

**TRANSACTIONS OF SOCIETY OF ACTUARIES
1952 REPORTS**

**REPORT OF THE COMMITTEE
ON DISABILITY AND DOUBLE INDEMNITY**

**EXPERIENCE UNDER CERTAIN ORDINARY DISABILITY
BENEFITS BETWEEN THE 1930 AND
1950 ANNIVERSARIES**

INTRODUCTION

FOR some time the need has been felt for a new intercompany study of the experience under disability benefits supplementary to Ordinary life insurance policies. The last joint investigation of such experience was published by the Actuarial Society in 1926 and, as is well known, the amount of data available at that time was quite limited, especially as to the termination experience of disability claims. It was thought that a new study based on the more extensive material which has since become available would be of value.

The decision to make a new study was reached in 1946, but because of man-power shortages actual commencement of the work was postponed from time to time. The final letter of instructions (shown in the Appendix) was sent to the contributing companies late in 1950, and the data were transmitted to the central bureau at Metropolitan Life Insurance Company during 1951.

Eleven companies participated in the investigation. The accompanying table indicates by "X" the benefits, designated by code numbers, for

COMPANY	BENEFIT				
	1	2	3	4	5
Metropolitan	X			X	X
Prudential	X	X	X	X	
Equitable (N.Y.)	X	X	X	X	X
New York Life		X	X	X	X
John Hancock				X	X
Northwestern Mutual					X
Mutual Life		X	X	X	X
Travelers	X		X		X
Aetna Life				X	X*
Sun Life of Canada		X		X	X
Massachusetts Mutual				X	X

* Disabled Lives only.

which each company contributed data. A description of the various benefits appears below.

The Committee acknowledges with thanks the assistance rendered by a subcommittee consisting of Messrs. J. H. Braddock, N. Brodie, N. W. Macintyre, C. W. McMahon, Z. I. Mosesson, B. L. Neff, and R. T. Schwartz, with J. A. Christman as chairman. The Committee has profited also from preliminary surveys and planning conducted by former committees, headed successively by the late H. R. Bassford and by J. T. Phillips.

In the following report, a number of tables are presented in summarized form. Because of the large number of subdivisions in the data, it would have required a much longer report than the present one to present the data in complete detail. If any company or individual should find the need for more complete detail, the Committee is in a position to supply duplicate sets of punched cards containing detailed exposures and claims for the Active Lives study, and detailed exposures and terminations for the Disabled Lives study. These data are contained on approximately 15,000 punched cards, and can be furnished at the cost of duplication.

SCOPE OF THE STUDY

A number of different types of disability benefits have been offered from time to time in connection with Ordinary life insurance policies. The present study restricts itself to the five types listed below. These were selected as benefits which are of interest to a large number of companies and for which a sizable volume of data was available. (See Appendix for text of specimen policy clauses.)

Benefit 1.—The “total and permanent” clause, under which the probable permanence of the disability had to be established on the merits of each case; providing waiver of premiums plus a monthly life income during continuance of total permanent disability of \$10 per thousand of life insurance. Issued chiefly from about 1918 to early in 1930.

Benefit 2.—The 90-day “presumptive” clause, under which it was a matter of contract that permanence would be presumed where total disability had continued for 90 days; providing waiver of premiums plus a monthly income of \$10 per thousand of life insurance; no monthly income benefits for first three months (except where disability was adjudged permanent without reference to the presumptive clause). Issued chiefly from 1921 to early 1930.

Benefit 3.—90-day presumptive clause providing monthly income of \$10 per thousand of life insurance combined with waiver of premiums, as

in the case of Benefit 2, but with income benefits retroactive to cover the first three months. Issued chiefly from 1925 to early in 1930.

Benefit 4.—120-day waiting period clause, under which total and permanent disability was defined as total disability which had lasted 120 days; providing monthly income of \$10 per thousand of life insurance combined with waiver of premiums; no income benefits for the first four months. Issued in 1930, 1931, and a few months in 1932.

Benefit 5.—6 months waiting period clause, providing waiver of premiums only; issued only when applied for, subject to a specific extra premium. Issued after 1931. (The similar benefit which is automatically included by some companies in all policies issued was not studied.)

It will be convenient throughout this report to refer to the various benefits by the indicated code numbers.

The Committee considered the desirability of including in the study the more restricted income benefits currently issued by a number of companies, typically providing coverage only to age 55. It appeared from the response to a questionnaire that the data available would be insufficient, and this benefit is therefore not covered.

Generally the data contributed related to the experience under policy clauses providing benefits for disabilities commencing up to the attainment of age 60. There were some exceptions as follows:

- a) In some contributions to the income benefits, disabilities commencing prior to age 65 were covered on certain policies such as Endowment to Age 65. The experience under such coverage at ages 60 and over is not included in this study.
- b) In contributions amounting (for males and females combined) to about 40% of the Active Lives data for Benefit 4 and to about 7% of the Active Lives data for Benefit 5, the coverage on females ceased at age 55.
- c) A limited benefit for disability commencing after age 60, under which premiums were carried as a non-interest bearing lien, was included in the clauses of some contributors to Benefits 1, 2 and 3. The experience under such after-60 coverage is not included in the study.

For most of the material contributed under Benefit 2, income benefits ceased at maturity of endowment policies; for Benefits 1, 3, and 4, income benefits generally continued after maturity of an endowment, with some exceptions.

The investigation comprised two separate sections: an Active Lives study for the determination of rates of inception of disability, and a Disabled Lives study for the determination of rates of claim termination among those admitted to benefit. The experience covered the years 1930 to 1950, divided into four periods as set forth below. The periods ran be-

tween policy anniversaries for the Active Lives study and between anniversaries of dates of disablement for the Disabled Lives study.

- Period 1 Between 1930 and 1935 anniversaries
- 2 Between 1935 and 1939 anniversaries
- 3 Between 1939 and 1946 anniversaries (Disabled Lives study only)
- 4 Between 1946 and 1950 anniversaries

The Active Lives study did not cover the period 1939-46, primarily because of the difficulties that would have been encountered in determining the exposure during the war period, when termination or suspension of coverage upon entry into military service was called for by the terms of the policies of many companies.

ACTIVE LIVES STUDY

Lives substandard for life insurance were generally excluded from the study. Lives substandard for disability insurance were excluded where possible; where this could not be done appropriate adjustment was made so as to produce as nearly as possible rates of claim applicable to standard lives. However, no attempt was made to exclude or to adjust for those groups of females who were charged higher disability premiums or given reduced disability benefits because of their sex.

Distinction by sex was not practicable in the Active Lives study (except as to a portion of the data later referred to) because most contributors determined the exposure to disability from records maintained for valuation purposes which made no separation by sex. All rates of disablement quoted herein are for males and females combined in the proportions which existed in the data contributed.

In the Active Lives study, claim rates were determined by attained ages on a policy year basis, using the amount of life insurance as the unit. For all except Benefit 5 the experience was furnished in aggregate form, excluding the first two policy years, which it was assumed would be affected by selection. It was not considered necessary to study the effect of selection for those benefits which are not currently issued. For Benefit 5 the exposure was furnished separately for each policy duration (excluding the first policy year because of difficulty in obtaining correct exposure figures).

While the experience terminates at the 1950 policy anniversary, delayed claims up to June 30, 1951 were included, and each company made a further adjustment to the Period 4 figures of the Active Lives study to allow for claims still unreported or unapproved at that date.

Date of Commencement of Claim

For the purpose of fixing the age at disablement and the period in which disablement occurred, claims were assumed to occur on the date of disablement as defined on page 103 of *Actuarial Studies No. 5*, i.e., the date upon which the life actually became totally disabled. The contributors were asked to use this date as the date of commencement of claim for both prompt and delayed claims, where practicable. Where it was not feasible to do so, the nearest approach to that date which could readily be obtained was used, and in particular where the date at the end of the waiting period had been recorded in the individual company's records, such date was translated to the date at the beginning of the waiting period. The rates obtained, therefore, measure the chance of *commencing* at a given age a disability which will complete the waiting period.

In the 1926 study, claims were allotted to ages and policy years according to the date at the end of the waiting period in those cases where approval was based on the presumption of permanence arising from the completion of the waiting period. (See *Actuarial Studies No. 5*, pp. 105-107.) Rates so calculated measured the chance of *completing* at a given age a period of disability equal in length to the waiting period. The current study's use of the date of disablement (as nearly as possible) has the advantage of avoiding certain complications in premium and reserve theory which arose under the old practice. These were due to the fact that only eight months exposure (using the four months waiting period for illustration) could occur in the first policy year, and correspondingly four months exposure occurred after the attainment of age 60; theoretically active life reserves became zero not at age 60 but four months later. There were also complications in exposure formulae due to the same basic difficulty that the claim year did not coincide with the policy year.

An advantage of a different nature in the method of this study is that annual termination rates are more comparable between different benefits because they are measured from a common starting point, the date of commencement of disability.

It should be noted that on the new basis there is theoretically a different dividing line between active life reserves and disabled life reserves.

The date of disablement as defined was also used as the point from which durations were measured in the Disabled Lives study. The claim annuities on this basis provide for all income payments that would fall due if all claims were reported promptly.

Definition of Rate of Disablement

To correspond with the change described in the preceding section, we shall use the term "rate of disablement" rather than "rate of disability." The rates of disablement herein are of the form r'_x , the absolute annual rate of becoming disabled among active lives aged x at the beginning of the year, as defined on page 96 of *Actuarial Studies No. 5*; i.e., $r'_x = i_x / (l_x^{aa} - \frac{1}{2}d_x^{aa})$.

The rates of disablement were derived as the ratio of the amount of admissions to disability benefit with date of disablement in a particular policy year to the mean in force of active lives over such policy year, approximated in most cases as the December 31st valuation in force. The contributing companies in most cases were able to furnish exposures to disability which excluded existing disabled lives, and where this could not be done the Committee made an approximate adjustment. It was found that this correction was a material one at the older ages.

There is a very slight theoretical overstatement in such rates because the December 31st in force on active lives will have been diminished by some part of the new disabilities of the policy year; however, this correction would be quite small and it was decided to ignore it.

Homogeneity of Data

In the case of Benefit 1 (the old "total and permanent" benefit) four companies contributed data, but differences in coverage and claim treatment made it inadvisable to combine this experience. The crude rates of disablement by quinary age groups are shown for each of these companies in the accompanying table.

Company A's clause required a 90-day waiting period as a necessary but not sufficient condition for proof of permanence, and provided retroactive income payments to cover these three months. In the case of delayed claims, retroactive payments were limited by contract to six months; in practice this provision was waived in cases of insanity, and also, during part of the period studied, in some other cases.

Company B's clause provided income payments only from the date of receipt of proof of total and permanent disability, with no retroactive payments whatever. (In practice retroactive payments were made in cases of insanity, and also, during part of the period, in some other cases.) Claims were classified according to the age at date of proof rather than according to the age at date of disablement; this would tend to shift delayed claims to older ages.

Company C's clause was generally similar to that of Company A, but,

BENEFIT 1—CRUDE RATES OF DISABLEMENT
By Amount of Insurance—\$1,000 Units

ATTAINED AGES	COMPANY A		COMPANY B		COMPANY C		COMPANY D	
	Amt. of Claims	Rate	Amt. of Claims	Rate	Amt. of Claims	Rate	Amt. of Claims	Rate
<i>Period 1</i>								
15-19	\$ 41.0	1.93	\$ 11.0	.72				
20-24	468.8	1.73	253.8	1.15	\$ 37.0	2.59		
25-29	1,105.3	1.73	760.2	1.49	202.1	1.86	\$ 82.0	1.88
30-34	2,011.6	2.43	1,212.1	2.00	733.6	2.46	313.2	2.45
35-39	2,806.5	3.05	1,583.7	2.42	1,730.9	3.49	642.5	2.72
40-44	3,636.8	4.35	2,105.7	3.33	2,355.0	4.05	1,050.2	3.35
45-49	3,662.0	6.29	2,893.3	5.62	3,407.2	6.39	1,817.8	5.59
50-54	3,162.7	10.92	3,297.3	9.87	3,678.6	10.35	1,958.4	7.58
55-59	1,967.5	18.62	2,661.2	15.76	2,986.3	15.60	1,876.1	12.18
All Ages	\$18,862.2		\$14,778.5		\$15,130.7		\$7,740.2	
Number of Claims	5,403		4,742		3,373		2,284	
<i>Period 2</i>								
15-19								
20-24	\$ 24.0	1.09	\$ 18.0	1.78				
25-29	297.5	1.48	176.8	1.25	\$ 21.0	2.33		
30-34	691.1	1.58	389.9	1.29	88.5	1.33	\$ 26.5	1.07
35-39	1,167.0	2.10	651.7	1.84	310.9	1.72	149.5	1.81
40-44	2,425.1	4.01	1,389.0	3.63	1,023.3	3.47	595.9	4.43
45-49	2,618.6	5.04	1,516.3	4.15	1,506.3	4.47	818.5	4.93
50-54	3,363.7	9.95	2,144.8	7.39	2,491.5	8.42	1,328.8	8.82
55-59	2,567.2	16.52	2,894.6	16.13	2,378.6	12.96	1,255.4	12.33
All Ages	\$13,154.2		\$ 9,181.1		\$ 7,820.1		\$4,174.6	
Number of Claims	3,536		2,940		1,793		1,238	
<i>Period 4</i>								
15-19								
20-24								
25-29								
30-34	\$ 17.0	2.16	\$ 1.0	.36				
35-39	105.4	.96	34.7	1.10	\$ 4.5	1.70		
40-44	390.4	1.33	90.2	1.15	84.1	2.64	\$ 2.7	1.20
45-49	1,137.8	2.76	316.7	2.43	380.6	3.45	35.8	2.99
50-54	2,804.5	6.14	1,200.9	6.41	1,051.1	5.16	114.5	3.90
55-59	5,279.2	13.63	2,556.4	12.78	2,860.4	12.29	497.5	10.65
All Ages	\$ 9,734.3		\$ 4,199.9		\$ 4,380.7		\$ 650.5	
Number of Claims	2,359		1,002		1,054		206	

in practice, cases where permanence was in dispute were settled by presuming permanence when total disability had continued for 90 days. A substantial proportion of this contribution related to a clause under which coverage continued to age 65; it was believed this would result in lower claim rates just prior to age 60 than would otherwise appear.

Company D's clause was one under which the first income payment was to be made six months after receipt of proof that total and permanent disability had already existed for 60 days. In practice, on delayed claims, the first income payment was made as of nine months after disablement or as of the date of proof, whichever was later, and continuance of total disability for 90 days was considered proof of permanence.

It appeared that Company A's contribution was the only one that presented in clear-cut form the experience under a strictly "total and permanent" clause with income benefits accruing from the date of disablement, and accordingly it was decided to study the rates of disablement for that experience¹ only. The termination data of the other three contributors were used, however, in establishing Benefit 1 termination rates for the sixth and later claim years.

For each of the other benefits, the amount of claims for individual companies was compared with the amount expected by all-company rates for the benefit and period tested. When the results were summarized for the three observation periods combined, it was found that practically all contributions were within the range of 90 to 110 percent of the average. A few fell just outside this range, but these were not large enough to affect the averages noticeably. One of the smaller contributions to Benefit 4 showed actual claims only 66% of the amount which would be expected according to the all-company average for this benefit. The data in question were for males only, and were excluded. With this exception, the data for all companies were combined.

Results of the Active Lives Study

Tables 1a to 1e summarize in quinary age groups the number and amount of claims, and the exposures and ungraduated rates of disablement by amount, for the various benefits and periods. This material is in aggregate form and is based on the data of the third and later policy years. For Benefits 1 to 4 these were the only data requested. For Benefit 5 the contributions were for individual policy years after the first; however, after the analysis described on pages 79 and 80, it was decided to pre-

¹ The data of Company A related to business issued from April 1923 to December 1929.

sent the Benefit 5 rates of disablement on the same basis as the other benefits.

Some consideration was given to the possibility of merging the data for the three periods so as to present a table of rates of disablement which would reflect the average of the periods studied. For these closed² groups of business, however, the earlier periods with their high admission rates would tend to predominate in the combined data at the younger ages and the opposite effect would occur at the older ages; such a merger would artificially flatten the curve of admission rates by age. There would be some question, also, as to the significance of rates based on a combination of nonconsecutive periods with widely varying experience. It was decided, therefore, to present the experience for the three periods separately, and to compare period against period by the use of graduated rates based on the experience of Period 2, which is the only period with data for every benefit sufficient for the purpose. Such Period 2 graduated rates³ are shown in Table 2.

Comparison by Periods

Table 3 compares for each of the benefits claims arising during Periods 1 and 4 with those expected according to the graduated rates of Period 2; the great difference between the claim rates of Period 4 and those of the 1930's, particularly Period 1, is very striking.

Comparison with 1926 Study

Table 4 relates the experience for each benefit and period to the graduated rates of the 1926 investigation. The Class 3 rates for the 90-day presumptive benefit refer to the age at the end of the waiting period and it would, therefore, be proper to use interpolated Class 3 rates at ages one-quarter year older; this correction, however, has been ignored in view of the marked difference in general level of the rates. In reading the table it should be kept in mind that because of the sharp increase with age in the ratios of actual to expected, and the shifting age distribution by periods, the ratios for all ages combined, while valid as an expression of the relation to the 1926 rates, do not give a good comparison between one period and another of the present investigation.

Comparison by Sex

Some of the contributors were able to furnish Active Lives material for males and females separately. The ungraduated claim rates by amount

² Benefit 5 is not a closed group but does display, to a lesser extent, the shift in age distribution referred to.

³ See Appendix for description of method of graduation.

for males and females combined, derived from each such contribution, were applied to the corresponding separate male and female exposures, and the results summarized as shown in Tables 5*a* and 5*b*. It will be seen that the female claims for all ages combined for the income benefits studied⁴ were 158%, 151%, and 114% of the corresponding male and female combined experience for Periods 1, 2 and 4 respectively, with a tendency to be highest at the middle of the age span. The Benefit 5 ratio for Period 4 was 108%. For Period 2, the Benefit 5 ratio was 107%, but as this included only 41 female claims it cannot be considered reliable. Attention is called to the corresponding data on females in the Disabled Lives section (Table 12) which indicates a markedly lower termination rate for women than for men for Benefit 5.

Number versus Amount

Certain contributors furnished Active Lives data covering 25,483 policies admitted to disability benefits both on the amount basis and on the basis of number of policies. Ungraduated rates of disablement by quinary age groups on the amount basis derived from each such contribution were applied to the corresponding number of policies exposed to derive expected claims, which were summarized and compared with the actual number of policies admitted. The resulting ratio of actual to expected was 88% for Benefits 2, 3 and 4 combined, and 91% for Benefit 5 (no data were available for Benefit 1). The ratios were remarkably uniform both by ages and by periods, and are therefore not presented in detail. Attention is called to the corresponding comparison (see Tables 13*a* and 13*b*) between number and amount experience as to termination rates; this also indicates more favorable experience by number than by amount, except for Benefit 5, where no differential appeared.

Analysis by Duration for Benefit 5

To determine the effect of selection under Benefit 5, the disablement rates during Period 4 were studied by duration, using the experience for the eleventh and higher policy years (involving 5,262 claims) as a standard. The results are summarized in the table on the following page. At the younger ages, the rates at the early durations were higher than the ultimate rates; at the older ages the reverse was true. To gauge the effect of this, a table of attained age admission rates for this benefit was prepared from the following data:

Ages under 40.....	Policy years 2 and over
Ages 40-49.....	Policy years 6 and over
Ages 50-59.....	Policy years 11 and over

⁴ Separate data by sex were not available for Benefit 1.

It was found that the table so derived differs only slightly from that obtained by using policy years 3 and over throughout, although displaying somewhat higher rates at the older ages. It was therefore decided to base the published rates for this benefit on policy years 3 and over, as for the other benefits.

BENEFIT 5, PERIOD 4
RATIOS OF ACTUAL TO EXPECTED CLAIMS (BY AMOUNT)
EXPECTED BASED ON CRUDE RATES BY AMOUNT
FOR POLICY YEARS 11 AND OVER

ATTAINED AGE	POLICY YEARS 2-5		POLICY YEARS 6-10		POLICY YEARS 2-10	
	Actual Claims*	Ratio A/E	Actual Claims*	Ratio A/E	Actual Claims*	Ratio A/E
25-39	\$6,083	116%	\$3,636	107%	\$ 9,719	113%
40-49	7,305	92	6,396	100	13,701	95
50-59	4,175	89	5,505	84	9,680	86

* Life Insurance in \$1,000 units.

