9.23	10.41
45-49.....	1.94	2.70	3.54	4.23	4.85	5.57	6.40	7.13	7.80	8.66	9.77	11.05	12.76	14.55	16.43
50-54.....	2.61	4.03	5.31	6.29	7.01	8.58	10.15	11.26	12.29	13.74	15.18	17.05	19.54	22.08	24.17
55-59.....	3.65	5.48	7.67	9.28	10.22	11.80	13.87	15.30	16.81	19.16	21.74	24.91	28.23	32.27	35.91
60-64.....	5.89	8.53	11.92	15.04	16.35	17.39	19.05	21.37	24.34	28.08	33.30	39.82	44.31	47.57	50.36
65-69.....	9.74	13.68	17.51	20.69	23.88	25.94	28.42	30.77	35.38	41.98	50.09	56.90	61.79	66.73	72.64
70 and over.....	10.38	14.37	18.56	23.07	30.10	38.15	46.91	56.67	67.32	79.21	90.55	103.80	115.22	123.75	133.86

TABLE 1—Continued

ISSUE AGE GROUP	POLICY YEAR														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	Female Lives														
0.....	4.80	1.22	.72	.55	.48	.42	.37	.33	.29	.27	.25	.26	.27	.29	.33
1.....	1.22	.72	.55	.48	.42	.37	.33	.29	.27	.25	.26	.27	.29	.33	.36
2-4.....	.55	.48	.42	.37	.33	.29	.27	.25	.26	.27	.29	.33	.36	.41	.47
5-9.....	.33	.29	.27	.25	.26	.27	.29	.33	.36	.41	.47	.53	.57	.59	.58
10-14.....	.27	.29	.33	.36	.41	.47	.53	.57	.59	.58	.56	.55	.54	.53	.54
15-19.....	.45	.49	.50	.51	.53	.56	.55	.54	.53	.54	.57	.60	.63	.66	.67
20-24.....	.50	.54	.52	.53	.54	.57	.60	.63	.66	.67	.70	.76	.83	.92	1.02
25-29.....	.54	.59	.63	.66	.67	.70	.76	.83	.92	1.02	1.16	1.31	1.45	1.60	1.76
30-34.....	.70	.76	.83	.92	1.02	1.16	1.31	1.45	1.60	1.76	1.91	2.07	2.26	2.48	2.70
35-39.....	.77	.98	1.21	1.44	1.57	1.78	1.99	2.19	2.41	2.62	2.83	3.08	3.36	3.66	4.00
40-44.....	.87	1.20	1.55	1.89	2.12	2.44	2.73	2.97	3.22	3.48	3.71	3.95	4.58	5.14	5.63
45-49.....	1.12	1.51	2.17	2.49	2.80	3.18	3.61	3.96	4.35	4.75	5.19	5.62	6.44	7.10	8.41
50-54.....	1.88	2.62	3.51	4.15	4.60	5.03	5.59	6.05	6.51	6.73	7.77	8.59	9.80	11.00	12.50
55-59.....	1.98	2.78	3.68	4.26	4.70	5.03	5.62	6.21	6.92	8.16	10.04	11.84	14.16	15.66	17.16
60-64.....	2.86	4.43	6.21	6.92	8.16	10.04	11.56	12.48	13.40	14.40	15.91	18.03	20.38	22.48	24.83
65-69.....	4.08	6.38	8.19	10.93	13.03	14.89	16.81	18.69	20.56	22.70	24.15	25.81	28.34	30.58	32.40
70 and over...	6.15	9.00	12.11	15.65	21.14	27.68	35.11	43.63	53.23	63.28	75.29	85.05	96.23	105.84	114.33

TABLE 2  
1965-70 SELECT EXPERIENCE  
CRUDE MORTALITY RATES PER 1,000

ISSUE AGE GROUP	POLICY YEAR														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Male and Female Lives Combined															
0.....	3.44	1.23	.34	.67	.65	.33	.32	.37	.68	.44	.13	.29	.49	.40	.68
1.....	1.72	.95	.24	.03	.57	.46	.19	.35	.11	.58	.47	.10	.35	.47	.22
2-4.....	.03	.05	.69	2.41	.32	.25	.10	.16	.44	.19	.29	.34	.16	1.02	1.08
5-9.....	.38	.06	.08	.36	.08	.35	.67	.35	.59	.93	1.35	.68	1.02	1.35	1.08
10-14.....	1.43	.22	.64	.61	.62	1.16	1.13	1.27	1.88	1.06	1.71	.97	1.51	.83	.97
15-19.....	1.30	.84	.98	1.15	1.34	1.06	.66	.86	.79	.95	1.20	.85	.88	.99	1.32
20-24.....	.68	.70	.77	.91	.85	.81	.81	.90	.75	.80	.98	1.12	1.08	1.34	1.44
25-29.....	.55	.69	.74	.66	.74	.82	1.06	1.07	1.15	1.22	1.50	1.52	1.68	2.02	2.22
30-34.....	.69	1.02	1.06	1.06	1.17	1.27	1.47	1.65	1.90	2.09	2.47	2.84	3.14	3.21	3.64
35-39.....	.84	1.12	1.33	1.70	1.92	2.22	2.34	2.83	3.13	3.63	3.99	4.48	4.90	5.64	6.15
40-44.....	1.26	1.82	2.43	2.83	2.70	3.40	4.18	4.64	5.28	5.91	6.37	6.89	7.50	8.92	10.38
45-49.....	1.95	2.49	3.48	4.41	4.32	5.72	5.69	6.94	7.62	8.90	9.39	10.76	12.59	13.83	15.82
50-54.....	2.40	4.57	4.38	6.15	6.40	8.34	8.17	11.50	11.05	13.90	14.83	17.82	18.65	20.79	23.56
55-59.....	3.79	5.19	8.27	8.57	10.26	11.18	12.06	13.66	15.59	19.94	19.60	22.26	25.92	32.20	31.04
60-64.....	6.75	6.11	9.58	15.42	12.33	16.02	22.12	21.61	23.17	31.67	34.18	36.81	36.09	39.82	51.65
65-69.....	9.20	8.54	12.01	18.98	29.25	21.98	38.40	30.12	32.69	46.08	44.61	51.11	51.14	67.99	46.07
70 and over.....	13.13	14.75	21.51	16.40	31.77	23.90	81.86	51.94	62.20	68.45	84.69	75.18	77.65	113.95	103.45