DISABLED LIVES STUDY

Scope and Method of Study

The Disabled Lives study traces the claim termination experience, during each of the four periods previously defined, of disability claims in force at any time between the claim anniversaries in 1930 and 1950. The data include not only the claims which formed the numerators of the rates of disablement of the Active Lives study (exclusive of substandard cases), but also the corresponding claims of the following classes: (a) claims arising in the first two policy years; (b) claims arising in Period 3; and (c) claims arising prior to 1930 which were in force on the 1930 claim anniversary. The volume of terminations arising from these data is shown in summary form in Tables 6a and 6b.

The experience was tabulated for each benefit and period separately, by months for the first 24 months after the date of commencement of claim as previously defined, and by years thereafter. Separate probabilities of death and of recovery were obtained, the sum of which is the termination rate. The exposure to both death and recovery was taken as the amount in force at the beginning of the disability year (or month) diminished by half of those terminations which would correspond to withdrawals in a mortality experience. (Such withdrawals were few, consisting

chiefly of those endowment policies for which the income benefit ceased at the termination of the endowment.) Exposures so defined were built up separately for the claims originating in each calendar year, and these results were then assembled to give the data for the four separate periods of observation.

For Benefit 1, the termination experience for the first five years of disability was taken from the data of the company whose experience was the basis for the graduated rates of disablement for this benefit; for the sixth and later disability years the experience of the four contributors to Benefit 1 was used, except that the recovery experience of one company was excluded throughout because it appeared to be markedly different from the average.

For Benefits 2 and 3 the data of one large contributor showed a pattern of death rates in the first year of disability distinctly different from that displayed by the average of other contributions. It was decided to exclude these data in determining death rates in the first disability year.

In the case of Benefit 5, it was desired to fix the duration at recovery with reference to the date of actual recovery rather than the date of last premium waiver, since the latter date would be affected by the frequency of premium payment. Two of the contributors to the Benefit 5 study were unable to follow this definition, and their data were excluded in determining the recovery experience for this benefit in the first two years of disability.

The experience was tabulated both by number and by amount (amount of annual premium waived in the case of Benefit 5, amount of life insurance with disability income benefits in the other cases), and for females separately as well as for the two sexes combined; however, only one set of graduated tables was prepared. These graduated tables are on the amount basis for males and females combined, for all four periods combined.

Combination of the 4 Periods' Experience

A word of explanation and of caution is called for in relation to the matter of combining the termination experience of the four periods. In order to present all the results of the termination study in a useful form within practical space limits, it seemed desirable to form a limited number of graduated tables which could be applied as standards to the various subdivisions of the experience. The objections which existed to combining the active life experience of different periods do not apply so strongly to termination rates, since the disabled lives do not constitute a closed group and the experience of one generation of claims runs through successive

periods of observation. Recovery rates, of course, are markedly affected by economic conditions; for death rates also the data indicate that rates in the 1940's, particularly at short durations, have been higher⁵ than those in the 1930's. It did not appear wise to fix on either the high termination rates of the 1940's or the low termination rates which prevailed in the 1930's. The Committee wishes to point out, however, that the graduated tables so formed are strongly influenced by the perhaps abnormally high termination rates of the 1940's. Tables 10*a* to 10*i*, mentioned below, illustrate these remarks.

It should be noted particularly that for Benefit 5 the graduated tables must be regarded as indicating chiefly the experience of the 1940's, since the terminations in the 1930's were only about 11% of the total terminations for this benefit.

Formation of Graduated Tables⁶

The graduated termination rates are in select form for fifteen disability years, merging into ultimate experience thereafter. The death probabilities displayed a tendency to show the effect of duration for longer than fifteen years; however, there was not sufficient long-duration experience to warrant extending the junction point to later years, even if it had been desirable from a practical viewpoint to do so. Recovery rates appeared to reach an ultimate level earlier, and the graduated recovery rates are in select form for only ten years.

Separate graduated tables of select annual termination rates, all periods combined, were prepared for Benefit 1, for Benefits 2 and 3 combined,⁷ and for Benefit 5. These appear as Tables 7*a* to 7*c*. Graduated tables of ultimate termination rates are shown for Benefit 1 and for Benefits 2 and 3 combined, in Tables 7*d* and 7*e*. Graduated monthly termination rates for the first two disability years are shown in Tables 8*a* to 8*h*.

The data for Benefits 2 and 3 were merged after the first disability year because preliminary graduations indicated that the termination rates for these benefits were very similar thereafter. No graduated tables, other than monthly rates for the first year of disability, are presented for Benefit 4, partly because of the relatively small amount of data, and partly because the termination rates after the first year are not greatly different from those for Benefits 2 and 3 combined. Table 9 compares the actual

⁵ While this is contrary to the trend of general mortality, it is not surprising that the lower admissions in a favorable economic period should contain a larger proportion of very seriously disabled people with resulting high death rates.

⁶ See Appendix for description of method of graduation.

⁷ Separate for the first disability year.

terminations of Benefits 2, 3 and 4 separately with those expected according to the graduated rates for Benefits 2 and 3 combined.

No tables of ultimate rates as such are presented for Benefit 5 because of the lack of data. It was necessary, however, to assume a level of ultimate rates for the purpose of graduating the select rates. The terminations for Benefit 5 (arising chiefly in Periods 3 and 4) compared as follows with those expected by the ungraduated all-periods rates for Benefits 2 and 3 combined:

Year of Disability	Actual Terminations*	Ratio Actual to Expected	Actual Deaths*	Ratio Actual to Expected	Actual Recoveries*	Ratio Actual to Expected
1†	\$ 875,900	89%	\$249,908	116%	\$ 625,992	81%
2	824,724	136	180,871	105	643,853	149
3	347,760	145	106,826	116	240,934	163
4	153,799	132	56,523	113	97,276	147
5	98,668	141	37,015	99	61,653	190
6	52,541	126	21,980	96	30,561	162
7	36,672	125	23,077	130	13,595	118
8	26,209	126	9,854	79	16,355	199
9	19,728	136	11,350	129	8,378	145
10	17,349	183	6,361	103	10,988	328
11 and over	15,266	80	11,851	92	3,415	54
1 and over	\$2,468,616	114%	\$715,616	110%	\$1,753,000	116%
2 and over	\$1,592,716	136%	\$465,708	107%	\$1,127,008	153%

* Annual Premiums waived.

† Second six months.

While it is clear that the select termination rates (particularly the recovery rates) for Benefit 5, after the first disability year, are definitely higher than the standard used above, it was felt that it would be unsafe to assume this relationship to continue indefinitely in the ultimate period. It was therefore decided to adopt, only for the purpose of graduating the Benefit 5 select rates, the graduated ultimate rates of Benefits 2 and 3 combined.

Comparison by Periods

Tables 10a to 10i compare by periods the termination experience for particular benefits for the first fifteen disability years, using as a standard the 1930-50 graduated table for the benefit concerned. These tables bring out clearly the more favorable termination experience for Periods 3 and 4, as compared to Periods 1 and 2, which has already been referred to.

Comparison with 1926 Study

Table 11 compares the monthly annuity values of the 1926 Study, Classes 1 and 3, with corresponding annuity values based on the 1930-50

graduated rates of the present study for Benefits 1 and 2, respectively. The comparison is made at disablement and also in the ultimate period. It will be seen that the annuity values of the new study are materially higher at commencement of claim than those of the 1926 study. In the ultimate period, the new values are lower at the younger attained ages, and higher at the older ages than those of the 1926 study. It will be recalled that there was practically no material in the 1926 study beyond the third disability year.

Termination Experience on Females

A comparison of terminations among females with those expected according to the corresponding graduated rates for males and females combined was made for Benefits 2 and 3 combined, for Benefit 4, and for Benefit 5. This comparison is on the amount basis and includes the four observation periods combined. In the case of Benefits 2 and 3 combined and of Benefit 5, the expected was calculated by the 1930-50 graduated rates for males and females combined applicable to the particular benefit; in the case of Benefit 4, the graduated rates for Benefits 2 and 3 combined were used for disability years 2 and later and for disability year 1 there was used the annual rate derived from Benefit 4 experience for males and females combined.

The results of this comparison are shown in Table 12. It will be seen that the female experience was approximately equal to that for males and females combined for the income benefits studied, while for the waiver benefit there appears to be a distinctly lower termination rate for women. The female experience was not studied separately as to deaths and recoveries, nor was it studied for Benefit 1.

Termination Experience by Number of Policies

For Benefit 1, Benefits 2 and 3 combined, and Benefit 5, the actual terminations by number of policies were compared with the expected terminations calculated by the corresponding graduated termination rates based on amount. The results are summarized in Tables 13*a* and 13*b*. There is a definitely higher termination rate by number in the income benefits, but this does not appear to be the case for the waiver benefit.

Note on Structure of Termination Rates

The select termination rates are tabulated in quinary age groups according to the insurance age at the policy anniversary preceding the date of disablement. For example, the rate for the age group 30-34 is assumed to center on age 32 at the policy anniversary preceding disablement, which

is equivalent to an average age at disablement of $32\frac{1}{2}$. Correspondingly, the ultimate termination rates for the age group mentioned above would commence at age $47\frac{1}{2}$. The convenience of the central age assumption in compiling this study and in any application of the data was thought to outweigh the slight inaccuracy due to ignoring the actual distribution by ages within the quinary age groups.

It should be noted that the termination rate for disability year 1 relates to the year following the date of disablement as previously defined and that this year *includes* the waiting period. A full year's exposure is counted. Other things being equal, therefore, the termination rate for Benefit 5 would tend to be smaller than that for Benefits 2 and 3, since six months' terminations after the waiting period are included in the first case, and nine months' in the second case. Similarly, the rate for Benefit 4 contains eight months' terminations after the waiting period, and that for Benefit 1, nine months' terminations.

Comparison of One-Year Term Costs

Table 14 compares undiscounted one-year term costs combining the graduated disablement rates of Period 2 with the annuity values based on the graduated 1930-50 annual termination rates. For better comparability between the various tables, the comparison is made for a uniform benefit consisting of the payment of one dollar at the end of each disability year. It will be seen that the costs so calculated for Benefits 1, 2 and 4 are very close together, with some deviation at the youngest and oldest ages. The cost for Benefit 3 is higher than that for the other income benefits, while that for Benefit 5 is markedly lower. Since the data entering into the study for the different benefits reflect the different underwriting rules and claim practices obtaining in different companies at different times, it is not to be expected that the results can be taken as a measure of the difference between benefits which would occur if they were issued under uniform conditions.

ANALYSIS BY CAUSE OF DISABILITY

To allow analysis of the relative disablement rates and claim persistency by cause of disability, the contributing companies were asked to code the cause of disability, where available, on the individual claim cards submitted for the Disabled Lives study. Although some large contributions did not include this information, it was shown on a substantial proportion of the claim cards. These data have been analyzed and the results are summarized in Tables 15 to 17 inclusive. All results shown are for males and females combined.

The cause of disability was coded under sixteen classes as shown in the letter of instructions included in the Appendix. These classes are defined in terms of various codes which were in use during the period covered by the investigation. Analysis of the results disclosed that the differences in classification of such conditions as coronary diseases and thrombosis in the successive revisions of the International List make it inadvisable to use the separate figures for Codes 08, 09, and 10 (cerebral hemorrhage, heart disease, other circulatory diseases). The data for these three classes have therefore been combined into one class under the title of cardiovascular disease.

In the Active Lives section of this report the experience during the first two policy years was excluded. In the analysis by cause of disability it was thought desirable to include claims arising in the first two policy years, both to increase the volume of data and to give due effect to the possibly different distribution by cause at short durations. Claims occurring prior to the 1930 policy anniversaries are excluded from the cause analysis, as also from the Active Lives study. The number of claims included in the cause analysis as compared to the number included in the Active Lives study were as follows:

PERIOD	BENEFIT 1		BENEFIT 2		BENEFIT 3		BENEFIT 4		BENEFIT 5	
	Cause Anal-ysis	Active Lives Study	Cause Anal-ysis	Active Lives Study	Cause Anal-ysis	Active Lives Study	Cause Anal-ysis	Active Lives Study	Cause Anal-ysis	Active Lives Study
1.....	5,575	5,403	15,900	32,742	7,813	22,065	3,953	3,192	0	0
2.....	3,531	3,536	9,546	20,424	4,829	15,487	2,789	4,774	2,845	2,051
3.....	4,844	0	6,147	0	4,135	0	3,206	0	7,371	0
4.....	2,204	2,359	1,043	8,867	1,329	8,799	1,574	4,030	6,680	12,076

Table 15 portrays the percentage distribution by cause of disability (on the amount basis) of the coded claims, separately for each benefit and for each period in which claims arose, in denary age groups. The *number* of claims in each cell is also shown, to indicate more clearly the relative weights of the results. Table 15 also shows estimated disablement rates by cause in denary age groups for the three experience periods for which exposure data were available. These estimated rates were obtained by distributing the denary age crude claim rates (amount basis) for all companies and all causes combined, developed from the data in Table 1,⁸

⁸ There is an assumption involved here to the effect that the claim rate from all causes combined would not be greatly different whether based on the third and later policy years or on all policy years combined.

in the proportions observed among the claims coded for cause of disability (amount basis).

Because of the large number of figures in Table 15 it is difficult to see the relationships among the disablement rates by benefit and period. Such a comparison is presented more concisely in Table 16 in the form of actual-to-expected ratios for ages at disablement 20 and over combined. Two sets of ratios are shown. The first set shows the relationship between periods with Period 2 for each benefit representing 100%. The second set shows the relationship between benefits with Benefit 2 in each period representing 100%. The expected claims were calculated by applying to the exposures of Table 1 for the appropriate period and benefit the denary age rates by cause shown in Table 15 for the period and benefit taken as representing 100%. The expected claims so derived are compared with actual claims which are those shown in Table 1, distributed by cause within each denary age group according to the cause distribution of the corresponding coded claims. Because of the use of denary age rates the ratios between periods, all causes combined, differ somewhat from those shown in Table 3, where graduated rates for individual ages were used.

It is possible to pick out in Table 16 certain causes which have declined more rapidly than the "all causes" rate. Among these are pulmonary tuberculosis, syphilis, respiratory diseases other than tuberculosis, diseases of the digestive system, nephritis, and external violence. Causes which have failed to decline as rapidly as the total rate include malignant neoplasms and cardiovascular diseases.

Persistency by Cause

In addition to the analysis of the disablement rates described above, it was thought desirable to develop some indication of the relative persistency of claims by cause of disability. To do so on a basis involving the calculation of termination rates by age and duration for each cause would have involved a prohibitive amount of work. Accordingly, it was decided to review the relative persistency on an approximate basis.

It was found possible to calculate without excessive labor approximate claim expectations (*i.e.*, the average duration of claims to recovery or death) for each cause by denary age groups, based on number of claims. One assumption involved in the approximation was that any difference by cause (for claims of a given period and age group) in the average future duration for cases existing at the 1950 claim anniversaries could be ignored. Since it was recognized that this assumption might not hold with respect to claims arising in Periods 3 and 4 where the average duration to

the 1950 anniversary would be short, the analysis has been restricted to Periods 1 and 2.

The results of the persistency study are shown in Table 17 in the form of ratios, by denary age groups, of the approximate expectation for each cause to the approximate expectation for all causes combined for the same benefit and age group. Benefits 2 and 3 have been combined in this table since they were also combined in the Disabled Lives study.

Among the causes with relatively long claim expectations are the following: mental disorders (particularly at the younger ages), diseases of the eyes, syphilis, cardiovascular diseases (except for Benefit 1, where the claim duration was about average), diabetes, and rheumatism; also diseases of the bones, etc., at the older ages.

Lower than average claim expectations appear for the following: malignant neoplasms, external violence (except for Benefit 1), diseases of the digestive system (except for Benefit 1), nephritis, respiratory diseases other than tuberculosis (with some exceptions); also pulmonary tuberculosis in the case of Benefits 1 and 5.

TABLE 1a
SUMMARY OF DATA INCLUDED IN ACTIVE LIVES STUDY
FIRST TWO POLICY YEARS EXCLUDED
BENEFIT 1

Attained Ages	Amount of Exposures*	Number of Claims†	Amount of Claims*	Crude Dis- ablement Rates per 1,000 by Amount (%)
Period 1				
15-19.....	\$ 21,285	24	\$ 41.0	1.93
20-24.....	271,311	251	468.8	1.73
25-29.....	637,671	536	1,105.3	1.73
30-34.....	826,236	680	2,011.6	2.43
35-39.....	918,698	760	2,806.5	3.05
40-44.....	836,116	930	3,636.8	4.35
45-49.....	581,894	885	3,662.0	6.29
50-54.....	289,700	807	3,162.7	10.92
55-59.....	105,672	530	1,967.5	18.62
All Ages..	\$ 4,488,583	5,403	\$18,862.2	.....
Period 2				
15-19.....	\$ 7	0	\$ 0.0	0.00
20-24.....	22,114	19	24.0	1.09
25-29.....	201,360	158	297.5	1.48
30-34.....	436,456	305	691.1	1.58
35-39.....	555,532	374	1,167.0	2.10
40-44.....	605,046	553	2,425.1	4.01
45-49.....	519,145	682	2,618.6	5.04
50-54.....	338,046	764	3,363.7	9.95
55-59.....	155,407	681	2,567.2	16.52
All Ages..	\$ 2,833,113	3,536	\$13,154.2	.....
Period 4				
30-34.....	\$ 7,887	6	\$ 17.0	2.16
35-39.....	109,865	62	105.4	.96
40-44.....	293,090	168	390.4	1.33
45-49.....	412,015	325	1,137.8	2.76
50-54.....	457,062	664	2,804.5	6.14
55-59.....	387,216	1,134	5,279.2	13.63
All Ages..	\$ 1,667,135	2,359	\$ 9,734.3	.....

* Life Insurance in \$1,000 Units.

† Number of Policies Admitted.

TABLE 1b
SUMMARY OF DATA INCLUDED IN ACTIVE LIVES STUDY
FIRST TWO POLICY YEARS EXCLUDED
BENEFIT 2

Attained Ages	Amount of Exposures*	Number of Claims†	Amount of Claims*	Crude Dis- ablement Rates per 1,000 by Amount (%)
Period 1				
15-19	\$ 49,651	68	\$ 139.0	2.80
20-24	624,046	1,177	2,245.9	3.60
25-29	1,643,613	3,179	6,815.9	4.15
30-34	2,400,244	4,209	11,397.0	4.75
35-39	2,762,920	4,747	16,044.0	5.81
40-44	2,696,117	5,198	19,551.0	7.25
45-49	2,164,482	5,494	23,082.9	10.66
50-54	1,391,271	4,981	21,274.6	15.29
55-59	713,718	3,689	15,935.5	22.33
All Ages	\$14,446,062	32,742	\$116,485.8	
Period 2				
20-24	\$ 66,120	85	\$ 142.9	2.16
25-29	483,182	748	1,492.1	3.09
30-34	1,151,379	1,770	4,092.2	3.55
35-39	1,609,848	2,446	7,186.1	4.46
40-44	1,774,987	3,250	11,152.5	6.28
45-49	1,645,209	4,021	15,305.5	9.30
50-54	1,245,044	4,291	17,484.0	14.04
55-59	729,617	3,813	15,014.4	20.58
All Ages	\$ 8,705,386	20,424	\$ 71,869.7	
Period 4				
30-34	\$ 26,413	19	\$ 35.7	1.35
35-39	223,516	219	437.1	1.96
40-44	615,274	736	1,920.9	3.12
45-49	956,862	1,450	4,599.7	4.81
50-54	1,084,899	2,624	9,649.7	8.89
55-59	978,956	3,819	15,694.1	16.03
All Ages	\$ 3,885,920	8,867	\$ 32,337.2	

* Life Insurance in \$1,000 Units.

† Number of Policies Admitted.

TABLE 1c
SUMMARY OF DATA INCLUDED IN ACTIVE LIVES STUDY
FIRST TWO POLICY YEARS EXCLUDED
BENEFIT 3

Attained Ages	Amount of Exposures*	Number of Claims†	Amount of Claims*	Crude Dis- ablement Rates per 1,000 by Amount ($r\frac{1}{2}$)
Period 1				
15-19.....	\$ 98,699	329	\$ 540.5	5.48
20-24.....	671,885	1,876	3,481.3	5.18
25-29.....	1,349,954	2,946	7,700.2	5.70
30-34.....	1,605,059	3,090	10,394.0	6.48
35-39.....	1,652,563	3,418	13,315.0	8.06
40-44.....	1,460,162	3,457	15,502.3	10.62
45-49.....	997,665	3,123	15,951.0	15.99
50-54.....	506,630	2,431	11,726.0	23.15
55-59.....	186,794	1,395	5,954.0	31.87
All Ages....	\$8,529,411	22,065	\$84,564.3	.....
Period 2				
20-24.....	\$ 116,948	331	\$ 493.2	4.22
25-29.....	563,947	1,220	2,333.4	4.14
30-34.....	1,046,120	1,814	4,845.7	4.63
35-39.....	1,235,675	2,216	7,796.6	6.31
40-44.....	1,260,933	2,659	11,311.2	8.97
45-49.....	1,063,962	2,837	12,827.4	12.06
50-54.....	676,322	2,492	11,230.6	16.61
55-59.....	316,365	1,918	8,560.2	27.06
All Ages....	\$6,280,272	15,487	\$59,398.3	.....
Period 4				
30-34.....	\$ 46,367	83	\$ 142.3	3.07
35-39.....	337,119	493	1,019.8	3.03
40-44.....	751,307	1,005	2,837.4	3.78
45-49.....	953,560	1,668	6,162.5	6.46
50-54.....	949,244	2,504	10,988.5	11.58
55-59.....	770,111	3,046	15,112.3	19.62
All Ages....	\$3,807,708	8,799	\$36,262.8	.....

* Life Insurance in \$1,000 Units.

† Number of Policies Admitted.

TABLE 1d
SUMMARY OF DATA INCLUDED IN ACTIVE LIVES STUDY
FIRST TWO POLICY YEARS EXCLUDED
BENEFIT 4

Attained Ages	Amount of Exposures*	Number of Claims†	Amount of Claims*	Crude Dis-ablement Rates per 1,000 by Amount (r ₂)
Period 1				
15-19	\$ 40,393	53	\$ 87.5	2.17
20-24	193,959	286	568.0	2.93
25-29	377,669	451	1,380.4	3.66
30-34	440,113	512	1,898.1	4.31
35-39	421,362	527	2,237.2	5.31
40-44	326,840	469	2,112.5	6.46
45-49	197,002	429	2,113.5	10.73
50-54	88,786	309	1,497.2	16.86
55-59	20,191	156	753.8	37.33
All Ages	\$2,106,315	3,192	\$12,648.2	
Period 2				
15-19	\$ 4,977	3	\$ 4.0	.80
20-24	147,148	224	395.7	2.69
25-29	439,131	453	1,013.3	2.31
30-34	691,097	606	2,105.6	3.05
35-39	735,164	765	2,984.5	4.06
40-44	662,192	825	3,421.1	5.17
45-49	445,957	797	3,828.8	8.59
50-54	243,116	686	3,145.3	12.94
55-59	85,860	415	1,758.9	20.49
All Ages	\$3,454,642	4,774	\$18,657.2	
Period 4				
30-34	\$ 84,698	67	\$ 130.7	1.54
35-39	321,564	223	518.0	1.61
40-44	593,634	478	1,456.0	2.45
45-49	665,814	835	3,429.7	5.15
50-54	593,653	1,120	4,920.6	8.29
55-59	390,174	1,307	6,099.8	15.63
All Ages	\$2,649,537	4,030	\$16,554.8	

* Life Insurance in \$1,000 Units.

† Number of Policies Admitted.

TABLE 1e
SUMMARY OF DATA INCLUDED IN ACTIVE LIVES STUDY
FIRST TWO POLICY YEARS EXCLUDED
BENEFIT 5

Attained Ages	Amount of Exposures*	Number of Claims†	Amount of Claims*	Crude Dis- ablement Rates per 1,000 by Amount (%)
Period 2				
15-19.....	\$ 36,667	20	\$ 26.0	.71
20-24.....	242,683	142	217.3	.90
25-29.....	593,392	277	581.5	.98
30-34.....	843,748	330	1,050.5	1.25
35-39.....	830,226	354	1,126.1	1.36
40-44.....	690,553	314	1,298.9	1.88
45-49.....	429,345	286	1,107.3	2.58
50-54.....	194,208	224	856.6	4.41
55-59.....	49,670	104	408.9	8.23
All Ages..	\$ 3,910,492	2,051	\$ 6,673.1	.....
Period 4				
15-19.....	\$ 228,034	46	\$ 111.5	.49
20-24.....	928,869	244	568.2	.61
25-29.....	2,272,586	591	1,563.1	.69
30-34.....	4,528,708	1,027	2,869.4	.63
35-39.....	6,354,055	1,540	5,185.6	.82
40-44.....	6,606,922	2,063	8,553.9	1.29
45-49.....	4,841,159	2,305	10,382.2	2.14
50-54.....	2,895,033	2,363	11,124.4	3.84
55-59.....	1,263,526	1,897	8,571.9	6.78
All Ages..	\$29,918,892	12,076	\$48,930.2	.....

* Life Insurance in \$1,000 Units.

† Number of Policies Admitted.

TABLE 2
 PERIOD 2 GRADUATED RATES OF DISABLEMENT PER 1,000
 BY AMOUNT OF INSURANCE—FIRST TWO
 POLICY YEARS EXCLUDED
 1,000 $\frac{1}{2}$

Attained Age	Benefit 1	Benefit 2	Benefit 3	Benefit 4	Benefit 5
18.....	1.44	2.44	3.66	2.44	.61
19.....	1.44	2.44	3.66	2.44	.69
20.....	1.44	2.44	3.66	2.44	.76
21.....	1.44	2.44	3.68	2.44	.82
22.....	1.44	2.44	3.71	2.44	.88
23.....	1.44	2.44	3.75	2.44	.92
24.....	1.44	2.56	3.80	2.44	.96
25.....	1.44	2.68	3.86	2.44	1.00
26.....	1.44	2.80	3.93	2.44	1.02
27.....	1.44	2.93	4.01	2.44	1.05
28.....	1.44	3.04	4.10	2.44	1.07
29.....	1.44	3.15	4.21	2.55	1.10
30.....	1.45	3.26	4.33	2.68	1.12
31.....	1.47	3.37	4.47	2.82	1.15
32.....	1.52	3.49	4.63	2.99	1.18
33.....	1.59	3.62	4.80	3.16	1.21
34.....	1.69	3.78	5.12	3.33	1.24
35.....	1.83	3.96	5.49	3.52	1.29
36.....	2.01	4.17	5.90	3.71	1.34
37.....	2.22	4.43	6.34	3.92	1.40
38.....	2.47	4.72	6.83	4.16	1.47
39.....	2.75	5.05	7.34	4.44	1.55
40.....	3.04	5.43	7.88	4.76	1.64
41.....	3.35	5.85	8.43	5.13	1.73
42.....	3.67	6.32	8.99	5.56	1.84
43.....	4.00	6.84	9.55	6.04	1.95
44.....	4.33	7.40	10.10	6.56	2.07
45.....	4.68	8.01	10.66	7.13	2.21
46.....	5.07	8.65	11.23	7.73	2.36
47.....	5.52	9.34	11.85	8.37	2.56
48.....	6.05	10.07	12.55	9.03	2.79
49.....	6.68	10.85	13.36	9.75	3.09
50.....	7.43	11.69	14.33	10.53	3.47
51.....	8.31	12.58	15.48	11.60	3.95
52.....	9.35	13.57	16.87	12.81	4.54
53.....	10.57	14.73	18.52	14.23	5.25
54.....	11.99	16.07	20.45	15.83	6.11
55.....	13.65	17.65	22.70	17.60	7.12
56.....	15.56	19.51	25.27	19.51	8.38
57.....	17.76	21.64	28.17	21.64	9.33
58.....	20.24	24.02	31.40	24.02	10.35
59.....	23.02	26.70	34.97	26.70	11.44

60		12.64
61	94	14.15
62		16.21
63		19.07
64		22.95

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TABLE 3

AMOUNT OF CLAIMS IN PERIOD 1 AND PERIOD 4
 COMPARED WITH EXPECTED BY PERIOD 2 GRADUATED RATES OF DISABLEMENT
 Unit—\$1,000 of Life Insurance

ATTAINED AGES	PERIOD 1		PERIOD 4		PERIOD 1		PERIOD 4	
	Actual Claims	Ratio Actual to Exp.	Actual Claims	Ratio Actual to Exp.	Actual Claims	Ratio Actual to Exp.	Actual Claims	Ratio Actual to Exp.
	BENEFIT 1				BENEFIT 2			
15-19.....	\$ 41.0	132%			\$ 139.0	116%		
20-24.....	468.8	119			2,245.9	145		
25-29.....	1,105.3	120			6,815.9	141		
30-34.....	2,011.6	157	\$ 17.0	131%	11,397.0	135	\$ 35.7	36%
35-39.....	2,806.5	135	105.4	40	16,044.0	130	437.1	42
40-44.....	3,636.8	119	390.4	36	19,551.0	114	1,920.9	48
45-49.....	3,662.0	115	1,137.8	49	23,082.9	115	4,599.7	51
50-54.....	3,162.7	119	2,804.5	64	21,274.6	113	9,649.7	65
55-59.....	1,967.5	111	5,279.2	77	15,935.5	106	15,694.1	74
All Ages.	\$18,862.2	123%	\$ 9,734.3	65%	\$116,485.8	118%	\$32,337.2	64%
	BENEFIT 3				BENEFIT 4			
15-19.....	\$ 540.5	150%			\$ 87.5	89%		
20-24.....	3,481.3	139			568.0	120		
25-29.....	7,700.2	141			1,380.4	148		
30-34.....	10,394.0	139	\$ 142.3	62%	1,898.1	144	\$ 130.7	49%
35-39.....	13,315.0	126	1,019.8	46	2,237.2	135	518.0	40
40-44.....	15,502.3	119	2,837.4	42	2,112.5	117	1,456.0	43
45-49.....	15,951.0	136	6,162.5	54	2,113.5	130	3,429.7	61
50-54.....	11,726.0	139	10,988.5	68	1,497.2	135	4,920.6	64
55-59.....	5,954.0	118	15,112.3	70	753.8	187	6,099.8	73
All Ages.	\$84,564.3	131%	\$36,262.8	62%	\$ 12,648.2	134%	\$16,554.8	62%
	BENEFIT 5							
15-19.....			\$ 111.5	78%				
20-24.....			568.2	69				
25-29.....			1,563.1	65				
30-34.....			2,869.4	53				
35-39.....			5,185.6	58				
40-44.....			8,553.9	70				
45-49.....			10,382.2	84				
50-54.....			11,124.4	85				
55-59.....			8,571.9	76				
All Ages.			\$48,930.2	74%				

TABLE 4
RATIOS OF ACTUAL CLAIMS B^{*} AMOUNT TO EXPECTED BY
1926 COMMITTEE GRADUATED DISABILITY RATES

ATTAINED AGES	PERIOD 1	PERIOD 2	PERIOD 4	PERIOD 1	PERIOD 2	PERIOD 4
	BENEFIT 1 (Expected by 1926 Class 1 Rates)			BENEFIT 2 (Expected by 1926 Class 3 Rates)		
15-19.....	124%			64%		
20-24.....	115	73%		85	52%	
25-29.....	119	102		102	76	
30-34.....	168	109	155%	116	87	32%
35-39.....	200	137	62	132	102	44
40-44.....	251	230	76	143	123	61
45-49.....	297	236	128	167	145	74
50-54.....	381	345	209	179	164	103
55-59.....	423	367	295	187	171	132
All Ages	237%	233%	206%	147%	135%	102%
	BENEFIT 3 (Expected by 1926 Class 3 Rates)			BENEFIT 4 (Expected by 91.5% * Class 3 Rates)		
15-19.....	123%			53%	20%	
20-24.....	123	101%		76	70	
25-29.....	140	102		98	62	
30-34.....	158	113	74%	115	81	41%
35-39.....	184	144	68	133	101	40
40-44.....	209	176	73	139	111	52
45-49.....	251	189	100	185	147	88
50-54.....	272	195	134	218	166	105
55-59.....	270	226	162	356	191	142
All Ages	197%	168%	124%	137%	115%	96%
	BENEFIT 5 (Expected by modification † of 1926 Class 3 Rates)					
15-19.....		20%	15%			
20-24.....		29	20			
25-29.....		33	23			
30-34.....		41	21			
35-39.....		42	25			
40-44.....		51	35			
45-49.....		56	47			
50-54.....		73	63			
55-59.....		96	79			
All Ages		48%	41%			

* To adjust to 4 months waiting period—see TASA XXX, 463.

† Modified for 6 months waiting period—adjustment derived from TASA XXXIII, 21.

TABLE 5a
DISABILITY CLAIMS BY SEX—CERTAIN CONTRIBUTORS ONLY
COMPARED WITH EXPECTED BASED ON CORRESPONDING CRUDE RATES
FOR MALES AND FEMALES COMBINED
BENEFITS 2, 3 AND 4 COMBINED
Unit—\$1,000 of Life Insurance

ATTAINED AGES	PERIOD 1				PERIOD 2				PERIOD 4			
	Amount of Actual Claims		Ratio Actual to Expected		Amount of Actual Claims		Ratio Actual to Expected		Amount of Actual Claims		Ratio Actual to Expected	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
15-19.....	\$ 367	\$ 84	97%	114%	\$ 364	\$ 84	95%	130%				
20-24.....	2,316	615	95	127	1,571	499	89	160				
25-29.....	4,904	1,660	88	166	3,193	954	89	173	\$ 111	\$ 15	102%	98%
30-34.....	6,898	1,608	92	161	5,061	944	94	149	776	133	99	108
35-39.....	8,528	1,845	91	190	7,016	1,117	95	157	2,054	353	97	126
40-44.....	10,118	1,820	93	177	8,346	1,160	96	149	4,264	595	97	128
45-49.....	10,610	1,429	96	152	7,427	889	96	145	7,395	755	98	121
50-54.....	8,069	920	98	127	5,653	635	97	131	10,033	703	100	96
55-59.....	4,434	483	99	116								
All Ages.....	\$56,244	\$10,464	94%	158%	\$38,631	\$6,282	95%	151%	\$24,633	\$2,554	99%	114%

TABLE 5b
DISABILITY CLAIMS BY SEX—CERTAIN CONTRIBUTORS ONLY
COMPARED WITH EXPECTED BASED ON CORRESPONDING CRUDE RATES
FOR MALES AND FEMALES COMBINED
BENEFIT 5—PERIOD 4
Unit—\$1,000 of Life Insurance

ATTAINED AGES	AMOUNT OF ACTUAL CLAIMS		RATIO ACTUAL TO EXPECTED	
	Male	Female	Male	Female
15-19.....	\$ 82	\$ 13	100%	98%
20-24.....	393	65	99	103
25-29.....	719	107	97	121
30-34.....	1,734	116	99	113
35-39.....	2,345	146	98	143
40-44.....	4,113	130	100	99
45-49.....	4,505	156	99	119
50-54.....	4,945	78	101	56
55-59.....	3,638	119	99	136
All Ages....	\$22,474	\$930	100%	108%

NOTE.—Period 2 is not shown as only 41 female claims were included in the available data.

TABLE 6a
SUMMARY OF TERMINATIONS IN DISABLED LIVES STUDY
BY NUMBER OF POLICIES

DISABILITY YEARS	DEATHS					RECOVERIES				
	Period 1	Period 2	Period 3	Period 4	Total	Period 1	Period 2	Period 3	Period 4	Total
BENEFIT 1										
1 and 2.....	1,003	757	1,316	609	3,685	495	304	483	167	1,449
3-10.....	1,064	1,416	2,707	1,318	6,503	693	1,101	1,564	375	3,733
11-15.....	53	207	1,127	680	2,067	13	60	469	107	649
16 and over.....		14	387	718	1,119		1	102	88	191
Total.....	2,120	2,394	5,537	3,325	13,376	1,201	1,466	2,618	737	6,022
BENEFIT 2										
1 and 2.....	3,132	2,322	3,440	1,546	10,440	15,836	8,770	10,116	4,057	38,779
3-10.....	1,999	2,537	4,399	2,000	10,935	2,874	2,888	4,363	1,072	11,197
11-15.....	31	227	1,445	869	2,572	18	123	935	179	1,255
16 and over.....		7	391	896	1,294		2	219	183	404
Total.....	5,162	5,093	9,675	5,311	25,241	18,728	11,783	15,633	5,491	51,635
BENEFIT 3										
1 and 2.....	1,774	1,494	2,697	1,263	7,228	14,289	8,194	9,407	4,025	35,915
3-10.....	743	1,275	2,480	1,280	5,778	1,597	2,353	3,364	917	8,231
11-15.....		13	663	479	1,155		13	801	205	1,019
16 and over.....			78	335	413			74	146	220
Total.....	2,517	2,782	5,918	3,357	14,574	15,886	10,560	13,646	5,293	45,385

TABLE 6a—Continued

DISABILITY YEARS	DEATHS					RECOVERIES				
	Period 1	Period 2	Period 3	Period 4	Total	Period 1	Period 2	Period 3	Period 4	Total
BENEFIT 4										
1 and 2	431	550	1,068	619	2,668	2,645	2,306	2,859	1,433	9,243
3-10	73	347	944	577	1,941	223	868	1,471	489	3,051
11-15			131	187	318			179	86	265
16 and over			2	63	65				38	38
Total	504	897	2,145	1,446	4,992	2,868	3,174	4,509	2,046	12,597
BENEFIT 5										
1 and 2	21	245	1,293	1,271	2,830	122	1,205	4,233	3,430	8,990
3-10	1	83	696	984	1,764	4	251	1,837	1,880	3,972
11-15			6	71	77			7	31	38
16 and over				3	3				1	1
Total	22	328	1,995	2,329	4,674	126	1,456	6,077	5,342	13,001
TOTAL, ALL BENEFITS										
	10,325	11,494	25,270	15,768	62,857	38,809	28,439	42,483	18,909	128,640

TABLE 6b
SUMMARY OF TERMINATIONS IN DISABLED LIVES STUDY
BY AMOUNT

DISABILITY YEARS	DEATHS					RECOVERIES				
	Period 1	Period 2	Period 3	Period 4	Total	Period 1	Period 2	Period 3	Period 4	Total
BENEFIT 1—Amount of Insurance in \$100 Units										
1 and 2...	\$ 31,382	\$ 27,594	\$ 47,868	\$ 24,085	\$130,929	\$ 17,064	\$ 10,209	\$ 15,363	\$ 5,529	\$ 48,165
3-10.....	33,377	46,293	104,243	53,983	237,896	18,713	30,127	43,119	12,409	104,368
11-15.....	2,149	7,515	40,163	27,905	77,732	300	1,135	12,237	3,221	16,893
16 and over.....		405	13,085	28,265	41,755		30	2,515	3,052	5,597
Total..	\$ 66,908	\$ 81,807	\$205,359	\$134,238	\$488,312	\$ 36,077	\$ 41,501	\$ 73,234	\$ 24,211	\$ 175,023
BENEFIT 2—Amount of Insurance in \$100 Units										
1 and 2...	\$112,852	\$ 81,327	\$123,085	\$ 53,231	\$370,495	\$506,992	\$281,700	\$330,570	\$135,208	\$1,254,470
3-10.....	73,473	101,463	179,471	79,249	433,656	89,424	93,692	146,998	33,227	363,341
11-15.....	960	7,087	62,888	39,622	110,557	430	3,850	33,374	7,122	44,776
16 and over.....		170	16,667	40,228	57,065		35	7,809	6,402	14,246
Total..	\$187,285	\$190,047	\$382,111	\$212,330	\$971,773	\$596,846	\$379,277	\$518,751	\$181,959	\$1,676,833
BENEFIT 3—Amount of Insurance in \$100 Units										
1 and 2...	\$ 74,231	\$ 57,481	\$109,696	\$ 53,557	\$294,965	\$513,936	\$286,922	\$343,814	\$154,585	\$1,299,257
3-10.....	30,973	56,689	112,606	58,062	258,330	53,984	87,638	126,303	36,902	304,827
11-15.....		409	30,322	24,454	55,185		582	32,065	8,600	41,247
16 and over.....			3,406	17,464	20,870			3,352	5,938	9,290
Total..	\$105,204	\$114,579	\$256,030	\$153,537	\$629,350	\$567,920	\$375,142	\$505,534	\$206,025	\$1,654,621