TABLE 2—Continued

ISSUE AGE GROUP	POLICY YEAR														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	Male Lives														
0.....	4.18	1.78	.47	.88	.19	.37	.40	.52	1.11	.68	.20	.41	.76	.37	.56
1.....	2.49	1.36	.29	.04	.69	.55	.30	.31	.06	.87	.59	.04	.49	.47	.18
2-4.....	.04	.07	.86	1.80	.45	.30	.04	.15	.69	.20	.37	.23	.18	1.01	1.23
5-9.....	.21	.04	.13	.57	.04	.51	.91	.32	.65	1.12	1.74	.75	1.07	1.86	1.44
10-14.....	1.01	.25	.16	.80	.81	1.38	1.29	1.58	2.27	1.17	2.04	1.08	1.82	1.00	.85
15-19.....	1.33	.90	1.08	1.34	1.50	1.22	.78	1.01	.91	1.09	1.19	.87	.89	1.05	1.46
20-24.....	.68	.78	.77	1.00	.93	.87	.79	1.00	.83	.86	1.01	1.13	1.10	1.37	1.41
25-29.....	.56	.68	.74	.65	.78	.84	1.07	1.06	1.16	1.21	1.52	1.54	1.66	2.04	2.22
30-34.....	.69	1.04	1.08	1.09	1.17	1.31	1.49	1.67	1.93	2.10	2.51	2.85	3.05	3.20	3.67
35-39.....	.84	1.13	1.35	1.74	1.92	2.26	2.34	2.83	3.17	3.62	4.04	4.51	5.02	5.78	6.08
40-44.....	1.29	1.90	2.48	2.96	2.85	3.56	4.22	4.74	5.34	5.90	6.50	6.97	7.73	9.32	10.50
45-49.....	2.00	2.45	3.42	4.49	4.63	6.10	5.69	7.05	7.79	9.06	9.90	11.13	13.44	14.66	16.68
50-54.....	2.64	4.10	4.36	6.17	6.86	8.91	8.46	11.94	11.51	14.48	15.85	19.25	20.17	22.57	25.76
55-59.....	4.08	5.35	8.55	8.98	10.72	11.79	12.26	14.27	16.45	20.94	21.29	23.40	28.10	34.60	34.04
60-64.....	7.39	5.66	9.80	16.72	13.01	16.14	23.62	22.05	22.45	31.97	36.96	42.84	39.26	41.75	54.53
65-69.....	10.70	7.91	13.67	24.42	34.15	25.04	39.27	29.84	35.64	48.56	50.51	55.34	57.32	75.29	49.89
70 and over.....	15.37	12.32	17.46	18.17	35.71	25.89	77.15	56.48	62.54	62.99	93.58	74.17	44.61	112.34	103.21

TABLE 2--Continued

ISSUE AGE GROUP	POLICY YEAR														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	Female Lives														
0.....	1.69	.00	.04	.09	1.60	.17	.12	.06	.00	.19	.05	.17	.18	.28	.26
1.....	.00	.00	.12	.00	.22	.25	.00	.45	.23	.27	.14	.18	.16	.00	.39
2-4.....	.00	.00	.06	3.92	.00	.19	.27	.23	.07	.23	.14	.64	.00	.63	.92
5-9.....	.76	.11	.00	.00	.22	.04	.13	.42	.35	.16	.42	.41	.71	.02	.22
10-14.....	3.17	.08	2.38	.00	.04	.41	.46	.05	.37	.84	.29	.60	.18	.07	.43
15-19.....	.63	.61	.78	.15	.51	.22	.03	.31	.65	.50	1.44	.79	.70	.70	.21
20-24.....	.98	.20	1.03	.31	.31	.30	2.01	.50	.44	1.02	.51	.87	.49	1.08	1.56
25-29.....	.37	.70	.66	.86	.59	.94	.69	1.33	.96	1.27	.90	1.29	1.54	1.45	1.60
30-34.....	.74	1.32	.68	.63	1.11	1.16	.95	1.38	.85	2.27	1.58	2.43	6.71	4.33	2.42
35-39.....	.65	.73	1.00	1.01	1.67	1.41	1.91	2.21	1.62	2.32	3.23	3.82	2.69	3.45	5.72
40-44.....	.99	1.09	1.40	1.60	1.81	2.59	2.83	2.23	2.71	4.66	3.84	5.27	4.81	5.38	5.94
45-49.....	1.01	1.88	2.75	2.79	2.45	2.66	3.57	3.89	4.16	5.37	5.16	4.68	5.15	6.43	8.11
50-54.....	.95	5.91	3.42	4.83	3.43	4.46	4.01	6.41	6.13	7.97	8.43	7.43	7.69	9.26	8.69
55-59.....	.95	2.15	3.64	4.36	6.13	5.56	6.24	6.33	7.16	8.14	8.38	11.62	12.96	16.87	12.81
60-64.....	2.59	6.61	6.69	6.55	6.56	10.53	7.48	11.30	17.31	16.36	13.81	12.71	21.89	30.14	33.06
65-69.....	4.22	10.90	7.79	3.25	12.49	6.45	24.24	23.11	12.28	22.71	25.50	37.19	37.08	35.96	19.94
70 and over.....	6.41	15.33	22.88	6.20	10.71	11.57	76.53	21.74	43.47	63.69	60.83	19.50	170.37	143.46	53.07



bases. While most of the companies contributed their data on an age-nearest-birthday basis, three companies submitted part of their data on an age-last-birthday basis. The problem of combining data on different age bases was solved by calculating experience mortality ratios, for each issue age and duration cell, on the basis of the 1955-60 Select Basic Tables. Since the three companies had contributed their expected deaths using an adjusted set of 1955-60 Select Basic Tables (on an age-last-birthday basis), their experience data could be combined cell by cell with that of other contributors without distorting the results. The resulting mortality ratios were then applied to the 1955-60 Select Basic Table mortality rates on an age-nearest-birthday basis to obtain crude mortality rates on an age-nearest-birthday basis.

The three select tables for male lives, female lives, and male and female lives combined were smoothed by using a Bayesian<sup>1</sup> method of graduation. For issue age groups 15-19, 20-24, and so on, through 70 and over, the "prior tables" used in the Bayesian graduation were the 1955-60 Select Basic Tables. For ages below 15, the 1959-61 U.S. Life Tables for white males, white females, and total whites were used as "prior tables." The 1959-61 U.S. Life Table rates for 28-365 days were used as the rates at age 0. The 1959-62 Juvenile Extensions of the 1955-60 Basic Tables were found to be unsuitable as "prior tables" at the younger ages.