TABLE 6b—Continued

DISABILITY YEARS	DEATHS					RECOVERIES				
	Period 1	Period 2	Period 3	Period 4	Total	Period 1	Period 2	Period 3	Period 4	Total
BENEFIT 4—Amount of Insurance in \$100 Units										
1 and 2...	\$ 15,124	\$ 21,976	\$ 44,433	\$ 25,278	\$106,811	\$ 93,962	\$ 85,588	\$104,174	\$ 55,180	\$ 338,904
3-10.....	3,137	13,141	39,744	23,523	79,545	8,126	32,777	54,978	19,642	115,523
11-15.....			7,470	8,677	16,147			6,255	3,665	9,920
16 and over			100	3,572	3,672				1,654	1,654
Total..	\$ 18,261	\$ 35,117	\$ 91,747	\$ 61,050	\$206,175	\$102,088	\$118,365	\$165,407	\$ 80,141	\$ 466,001
BENEFIT 5—Amount of Annual Premiums Waived, in Dollars										
1 and 2...	\$ 3,615	\$ 31,257	\$182,919	\$212,988	\$430,779	\$ 16,055	\$137,998	\$545,100	\$570,692	\$1,269,845
3-10.....	120	11,463	109,619	151,784	272,986	280	25,546	216,767	237,147	479,740
11-15.....			1,920	9,554	11,474			775	2,334	3,109
16 and over				377	377				306	306
Total..	\$ 3,735	\$ 42,720	\$294,458	\$374,703	\$715,616	\$ 16,335	\$163,544	\$762,642	\$810,479	\$1,753,000

TABLE 7a
 1930-1950 GRADUATED TERMINATION RATES—BENEFIT 1
 SELECT ANNUAL RATES FOR DISABILITY YEARS 1 TO 15
 Based on Amount of Insurance

DISABILITY YEAR	AGE AT POLICY ANNIVERSARY PRECEDING DISABLEMENT								
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59
	TERMINATION RATE PER THOUSAND								
1.....	126.9	113.8	121.4	139.1	159.5	176.1	183.7	177.4	150.6
2.....	210.5	200.6	189.8	178.5	167.7	156.9	146.9	137.6	128.7
3.....	205.2	181.4	161.8	146.6	134.6	125.2	118.4	112.8	107.5
4.....	191.1	161.2	138.3	122.0	110.1	102.6	98.5	96.4	95.3
5.....	171.8	141.3	118.9	103.2	92.4	86.9	85.2	86.3	89.5
6.....	150.3	122.8	102.9	88.8	79.9	76.5	76.9	80.7	87.8
7.....	129.5	106.3	89.9	77.8	70.9	69.4	71.6	77.5	88.0
8.....	111.1	92.4	79.2	69.0	64.4	64.5	68.0	75.7	88.3
9.....	95.8	81.1	70.6	62.0	59.4	60.4	65.0	73.8	87.7
10.....	83.7	72.4	63.8	56.6	55.4	56.8	62.3	71.8	86.0
11.....	73.7	65.4	57.9	51.8	51.7	53.0	59.5	69.4	83.3
12.....	67.7	61.0	54.4	49.2	49.5	50.2	57.1	67.2	81.7
13.....	62.9	57.2	51.2	47.0	47.1	47.7	55.5	66.0	81.3
14.....	59.3	53.8	48.7	45.2	45.1	46.2	54.9	66.1	82.8
15.....	56.9	51.4	46.6	44.0	43.7	45.9	55.6	67.7	86.1
	PROBABILITY OF RECOVERY (MULTIPLIED BY 1,000)								
1.....	1.6	26.7	42.6	47.9	44.5	36.4	26.2	17.3	12.5
2.....	130.1	142.1	139.5	126.3	106.6	83.8	61.3	42.5	30.4
3.....	125.7	124.6	115.8	102.3	85.3	66.9	49.2	33.8	22.5
4.....	116.6	107.9	96.3	83.1	68.4	53.4	39.2	26.7	16.7
5.....	104.8	92.6	80.4	67.9	55.1	42.6	31.1	20.9	12.5
6.....	92.0	79.0	67.5	55.9	44.7	34.3	24.9	16.4	9.6
7.....	79.8	67.5	57.2	46.4	36.6	27.9	20.1	13.0	7.6
8.....	69.2	58.1	48.9	38.8	30.4	23.2	16.6	10.6	6.0
9.....	60.7	50.9	42.4	32.9	25.7	19.7	14.1	8.8	4.6
10.....	54.5	45.8	37.4	28.6	22.3	17.3	12.4	7.6	3.2
11.....	49.6	42.0	33.2	25.0	19.6	15.4	11.1	6.4	1.4
12.....	48.0	40.5	31.3	23.7	18.7	14.6	10.2	5.3	.6
13.....	46.5	38.9	29.5	22.6	17.8	13.8	9.4	4.3	0
14.....	45.0	37.0	27.9	21.5	17.0	12.9	8.4	3.3	0
15.....	43.5	35.1	26.3	20.6	16.2	12.0	7.4	2.3	0
	PROBABILITY OF DEATH (MULTIPLIED BY 1,000)								
1.....	125.3	87.1	78.8	91.2	115.0	139.7	157.5	160.1	138.1
2.....	80.4	58.5	50.3	52.2	61.1	73.1	85.6	95.1	98.3
3.....	79.5	56.8	46.0	44.3	49.3	58.3	69.2	79.0	85.0
4.....	74.5	53.3	42.0	38.9	41.7	49.2	59.3	69.7	78.6
5.....	67.0	48.7	38.5	35.3	37.3	44.3	54.1	65.4	77.0
6.....	58.3	43.8	35.4	32.9	35.2	42.2	52.0	64.3	78.2
7.....	49.7	38.8	32.7	31.4	34.3	41.5	51.5	64.5	80.4
8.....	41.9	34.3	30.3	30.2	34.0	41.3	51.4	65.1	82.3
9.....	35.1	30.2	28.2	29.1	33.7	40.7	50.9	65.0	83.1
10.....	29.2	26.6	26.4	28.0	33.1	39.5	49.9	64.2	82.8
11.....	24.1	23.4	24.7	26.8	32.1	37.6	48.4	63.0	81.9
12.....	19.7	20.5	23.1	25.5	30.8	35.6	46.9	61.9	81.1
13.....	16.4	18.3	21.7	24.4	29.3	33.9	46.1	61.7	81.3
14.....	14.3	16.8	20.8	23.7	28.1	33.3	46.5	62.8	82.8
15.....	13.4	16.3	20.3	23.4	27.5	33.9	48.2	65.4	86.1

TABLE 7b

1930-1950 GRADUATED TERMINATION RATES—BENEFITS 2 AND 3 COMBINED
 SELECT ANNUAL RATES FOR DISABILITY YEARS 1 TO 15
 Based on Amount of Insurance

DISABILITY YEAR	AGE AT POLICY ANNIVERSARY PRECEDING DISABLEMENT								
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59
	TERMINATION RATE PER THOUSAND								
1 (Benefit 2).....	489.7	492.2	492.1	487.2	475.3	454.0	419.9	368.5	292.8
1 (Benefit 3).....	556.6	571.2	566.0	551.4	528.8	498.7	458.3	405.5	335.2
2.....	341.9	321.6	303.8	286.7	269.1	248.7	224.7	195.5	159.6
3.....	259.8	241.4	223.8	206.8	190.2	174.0	158.4	143.0	127.8
4.....	201.2	183.8	166.8	150.9	136.3	124.1	114.6	108.5	105.9
5.....	161.1	144.1	128.1	113.9	101.8	93.3	88.2	87.7	92.0
6.....	134.2	117.9	103.1	90.9	81.4	76.1	73.9	76.5	84.1
7.....	116.3	101.0	87.8	77.6	70.6	67.5	69.6	74.1	80.5
8.....	104.0	90.1	78.8	70.4	65.3	64.7	67.3	72.3	79.8
9.....	94.8	82.8	73.4	66.4	62.7	62.4	65.2	70.9	80.1
10.....	87.3	77.6	69.8	63.9	61.2	59.9	63.2	69.6	80.5
11.....	80.8	73.2	67.1	62.0	59.6	57.4	61.4	68.5	80.6
12.....	75.6	69.7	64.9	60.4	58.0	55.3	60.1	67.8	80.6
13.....	71.5	66.8	62.9	58.8	56.4	53.7	59.3	67.6	80.7
14.....	68.5	64.4	61.2	57.5	54.9	52.9	59.3	68.2	81.2
15.....	66.5	62.8	59.9	56.4	53.6	52.9	60.1	69.5	82.6
	PROBABILITY OF RECOVERY (MULTIPLIED BY 1,000)								
1 (Benefit 2).....	445.1	455.8	451.6	434.3	404.6	363.5	310.7	245.6	166.1
1 (Benefit 3).....	524.0	543.3	534.8	511.2	475.1	427.4	366.7	292.1	200.8
2.....	296.6	285.9	269.5	247.7	220.8	189.2	153.3	113.7	70.9
3.....	213.0	206.4	192.7	173.5	150.3	124.7	98.3	72.6	49.5
4.....	154.2	149.7	138.1	121.6	102.0	81.4	61.9	45.5	34.2
5.....	115.1	111.2	101.3	87.2	71.0	54.6	40.0	29.1	23.8
6.....	90.5	86.4	77.6	65.9	52.7	39.7	28.3	20.3	17.1
7.....	76.0	71.3	63.4	53.6	42.9	32.5	25.5	18.9	13.1
8.....	68.0	62.5	55.3	47.0	38.1	30.7	24.2	17.6	11.1
9.....	63.7	57.6	50.8	43.4	35.9	29.4	22.9	16.3	9.8
10.....	61.2	54.8	48.1	41.3	34.6	28.1	21.5	15.0	8.5
11.....	59.4	52.8	46.3	39.8	33.3	26.8	20.2	13.7	7.2
12.....	58.1	51.5	45.0	38.5	32.0	25.5	18.9	12.4	5.9
13.....	56.8	50.2	43.7	37.2	30.7	24.2	17.6	11.1	4.6
14.....	55.5	48.9	42.4	35.9	29.4	22.9	16.3	9.8	3.3
15.....	54.1	47.6	41.1	34.6	28.1	21.5	15.0	8.5	2.0
	PROBABILITY OF DEATH (MULTIPLIED BY 1,000)								
1 (Benefit 2).....	44.6	36.4	40.5	52.9	70.7	90.5	109.2	122.9	126.7
1 (Benefit 3).....	32.6	27.9	31.2	40.2	53.7	71.3	91.6	113.4	134.4
2.....	45.3	35.7	34.3	39.0	48.3	59.5	71.4	81.8	88.7
3.....	46.8	35.0	31.1	33.3	39.9	49.3	60.1	70.4	78.3
4.....	47.0	34.1	28.7	29.3	34.3	42.7	52.7	63.0	71.7
5.....	46.0	32.9	26.8	26.7	30.8	38.7	48.2	58.6	68.2
6.....	43.7	31.5	25.5	25.0	28.7	36.4	45.6	56.2	67.0
7.....	40.3	29.7	24.4	24.0	27.7	35.0	44.1	55.2	67.4
8.....	36.0	27.6	23.5	23.4	27.2	34.0	43.1	54.7	68.7
9.....	31.1	25.2	22.6	23.0	26.8	33.0	42.3	54.6	70.3
10.....	26.1	22.8	21.7	22.6	26.6	31.8	41.7	54.6	72.0
11.....	21.4	20.4	20.8	22.2	26.3	30.6	41.2	54.8	73.4
12.....	17.5	18.2	19.9	21.9	26.0	29.8	41.2	55.4	74.7
13.....	14.7	16.6	19.2	21.6	25.7	29.5	41.7	56.5	76.1
14.....	13.0	15.5	18.8	21.6	25.5	30.0	43.0	58.4	77.9
15.....	12.4	15.2	18.8	21.8	25.5	31.4	45.1	61.0	80.6

TABLE 7c
 1930-1950* GRADUATED TERMINATION RATES—BENEFIT 5
 SELECT ANNUAL RATES FOR DISABILITY YEARS 1 TO 15
 Based on Amount of Premium Waived

DISABILITY YEAR	AGE AT POLICY ANNIVERSARY PRECEDING DISABLEMENT								
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59
	TERMINATION RATE PER THOUSAND								
1	176.7	208.6	236.4	257.1	268.4	268.1	253.7	221.0	166.1
2	382.5	410.2	430.6	428.9	407.3	368.3	315.5	250.8	177.0
3	336.4	345.1	342.6	324.9	295.8	259.2	219.5	179.9	144.4
4	285.1	283.6	269.8	246.0	216.4	185.4	156.9	134.7	122.7
5	232.3	226.6	209.8	186.9	161.4	137.8	118.5	107.7	107.0
6	183.2	176.7	162.1	143.9	125.0	109.0	97.0	92.9	95.8
7	142.8	136.3	125.7	113.7	101.7	92.3	85.8	85.2	88.1
8	111.3	106.4	99.8	93.0	86.9	82.4	79.7	80.6	82.9
9	91.2	86.7	82.7	79.3	77.2	75.6	75.4	76.7	79.4
10	80.7	75.5	72.2	70.4	70.4	69.9	71.4	72.8	77.5
11	76.7	69.4	65.5	63.7	64.3	63.8	66.7	69.0	76.7
12	73.8	66.9	63.3	61.4	61.6	60.5	64.3	67.4	76.9
13	71.2	65.0	61.7	59.3	58.7	57.2	62.1	66.8	78.1
14	68.8	63.6	60.5	57.6	56.0	54.6	60.6	67.6	79.8
15	66.7	62.6	59.7	56.4	53.9	53.3	60.4	69.3	82.0
	PROBABILITY OF RECOVERY (MULTIPLIED BY 1,000)								
1	155.8	184.0	205.4	217.8	219.3	208.5	183.0	138.9	72.3
2	360.5	384.4	389.2	376.2	346.2	300.6	240.9	168.2	83.7
3	308.4	313.5	302.9	279.4	245.6	204.0	157.5	108.4	59.5
4	254.1	249.7	232.8	206.5	174.1	138.5	102.8	70.0	42.9
5	200.3	193.1	176.0	152.1	124.3	95.7	68.8	46.6	31.5
6	151.7	145.5	131.7	112.7	91.1	69.2	49.2	33.4	23.8
7	112.4	108.3	98.5	85.0	69.3	53.3	38.4	26.4	18.6
8	84.7	81.9	75.3	66.0	55.0	43.5	32.1	22.4	14.9
9	68.4	65.5	60.3	53.4	45.3	36.7	27.7	19.4	11.9
10	61.1	56.9	51.6	45.5	38.7	31.6	24.0	16.6	9.5
11	59.4	52.8	46.3	39.8	33.3	26.8	20.2	13.7	7.2
12	58.1	51.5	45.0	38.5	32.0	25.5	18.9	12.4	5.9
13	56.8	50.2	43.7	37.2	30.7	24.2	17.6	11.1	4.6
14	55.5	48.9	42.4	35.9	29.4	22.9	16.3	9.8	3.3
15	54.1	47.6	41.1	34.6	28.1	21.5	15.0	8.5	2.0
	PROBABILITY OF DEATH (MULTIPLIED BY 1,000)								
1	20.9	24.6	31.0	39.3	49.1	59.6	70.7	82.1	93.8
2	22.0	25.8	41.4	52.7	61.1	67.7	74.6	82.6	93.3
3	28.0	31.6	39.7	45.5	50.2	55.2	62.0	71.5	84.9
4	31.0	33.9	37.0	39.5	42.3	46.9	54.1	64.7	79.8
5	32.0	33.5	33.8	34.8	37.1	42.1	49.7	61.1	75.5
6	31.5	31.2	30.4	31.2	33.9	39.8	47.8	59.5	72.0
7	30.4	28.0	27.2	28.7	32.4	39.0	47.4	58.8	69.5
8	26.6	24.5	24.5	27.0	31.9	38.9	47.6	58.2	68.0
9	22.8	21.2	22.4	25.9	31.9	38.9	47.7	57.3	67.5
10	19.6	18.6	20.6	24.9	31.7	38.3	47.4	56.2	68.0
11	17.3	16.6	19.2	23.9	31.0	37.0	46.5	55.3	69.5
12	15.7	15.4	18.3	22.9	29.6	35.0	45.4	55.0	71.0
13	14.4	14.8	18.0	22.1	28.0	33.0	44.5	55.7	73.5
14	13.3	14.7	18.1	21.7	26.6	31.7	44.3	57.8	76.5
15	12.6	15.0	18.6	21.8	25.8	31.8	45.4	60.8	80.0

* In this benefit, 89% of the terminations occurred during 1940-50.

TABLE 7d
 1930-1950 GRADUATED TERMINATION RATES—BENEFIT 1
 ULTIMATE RATES PER 1,000 FOR DISABILITY YEARS 16 AND OVER*
 Based on Amount of Insurance

Attained Age	Termination Rate	Recovery Probability*	Death Probability	Attained Age	Termination Rate	Recovery Probability*	Death Probability
32½	55.5	42.0	13.5	65½	64.8	3.3	61.5
33½	54.6	40.5	14.1	66½	67.4	2.3	65.1
34½	53.6	38.9	14.7	67½	70.3	1.4	68.9
				68½	73.5	.6	72.9
35½	52.3	37.0	15.3	69½	76.9	.0	76.9
36½	51.0	35.1	15.9				
37½	49.8	33.2	16.6	70½	81.1		81.1
38½	48.7	31.3	17.4	71½	85.6		85.6
39½	47.7	29.5	18.2	72½	90.6		90.6
				73½	96.1		96.1
40½	46.9	27.9	19.0	74½	102.4		102.4
41½	46.1	26.3	19.8				
42½	45.5	25.0	20.5	75½	109.0		109.0
43½	44.8	23.7	21.1	76½	116.0		116.0
44½	44.4	22.6	21.8	77½	123.4		123.4
				78½	131.5		131.5
45½	44.0	21.5	22.5	79½	140.1		140.1
46½	43.7	20.6	23.1				
47½	43.4	19.6	23.8	80½	149.3		149.3
48½	43.2	18.7	24.5	81½	159.1		159.1
49½	43.0	17.8	25.2	82½	169.7		169.7
				83½	181.0		181.0
50½	42.9	17.0	25.9	84½	192.9		192.9
51½	42.9	16.2	26.7				
52½	43.0	15.4	27.6	85½	206.6		206.6
53½	43.1	14.6	28.5	86½	221.1		221.1
54½	43.7	13.8	29.9	87½	236.6		236.6
				88½	253.0		253.0
55½	44.4	12.9	31.5	89½	270.4		270.4
56½	45.3	12.0	33.3				
57½	46.9	11.1	35.8	90½	288.6		288.6
58½	48.7	10.2	38.5	91½	307.8		307.8
59½	50.8	9.4	41.4	92½	327.7		327.7
				93½	348.1		348.1
60½	52.9	8.4	44.5	94½	368.4		368.4
61½	55.2	7.4	47.8				
62½	57.5	6.4	51.1	95½	399.1		399.1
63½	59.8	5.3	54.5	96½	461.2		461.2
64½	62.2	4.3	57.9	97½	570.1		570.1
				98½	785.7		785.7
				99½	1,000.0		1,000.0

* Ultimate Recovery Probabilities apply after 10th disability year.

TABLE 7e

1930-1950 GRADUATED TERMINATION RATES—BENEFITS 2 AND 3 COMBINED
 ULTIMATE RATES PER 1,000 FOR DISABILITY YEARS 16 AND OVER*
 Based on Amount of Insurance

Attained Age	Termination Rate	Recovery Probability*	Death Probability	Attained Age	Termination Rate	Recovery Probability*	Death Probability
32½	65.4	52.8	12.6	65½	67.2	9.8	57.4
33½	64.7	51.5	13.2	66½	69.3	8.5	60.8
34½	64.0	50.2	13.8	67½	71.5	7.2	64.3
				68½	73.9	5.9	68.0
35½	63.1	48.9	14.2	69½	76.4	4.6	71.8
36½	62.4	47.6	14.8				
37½	61.8	46.3	15.5	70½	79.0	3.3	75.7
38½	61.2	45.0	16.2	71½	81.9	2.0	79.9
39½	60.7	43.7	17.0	72½	85.3	.7	84.6
				73½	89.7	0	89.7
40½	60.2	42.4	17.8	74½	95.6		95.6
41½	59.5	41.1	18.4				
42½	58.9	39.8	19.1	75½	102.4		102.4
43½	58.2	38.5	19.7	76½	109.7		109.7
44½	57.6	37.2	20.4	77½	117.6		117.6
				78½	126.1		126.1
45½	56.9	35.9	21.0	79½	135.3		135.3
46½	56.2	34.6	21.6				
47½	55.5	33.3	22.2	80½	145.2		145.2
48½	54.8	32.0	22.8	81½	155.9		155.9
49½	54.2	30.7	23.5	82½	167.4		167.4
				83½	179.8		179.8
50½	53.6	29.4	24.2	84½	192.9		192.9
51½	53.0	28.1	24.9				
52½	52.6	26.8	25.8	85½	206.6		206.6
53½	52.1	25.5	26.6	86½	221.1		221.1
54½	52.1	24.2	27.9	87½	236.6		236.6
				88½	253.0		253.0
55½	52.3	22.9	29.4	89½	270.4		270.4
56½	52.6	21.5	31.1				
57½	53.6	20.2	33.4	90½	288.6		288.6
58½	54.8	18.9	35.9	91½	307.8		307.8
59½	56.2	17.6	38.6	92½	327.7		327.7
				93½	348.1		348.1
60½	57.9	16.3	41.6	94½	368.4		368.4
61½	59.6	15.0	44.6				
62½	61.4	13.7	47.7	95½	399.1		399.1
63½	63.2	12.4	50.8	96½	461.2		461.2
64½	65.2	11.1	54.1	97½	570.1		570.1
				98½	785.7		785.7
				99½	1,000.0		1,000.0

* Ultimate Recovery Probabilities apply after 10th disability year.

TABLE 8a
 1930-1950 GRADUATED TERMINATION RATES—BENEFIT 1
 MONTHLY RATES FOR DISABILITY YEAR 1
 Based on Amount of Insurance

DIS- ABILITY MONTH	AGE AT POLICY ANNIVERSARY PRECEDING DISABLEMENT								
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59
MONTHLY TERMINATION RATE PER 1,000									
4.....	8.3	8.0	10.5	14.7	19.2	23.1	25.8	26.7	25.3
5.....	11.0	9.3	11.7	15.4	19.5	23.1	25.3	25.4	22.5
6.....	13.3	11.1	12.7	15.9	19.6	22.8	24.6	24.1	20.2
7.....	15.1	12.7	13.7	16.3	19.6	22.4	23.7	22.7	18.4
8.....	16.5	14.0	14.5	16.6	19.4	21.7	22.7	21.4	16.9
9.....	17.3	15.1	15.3	16.9	19.1	20.9	21.5	20.1	15.7
10.....	17.7	16.0	16.1	17.2	18.8	20.1	20.3	18.8	14.9
11.....	17.8	16.7	16.8	17.5	18.6	19.2	19.0	17.6	14.2
12.....	17.6	17.2	17.4	17.8	18.3	18.4	17.8	16.4	13.7
MONTHLY PROBABILITY OF RECOVERY (MULTIPLIED BY 1,000)									
4.....	0	0	.8	2.1	2.8	3.1	2.8	1.8	.3
5.....	0	.1	1.6	2.7	3.2	3.2	2.7	1.7	.5
6.....	0	1.0	2.6	3.5	3.6	3.4	2.7	1.7	.8
7.....	0	2.0	3.7	4.4	4.3	3.7	2.8	1.8	1.1
8.....	0	3.0	4.9	5.5	5.1	4.2	3.0	2.0	1.5
9.....	0	4.1	6.2	6.7	6.0	4.8	3.3	2.2	1.9
10.....	.1	5.1	7.5	7.9	7.0	5.4	3.6	2.4	2.3
11.....	.5	6.1	8.8	9.1	8.0	6.1	4.0	2.7	2.6
12.....	1.1	7.2	10.0	10.2	8.9	6.7	4.3	2.9	2.9
MONTHLY PROBABILITY OF DEATH (MULTIPLIED BY 1,000)									
4.....	8.3	8.0	9.7	12.6	16.4	20.0	23.0	24.9	25.0
5.....	11.0	9.2	10.1	12.7	16.3	19.9	22.6	23.7	22.0
6.....	13.3	10.1	10.1	12.4	16.0	19.4	21.9	22.4	19.4
7.....	15.1	10.7	10.0	11.9	15.3	18.7	20.9	20.9	17.3
8.....	16.5	11.0	9.6	11.1	14.3	17.5	19.7	19.4	15.4
9.....	17.3	11.0	9.1	10.2	13.1	16.1	18.2	17.9	13.8
10.....	17.6	10.9	8.6	9.3	11.8	14.7	16.7	16.4	12.6
11.....	17.3	10.6	8.0	8.4	10.6	13.1	15.0	14.9	11.6
12.....	16.5	10.0	7.4	7.6	9.4	11.7	13.5	13.5	10.8

TABLE 85
 1930-1950 GRADUATED TERMINATION RATES—BENEFIT 1
 MONTHLY RATES FOR DISABILITY YEAR 2
 Based on Amount of Insurance

DIS- ABILITY MONTH	AGE AT POLICY ANNIVERSARY PRECEDING DISABLEMENT								
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59
MONTHLY TERMINATION RATE PER 1,000									
13.....	15.1	17.6	18.3	18.2	17.7	16.9	15.7	14.4	13.0
14.....	15.7	18.1	18.6	18.2	17.4	16.3	14.9	13.7	12.7
15.....	17.0	18.6	18.6	18.0	16.9	15.7	14.3	13.2	12.5
16.....	18.7	19.0	18.5	17.5	16.4	15.1	13.9	12.9	12.2
17.....	20.4	19.3	18.1	16.9	15.7	14.6	13.6	12.7	12.0
18.....	21.7	19.4	17.7	16.3	15.2	14.2	13.3	12.5	11.7
19.....	22.3	19.3	17.3	15.8	14.7	13.8	13.1	12.3	11.3
20.....	22.1	18.9	16.9	15.3	14.3	13.4	12.7	12.0	11.0
21.....	21.3	18.5	16.6	15.0	13.9	13.0	12.3	11.5	10.6
22.....	20.5	18.1	16.3	14.8	13.6	12.6	11.8	11.0	10.3
23.....	19.8	17.8	16.1	14.6	13.3	12.2	11.4	10.6	9.9
24.....	19.5	17.5	15.9	14.4	13.0	11.9	11.0	10.2	9.7
MONTHLY PROBABILITY OF RECOVERY (MULTIPLIED BY 1,000)									
13.....	2.6	9.1	11.6	11.4	9.8	7.4	4.9	3.3	3.1
14.....	4.5	10.3	12.4	12.0	10.3	7.8	5.2	3.4	3.1
15.....	7.0	11.6	13.0	12.4	10.5	8.0	5.5	3.6	3.0
16.....	10.0	12.8	13.5	12.4	10.5	8.1	5.7	3.7	2.9
17.....	13.0	14.0	13.6	12.3	10.3	8.0	5.8	3.9	2.8
18.....	15.4	14.8	13.7	12.0	10.1	7.9	5.9	4.1	2.7
19.....	16.9	15.3	13.6	11.8	9.8	7.8	5.9	4.2	2.6
20.....	17.3	15.2	13.3	11.4	9.5	7.6	5.8	4.2	2.6
21.....	16.6	14.8	13.0	11.0	9.2	7.4	5.7	4.1	2.6
22.....	15.6	14.1	12.5	10.8	8.9	7.2	5.5	4.0	2.5
23.....	14.5	13.5	12.1	10.5	8.7	7.0	5.3	3.8	2.5
24.....	13.8	12.9	11.7	10.2	8.5	6.8	5.1	3.6	2.4
MONTHLY PROBABILITY OF DEATH (MULTIPLIED BY 1,000)									
13.....	12.5	8.5	6.7	6.8	7.9	9.5	10.8	11.1	9.9
14.....	11.2	7.8	6.2	6.2	7.1	8.5	9.7	10.3	9.6
15.....	10.0	7.0	5.6	5.6	6.4	7.7	8.8	9.6	9.5
16.....	8.7	6.2	5.0	5.1	5.9	7.0	8.2	9.2	9.3
17.....	7.4	5.3	4.5	4.6	5.4	6.6	7.8	8.8	9.2
18.....	6.3	4.6	4.0	4.3	5.1	6.3	7.4	8.4	9.0
19.....	5.4	4.0	3.7	4.0	4.9	6.0	7.2	8.1	8.7
20.....	4.8	3.7	3.6	3.9	4.8	5.8	6.9	7.8	8.4
21.....	4.7	3.7	3.6	4.0	4.7	5.6	6.6	7.4	8.0
22.....	4.9	4.0	3.8	4.0	4.7	5.4	6.3	7.0	7.8
23.....	5.3	4.3	4.0	4.1	4.6	5.2	6.1	6.8	7.4
24.....	5.7	4.6	4.2	4.2	4.5	5.1	5.9	6.6	7.3

TABLE 8c
 1930-1950 GRADUATED TERMINATION RATES—BENEFIT 2
 MONTHLY RATES FOR DISABILITY YEAR 1
 Based on Amount of Insurance

DIS- ABILITY MONTH	AGE AT POLICY ANNIVERSARY PRECEDING DISABLEMENT								
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59
MONTHLY TERMINATION RATE PER 1,000									
4.....	106.4	104.5	102.5	99.8	95.7	89.9	81.7	70.7	56.2
5.....	91.2	93.2	93.6	92.2	88.6	82.8	74.7	63.9	50.2
6.....	83.2	85.2	85.9	85.1	82.3	77.4	69.9	59.5	45.7
7.....	75.6	77.3	78.2	77.8	75.6	71.3	64.5	54.6	41.1
8.....	68.6	70.0	70.7	70.4	68.6	64.8	58.6	49.5	36.7
9.....	62.5	63.3	63.7	63.3	61.7	58.3	52.6	44.3	32.5
10.....	57.3	57.4	57.4	56.8	55.2	52.1	46.9	39.3	28.8
11.....	53.1	52.4	51.9	50.9	49.3	46.4	41.6	34.9	25.5
12.....	49.4	48.1	47.1	45.9	44.1	41.4	37.1	31.0	22.7
MONTHLY PROBABILITY OF RECOVERY (MULTIPLIED BY 1,000)									
4.....	95.0	96.1	94.0	89.1	81.4	71.5	59.4	45.7	30.6
5.....	85.9	87.8	86.7	82.7	75.9	66.9	55.8	43.0	28.8
6.....	77.0	79.6	79.2	76.0	70.2	62.2	52.1	40.2	26.7
7.....	68.9	71.7	71.8	69.3	64.3	57.1	48.0	36.9	24.1
8.....	61.9	64.6	64.7	62.6	58.2	51.8	43.5	33.4	21.5
9.....	56.0	58.1	58.1	56.2	52.3	46.6	39.0	29.8	18.7
10.....	51.2	52.6	52.3	50.4	46.9	41.7	34.7	26.2	16.2
11.....	47.5	48.0	47.3	45.2	41.9	37.1	30.7	23.1	13.9
12.....	44.2	44.0	42.9	40.7	37.4	33.0	27.3	20.2	11.9
MONTHLY PROBABILITY OF DEATH (MULTIPLIED BY 1,000)									
4.....	11.4	8.4	8.5	10.7	14.3	18.4	22.3	25.0	25.6
5.....	5.3	5.4	6.9	9.5	12.7	15.9	18.9	20.9	21.4
6.....	6.2	5.6	6.7	9.1	12.1	15.2	17.8	19.3	19.0
7.....	6.7	5.6	6.4	8.5	11.3	14.2	16.5	17.7	17.0
8.....	6.7	5.4	6.0	7.8	10.4	13.0	15.1	16.1	15.2
9.....	6.5	5.2	5.6	7.1	9.4	11.7	13.6	14.5	13.8
10.....	6.1	4.8	5.1	6.4	8.3	10.4	12.2	13.1	12.6
11.....	5.6	4.4	4.6	5.7	7.4	9.3	10.9	11.8	11.6
12.....	5.2	4.1	4.2	5.2	6.7	8.4	9.8	10.8	10.8

TABLE 8d
 1930-1950 GRADUATED TERMINATION RATES—BENEFIT 3
 MONTHLY RATES FOR DISABILITY YEAR 1
 Based on Amount of Insurance

DIS- ABILITY MONTH	AGE AT POLICY ANNIVERSARY PRECEDING DISABLEMENT								
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59
MONTHLY TERMINATION RATE PER 1,000									
4.....	175.4	165.0	156.2	146.8	135.8	123.1	109.8	96.4	83.5
5.....	135.8	134.9	129.8	123.0	114.1	103.4	91.3	78.1	63.6
6.....	106.3	111.3	109.4	105.0	98.4	90.1	80.1	68.3	54.4
7.....	83.1	91.9	92.2	89.5	84.7	78.3	70.0	59.5	46.3
8.....	66.4	76.6	78.3	76.7	73.0	68.1	61.0	51.7	39.4
9.....	55.7	65.2	67.2	66.2	63.4	59.4	53.3	45.0	33.7
10.....	50.2	57.1	58.7	57.8	55.6	52.2	46.8	39.4	29.2
11.....	48.4	51.7	52.2	51.2	49.2	46.2	41.4	34.7	25.5
12.....	47.7	47.8	47.2	45.9	44.1	41.3	37.0	30.9	22.7
MONTHLY PROBABILITY OF RECOVERY (MULTIPLIED BY 1,000)									
4.....	168.1	158.8	148.7	136.9	122.3	105.1	86.2	66.5	46.6
5.....	130.4	129.9	124.2	115.7	104.5	90.8	75.3	58.4	40.1
6.....	100.9	106.4	104.1	98.2	89.6	78.7	65.9	51.2	34.5
7.....	77.7	87.2	87.1	83.2	76.6	67.9	57.2	44.4	29.3
8.....	61.0	72.0	73.4	70.7	65.4	58.4	49.3	38.1	24.5
9.....	50.4	60.7	62.5	60.4	56.1	50.2	42.4	32.5	20.4
10.....	45.0	52.8	54.2	52.3	48.6	43.4	36.4	27.7	17.1
11.....	43.3	47.5	47.9	45.9	42.4	37.7	31.4	23.6	14.2
12.....	42.7	43.8	43.1	40.8	37.6	33.2	27.5	20.3	12.0
MONTHLY PROBABILITY OF DEATH (MULTIPLIED BY 1,000)									
4.....	7.3	6.2	7.5	9.9	13.5	18.0	23.6	29.9	36.9
5.....	5.4	5.0	5.6	7.3	9.6	12.6	16.0	19.7	23.5
6.....	5.4	4.9	5.3	6.8	8.8	11.4	14.2	17.1	19.9
7.....	5.4	4.7	5.1	6.3	8.1	10.4	12.8	15.1	17.0
8.....	5.4	4.6	4.9	6.0	7.6	9.7	11.7	13.6	14.9
9.....	5.3	4.5	4.7	5.8	7.3	9.2	10.9	12.5	13.3
10.....	5.2	4.3	4.5	5.5	7.0	8.8	10.4	11.7	12.1
11.....	5.1	4.2	4.3	5.3	6.8	8.5	10.0	11.1	11.3
12.....	5.0	4.0	4.1	5.1	6.5	8.1	9.5	10.6	10.7

TABLE 8c

1930-1950 GRADUATED TERMINATION RATES—BENEFITS 2 AND 3 COMBINED
MONTHLY RATES FOR DISABILITY YEAR 2
Based on Amount of Insurance

DIS- ABILITY MONTH	AGE AT POLICY ANNIVERSARY PRECEDING DISABLEMENT								
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59
MONTHLY TERMINATION RATE PER 1,000									
13.....	45.0	43.1	41.5	39.7	37.5	34.6	30.8	25.9	19.7
14.....	42.2	40.1	38.3	36.3	34.2	31.4	27.9	23.5	18.0
15.....	39.9	37.6	35.6	33.5	31.3	28.7	25.5	21.5	16.6
16.....	37.9	35.4	33.3	31.2	29.0	26.5	23.5	19.8	15.5
17.....	36.2	33.5	31.3	29.1	27.0	24.6	21.8	18.5	14.6
18.....	34.6	31.9	29.5	27.4	25.3	23.0	20.4	17.4	13.8
19.....	33.1	30.3	27.9	25.8	23.8	21.6	19.2	16.4	13.3
20.....	31.5	28.7	26.4	24.4	22.4	20.3	18.2	15.7	12.8
21.....	29.9	27.2	25.0	23.0	21.2	19.3	17.3	15.0	12.5
22.....	28.3	25.8	23.7	21.9	20.1	18.3	16.4	14.4	12.2
23.....	26.8	24.5	22.5	20.8	19.1	17.4	15.7	13.9	12.0
24.....	25.6	23.4	21.6	20.0	18.3	16.7	15.1	13.5	11.8
MONTHLY PROBABILITY OF RECOVERY (MULTIPLIED BY 1,000)									
13.....	40.3	39.2	37.5	35.0	31.6	27.3	22.2	16.3	9.6
14.....	37.6	36.3	34.5	31.8	28.6	24.6	19.8	14.4	8.4
15.....	35.3	33.9	31.9	29.3	26.0	22.2	17.9	12.9	7.5
16.....	33.3	31.8	29.8	27.2	24.0	20.4	16.3	11.7	6.9
17.....	31.5	29.9	27.9	25.2	22.2	18.7	14.9	10.8	6.4
18.....	29.9	28.3	26.2	23.6	20.7	17.4	13.7	10.0	6.0
19.....	28.3	26.7	24.6	22.1	19.3	16.2	12.8	9.3	5.7
20.....	26.7	25.1	23.2	20.8	18.1	15.0	12.0	8.8	5.5
21.....	25.2	23.7	21.8	19.5	17.0	14.2	11.3	8.3	5.3
22.....	23.7	22.3	20.5	18.5	16.0	13.4	10.6	7.9	5.2
23.....	22.4	21.1	19.4	17.5	15.2	12.7	10.1	7.5	5.0
24.....	21.3	20.0	18.5	16.8	14.5	12.2	9.7	7.2	4.9
MONTHLY PROBABILITY OF DEATH (MULTIPLIED BY 1,000)									
13.....	4.7	3.9	4.0	4.7	5.9	7.3	8.6	9.6	10.1
14.....	4.6	3.8	3.8	4.5	5.6	6.8	8.1	9.1	9.6
15.....	4.6	3.7	3.7	4.2	5.3	6.5	7.6	8.6	9.1
16.....	4.6	3.6	3.5	4.0	5.0	6.1	7.2	8.1	8.6
17.....	4.7	3.6	3.4	3.9	4.8	5.9	6.9	7.7	8.2
18.....	4.7	3.6	3.3	3.8	4.6	5.6	6.7	7.4	7.8
19.....	4.8	3.6	3.3	3.7	4.5	5.4	6.4	7.1	7.6
20.....	4.8	3.6	3.2	3.6	4.3	5.3	6.2	6.9	7.3
21.....	4.7	3.5	3.2	3.5	4.2	5.1	6.0	6.7	7.2
22.....	4.6	3.5	3.2	3.4	4.1	4.9	5.8	6.5	7.0
23.....	4.4	3.4	3.1	3.3	3.9	4.7	5.6	6.4	7.0
24.....	4.3	3.4	3.1	3.2	3.8	4.5	5.4	6.3	6.9

TABLE 8f
 1930-1950 GRADUATED TERMINATION RATES—BENEFIT 4
 MONTHLY RATES FOR DISABILITY YEAR 1
 Based on Amount of Insurance

DIS- ABILITY MONTH	AGE AT POLICY ANNIVERSARY PRECEDING DISABLEMENT								
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59
MONTHLY TERMINATION RATE PER 1,000									
5.....	80.5	77.5	79.0	81.0	81.5	78.8	72.1	60.2	41.9
6.....	69.4	70.0	71.6	73.1	73.0	70.1	63.5	51.9	34.2
7.....	60.5	63.6	66.2	68.0	67.8	65.0	58.8	48.2	32.5
8.....	53.7	58.1	61.1	62.9	62.5	59.8	54.1	44.6	30.7
9.....	48.8	53.7	56.4	58.0	57.3	54.6	49.3	40.9	28.9
10.....	45.7	50.2	52.2	53.3	52.3	49.6	44.8	37.3	26.9
11.....	44.2	47.7	48.8	49.1	47.7	44.8	40.4	33.8	25.0
12.....	44.0	46.1	46.1	45.6	43.5	40.5	36.2	30.5	23.0
MONTHLY PROBABILITY OF RECOVERY (MULTIPLIED BY 1,000)									
5.....	75.7	73.4	72.2	70.7	67.6	62.1	53.4	41.0	23.9
6.....	65.1	66.4	66.8	66.0	63.1	57.6	49.1	37.3	21.5
7.....	56.9	60.4	62.1	61.6	58.9	53.4	45.1	33.9	19.5
8.....	50.7	55.2	57.5	57.2	54.4	49.0	41.2	30.7	17.6
9.....	46.4	51.1	53.2	52.8	49.9	44.7	37.2	27.6	15.9
10.....	43.7	47.7	49.2	48.4	45.5	40.4	33.5	24.6	14.2
11.....	42.4	45.3	46.0	44.5	41.4	36.3	29.9	21.8	12.7
12.....	42.0	43.6	43.3	41.3	37.6	32.6	26.4	19.3	11.3
MONTHLY PROBABILITY OF DEATH (MULTIPLIED BY 1,000)									
5.....	4.8	4.1	6.8	10.3	13.9	16.7	18.7	19.2	18.0
6.....	4.3	3.6	4.8	7.1	9.9	12.5	14.4	14.6	12.7
7.....	3.6	3.2	4.1	6.4	8.9	11.6	13.7	14.3	13.0
8.....	3.0	2.9	3.6	5.7	8.1	10.8	12.9	13.9	13.1
9.....	2.4	2.6	3.2	5.2	7.4	9.9	12.1	13.3	13.0
10.....	2.0	2.5	3.0	4.9	6.8	9.2	11.3	12.7	12.7
11.....	1.8	2.4	2.8	4.6	6.3	8.5	10.5	12.0	12.3
12.....	2.0	2.5	2.8	4.3	5.9	7.9	9.8	11.2	11.7