Because the experience at the juvenile ages was small and because the 1959-62 Juvenile Extensions of the 1955-60 Basic Tables indicate very little, if any, selection at these ages, the crude mortality rates for ages below 15 were calculated on an attained-age basis (that is, disregarding duration since issue). Accordingly, all data for issue age groups 0, 1, 2-4, 5-9, and 10-14 were graduated on an attained-age basis. The rates for these issue age groups at attained ages over 14 were taken to be the same as the rates in the corresponding graduated 1965-70 Ultimate Basic Table. For the purpose of computing attained ages, issue ages 3, 7, and 12 were used to represent issue age groups 2-4, 5-9, and 10-14, respectively.

#### *Male and Female Lives Combined*

Total claims underlying the mortality rates for this table were \$1,898,623,000, an average of \$7,446,000 per issue age-duration cell. This compares with total claims of \$1,073,859,000 which entered into the 1955-60 Select Basic Table which covered issue age groups 10-14 and over, and total claims of \$7,793,000 which entered into the 1959-62 Juvenile Extension of the 1955-60 Basic Tables.

<sup>1</sup> The Bayesian method of graduation is described in the paper "Bayesian Graduation" by George S. Kimeldorf and Donald A. Jones (*TSA*, XIX [1967], 66).

Wherever necessary, the graduated rates were adjusted empirically to prevent them from exceeding the corresponding ultimate rates or to improve the fit. These adjustments occurred mainly at the younger ages.

The results of a test of the fit of the graduation of the 1965-70 Select Basic Table for male and female lives combined are shown in Table 3. Because of the small quantity of the data and the fact that the select rates for issue age groups up to and including 10-14 were pegged to the ultimate rates at the corresponding attained age, it was impossible to obtain a very good fit at these issue age groups. The over-all fit, however, is very good, the ratio of actual to tabular claims being 99.9 per cent.

#### *Male Lives*

Total claims amounted to \$1,759,803,000, an average of \$6,901,000 per issue age-duration cell. This compares with total claims of \$719,063,000 which entered into the 1955-60 Select Basic Table and total claims of \$4,790,000 which entered into the corresponding 1959-62 Juvenile Extension.

Adjustments similar to those described for male and female lives combined were made in the graduated rates for male lives. In addition to the adjustments mentioned above, several adjustments were made to make the male rates higher than the rates for both sexes combined in the corresponding issue age-duration cell.

The results of a test of the fit of the graduation of the 1965-70 Select Basic Table for male lives are shown in Table 4. The over-all fit is good, the ratio of actual to tabular claims being 100.2 per cent. The fit at the younger issue ages is not as good as the fit at ages 20 and over. The fit by policy year is quite good.

#### *Female Lives*

Total claims amounted to \$108,894,000, an average of \$427,000 per issue age-duration cell. This compares with total claims of \$38,627,000 which entered into the 1955-60 Select Basic Table and total claims of \$2,031,000 which entered into the corresponding 1959-62 Juvenile Extension.

Adjustments similar to those described for male and female lives combined were made in the graduated rates for female lives.

The results of a test of the fit of the graduation of the 1965-70 Select Basic Table for female lives are shown in Table 5. The over-all fit is good, the ratio of actual to tabular claims being 99.7 per cent. Because of the small quantity of the female data and the large fluctuations in the crude mortality rates, the fit for several issue age groups and durations is not very good.

TABLE 3  
 TEST OF GRADUATION OF 1965-70 SELECT BASIC TABLE  
 MALE AND FEMALE LIVES COMBINED  
 (Units in \$1,000's)

POLICY YEAR GROUP	ISSUE AGE GROUP						
	0-19	20-29	30-39	40-49	50-59	60 and Over	All
Actual Claims							
1-2	\$ 3,197	\$ 18,154	\$ 49,311	\$ 70,960	\$ 44,040	\$ 11,224	\$ 196,886
3-5	4,152	21,898	82,004	139,124	84,769	24,767	356,714
6-10	6,437	35,672	165,658	252,555	148,165	41,815	650,302
11-15	6,348	42,650	194,462	268,869	145,513	36,879	694,721
All	\$20,134	\$118,374	\$491,435	\$731,508	\$422,487	\$114,685	\$1,898,623
Ratio of Actual to Tabular Claims							
1-2	117.2%	103.5%	103.1%	97.3%	103.7%	95.5%	100.8%
3-5	116.3	98.8	100.8	99.8	96.1	94.6	98.8
6-10	100.2	103.7	100.1	100.4	97.7	105.6	100.2
11-15	95.6	97.5	97.7	100.5	103.2	99.0	100.0
All	104.0%	100.4%	99.5%	100.0%	99.8%	99.9%	99.9%

POLICY YEAR	BY POLICY YEAR ALL ISSUE AGE GROUPS COMBINED		ISSUE AGE GROUP	BY ISSUE AGE GROUP ALL DURATIONS COMBINED	
	Actual Claims	Ratio of Actual to Tabular Claims		Actual Claims	Ratio of Actual to Tabular Claims
1	\$ 90,560	100.2%	0-9	\$ 3,878	98.2%
2	106,326	101.4	10-14	4,836	124.2
3	115,985	98.1	15-19	11,420	99.1
4	124,671	101.8	20-24	36,018	100.0
5	116,058	96.5	25-29	82,356	100.6
6	121,163	100.5	30-34	188,673	99.9
7	120,155	96.3	35-39	302,762	99.3
8	129,451	101.1	40-44	383,211	100.0
9	132,889	99.0	45-49	348,297	100.1
10	146,644	103.5	50-54	265,123	99.7
11	147,313	101.8	55-59	157,364	100.0
12	145,273	101.4	60-64	79,423	99.9
13	138,444	99.0	65-69	28,969	99.1
14	135,715	97.8	70 and over	6,293	104.0
15	127,976	99.6			
All	\$1,898,623	99.9%	All	\$1,898,623	99.9%

**TABLE 4**  
**TEST OF GRADUATION OF 1965-70 SELECT BASIC TABLE**  
**MALE LIVES**  
(Units in \$1,000's)

POLICY YEAR GROUP	ISSUE AGE GROUP						
	0-19	20-29	30-39	40-49	50-59	60 and Over	All
Actual Claims							
1-2	\$ 2,694	\$ 17,346	\$ 46,666	\$ 65,981	\$ 39,567	\$ 9,549	\$ 181,803
3-5	3,688	20,976	78,208	129,495	77,335	22,130	331,832
6-10	6,012	34,186	159,019	236,496	136,966	36,917	609,596
11-15	5,659	40,193	181,240	245,679	131,833	31,968	636,572
All	\$18,053	\$112,701	\$465,133	\$677,651	\$385,701	\$100,564	\$1,759,803
Ratio of Actual to Tabular Claims							
1-2	110.0%	102.5%	102.4%	97.2%	102.3%	90.9%	99.9%
3-5	116.1	98.7	101.3	100.3	97.2	97.6	99.7
6-10	107.4	102.9	100.2	100.8	98.1	106.4	100.5
11-15	108.0	97.0	98.8	100.2	103.2	98.6	100.2
All	109.6%	99.9%	100.1%	100.1%	100.0%	100.3%	100.2%

POLICY YEAR	BY POLICY YEAR ALL ISSUE AGE GROUPS COMBINED		ISSUE AGE GROUP	BY ISSUE AGE GROUP ALL DURATIONS COMBINED	
	Actual Claims	Ratio of Actual to Tabular Claims		Actual Claims	Ratio of Actual to Tabular Claims
1	\$ 84,920	100.8%	0-9	\$ 3,169	107.4%
2	96,883	99.0	10-14	4,207	129.5
3	107,157	97.7	15-19	10,677	104.0
4	116,443	103.2	20-24	34,222	101.3
5	108,232	97.9	25-29	78,479	99.3
6	113,499	102.1	30-34	179,072	100.1
7	112,262	96.4	35-39	286,061	100.0
8	122,102	101.4	40-44	356,231	99.9
9	125,680	99.6	45-49	321,420	100.3
10	136,053	103.0	50-54	241,939	100.1
11	136,942	101.9	55-59	143,762	100.0
12	133,492	100.8	60-64	70,302	99.3
13	127,629	99.1	65-69	25,320	103.4
14	125,295	100.3	70 and over	4,942	98.0
15	113,214	98.4			
All	\$1,759,803	100.2%	All	\$1,759,803	100.2%

TABLE 5  
TEST OF GRADUATION OF 1965-70 SELECT BASIC TABLE  
FEMALE LIVES  
(Units in \$1,000's)

POLICY YEAR GROUP	ISSUE AGE GROUP						
	0-19	20-29	30-39	40-49	50-59	60 and Over	All
Actual Claims							
1-2 . . . . .	\$ 502	\$ 779	\$ 2,638	\$ 4,962	\$ 4,423	\$ 1,674	\$ 14,978
3-5 . . . . .	464	901	3,782	9,551	7,433	2,637	24,768
6-10 . . . . .	372	1,276	5,719	14,766	10,389	4,663	37,185
11-15 . . . . .	445	1,158	6,912	12,239	7,984	3,225	31,963
All	\$1,783	\$4,114	\$19,051	\$41,518	\$30,229	\$12,199	\$108,894
Ratio of Actual to Tabular Claims							
1-2 . . . . .	119.5%	104.3%	100.4%	104.9%	118.6%	132.3%	110.8%
3-5 . . . . .	122.9	109.3	86.2	97.9	101.0	87.2	96.3
6-10 . . . . .	67.2	128.5	87.5	98.9	98.5	97.4	97.0
11-15 . . . . .	86.9	96.6	125.5	99.8	88.2	106.0	101.2
All	95.7%	109.3%	100.0%	99.6%	98.5%	100.7%	99.7%

POLICY YEAR	BY POLICY YEAR ALL ISSUE AGE GROUPS COMBINED		ISSUE AGE GROUP	BY ISSUE AGE GROUP ALL DURATIONS COMBINED	
	Actual Claims	Ratio of Actual to Tabular Claims		Actual Claims	Ratio of Actual to Tabular Claims
1 . . . . .	\$ 5,570	88.7%	0-9 . . . . .	\$ 579	68.5%
2 . . . . .	9,408	129.9	10-14 . . . . .	551	147.9
3 . . . . .	8,765	104.0	15-19 . . . . .	653	101.2
4 . . . . .	8,184	93.9	20-24 . . . . .	1,556	119.5
5 . . . . .	7,819	91.0	25-29 . . . . .	2,558	103.9
6 . . . . .	7,658	91.4	30-34 . . . . .	7,171	116.2
7 . . . . .	7,874	96.3	35-39 . . . . .	11,880	92.2
8 . . . . .	7,295	95.6	40-44 . . . . .	20,526	100.0
9 . . . . .	6,434	88.9	45-49 . . . . .	20,992	99.2
10 . . . . .	7,924	114.4	50-54 . . . . .	19,528	99.2
11 . . . . .	6,688	99.5	55-59 . . . . .	10,701	97.3
12 . . . . .	6,606	102.8	60-64 . . . . .	7,747	101.8
13 . . . . .	6,575	103.0	65-69 . . . . .	3,323	98.1
14 . . . . .	6,363	103.0	70 and over	1,129	100.5
15 . . . . .	5,731	97.6			
All	\$108,894	99.7%	All . . . . .	\$108,894	99.7%

*Other Comments*

The actual death claims in the 1965-70 select experience are shown in Table 6.

## ULTIMATE BASIC TABLES (TABLE 7)

The ultimate crude mortality rates (Table 8) for each attained age 15-95 are based on the intercompany experience under medical and non-medical issues combined for policy years 16 and over. For all three ultimate tables the crude mortality rates were graduated by a Whittaker-Henderson second difference Type A formula with  $a = 1$ .

*Male and Female Lives Combined*

Total claims amounted to \$4,266,530,000. This compares with total claims of \$2,909,158,000 which entered into the 1955-60 Ultimate Basic Table.

The decrease in the graduated mortality rates at attained ages 22-26 appears to be a true characteristic of the 1965-70 experience and can also be seen in the 1969 U.S. Life Table for the total white population. Nevertheless, empirical adjustments were made to increase slightly the graduated rates at attained ages 24-28. The empirical adjustments, which do not eliminate the decrease in the graduated rates at attained ages 22-26, were made to prevent the select rates from exceeding the ultimate rates at these ages.

*Male Lives*

Total claims amounted to \$2,087,736,000. This compares with total claims of \$491,785,000 which entered into the 1955-60 Ultimate Basic Table.

The graduated mortality rates showed decreases at attained ages 21-26. This result was considered consistent with the 1955-60 Ultimate Male Basic Table and the 1969 U.S. Life Table for the white male population. Empirical adjustments were made, however, to increase slightly the graduated rates at attained ages 22-28 to prevent the select rates from exceeding the ultimate rates and to make the male rates higher than the corresponding male and female combined rates. The final graduated mortality rates show decreases at attained ages 21-27.