TABLE 8g
 1930-1950 GRADUATED TERMINATION RATES—BENEFIT 5
 MONTHLY RATES FOR DISABILITY YEAR 1
 Based on Amount of Premium Waived

DIS- ABILITY MONTH	AGE AT POLICY ANNIVERSARY PRECEDING DISABLEMENT								
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59
MONTHLY TERMINATION RATE PER 1,000									
7.....	38.5	37.3	40.1	45.0	50.0	53.1	52.7	46.7	33.4
8.....	34.9	37.6	41.9	46.6	50.4	51.9	50.3	44.1	32.2
9.....	31.9	37.9	43.5	48.0	50.7	50.9	48.2	41.6	30.9
10.....	29.6	38.3	44.9	49.2	51.0	50.1	46.3	39.4	29.3
11.....	28.3	38.9	46.1	50.2	51.2	49.4	44.7	37.3	27.5
12.....	28.2	39.6	47.1	50.9	51.3	48.7	43.4	35.5	25.6
MONTHLY PROBABILITY OF RECOVERY (MULTIPLIED BY 1,000)									
7.....	37.2	33.0	33.1	35.3	37.9	38.8	36.2	28.1	12.9
8.....	31.6	33.1	35.7	38.4	40.0	39.2	35.4	27.1	13.4
9.....	27.4	33.2	37.9	40.8	41.5	39.6	34.7	26.0	13.5
10.....	24.6	33.6	39.6	42.7	42.8	39.9	34.0	25.1	13.3
11.....	23.4	34.3	41.1	44.1	43.5	40.0	33.4	24.2	12.8
12.....	23.9	35.3	42.2	45.0	44.0	39.9	32.9	23.5	12.1
MONTHLY PROBABILITY OF DEATH (MULTIPLIED BY 1,000)									
7.....	1.3	4.3	7.0	9.7	12.1	14.3	16.5	18.6	20.5
8.....	3.3	4.5	6.2	8.2	10.4	12.7	14.9	17.0	18.8
9.....	4.5	4.7	5.6	7.2	9.2	11.3	13.5	15.6	17.4
10.....	5.0	4.7	5.3	6.5	8.2	10.2	12.3	14.3	16.0
11.....	4.9	4.6	5.0	6.1	7.7	9.4	11.3	13.1	14.7
12.....	4.3	4.3	4.9	5.9	7.3	8.8	10.5	12.0	13.5

TABLE 8⁴
1930-1950 GRADUATED TERMINATION RATES—BENEFIT 5
MONTHLY RATES YEAR 2
Based on Amount of Premium Waived

DIS- ABILITY MONTH	AGE AT POLICY ANNIVERSARY PRECEDING DISABLEMENT								
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59
MONTHLY TERMINATION RATE PER 1,000									
13.....	31.0	42.7	50.5	53.4	52.1	47.3	40.1	31.4	22.3
14.....	33.3	43.8	50.8	53.1	51.4	46.3	38.9	30.0	20.5
15.....	36.4	45.0	50.6	52.2	50.2	44.9	37.6	28.6	18.9
16.....	39.7	46.0	50.1	50.8	48.5	43.2	36.0	27.2	17.5
17.....	42.5	46.5	49.2	49.2	46.4	41.2	34.3	25.8	16.3
18.....	44.3	46.5	48.0	47.3	44.2	39.0	32.3	24.3	15.4
19.....	44.8	45.7	46.5	45.2	41.8	36.7	30.2	22.8	14.7
20.....	43.9	44.1	44.6	43.0	39.5	34.3	28.1	21.4	14.3
21.....	42.1	42.1	42.6	40.9	37.2	32.1	26.2	20.1	13.9
22.....	40.0	39.9	40.7	38.9	35.2	30.1	24.4	18.8	13.6
23.....	38.0	37.8	38.9	37.2	33.4	28.3	22.9	17.8	13.2
24.....	36.5	36.3	37.5	35.8	32.0	27.0	21.8	16.9	12.9
MONTHLY PROBABILITY OF RECOVERY (MULTIPLIED BY 1,000)									
13.....	27.4	38.8	45.2	46.9	44.4	38.7	30.5	20.8	10.4
14.....	30.6	40.3	45.7	46.8	44.0	38.1	29.9	20.2	9.7
15.....	34.5	42.0	45.8	46.1	43.0	37.0	29.0	19.4	9.0
16.....	38.3	43.4	45.7	45.0	41.6	35.6	27.8	18.6	8.3
17.....	41.4	44.2	45.1	43.7	39.8	33.9	26.5	17.7	7.8
18.....	43.2	44.4	44.1	42.0	37.9	32.1	24.9	16.7	7.5
19.....	43.5	43.6	42.7	40.0	35.7	30.1	23.2	15.6	7.1
20.....	42.2	42.0	40.7	37.8	33.6	28.0	21.5	14.5	6.9
21.....	39.9	39.8	38.4	35.5	31.3	26.0	19.9	13.4	6.6
22.....	37.1	37.3	36.3	33.4	29.3	24.1	18.3	12.3	6.3
23.....	34.4	35.0	34.3	31.6	27.5	22.4	16.9	11.4	6.0
24.....	32.4	33.4	32.8	30.2	26.1	21.2	15.9	10.6	5.7
MONTHLY PROBABILITY OF DEATH (MULTIPLIED BY 1,000)									
13.....	3.6	3.9	5.3	6.5	7.7	8.6	9.6	10.6	11.9
14.....	2.7	3.5	5.1	6.3	7.4	8.2	9.0	9.8	10.8
15.....	1.9	3.0	4.8	6.1	7.2	7.9	8.6	9.2	9.9
16.....	1.4	2.6	4.4	5.8	6.9	7.6	8.2	8.6	9.2
17.....	1.1	2.3	4.1	5.5	6.6	7.3	7.8	8.1	8.5
18.....	1.1	2.1	3.9	5.3	6.3	6.9	7.4	7.6	7.9
19.....	1.3	2.1	3.8	5.2	6.1	6.6	7.0	7.2	7.6
20.....	1.7	2.1	3.9	5.2	5.9	6.3	6.6	6.9	7.4
21.....	2.2	2.3	4.2	5.4	5.9	6.1	6.3	6.7	7.3
22.....	2.9	2.6	4.4	5.5	5.9	6.0	6.1	6.5	7.3
23.....	3.6	2.8	4.6	5.6	5.9	5.9	6.0	6.4	7.2
24.....	4.1	2.9	4.7	5.6	5.9	5.8	5.9	6.3	7.2

TABLE 9
1930-1950 TERMINATIONS FOR BENEFITS 2, 3 AND 4 COMPARED WITH
EXPECTED BY 1930-1950 GRADUATED RATES FOR
BENEFITS 2 AND 3 COMBINED
EXCLUDING FIRST YEAR OF DISABILITY
By Amount of Insurance—\$100 Units

	BENEFIT 2		BENEFIT 3		BENEFIT 4	
	Actual Terminations	Ratio of Actual to Expected	Actual Terminations	Ratio of Actual to Expected	Actual Terminations	Ratio of Actual to Expected
SUMMARIZED BY DURATION						
Disability Year						
2.....	\$ 453,378	105%	\$ 368,360	108%	\$137,602	104%
3.....	223,308	91	162,311	89	63,576	93
4.....	141,383	90	108,997	96	35,718	88
5.....	111,347	100	79,265	104	27,550	102
6.....	87,648	104	55,473	100	18,519	96
7.....	73,097	104	50,918	113	14,225	93
8.....	67,466	111	39,069	102	14,462	113
9.....	48,235	91	37,753	114	12,025	112
10.....	44,513	97	29,371	104	8,993	101
11-15.....	155,333	103	96,432	109	26,067	99
2-15.....	\$1,405,708	100%	\$1,027,949	103%	\$358,737	99%
16 and over.....	71,311	94	30,160	91	5,326	83
All years.....	\$1,477,019	99%	\$1,058,109	102%	\$364,063	99%
SUMMARIZED BY AGE AT POLICY ANNIVERSARY PRECEDING DISABLEMENT (Disability Years 2-15 Only)						
Ages						
15-19.....	\$ 3,413	91%	\$ 5,535	105%	\$ 2,229	100%
20-24.....	27,721	100	28,018	110	11,460	119
25-29.....	59,850	93	58,790	103	27,175	117
30-34.....	102,414	101	85,742	106	37,706	105
35-39.....	146,240	99	121,134	99	48,653	102
40-44.....	197,655	103	162,869	103	58,411	99
45-49.....	262,747	101	203,766	102	65,852	94
50-54.....	305,067	98	198,868	101	61,375	93
55-59.....	300,601	100	163,227	104	45,876	96
All ages.....	\$1,405,708	100%	\$1,027,949	103%	\$358,737	99%

TABLE 10a

TOTAL TERMINATIONS IN EACH OBSERVATION PERIOD—BENEFIT 1
COMPARED WITH EXPECTED BY 1930-1950 GRADUATED RATES

FOR BENEFIT 1

DISABILITY YEARS 1 TO 15 ONLY

By Amount of Insurance—\$100 Units

	PERIOD 1		PERIOD 2		PERIOD 3		PERIOD 4	
	Actual Terminations	Ratio Actual to Exp.	Actual Terminations	Ratio Actual to Exp.	Actual Terminations	Ratio Actual to Exp.	Actual Terminations	Ratio Actual to Exp.
SUMMARIZED BY DURATION								
Disability Year								
1	\$ 26,089	83%	\$ 21,800	100%	\$ 36,173	112%	\$ 17,079	113%
2	22,357	90	16,003	94	27,058	116	12,535	116
3	11,334	73	12,309	96	20,003	119	8,803	114
4	8,599	91	9,407	87	12,334	97	6,814	120
5	4,822	87	6,569	74	11,822	105	4,674	109
6	9,872	96	15,495	88	23,369	102	9,742	123
7	8,564	130	11,790	84	23,326	110	9,073	119
8	4,848	114	9,314	93	21,390	106	10,587	138
9	2,410	95	6,421	92	16,721	90	8,375	109
10	1,641	107	5,115	105	18,397	108	8,324	115
11-15	2,449	138	8,650	102	52,400	101	31,126	98
1-15	\$102,985	91%	\$122,873	92%	\$262,993	106%	\$127,132	112%
SUMMARIZED BY AGE AT POLICY ANNIVERSARY PRECEDING DISABLEMENT								
Ages								
15-19	\$ 1,265	99%	\$ 405	85%	\$ 185	81%	80	92%
20-24	6,366	95	3,278	98	2,195	119	552	95
25-29	10,755	102	7,923	110	6,966	127	1,875	113
30-34	13,795	88	13,163	106	13,230	119	4,306	107
35-39	15,930	87	15,658	90	21,951	112	10,412	116
40-44	18,578	91	22,653	94	36,547	110	22,163	126
45-49	14,605	82	22,863	92	51,438	108	37,264	112
50-54	13,962	94	22,625	88	66,168	102	50,480	107
55-59	7,729	101	14,305	78	64,313	101		
All ages	\$102,985	91%	\$122,873	92%	\$262,993	106%	\$127,132	112%

TABLE 10b
 TERMINATIONS BY RECOVERY IN EACH OBSERVATION PERIOD—BENEFIT 1
 COMPARED WITH EXPECTED BY 1930-1950 GRADUATED RATES
 FOR BENEFIT 1
 DISABILITY YEARS 1 TO 15 ONLY
 By Amount of Insurance—\$100 Units

	PERIOD 1		PERIOD 2		PERIOD 3		PERIOD 4	
	Actual Recoveries	Ratio Actual to Exp.	Actual Recoveries	Ratio Actual to Exp.	Actual Recoveries	Ratio Actual to Exp.	Actual Recoveries	Ratio Actual to Exp.
SUMMARIZED BY DURATION								
Disability Year								
1.....	\$ 5,842	95%	\$ 3,099	88%	\$ 4,532	110%	\$ 1,740	110%
2.....	11,222	83	7,110	90	10,831	123	3,789	114
3.....	6,102	72	6,851	114	8,372	133	3,435	150
4.....	3,754	72	4,344	88	4,925	108	2,516	160
5.....	2,009	67	3,492	89	3,819	101	1,146	108
6.....	3,057	77	6,174	107	6,974	128	1,919	135
7.....	1,765	78	3,376	78	5,530	123	754	63
8.....	1,095	83	2,673	92	5,632	141	1,311	127
9.....	535	75	2,165	112	3,692	105	718	76
10.....	396	106	1,052	81	4,175	134	610	71
11-15.....	300	74	1,135	54	12,237	126	3,221	87
1-15.....	\$36,077	79%	\$41,471	93%	\$70,719	122%	\$21,159	112%
SUMMARIZED BY AGE AT POLICY ANNIVERSARY PRECEDING DISABLEMENT								
Ages								
15-19.....	\$ 695	98%	\$ 315	104%	\$ 135	84%		
20-24.....	3,179	79	2,399	115	1,511	127	\$ 60	102%
25-29.....	5,797	89	5,314	121	4,503	138	280	84
30-34.....	7,662	85	7,815	112	8,385	143	1,190	141
35-39.....	5,713	63	6,942	83	11,944	139	2,064	122
40-44.....	6,171	80	7,526	82	13,791	118	2,515	87
45-49.....	3,854	80	5,919	87	13,913	123	6,109	151
50-54.....	1,986	75	3,987	90	10,106	101	5,532	119
55-59.....	1,020	105	1,254	60	6,431	110	3,409	77
All ages.....	\$36,077	79%	\$41,471	93%	\$70,719	122%	\$21,159	112%

TABLE 10c
 TERMINATIONS BY DEATH IN EACH OBSERVATION PERIOD—BENEFIT 1
 COMPARED WITH EXPECTED BY 1930-1950 GRADUATED RATES
 FOR BENEFIT 1
 DISABILITY YEARS 1 TO 15 ONLY
 By Amount of Insurance—\$100 Units

	PERIOD 1		PERIOD 2		PERIOD 3		PERIOD 4	
	Actual Deaths	Ratio Actual to Exp.	Actual Deaths	Ratio Actual to Exp.	Actual Deaths	Ratio Actual to Exp.	Actual Deaths	Ratio Actual to Exp.
SUMMARIZED BY DURATION								
Disability Year								
1	\$20,247	81%	\$18,701	102%	\$ 31,641	112%	\$ 15,339	113%
2	11,135	98	8,893	97	16,227	112	8,746	117
3	5,232	75	5,458	80	11,631	111	5,368	99
4	4,845	114	5,063	86	7,409	91	4,298	105
5	2,813	111	3,077	62	8,003	107	3,528	109
6	6,815	109	9,321	78	16,395	94	7,823	120
7	6,799	157	8,414	86	17,796	107	8,319	130
8	3,753	127	6,641	93	15,758	98	9,276	139
9	1,875	102	4,256	84	13,029	86	7,657	113
10	1,245	108	4,063	114	14,222	102	7,714	121
11-15	2,149	157	7,515	118	40,163	95	27,905	100
1-15	\$66,908	98%	\$81,402	91%	\$192,274	101%	\$105,973	112%
SUMMARIZED BY AGE AT POLICY ANNIVERSARY PRECEDING DISABLEMENT								
Ages								
15-19	\$ 570	100%	\$ 90	51%	\$ 50	74%		
20-24	3,187	120	879	71	684	104	\$ 20	71%
25-29	4,958	122	2,609	94	2,463	110	272	110
30-34	6,133	92	5,348	99	4,845	93	685	84
35-39	10,217	109	8,716	97	10,007	91	2,242	97
40-44	12,407	97	15,127	101	22,756	105	7,897	130
45-49	10,751	83	16,944	94	37,525	103	16,054	119
50-54	11,976	97	18,638	88	56,062	102	31,732	111
55-59	6,709	100	13,051	80	57,882	100	47,071	110
All ages	\$66,908	98%	\$81,402	91%	\$192,274	101%	\$105,973	112%

TABLE 10d

TOTAL TERMINATIONS IN EACH OBSERVATION PERIOD—BENEFITS 2 AND 3
 COMPARED WITH EXPECTED BY 1930-1950 GRADUATED RATES
 FOR BENEFITS 2 AND 3 COMBINED
 DISABILITY YEARS 1 TO 15 ONLY
 By Amount of Insurance—\$100 Units

	PERIOD 1		PERIOD 2		PERIOD 3		PERIOD 4	
	Actual Terminations	Ratio Actual to Exp.	Actual Terminations	Ratio Actual to Exp.	Actual Terminations	Ratio Actual to Exp.	Actual Terminations	Ratio Actual to Exp.
SUMMARIZED BY DURATION								
Disability Year								
1*	\$ 930,875	94%	\$ 519,823	98%	\$ 656,716	107%	\$290,035	112%
2	277,136	93	187,607	105	250,449	120	106,546	123
3	115,844	79	89,165	82	128,237	103	52,373	107
4	58,283	80	64,838	81	92,889	108	34,370	109
5	34,284	92	58,377	95	70,974	107	26,977	121
6	16,353	84	44,976	95	61,358	112	20,434	112
7	10,417	91	33,104	92	60,078	118	20,416	119
8	7,084	102	26,523	106	53,403	108	19,525	112
9	3,500	85	13,835	84	51,077	107	17,576	100
10	2,089	91	8,664	83	47,362	106	15,769	94
11-15	1,390	79	11,928	72	158,649	113	79,798	99
1-15	\$1,457,255	92%	\$1,058,840	95%	\$1,631,192	110%	\$683,819	111%
SUMMARIZED BY AGE AT POLICY ANNIVERSARY PRECEDING DISABLEMENT								
Ages								
15-19	\$ 14,397	103%	\$ 1,840	100%	\$ 825	128%		
20-24	82,077	100	19,467	109	7,454	124	\$ 271	85%
25-29	156,180	95	60,489	105	31,117	114	1,181	61
30-34	205,117	94	108,089	106	79,123	115	8,481	119
35-39	248,417	92	145,389	96	160,049	115	27,289	108
40-44	258,272	92	201,394	100	244,559	113	71,548	122
45-49	234,679	87	215,118	92	357,983	111	132,815	116
50-54	173,530	88	179,852	87	397,311	106	202,541	110
55-59	84,586	85	127,202	91	352,771	106	239,693	107
All ages	\$1,457,255	92%	\$1,058,840	95%	\$1,631,192	110%	\$683,819	111%

* Expected computed for Benefits 2 and 3 separately according to rates of Table 7b.

TABLE 10e
TERMINATIONS BY RECOVERY IN EACH OBSERVATION PERIOD—BENEFITS 2 AND 3
COMPARED WITH EXPECTED BY 1930-1950 GRADUATED RATES
FOR BENEFITS 2 AND 3 COMBINED
DISABILITY YEARS 1 TO 15 ONLY
By Amount of Insurance—\$100 Units

	PERIOD 1		PERIOD 2		PERIOD 3		PERIOD 4	
	Actual Recoveries	Ratio Actual to Exp.	Actual Recoveries	Ratio Actual to Exp.	Actual Recoveries	Ratio Actual to Exp.	Actual Recoveries	Ratio Actual to Exp.
SUMMARIZED BY DURATION								
Disability Year								
1*	\$ 814,737	95%	\$435,584	98%	\$ 513,541	104%	\$223,731	114%
2	206,191	93	133,038	108	160,843	122	66,062	134
3	75,050	73	57,775	84	70,962	101	25,653	105
4	33,358	70	39,467	86	51,920	122	14,874	110
5	17,410	79	28,378	90	34,200	123	7,294	92
6	8,745	83	20,932	95	28,345	141	5,902	108
7	4,472	76	15,450	96	23,628	134	4,664	99
8	2,908	84	10,532	95	24,133	142	3,724	80
9	910	45	5,586	76	21,939	133	4,757	103
10	555	49	3,210	69	18,174	115	3,261	75
11-15	430	49	4,432	58	65,439	129	15,722	77
1-15	\$1,164,766	91%	\$754,384	96%	\$1,013,124	112%	\$375,644	112%
SUMMARIZED BY AGE AT POLICY ANNIVERSARY PRECEDING DISABLEMENT								
Ages								
15-19	\$ 13,042	106%	\$ 1,275	95%	\$ 625	127%		
20-24	74,039	99	16,216	110	5,849	132	\$ 196	82%
25-29	140,538	93	53,343	108	25,569	120	680	50
30-34	182,897	93	93,802	107	64,496	116	5,857	111
35-39	216,458	93	120,557	97	125,468	117	19,905	107
40-44	212,116	93	158,628	102	181,229	116	48,170	115
45-49	172,063	85	144,794	90	230,552	111	85,599	119
50-54	109,189	85	106,896	88	221,621	108	110,361	111
55-59	44,424	83	58,873	88	157,715	110	104,876	107
All ages	\$1,164,766	91%	\$754,384	96%	\$1,013,124	112%	\$375,644	112%

* Expected computed for Benefits 2 and 3 separately according to rates of Table 7b.