*Female Lives*

Total claims amounted to \$148,498,000. This compares with total claims of \$28,003,000 which entered into the 1955-60 Ultimate Basic Table.

TABLE 6  
 1965-70 SELECT EXPERIENCE  
 ACTUAL DEATH CLAIMS  
 (Units in \$1,000's)

ISSUE AGE GROUP	POLICY YEAR														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Male and Female Lives Combined															
0.....	\$ 314	\$ 108	\$ 29	\$ 48	\$ 40	\$ 19	\$ 18	\$ 21	\$ 44	\$ 32	\$ 10	\$ 23	\$ 40	\$ 32	\$ 54
1.....	95	50	14	2	43	42	21	41	13	66	44	8	23	26	10
2-4.....	3	5	62	227	31	26	12	19	53	22	31	34	14	79	71
5-9.....	81	12	17	73	17	66	129	66	106	179	294	144	213	275	199
10-14.....	444	59	173	167	169	314	329	392	608	370	597	317	449	224	226
15-19.....	1,227	799	930	1,012	1,101	808	520	696	639	771	840	522	488	488	577
20-24.....	3,596	3,140	2,911	3,082	2,486	2,027	2,011	2,366	2,079	2,223	2,410	2,366	1,879	1,834	1,606
25-29.....	5,653	5,764	5,280	4,046	4,092	3,939	4,748	4,842	5,492	5,947	7,111	6,566	6,351	6,486	6,039
30-34.....	9,620	12,413	11,025	9,780	9,598	9,564	10,400	11,718	13,603	14,715	16,271	16,837	16,028	13,781	13,320
35-39.....	12,548	14,730	15,852	17,805	17,944	18,567	18,344	21,128	22,697	24,923	25,299	24,905	23,510	23,056	21,454
40-44.....	16,305	20,776	24,243	25,367	21,772	23,854	25,715	26,192	28,093	29,828	29,806	28,600	27,139	27,892	27,628
45-49.....	16,199	17,681	21,781	24,365	21,596	24,350	21,233	23,533	23,719	26,039	25,270	25,498	26,400	25,712	24,922
50-54.....	11,014	17,272	14,821	18,218	17,049	18,938	15,948	20,362	17,777	20,393	19,949	20,719	18,556	17,676	16,433
55-59.....	7,206	8,549	11,980	10,977	11,723	11,027	10,278	10,418	10,771	12,253	10,567	10,397	10,389	11,412	9,416
60-64.....	4,330	3,314	4,689	6,780	4,675	5,275	6,377	5,179	4,870	6,234	6,439	6,129	5,204	4,918	5,008
65-69.....	1,438	1,235	1,646	2,379	3,117	1,960	2,990	2,010	1,891	2,320	2,023	1,957	1,558	1,584	861
70 and over	487	419	533	342	605	389	1,084	469	435	331	351	252	203	242	151

TABLE 6—Continued

ISSUE AGE GROUP	POLICY YEAR														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	Male Lives														
0.....	\$ 272	\$ 108	\$ 28	\$ 46	\$ 9	\$ 16	\$ 16	\$ 20	\$ 44	\$ 28	\$ 9	\$ 19	\$ 35	\$ 17	\$ 26
1.....	95	50	12	2	37	34	21	23	4	57	35	2	20	16	5
2-4.....	3	5	60	125	31	20	3	11	51	15	26	15	11	50	51
5-9.....	31	5	17	73	5	64	122	43	88	160	264	112	155	271	187
10-14.....	227	54	34	167	167	291	302	389	584	323	577	286	436	217	156
15-19.....	1,131	715	832	995	1,051	790	518	674	599	707	753	482	439	455	537
20-24.....	3,291	3,091	2,689	3,025	2,436	1,985	1,757	2,309	2,033	2,102	2,352	2,267	1,791	1,730	1,366
25-29.....	5,484	5,480	5,050	3,817	3,958	3,765	4,634	4,644	5,358	5,601	6,851	6,292	5,941	6,134	5,469
30-34.....	9,107	11,623	10,665	9,477	9,147	9,163	10,108	11,304	13,346	14,045	15,664	15,885	14,613	12,811	12,114
35-39.....	11,874	14,062	15,016	17,054	16,849	17,783	17,421	20,214	21,982	23,652	23,908	23,302	22,296	21,772	18,875
40-44.....	15,101	19,598	22,852	23,942	20,356	22,115	24,060	25,062	26,716	27,662	27,544	26,043	25,073	25,995	24,112
45-49.....	15,208	16,073	19,674	22,497	20,173	23,030	19,653	22,062	22,196	23,940	23,362	23,075	24,565	23,705	22,205
50-54.....	10,403	14,225	13,269	16,299	15,839	17,582	14,883	18,903	16,492	18,772	18,225	19,006	16,916	16,254	14,870
55-59.....	6,934	8,005	11,160	10,113	10,655	10,156	9,436	9,687	9,904	11,152	9,637	9,131	9,352	10,149	8,292
60-64.....	4,046	2,632	4,065	6,224	4,176	4,550	5,950	4,654	4,171	5,540	5,665	5,739	4,563	4,206	4,123
65-69.....	1,297	882	1,396	2,286	2,801	1,822	2,538	1,682	1,738	2,054	1,783	1,657	1,338	1,335	710
70 and over	416	276	340	300	542	335	841	423	374	246	287	180	85	179	116



TABLE 6—Continued

ISSUE AGE GROUP	POLICY YEAR														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	Female Lives														
0.....	\$ 43	\$ 0	\$ 1	\$ 2	\$ 31	\$ 3	\$ 2	\$ 1	\$ 0	\$ 4	\$ 1	\$ 4	\$ 5	\$ 8	\$ 7
1.....	0	0	2	0	6	8	0	18	9	9	4	4	3	0	5
2-4.....	0	0	2	102	0	6	9	8	2	7	4	17	0	13	16
5-9.....	50	7	0	0	12	2	7	23	19	9	23	21	35	1	9
10-14.....	217	5	139	0	2	23	27	3	20	45	15	28	8	3	16
15-19.....	97	84	98	17	51	19	2	22	40	29	81	41	34	32	9
20-24.....	306	49	222	58	50	42	255	58	44	99	49	77	41	89	119
25-29.....	164	260	208	229	134	174	114	198	129	165	116	161	179	164	164
30-34.....	513	791	360	295	450	401	292	380	210	514	330	474	1,149	676	337
35-39.....	667	668	830	751	1,095	779	920	914	585	724	890	920	558	645	934
40-44.....	1,196	1,178	1,375	1,407	1,416	1,739	1,647	1,115	1,177	1,773	1,267	1,555	1,247	1,245	1,189
45-49.....	990	1,598	2,088	1,849	1,416	1,320	1,576	1,469	1,367	1,584	1,358	1,040	1,014	1,128	1,196
50-54.....	560	3,047	1,552	1,919	1,210	1,356	1,059	1,456	1,228	1,416	1,292	980	892	890	672
55-59.....	272	544	820	864	1,068	871	842	731	726	704	594	707	681	770	506
60-64.....	284	682	624	557	499	725	428	525	669	548	401	328	474	522	483
65-69.....	141	353	250	93	316	138	452	328	153	241	222	240	196	139	59
70 and over	71	143	193	42	63	53	243	46	58	55	43	10	60	39	10

TABLE 7  
1965-70 ULTIMATE BASIC TABLES  
GRADUATED MORTALITY RATES PER 1,000

Attained Age	Male and Female Lives Combined	Male Lives	Female Lives	Attained Age	Male and Female Lives Combined	Male Lives	Female Lives
15	.57	.67	.36	60	15.83	16.50	8.58
16	.68	.81	.41	61	17.32	18.01	9.37
17	.80	.95	.47	62	18.95	19.69	10.09
18	.92	1.07	.53	63	20.75	21.63	10.79
19	1.01	1.16	.57	64	22.73	23.81	11.52
20	1.07	1.19	.59	65	24.90	26.17	12.44
21	1.09	1.16	.58	66	27.27	28.73	13.54
22	1.08	1.13	.56	67	29.79	31.40	14.77
23	1.07	1.11	.55	68	32.46	34.21	16.27
24	1.06	1.10	.54	69	35.15	36.99	17.98
25	1.04	1.08	.53	70	38.03	39.92	20.05
26	1.02	1.07	.54	71	41.52	43.46	22.64
27	1.02	1.04	.57	72	45.47	47.47	26.04
28	1.07	1.09	.60	73	49.77	51.73	29.98
29	1.13	1.13	.63	74	54.53	56.43	34.51
30	1.17	1.18	.66	75	59.65	61.64	39.06
31	1.18	1.23	.67	76	65.15	67.41	43.74
32	1.18	1.25	.70	77	71.13	73.71	49.09
33	1.20	1.28	.76	78	77.55	80.63	54.79
34	1.25	1.33	.83	79	84.47	88.00	60.39
35	1.32	1.40	.92	80	91.99	95.60	66.05
36	1.42	1.50	1.02	81	100.12	103.29	72.30
37	1.54	1.63	1.16	82	109.27	111.63	79.36
38	1.68	1.79	1.31	83	118.87	120.51	87.55
39	1.85	1.98	1.45	84	129.34	130.63	97.73
40	2.07	2.20	1.60	85	140.38	141.76	106.82
41	2.31	2.43	1.76	86	151.68	153.97	114.83
42	2.57	2.68	1.91	87	164.01	167.26	126.27
43	2.86	2.96	2.07	88	176.49	181.42	139.82
44	3.19	3.27	2.26	89	186.47	193.63	150.31
45	3.54	3.62	2.48	90	194.68	202.96	166.59
46	3.91	3.99	2.70	91	203.36	210.32	190.70
47	4.31	4.42	2.92	92	212.61	217.76	210.42
48	4.77	4.92	3.17	93	225.12	230.07	224.59
49	5.31	5.51	3.46	94	238.99	248.83	234.21
50	5.91	6.17	3.74	95	250.52	267.93	238.33
51	6.55	6.84	4.05	96	263.32	279.78	250.15
52	7.22	7.50	4.39	97	275.60	292.83	261.82
53	7.96	8.23	4.76	98	288.14	306.15	273.74
54	8.76	9.05	5.13	99	300.93	319.74	285.88
55	9.67	10.03	5.52	100	313.94	333.56	298.24
56	10.71	11.17	5.94				
57	11.85	12.42	6.43				
58	13.09	13.73	7.04				
59	14.43	15.10	7.78				

TABLE 8  
1965-70 ULTIMATE EXPERIENCE  
CRUDE MORTALITY RATES PER 1,000

Attained Age	Male and Female Lives Combined	Male Lives	Female Lives	Attained Age	Male and Female Lives Combined	Male Lives	Female Lives
15	.44	.64	.24	55	9.53	9.95	5.65
16	.65	.75	.42	56	10.83	11.14	5.91
17	.82	1.03	.44	57	11.88	12.55	6.38
18	.93	.99	.60	58	12.95	13.67	6.72
19	1.03	1.26	.56	59	14.63	15.44	7.79
20	1.13	1.26	.64	60	15.90	16.37	8.66
21	1.11	1.20	.58	61	17.27	18.13	9.67
22	1.03	1.02	.49	62	18.85	19.34	10.12
23	1.04	1.06	.54	63	20.79	21.52	11.09
24	1.22	.96	.64	64	22.69	24.09	11.04
25	1.07	1.31	.44	65	24.72	25.82	12.28
26	.78	.93	.50	66	27.41	29.06	14.10
27	.84	.85	.59	67	29.46	30.81	14.21
28	1.04	1.07	.61	68	33.32	35.27	16.90
29	1.35	1.24	.63	69	35.87	37.79	18.02
30	1.12	1.10	.84	70	36.34	38.12	20.41
31	1.21	1.39	.56	71	41.65	43.22	21.01
32	1.12	1.17	.59	72	46.14	48.72	26.95
33	1.18	1.29	.87	73	49.16	51.40	28.16
34	1.23	1.35	.76	74	54.86	56.34	36.56
35	1.32	1.37	1.02	75	59.91	61.38	40.34
36	1.40	1.49	.88	76	64.72	67.84	41.13
37	1.55	1.68	1.21	77	71.43	72.92	48.74
38	1.71	1.75	1.37	78	77.68	80.47	56.60
39	1.76	1.93	1.39	79	84.17	88.25	61.50
40	2.13	2.31	1.58	80	93.22	97.71	65.14
41	2.31	2.41	1.82	81	97.17	101.25	72.55
42	2.56	2.68	1.92	82	112.25	114.05	81.02
43	2.82	2.96	2.01	83	116.69	117.75	75.74
44	3.21	3.22	2.17	84	129.31	131.50	106.97
45	3.57	3.79	2.57	85	143.66	141.58	120.32
46	3.96	3.90	2.84	86	146.69	153.33	97.38
47	4.26	4.43	2.78	87	158.71	159.39	114.72
48	4.66	4.84	3.05	88	186.63	187.16	181.84
49	5.33	5.39	3.68	89	191.03	199.13	129.90
50	5.91	6.27	3.63	90	188.22	206.34	135.80
51	6.69	7.12	4.04	91	211.16	218.61	193.90
52	7.10	7.38	4.29	92	198.82	208.07	205.20
53	8.13	8.33	4.92	93	219.75	207.08	316.16
54	8.63	8.82	5.11	94	257.09	266.11	172.61
				95	243.52	268.96	229.34

The slight decreases in the graduated female rates at attained ages 21–25 appear to be a true characteristic of the 1965–70 experience and have been retained. However, adjustments were made in the graduated mortality rates at attained ages 92–95 to eliminate a decreasing trend in mortality at these ages. These adjustments were made by an inspection of first and second differences in the graduated rates.