TABLE 10f
 TERMINATIONS BY DEATH IN EACH OBSERVATION PERIOD—BENEFITS 2 AND 3
 COMPARED WITH EXPECTED BY 1930-1950 GRADUATED RATES
 FOR BENEFITS 2 AND 3 COMBINED
 DISABILITY YEARS 1 TO 15 ONLY
 By Amount of Insurance—\$100 Units

	PERIOD 1		PERIOD 2		PERIOD 3		PERIOD 4	
	Actual Deaths	Ratio Actual to Exp.	Actual Deaths	Ratio Actual to Exp.	Actual Deaths	Ratio Actual to Exp.	Actual Deaths	Ratio Actual to Exp.
SUMMARIZED BY DURATION								
Disability Year								
1*	\$116,138	87%	\$ 84,239	95%	\$143,175	115%	\$ 66,304	108%
2	70,945	93	54,569	98	89,606	116	40,484	109
3	40,794	93	31,390	79	57,275	107	26,720	110
4	24,925	98	25,371	74	40,969	95	19,496	107
5	16,874	112	29,999	100	36,774	96	19,683	138
6	7,608	85	24,044	95	33,013	95	14,532	113
7	5,945	105	17,654	89	36,450	109	15,752	126
8	4,176	120	15,991	115	29,270	90	15,801	123
9	2,590	124	8,249	91	29,138	94	12,819	98
10	1,534	133	5,454	95	29,188	101	12,508	100
11-15	960	110	7,496	83	93,210	104	64,076	106
1-15	\$292,489	93%	\$304,456	92%	\$618,068	105%	\$308,175	110%
SUMMARIZED BY AGE AT POLICY ANNIVERSARY PRECEDING DISABLEMENT								
Ages								
15-19	\$ 1,355	79%	\$ 565	112%	\$ 200	130%		
20-24	8,038	109	3,251	106	1,605	103	\$ 75	95%
25-29	15,642	110	7,146	89	5,548	93	501	86
30-34	22,220	98	14,287	97	14,627	110	2,624	143
35-39	31,959	87	24,832	91	34,581	110	7,384	113
40-44	46,156	88	42,766	91	63,330	105	23,378	139
45-49	62,616	93	70,324	96	127,431	111	47,216	112
50-54	64,341	95	72,956	87	175,690	103	92,180	109
55-59	40,162	87	68,329	93	195,056	103	134,817	106
All ages	\$292,489	93%	\$304,456	92%	\$618,068	105%	\$308,175	110%

* Expected computed for Benefits 2 and 3 separately according to rates of Table 7b.

TABLE 10g
 TOTAL TERMINATIONS IN EACH OBSERVATION PERIOD—BENEFIT 5
 COMPARED WITH EXPECTED BY 1930-1950 GRADUATED RATES
 FOR BENEFIT 5
 DISABILITY YEARS 1 TO 15 ONLY
 By Amount of Annual Premiums Waived

	PERIOD 1		PERIOD 2		PERIOD 3		PERIOD 4	
	Actual Terminations	Ratio Actual to Exp.	Actual Terminations	Ratio Actual to Exp.	Actual Terminations	Ratio Actual to Exp.	Actual Terminations	Ratio Actual to Exp.
SUMMARIZED BY DURATION								
Disability Year								
1.....	\$12,641	72%	\$ 98,444	100%	\$ 361,092	98%	\$ 403,723	99%
2.....	7,029	73	70,811	87	366,927	109	379,957	106
3.....	400	26	25,532	82	142,864	99	178,964	92
4.....			6,964	53	66,701	92	80,134	88
5.....			2,860	71	42,684	100	53,124	112
6.....			1,390	89	29,384	118	21,767	79
7.....			263	70	18,291	123	18,118	97
8.....					10,493	111	15,716	116
9.....					5,879	94	13,849	141
10.....					10,090	268	7,259	109
11-15.....					2,695	72	11,888	82
1-15.....	\$20,070	69%	\$206,264	90%	\$1,057,100	103%	\$1,184,499	100%
SUMMARIZED BY AGE AT POLICY ANNIVERSARY PRECEDING DISABLEMENT								
Ages								
15-19....	\$ 130	52%	\$ 1,312	72%	\$ 3,452	94%	\$ 6,031	145%
20-24....	998	84	9,918	102	26,389	101	17,253	89
25-29....	1,373	59	20,177	101	68,407	101	43,159	85
30-34....	3,148	88	32,475	110	115,639	112	74,414	90
35-39....	1,552	45	37,555	99	150,685	106	128,505	95
40-44....	5,650	107	42,111	82	206,637	101	210,138	100
45-49....	5,745	82	37,811	91	217,793	97	278,188	105
50-54....	1,362	27	17,601	69	183,681	103	268,735	103
55-59....	112	16	7,304	58	84,417	108	158,076	99
All ages	\$20,070	69%	\$206,264	90%	\$1,057,100	103%	\$1,184,499	100%

TABLE 10h
TERMINATIONS BY RECOVERY IN EACH OBSERVATION PERIOD—BENEFIT 5
COMPARED WITH EXPECTED BY 1930-1950 GRADUATED RATES
FOR BENEFIT 5
DISABILITY YEARS 1 TO 15 ONLY
By Amount of Annual Premiums Waived

	PERIOD 1		PERIOD 2		PERIOD 3		PERIOD 4	
	Actual Recoveries	Ratio Actual to Exp.	Actual Recoveries	Ratio Actual to Exp.	Actual Recoveries	Ratio Actual to Exp.	Actual Recoveries	Ratio Actual to Exp.
SUMMARIZED BY DURATION								
Disability Year								
1.....	\$ 9,826	73%	\$ 80,342	108%	\$252,530	94%	\$283,294	100%
2.....	6,229	81	57,656	88	292,570	110	287,398	107
3.....	280	25	18,297	77	103,185	97	119,172	88
4.....			5,217	57	43,124	88	48,935	84
5.....			1,280	51	28,064	107	32,309	118
6.....			752	94	17,390	126	12,419	89
7.....					8,220	111	5,375	63
8.....					7,692	179	8,663	153
9.....					2,004	80	6,374	165
10.....					7,088	491	3,900	158
11-15.....					775	63	2,334	49
1-15.....	\$16,335	74%	\$163,544	93%	\$762,642	102%	\$810,173	100%
SUMMARIZED BY AGE AT POLICY ANNIVERSARY PRECEDING DISABLEMENT								
Ages								
15-19.....	\$ 130	57%	\$ 1,250	75%	\$ 3,250	98%	\$ 5,407	144%
20-24.....	931	87	8,883	101	23,858	102	15,369	89
25-29.....	1,313	64	17,516	99	60,885	102	38,249	86
30-34.....	3,054	99	28,982	114	98,180	111	60,810	87
35-39.....	1,307	46	32,621	104	122,068	104	106,491	97
40-44.....	4,411	106	33,989	84	158,011	100	164,496	102
45-49.....	3,715	72	27,630	92	152,761	96	198,854	108
50-54.....	1,362	42	8,688	55	109,756	103	154,489	100
55-59.....	112	36	3,985	73	33,873	107	66,008	102
All ages...	\$16,335	74%	\$163,544	93%	\$762,642	102%	\$810,173	100%

TABLE 10i
 TERMINATIONS BY DEATH IN EACH OBSERVATION PERIOD—BENEFIT 5
 COMPARED WITH EXPECTED BY 1930-1950 GRADUATED RATES
 FOR BENEFIT 5
 DISABILITY YEARS 1 TO 15 ONLY
 By Amount of Annual Premiums Waived

	PERIOD 1		PERIOD 2		PERIOD 3		PERIOD 4	
	Actual Deaths	Ratio Actual to Exp.	Actual Deaths	Ratio Actual to Exp.	Actual Deaths	Ratio Actual to Exp.	Actual Deaths	Ratio Actual to Exp.
SUMMARIZED BY DURATION								
Disability Year								
1.....	\$2,815	66%	\$18,102	77%	\$108,562	108%	\$120,429	97%
2.....	800	40	13,155	84	74,357	103	92,559	104
3.....	120	29	7,235	97	39,679	105	59,792	102
4.....			1,747	44	23,577	102	31,199	97
5.....			1,580	101	14,620	89	20,815	104
6.....			638	84	11,994	109	9,348	69
7.....			263	119	10,071	136	12,743	125
8.....					2,801	54	7,053	89
9.....					3,875	103	7,475	125
10.....					3,002	129	3,359	80
11-15.....					1,920	76	9,554	98
1-15.....	\$3,735	56%	\$42,720	80%	\$294,458	104%	\$374,326	100%
SUMMARIZED BY AGE AT POLICY ANNIVERSARY PRECEDING DISABLEMENT								
Ages								
15-19.....			\$ 62	41%	\$ 202	55%	\$ 624	154%
20-24.....	\$ 67	60%	1,035	118	2,531	99	1,884	92
25-29.....	60	22	2,661	115	7,522	93	4,910	76
30-34.....	94	19	3,493	83	17,459	116	13,604	110
35-39.....	245	41	4,934	76	28,617	112	22,014	89
40-44.....	1,239	110	8,122	76	48,626	104	45,642	93
45-49.....	2,030	110	10,181	89	65,032	98	79,334	99
50-54.....			8,913	90	73,925	104	114,246	107
55-59.....			3,319	46	50,544	108	92,068	97
All ages....	\$3,735	56%	\$42,720	80%	\$294,458	104%	\$374,326	100%

TABLE 11
 COMPARISON OF DISABILITY ANNUITY VALUES
 WITH 1926 STUDY
 VALUE OF \$1 PER ANNUM PAYABLE MONTHLY AT
 BEGINNING OF EACH MONTH*
 3% Interest

	1926 Study Class 1†	Current Study Benefit 1	1926 Study Class 3†	Current Study Benefit 2
At Commencement of Claim				
Age at Pol. Anniv. Preceding Dis- ablement				
22.....	\$ 4.19	\$ 6.76	\$ 2.30	\$ 3.08
27.....	5.23	7.42	2.76	3.36
32.....	5.50	7.82	3.09	3.66
37.....	5.57	7.91	3.40	3.97
42.....	5.58	7.79	3.65	4.29
47.....	5.48	7.52	3.75	4.62
52.....	5.22	7.26	3.65	5.02
57.....	4.94	7.06	3.47	5.52
At Ultimate Durations				
Attained Age				
32½.....	\$15.43	\$12.25		\$10.80
37½.....	14.47	12.45		10.99
42½.....	13.34	12.31		11.05
47½.....	11.93	11.83	See	10.92
52½.....	10.30	11.03	Class 1	10.48
57½.....	8.95	9.91	Column	9.67
62½.....	7.82	8.69		8.66
67½.....	6.88	7.45		7.58
72½.....	6.00	6.17		6.36

* For Benefit 2 and for Class 3, no payments for first 3 months.

† Report of Committee on Disability Experience, 1926, page 25; Class 3 values adjusted one-quarter year to date of disablement.

TABLE 12
FEMALE TERMINATION EXPERIENCE 1930-1950
COMPARED WITH EXPECTED BY RATES FOR MALES AND FEMALES COMBINED
By Amount

	BENEFITS 2 & 3 COMBINED		BENEFIT 4		BENEFIT 5	
	Actual Terminations*	Ratio Actual to Exp. †	Actual Terminations*	Ratio Actual to Exp. †	Actual Terminations*	Ratio Actual to Exp. ‡
SUMMARIZED BY DURATION						
Disability Year						
1	\$256,355	101%	\$17,257	104%	\$ 34,024	73%
2	86,496	115	7,720	109	43,276	87
3	36,574	90	2,859	81	20,416	85
4	22,743	89	1,970	91	8,400	73
5	16,153	91	1,396	97	6,773	110
6	10,715	81	1,152	113	2,637	80
7	10,121	92	624	81	960	48
8	8,118	87	493	76	685	52
9	6,924	85	454	80	857	107
10	5,785	81	560	117	2,924	54
11-15	20,633	85	1,375	97	206	21
1-15	\$480,617	99%	\$35,860	100%	\$118,524	80%
16 & over	8,447	65	178	45	.....	.....
All years	\$489,064	98%	\$36,038	100%	.....	.....
SUMMARIZED BY AGE AT POLICY ANNIVERSARY PRECEDING DISABLEMENT (Disability Years 1 to 15 only)						
Ages						
15-19	\$ 2,387	102%	\$ 258	126%	\$ 1,229	124%
20-24	18,686	98	2,334	106	9,204	88
25-29	46,615	98	4,258	95	15,593	86
30-34	63,145	101	5,900	108	17,303	72
35-39	73,864	97	5,918	105	17,940	79
40-44	80,594	101	5,712	90	21,076	81
45-49	79,286	99	5,109	97	17,679	70
50-54	70,397	99	4,049	95	12,897	86
55-59	45,643	95	2,322	120	5,603	119
All ages	\$480,617	99%	\$35,860	100%	\$118,524	80%

* Annual premiums waived for Benefit 5; others, Life Insurance in \$100 units.

† Expected Terminations by 1930-50 Graduated Termination Rates for Benefits 2 and 3 Combined, except for Benefit 4 at duration 1 where the rates based on Benefit 4 experience for males and females were used.

‡ Expected Terminations by 1930-50 Graduated Termination Rates for Benefit 5.

TABLE 13a
 TERMINATIONS BY NUMBER OF POLICIES 1930-1950
 COMPARED WITH EXPECTED BY CORRESPONDING 1930-1950 GRADUATED
 RATES BASED ON AMOUNT, FROM TABLE 7
 SUMMARY BY DURATION—ALL AGES COMBINED

DISABILITY YEARS	BENEFIT 1		BENEFITS 2 AND 3 COMBINED		BENEFIT 5	
	Actual Number	Ratio Actual to Expected	Actual Number	Ratio Actual to Expected	Actual Number	Ratio Actual to Expected
TERMINATIONS						
1-5	8,797	108%	115,017	105%	16,514	98%
6-10	6,575	109	13,486	108	1,042	116
11-15	2,716	107	6,001	106	115	100
1-15	18,088	108	134,504	105	17,671	99
16 & over	1,310	99	2,331	88	.....	.....
All	19,398	107%	136,835	105%	.....	.....
RECOVERIES						
1-5	3,161	106%	88,132	104%	12,382	95%
6-10	2,021	122	5,990	118	580	115
11-15	649	124	2,274	112	38	78
1-15	5,831	113	96,396	105	13,000	96
16 & over	191	82	624	76	.....	.....
All	6,022	111%	97,020	105%	.....	.....
DEATHS						
1-5	5,636	109%	26,885	105%	4,132	108%
6-10	4,554	104	7,496	102	462	116
11-15	2,067	102	3,727	102	77	117
1-15	12,257	106	38,108	104	4,671	109
16 & over	1,119	102	1,707	94	.....	.....
All	13,376	106%	39,815	104%	.....	.....

TABLE 13b

TERMINATIONS BY NUMBER OF POLICIES 1930-1950
 COMPARED WITH EXPECTED BY CORRESPONDING 1930-1950 GRADUATED
 RATES BASED ON AMOUNT, FROM TABLE 7
 SUMMARY BY AGE AT POLICY ANNIVERSARY PRECEDING DISABLEMENT
 DISABILITY YEARS 1 TO 15 ONLY

AGES	BENEFIT 1		BENEFITS 2 & 3 COMBINED		BENEFIT 5	
	Actual Number	Ratio Actual to Exp.	Actual Number	Ratio Actual to Exp.	Actual Number	Ratio Actual to Exp.
TERMINATIONS						
15-19.....	127	92%	981	106%	230	100%
20-24.....	686	102	5,469	104	1,055	91
25-29.....	1,231	110	10,418	103	1,887	89
30-34.....	1,631	111	14,129	105	2,497	98
35-39.....	1,897	109	17,666	105	2,780	98
40-44.....	2,489	110	20,958	107	2,918	98
45-49.....	3,009	111	23,158	106	2,933	107
50-54.....	3,492	107	22,557	103	2,209	102
55-59.....	3,526	105	19,168	105	1,162	103
All.....	18,088	108%	134,504	105%	17,671	99%
RECOVERIES						
15-19.....	76	92%	849	107%	215	104%
20-24.....	421	100	4,780	103	932	89
25-29.....	706	103	9,145	101	1,651	89
30-34.....	944	114	12,154	104	2,075	96
35-39.....	948	116	14,680	105	2,252	97
40-44.....	906	110	16,375	108	2,158	93
45-49.....	847	124	15,963	105	1,967	102
50-54.....	622	121	13,351	104	1,264	97
55-59.....	361	111	9,099	109	486	106
All.....	5,831	113%	96,396	105%	13,000	96%
DEATHS						
15-19.....	51	92%	132	104%	15	68%
20-24.....	265	105	689	118	123	105
25-29.....	525	121	1,273	115	236	91
30-34.....	687	106	1,975	115	422	113
35-39.....	949	103	2,986	105	528	104
40-44.....	1,583	110	4,583	104	760	113
45-49.....	2,162	107	7,195	107	966	120
50-54.....	2,870	105	9,206	101	945	108
55-59.....	3,165	104	10,069	101	676	101
All.....	12,257	106%	38,108	104%	4,671	109%

TABLE 14
 VALUE OF 1,000 $r'_x a^i_{[x+1/2]}$
 BASED ON PERIOD 2 GRADUATED r'_x AND 1930-1950 TERMINATION RATES
 Interest at 3%

AGE		BENEFIT				
		1	2	3	4*	5†
22.....	1,000 r'_x	1.44	2.44	3.71	2.44	0.88
	$a^i_{[x+1/2]}$	6.22	2.77	2.34	3.37	2.96
	Product	8.96	6.76	8.68	8.22	2.60
27.....	1,000 r'_x	1.44	2.93	4.01	2.44	1.05
	$a^i_{[x+1/2]}$	6.87	3.05	2.61	3.66	2.90
	Product	9.89	8.94	10.47	8.93	3.05
32.....	1,000 r'_x	1.52	3.49	4.63	2.99	1.18
	$a^i_{[x+1/2]}$	7.27	3.35	2.93	3.94	3.02
	Product	11.05	11.69	13.57	11.78	3.56
37.....	1,000 r'_x	2.22	4.43	6.34	3.92	1.40
	$a^i_{[x+1/2]}$	7.35	3.66	3.29	4.23	3.30
	Product	16.32	16.21	20.86	16.58	4.62
42.....	1,000 r'_x	3.67	6.32	8.99	5.56	1.84
	$a^i_{[x+1/2]}$	7.23	3.99	3.66	4.53	3.74
	Product	26.53	25.22	32.90	25.19	6.88
47.....	1,000 r'_x	5.52	9.34	11.85	8.37	2.56
	$a^i_{[x+1/2]}$	6.96	4.31	4.03	4.83	4.30
	Product	38.42	40.26	47.76	40.43	11.01
52.....	1,000 r'_x	9.35	13.57	16.87	12.81	4.54
	$a^i_{[x+1/2]}$	6.70	4.71	4.43	5.23	5.00
	Product	62.65	63.91	74.73	67.00	22.70
57.....	1,000 r'_x	17.76	21.64	28.17	21.64	9.33
	$a^i_{[x+1/2]}$	6.50	5.21	4.90	5.76	5.78
	Product	115.44	112.74	138.03	124.65	53.93

* Assuming same termination rates as Benefits 2 and 3 combined after the first year.

† Assuming same ultimate termination rates as Benefits 2 and 3 combined.