#### *Extension of Ultimate Tables to Attained Age 100*

To facilitate the study of future mortality trends at the higher ages, the Committee decided to extend the three ultimate basic tables to attained age 100. Approximate methods were used, since intercompany data were not available for attained ages over 95.

The extension of each 1965–70 Ultimate Basic Table was accomplished by calculating ratios of the graduated 1965–70 rates for attained ages 90–95 to the corresponding 1959–61 U.S. Life Table rates for the white population. These ratios were projected to attained age 100 and reapplied against the rates for ages 96–100 from the same U.S. Life Tables, to obtain the final graduated rates.

#### *Other Comments*

The results of a test of the fit of the graduation of each of the 1965–70 Ultimate Basic Tables are shown in Table 9. Each of the three ultimate basic tables shows an extremely good over-all fit, the ratio of actual to tabular claims being 100.0 per cent in each case. Table 10 shows the actual death claims in the 1965–70 ultimate experience.

Table 11 shows the ratios of the select to the ultimate graduated mortality rates for the “central” ages of the select issue age groups, as defined in the footnote to the table. Wherever necessary, the select rates were decreased so that these ratios would not exceed 1.000; otherwise, no attempt was made to graduate the ratios.

The crude select and ultimate data did not exhibit a smooth pattern of relationships of female to male mortality rates, and such a pattern is lacking in the graduated rates. Any attempt to impose a smooth pattern on the graduated rates would have produced a worse fit.

TABLE 9  
TEST OF GRADUATION OF 1965-70 ULTIMATE BASIC TABLES  
(Units in \$1,000's)

ATTAINED AGE GROUP	MALE AND FEMALE LIVES COMBINED		MALE LIVES		FEMALE LIVES	
	Actual Claims	Ratio of Actual to Tabular Claims	Actual Claims	Ratio of Actual to Tabular Claims	Actual Claims	Ratio of Actual to Tabular Claims
15-19...	\$ 3,758	97.8%	\$ 1,445	100.2%	\$ 516	97.3%
20-24...	4,510	102.9	1,615	96.8	548	102.0
25-29...	3,392	96.2	1,523	100.0	339	95.7
30-34...	6,074	98.0	3,155	100.7	451	99.8
35-39...	18,935	98.8	8,835	99.0	1,635	100.0
40-44...	59,602	100.1	28,319	100.0	4,070	98.8
45-49...	139,765	99.7	68,751	99.4	7,276	101.3
50-54...	276,094	100.1	139,410	100.3	10,642	99.6
55-59...	457,575	100.1	233,010	100.5	14,805	99.2
60-64...	623,549	99.9	314,159	99.8	17,800	100.6
65-69...	658,126	100.7	330,100	100.7	17,357	100.6
70-74...	697,023	99.4	337,923	99.4	21,858	99.7
75-79...	630,935	100.0	299,884	99.8	22,793	100.3
80-84...	436,898	99.9	203,185	100.2	16,627	99.3
85-89...	191,687	100.5	89,391	99.8	8,074	101.3
90-95...	58,607	98.9	27,031	100.1	3,707	98.3
All...	\$4,266,530	100.0%	\$2,087,736	100.0%	\$148,498	100.0%
15-24...	\$ 8,268	100.5%	\$ 3,060	98.4%	\$ 1,064	99.6%
25-34...	9,466	97.4	4,678	100.5	790	98.0
35-44...	78,537	99.8	37,154	99.8	5,705	99.1
45-54...	415,859	100.0	208,161	100.0	17,918	100.3
55-64...	1,081,124	100.0	547,169	100.1	32,605	100.0
65-74...	1,355,149	100.0	668,023	100.0	39,215	100.1
75-84...	1,067,833	100.0	503,069	100.0	39,420	99.9
85-95...	250,294	100.1	116,422	99.9	11,781	100.3
All...	\$4,266,530	100.0%	\$2,087,736	100.0%	\$148,498	100.0%

TABLE 10  
1965-70 ULTIMATE EXPERIENCE  
ACTUAL DEATH CLAIMS  
(Units in \$1,000's)

Attained Age	Male and Female Lives Combined	Male Lives	Female Lives	Attained Age	Male and Female Lives Combined	Male Lives	Female Lives
15	\$ 336	\$ 161	\$ 43	55	\$ 74,214	\$37,670	\$2,659
16	636	240	97	56	83,539	41,743	2,734
17	836	339	105	57	91,491	46,913	2,920
18	924	309	140	58	98,597	50,535	3,040
19	1,026	396	131	59	109,734	56,149	3,452
20	1,018	383	139	60	113,256	56,686	3,455
21	970	372	119	61	119,859	61,029	3,652
22	868	310	96	62	125,152	62,109	3,592
23	798	298	95	63	131,086	65,580	3,709
24	856	252	99	64	134,196	68,755	3,392
25	738	355	64	65	125,286	63,139	3,216
26	534	258	69	66	128,559	65,234	3,443
27	554	235	71	67	128,804	64,140	3,269
28	672	302	68	68	136,655	68,579	3,670
29	894	373	67	69	138,822	69,008	3,759
30	825	387	88	70	131,325	64,639	3,992
31	1,008	563	58	71	140,202	67,754	3,866
32	1,106	576	65	72	143,444	70,547	4,550
33	1,404	748	117	73	140,551	67,932	4,374
34	1,731	881	123	74	141,501	67,051	5,076
35	2,196	1,023	200	75	138,191	65,303	4,960
36	2,740	1,275	202	76	132,524	64,050	4,369
37	3,687	1,728	331	77	127,529	59,770	4,557
38	4,727	2,112	424	78	119,990	56,861	4,633
39	5,585	2,697	478	79	112,701	53,900	4,274
40	7,699	3,703	590	80	107,430	51,196	3,863
41	9,376	4,381	739	81	93,908	44,375	3,564
42	11,488	5,459	821	82	90,553	41,681	3,413
43	13,844	6,696	904	83	76,971	34,898	2,690
44	17,195	8,080	1,016	84	68,036	31,035	3,097
45	20,643	10,360	1,237	85	55,269	25,338	2,422
46	23,909	11,262	1,366	86	43,489	20,926	1,508
47	27,332	13,579	1,364	87	36,001	16,574	1,439
48	31,220	15,573	1,506	88	31,894	14,754	1,733
49	36,661	17,977	1,803	89	25,034	11,799	972
50	42,105	21,732	1,769	90	18,521	9,007	876
51	49,856	25,831	1,980	91	14,600	6,793	955
52	54,027	27,207	2,076	92	9,439	4,350	674
53	62,766	31,180	2,368	93	7,320	2,965	777
54	67,340	33,460	2,449	94	5,242	2,410	234
				95	3,485	1,506	191

TABLE 11  
RATIOS OF 1965-70 SELECT BASIC TABLE MORTALITY RATES  
TO ULTIMATE BASIC TABLE RATES\*

ISSUE AGE GROUP	POLICY YEAR														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	Male and Female Lives Combined														
0															
1															1.000
2-4														1.000	1.000
5-9									1.000	1.000	1.000	1.000	1.000	1.000	1.000
10-14				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
15-19	.988	.935	.901	.907	.936	.935	.935	.934	.952	.980	1.000	1.000	1.000	1.000	1.000
20-24	.620	.654	.745	.769	.784	.784	.748	.717	.718	.746	.805	.858	.896	.932	.951
25-29	.549	.570	.646	.641	.661	.695	.742	.784	.833	.852	.896	.958	.984	.981	.978
30-34	.619	.717	.776	.826	.831	.838	.863	.897	.923	.935	.957	.958	.956	.955	.962
35-39	.552	.655	.751	.797	.818	.833	.857	.865	.884	.913	.937	.943	.936	.951	.979
40-44	.514	.640	.727	.768	.754	.810	.860	.870	.875	.881	.899	.905	.928	.949	.955
45-49	.445	.562	.663	.709	.699	.741	.802	.805	.794	.792	.798	.822	.864	.893	.917
50-54	.355	.505	.605	.647	.646	.713	.758	.750	.745	.759	.764	.784	.821	.847	.854
55-59	.296	.411	.522	.561	.558	.590	.651	.641	.638	.663	.702	.747	.784	.829	.841
60-64	.283	.387	.493	.569	.571	.569	.580	.602	.634	.669	.714	.765	.776	.767	.758
65-69	.301	.390	.466	.516	.552	.551	.557	.551	.580	.630	.690	.720	.719	.703	.704
70 and over	.205	.267	.319	.366	.442	.513	.579	.643	.706	.763	.801	.847	.867	.859	.865

\* The Ultimate Basic Table mortality rates were taken at the "central" attained ages for the respective age group, obtained by adding the policy duration less 1 to the "central" issue age for the group. (For issue age group 70 and over, "central" issue age is taken as 72.)

TABLE 11—Continued

ISSUE AGE GROUP	POLICY YEAR														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	Male Lives														
0.....															
1.....															1.000
2-4.....														1.000	1.000
5-9.....									1.000	1.000	1.000	1.000	1.000	1.000	1.000
10-14.....				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
15-19.....	.968	.925	.888	.899	.957	.973	.982	.982	.991	.991	1.000	1.000	1.000	1.000	1.000
20-24.....	.611	.667	.736	.778	.776	.788	.761	.761	.763	.772	.808	.867	.917	.971	1.000
25-29.....	.548	.578	.664	.653	.650	.672	.711	.752	.800	.827	.865	.911	.929	.945	.975
30-34.....	.600	.680	.737	.786	.793	.816	.816	.848	.873	.893	.922	.929	.936	.956	.992
35-39.....	.528	.620	.712	.755	.782	.806	.831	.847	.867	.897	.916	.921	.906	.914	.956
40-44.....	.507	.639	.719	.773	.777	.830	.839	.842	.843	.846	.868	.876	.901	.920	.932
45-49.....	.439	.549	.642	.686	.709	.743	.778	.788	.778	.775	.787	.805	.845	.882	.912
50-54.....	.348	.490	.587	.627	.628	.691	.739	.746	.745	.763	.771	.788	.821	.844	.841
55-59.....	.294	.399	.508	.562	.567	.599	.641	.643	.642	.667	.692	.728	.763	.808	.826
60-64.....	.299	.394	.501	.575	.569	.554	.557	.578	.610	.646	.701	.770	.785	.772	.747
65-69.....	.310	.400	.473	.518	.549	.546	.549	.545	.574	.623	.680	.706	.702	.698	.703
70 and over.....	.219	.278	.329	.374	.447	.518	.582	.644	.704	.767	.811	.861	.882	.873	.869



TABLE 11—Continued

ISSUE AGE GROUP	POLICY YEAR														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	Female Lives														
0.....															
1.....															1.000
2-4.....													1.000	1.000	1.000
5-9.....									1.000	1.000	1.000	1.000	1.000	1.000	1.000
10-14.....				1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
15-19.....	.957	.925	.877	.864	.914	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
20-24.....	.893	.982	.963	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
25-29.....	.947	.983	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
30-34.....	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
35-39.....	.664	.748	.834	.900	.892	.932	.961	.969	.972	.970	.969	.972	.971	.979	.988
40-44.....	.455	.580	.686	.762	.785	.836	.861	.858	.861	.859	.845	.830	.893	.931	.948
45-49.....	.384	.476	.627	.666	.691	.724	.758	.772	.788	.800	.807	.798	.828	.828	.898
50-54.....	.428	.550	.684	.752	.774	.782	.794	.778	.759	.718	.770	.796	.851	.884	.923
55-59.....	.308	.395	.473	.497	.502	.499	.521	.539	.556	.603	.680	.728	.788	.781	.758
60-64.....	.283	.411	.539	.556	.603	.680	.711	.694	.668	.636	.611	.601	.591	.576	.568
65-69.....	.276	.392	.456	.545	.576	.572	.561	.542	.526	.519	.492	.471	.469	.463	.448
70 and over.....	.236	.300	.351	.401	.483	.564	.641	.722	.806	.875	.949	.971	.985	.991	.996