TABLE 15a
 DISTRIBUTION OF CODED CLAIMS BY CAUSE OF DISABILITY
 (Includes claims incurred in first two policy years)
 BENEFIT 1—PERIOD 1

CAUSE	(1) NUMBER OF CLAIMS (POLICIES)					(2) PERCENTAGE DISTRIBUTION BASED ON AMOUNT					(3) CRUDE RATE OF DISABLE- MENT PER 1,000 FROM TABLE 1a, DISTRIBUTED AS PER (2)				
	Ages at Policy Anniversary Preceding Disablement														
	20-29	30-39	40-49	50-59	15-59*	20-29	30-39	40-49	50-59	15-59*	20-29	30-39	40-49	50-59	
01 Pulmonary Tuberculosis.....	366	432	241	80	1,134	40.2%	24.4%	10.8%	4.4%	15.3%	.71	.67	.56	.57	
02 Syphilis and sequelae.....	4	55	48	29	136	.4	2.8	2.2	1.8	2.1	.01	.08	.11	.23	
03 Malignant Neoplasms.....	11	48	138	117	314	1.6	3.4	6.7	7.9	5.7	.03	.09	.35	1.03	
04 Rheumatism, etc.....	43	103	103	66	316	6.3	6.4	6.0	4.9	5.8	.11	.18	.31	.64	
05 Diabetes.....	11	12	30	25	80	1.2	1.0	1.6	2.0	1.5	.02	.03	.08	.26	
06 Mental Disorders.....	138	165	162	60	533	16.3	11.9	7.4	3.8	8.5	.28	.33	.38	.49	
07 Eyes, Diseases of.....	9	21	59	28	117	1.2	1.5	2.9	2.1	2.2	.02	.04	.15	.27	
08-10 Cardiovascular.....	63	163	499	566	1,291	8.2	11.5	30.4	47.0	27.8	.14	.32	1.56	6.11	
11 Respiratory (excl. 01).....	27	41	71	50	191	4.6	3.0	3.5	2.5	3.2	.08	.08	.18	.32	
12 Digestive System.....	20	82	76	85	264	3.6	6.5	3.7	6.1	5.1	.06	.18	.19	.79	
13 Nephritis.....	6	22	26	24	78	.8	1.9	1.4	1.5	1.5	.01	.05	.07	.19	
14 Bones, Diseases of.....	17	48	60	24	149	2.4	3.4	3.5	1.7	2.9	.04	.09	.18	.22	
15 External Violence.....	30	56	66	47	200	3.1	3.6	3.5	3.3	3.5	.05	.10	.18	.43	
16 Other.....	97	245	268	157	772	10.1	18.7	16.4	11.0	14.9	.17	.52	.85	1.43	
All Causes.....	842	1,493	1,847	1,358	5,575	100.0%	100.0%	100.0%	100.0%	100.0%	1.73	2.76	5.15	12.98	

* Including data for ages under 20 not shown separately.

TABLE 15b
 DISTRIBUTION OF CODED CLAIMS BY CAUSE OF DISABILITY
 (Includes claims incurred in first two policy years)
 BENEFIT 1—PERIOD 2

CAUSE	(1) NUMBER OF CLAIMS (POLICIES)					(2) PERCENTAGE DISTRIBUTION BASED ON AMOUNT					(3) CRUDE RATE OF DISABLE- MENT PER 1,000 FROM TABLE 1a, DISTRIBUTED AS PER (2)			
	Ages at Policy Anniversary Preceding Disablement													
	20-29	30-39	40-49	50-59	All	20-29	30-39	40-49	50-59	All	20-29	30-39	40-49	50-59
01 Pulmonary Tuberculosis.....	69	199	139	67	474	39.7%	22.0%	8.1%	3.8%	8.9%	.58	.42	.36	.46
02 Syphilis and sequelae.....		13	15	21	49		1.6	1.1	1.0	1.1		.03	.05	.12
03 Malignant Neoplasms.....	2	40	100	120	262	1.1	5.3	7.5	6.8	6.7	.02	.10	.34	.82
04 Rheumatism, etc.....	9	34	67	70	180	2.8	4.6	6.0	4.4	5.0	.04	.09	.27	.53
05 Diabetes.....		1	16	23	40		.1	2.0	1.7	1.5		†	.09	.20
06 Mental Disorders.....	38	92	104	59	293	16.2	13.3	6.1	3.1	6.0	.23	.25	.27	.37
07 Eyes, Diseases of.....	5	8	26	31	70	1.9	1.3	.9	2.3	1.6	.03	.02	.04	.28
08-10 Cardiovascular.....	12	71	418	724	1,225	14.2	14.3	38.8	55.3	42.4	.21	.27	1.74	6.64
11 Respiratory (excl. 01).....	1	29	60	59	149	.3	5.0	4.6	3.6	4.1	†	.09	.21	.43
12 Digestive System.....	2	29	58	56	145	.9	4.3	5.7	3.4	4.3	.01	.08	.26	.41
13 Nephritis.....	2	6	18	24	50	.9	1.2	1.4	1.3	1.3	.01	.02	.06	.16
14 Bones, Diseases of.....	9	16	33	29	87	4.4	2.3	3.1	1.5	2.3	.06	.04	.14	.18
15 External Violence.....	5	23	32	35	95	2.8	3.6	2.6	2.8	2.8	.04	.07	.12	.34
16 Other.....	23	118	147	124	412	14.8	21.1	12.1	9.0	12.0	.21	.39	.54	1.08
All Causes.....	177	679	1,233	1,442	3,531	100.0%	100.0%	100.0%	100.0%	100.0%	1.44	1.87	4.49	12.02

† Less than .005 per thousand.

TABLE 15c

DISTRIBUTION OF CODED CLAIMS BY CAUSE OF DISABILITY
(Includes claims incurred in first two policy years)
BENEFIT 1—PERIOD 3

CAUSE	(1) NUMBER OF CLAIMS (POLICIES)					(2) PERCENTAGE DISTRIBUTION BASED ON AMOUNT				
	Ages at Policy Anniversary Preceding Disablement									
	20-29	30-39	40-49	50-59	All	20-29	30-39	40-49	50-59	All
01 Pulmonary Tuberculosis...	7	148	174	139	468	22.8%	24.8%	8.7%	3.2%	6.2%
02 Syphilis and sequelae.....	14	16	16	16	46	2.2	.9	.7	.8	.8
03 Malignant Neoplasms.....	1	27	147	270	445	2.1	4.9	8.6	8.4	8.2
04 Rheumatism, etc.....	2	27	74	110	213	13.5	5.8	4.4	4.3	4.5
05 Diabetes.....	2	2	15	58	75	.....	.3	1.1	2.1	1.7
06 Mental Disorders.....	9	77	132	94	312	19.0	11.2	7.8	2.9	4.9
07 Eyes, Diseases of.....	1	6	21	25	53	4.1	.9	1.2	.7	.8
08-10 Cardiovascular.....	3	79	553	1,491	2,126	6.2	17.3	44.2	57.5	51.0
11 Respiratory (excl. 01).....	.....	17	46	129	192	.....	3.6	2.4	4.5	3.8
12 Digestive System.....	.....	11	68	69	148	.....	2.5	4.3	2.2	2.8
13 Nephritis.....	.....	5	12	28	45	.....	6	.6	.9	.8
14 Bones, Diseases of.....	.....	14	28	39	81	.....	3.6	2.0	1.5	1.8
15 External Violence.....	1	26	31	70	128	6.2	5.3	2.1	2.2	2.4
16 Other.....	5	93	176	238	512	26.1	17.0	11.7	8.9	10.3
All Causes.....	29	546	1,493	2,776	4,844	100.0%	100.0%	100.0%	100.0%	100.0%

Claim rates not
available for
Period 3

TABLE 15d

DISTRIBUTION OF CODED CLAIMS BY CAUSE OF DISABILITY
(Includes claims incurred in first two policy years)
BENEFIT 1—PERIOD 4

CAUSE	(1) NUMBER OF CLAIMS (POLICIES)				(2) PERCENTAGE DISTRIBUTION BASED ON AMOUNT				(3) CRUDE RATE OF DISABLEMENT PER 1,000 FROM TABLE 1a, DISTRIBUTED AS PER (2)			
	Ages at Policy Anniversary Preceding Disablement											
	30-39	40-49	50-59	All	30-39	40-49	50-59	All	30-39	40-49	50-59	
01 Pulmonary Tuberculosis . . .	12	35	52	99	26.0%	5.2%	2.1%	2.9%	Insuffi- cient data	0.11	.20	
02 Syphilis and sequelae	1	3	7	11	1.7	.8	.3	.4		.02	.03	
03 Malignant Neoplasms	5	59	193	257	9.0	11.8	11.0	11.1		.26	1.05	
04 Rheumatism, etc.	3	24	79	106	3.4	5.3	4.8	4.9		.12	.46	
05 Diabetes		8	30	38		1.9	2.0	2.0		.04	.19	
06 Mental Disorders	17	35	46	98	22.7	8.5	3.1	4.2		.18	.30	
07 Eyes, Diseases of		3	27	30		.5	2.2	1.9		.01	.21	
08-10 Cardiovascular	7	174	895	1,076	11.6	41.3	55.5	52.7		.90	5.31	
11 Respiratory (excl. 01)		6	62	68		1.0	3.2	2.8		.02	.31	
12 Digestive System	2	17	51	70	1.7	2.9	2.9	2.9		.06	.28	
13 Nephritis		5	8	13		1.0	.4	.5		.02	.04	
14 Bones, Diseases of	1	8	21	30	2.4	1.6	1.5	1.5		.03	.14	
15 External Violence		9	37	46		2.3	1.6	1.7		.05	.15	
16 Other	18	80	164	262	21.5	15.9	9.4	10.5		.35	.90	
All Causes	66	466	1,672	2,204	100.0%	100.0%	100.0%	100.0%			2.17	9.57

TABLE 15e

DISTRIBUTION OF CODED CLAIMS BY CAUSE OF DISABILITY
CERTAIN CONTRIBUTORS ONLY
(Includes claims incurred in first two policy years)
BENEFIT 2—PERIOD 1

CAUSE	(1) NUMBER OF CLAIMS (POLICIES)					(2) PERCENTAGE DISTRIBUTION BASED ON AMOUNT					(3) CRUDE RATE OF DISABLE- MENT PER 1,000 FROM TABLE 1b, DISTRIBUTED AS PER (2)			
	Ages at Policy Anniversary Preceding Disablement													
	20-29	30-39	40-49	50-59	15-59*	20-29	30-39	40-49	50-59	15-59*	20-29	30-39	40-49	50-59
01 Pulmonary Tuberculosis.....	452	561	331	150	1,500	17.9%	11.1%	6.0%	2.9%	7.6%	.72	.59	.53	.51
02 Syphilis and sequelae.....	9	79	102	73	263	.2	1.6	1.6	1.8	1.5	.01	.08	.14	.32
03 Malignant Neoplasms.....	30	131	269	294	724	1.1	2.7	4.5	6.8	4.4	.04	.14	.39	1.20
04 Rheumatism, etc.....	102	238	226	159	726	3.9	4.9	4.3	3.2	4.1	.16	.26	.38	.57
05 Diabetes.....	20	49	68	84	223	.6	1.3	1.5	2.5	1.7	.02	.07	.13	.44
06 Mental Disorders.....	161	303	250	115	829	6.3	6.1	4.7	2.8	4.7	.25	.32	.41	.50
07 Eyes, Diseases of.....	27	31	74	81	213	1.3	.7	1.8	2.2	1.6	.05	.04	.16	.39
08-10 Cardiovascular.....	102	317	1,007	1,289	2,715	4.7	8.6	22.9	38.3	21.8	.19	.45	2.01	6.76
11 Respiratory (excl. 01).....	146	330	339	170	989	6.2	7.9	7.1	4.8	6.6	.25	.42	.62	.85
12 Digestive System.....	261	532	621	321	1,739	10.8	11.5	11.4	8.5	10.6	.43	.61	1.00	1.50
13 Nephritis.....	16	30	72	61	179	.6	.5	1.3	1.4	1.1	.02	.03	.11	.25
14 Bones, Diseases of.....	71	159	141	69	441	2.6	3.4	2.4	1.5	2.4	.10	.18	.21	.27
15 External Violence.....	479	748	658	370	2,264	20.5	15.6	11.5	10.1	13.0	.82	.83	1.01	1.79
16 Other.....	530	1,062	952	544	3,095	23.3	24.1	19.0	13.2	18.9	.94	1.29	1.67	2.33
All Causes.....	2,406	4,570	5,110	3,780	15,900	100.0%	100.0%	100.0%	100.0%	100.0%	4.00	5.31	8.77	17.68

* Including data for ages under 20 not shown separately.

TABLE 15f

DISTRIBUTION OF CODED CLAIMS BY CAUSE OF DISABILITY
CERTAIN CONTRIBUTORS ONLY
(Includes claims incurred in first two policy years)
BENEFIT 2—PERIOD 2

CAUSE	(1) NUMBER OF CLAIMS (POLICIES)					(2) PERCENTAGE DISTRIBUTION BASED ON AMOUNT					(3) CRUDE RATE OF DISABLE- MENT PER 1,000 FROM TABLE 16, DISTRIBUTED AS PER (2)			
	Ages at Policy Anniversary Preceding Disablement										20-29	30-39	40-49	50-59
	20-29	30-39	40-49	50-59	All	20-29	30-39	40-49	50-59	All	20-29	30-39	40-49	50-59
01 Pulmonary Tuberculosis.....	52	262	240	114	668	12.8%	11.6%	5.8%	2.7%	5.5%	.38	.47	.45	.44
02 Syphilis and sequelae.....	1	24	53	49	127	.3	1.1	1.6	1.5	1.4	.01	.04	.12	.25
03 Malignant Neoplasms.....	5	64	271	359	699	2.4	3.0	6.9	9.4	7.3	.07	.12	.53	1.55
04 Rheumatism, etc.....	11	119	162	180	472	2.8	7.0	4.4	4.4	4.8	.08	.29	.34	.72
05 Diabetes.....	1	8	40	51	100	.2	.5	1.3	1.3	1.1	.01	.02	.10	.21
06 Mental Disorders.....	29	159	160	116	464	8.9	7.5	4.3	2.8	4.3	.27	.31	.33	.46
07 Eyes, Diseases of.....	2	19	39	53	113	.3	1.3	1.2	1.8	1.5	.01	.05	.09	.30
08-10 Cardiovascular.....	12	197	768	1,405	2,382	3.0	10.1	24.3	42.2	29.4	.09	.41	1.88	6.96
11 Respiratory (excl. 01).....	21	150	203	142	516	5.9	6.7	5.6	3.3	4.8	.18	.27	.43	.54
12 Digestive System.....	29	228	352	274	883	10.8	11.4	10.7	8.1	9.7	.32	.47	.83	1.33
13 Nephritis.....	1	23	36	62	122	.2	.9	.9	1.6	1.2	.01	.04	.07	.26
14 Bones, Diseases of.....	11	67	62	38	178	4.0	3.5	1.7	1.2	1.8	.12	.14	.13	.20
15 External Violence.....	74	296	400	291	1,061	22.7	12.3	10.3	7.3	9.5	.68	.50	.80	1.20
16 Other.....	85	466	742	468	1,761	25.7	23.1	21.0	12.4	17.7	.75	.95	1.64	2.04
All Causes.....	334	2,082	3,528	3,602	9,546	100.0%	100.0%	100.0%	100.0%	100.0%	2.98	4.08	7.74	16.46

TABLE 15g
 DISTRIBUTION OF CODED CLAIMS BY CAUSE OF DISABILITY
 CERTAIN CONTRIBUTORS ONLY
 (Includes claims incurred in first two policy years)
 BENEFIT 2—PERIOD 3

CAUSE	(1) NUMBER OF CLAIMS (POLICIES)					(2) PERCENTAGE DISTRIBUTION BASED ON AMOUNT				
	Ages at Policy Anniversary Preceding Disablement									
	20-29	30-39	40-49	50-59	All	20-29	30-39	40-49	50-59	All
01 Pulmonary Tuberculosis . . .	7	105	161	83	356	25.7%	10.3%	5.7%	2.1%	4.2%
02 Syphilis and sequelae	2	4	27	23	56	9.9	2	1.0	1.0	.9
03 Malignant Neoplasms		32	184	318	534		3.0	7.2	9.3	7.9
04 Rheumatism, etc.	6	33	94	117	250	25.8	3.8	3.5	3.4	3.5
05 Diabetes		5	15	50	70		3	.8	1.9	1.4
06 Mental Disorders	3	90	114	97	304	8.9	10.1	5.1	3.2	4.5
07 Eyes, Diseases of		7	16	41	64		6	.5	1.1	.8
08-10 Cardiovascular	1	91	635	1,303	2,030	4.0	13.8	31.6	48.0	39.2
11 Respiratory (excl. 01)		39	117	110	266		4.3	5.6	3.4	4.2
12 Digestive System	3	81	195	218	497	7.9	9.5	8.1	7.4	7.8
13 Nephritis		10	43	63	116		1.6	2.5	1.8	2.0
14 Bones, Diseases of		21	48	31	100		2.5	1.9	1.2	1.6
15 External Violence	3	134	249	218	604	7.9	17.5	10.8	6.5	9.0
16 Other	4	194	395	307	900	9.9	22.5	15.7	9.7	13.0
All Causes	29	846	2,293	2,979	6,147	100.0%	100.0%	100.0%	100.0%	100.0%

Claim rates not
available for
Period 3

TABLE 15^h

DISTRIBUTION OF CODED CLAIMS BY CAUSE OF DISABILITY
CERTAIN CONTRIBUTORS ONLY
(Includes claims incurred in first two policy years)
BENEFIT 2—PERIOD 4

CAUSE	(1) NUMBER OF CLAIMS (POLICIES)				(2) PERCENTAGE DISTRIBUTION BASED ON AMOUNT				(3) CRUDE RATE OF DISABILITY PER 1,000 FROM TABLE 1b, DISTRIBUTED AS PER (2)		
	Ages at Policy Anniversary Preceding Disablement										
	30-39	40-49	50-59	All	30-39	40-49	50-59	All	30-39	40-49	50-59
01 Pulmonary Tuberculosis.....	6	17	19	42	21.1%	3.6%	1.6%	2.3%	Insuffi- cient data	.15	.20
02 Syphilis and sequelae.....		2	2	4		1.2	.1	.4		.05	.01
03 Malignant Neoplasms.....	3	30	69	102	14.7	11.0	9.4	9.8		.46	1.15
04 Rheumatism, etc.....		8	31	39		3.1	4.1	3.8		.13	.50
05 Diabetes.....		2	10	12		.7	1.5	1.3		.03	.18
06 Mental Disorders.....	4	40	42	86	11.0	13.2	5.7	7.5		.55	.70
07 Eyes, Diseases of.....		6	8	14		1.2	1.0	1.0		.05	.12
08-10 Cardiovascular.....	1	81	340	422	9.2	31.0	51.4	46.1		1.28	6.32
11 Respiratory (excl. 01).....	1	6	24	31	1.8	.9	3.5	2.8		.04	.43
12 Digestive System.....	1	13	37	51	9.2	5.4	6.7	6.5		.22	.82
13 Nephritis.....		4	8	12		.8	1.3	1.2		.03	.16
14 Bones, Diseases of.....		11	11	22		4.5	2.2	2.7		.19	.27
15 External Violence.....	4	39	35	78	9.2	11.4	3.3	5.3		.47	.41
16 Other.....	6	51	71	128	23.8	12.0	8.2	9.3		.50	1.01
All Causes.....	26	310	707	1,043	100.0%	100.0%	100.0%	100.0%		4.15	12.28

TABLE 157
DISTRIBUTION OF CODED CLAIMS BY CAUSE OF DISABILITY
CERTAIN CONTRIBUTORS ONLY
(Includes claims incurred in first two policy years)
BENEFIT 3—PERIOD 1

CAUSE	(1) NUMBER OF CLAIMS (POLICIES)					(2) PERCENTAGE DISTRIBUTION BASED ON AMOUNT					(3) CRUDE RATE OF DISABILITY PER 1,000 FROM TABLE 1c, DISTRIBUTED AS PER (2)				
	Ages at Policy Anniversary Preceding Disablement														
	20-29	30-39	40-49	50-59	15-59*	20-29	30-39	40-49	50-59	15-59*	20-29	30-39	40-49	50-59	
01 Pulmonary Tuberculosis	337	233	159	49	790	19.9%	9.1%	7.8%	3.8%	9.3%	1.10	.66	1.00	.97	
02 Syphilis and sequelae	5	34	30	14	84	.3	1.1	1.1	.7	.9	.02	.08	.14	.18	
03 Malignant Neoplasms	15	70	97	92	278	.6	2.3	3.5	8.4	3.6	.03	.17	.45	2.14	
04 Rheumatism, etc.	106	152	166	70	504	5.8	6.5	6.1	6.4	6.3	.32	.47	.78	1.63	
05 Diabetes	8	19	27	17	71	.4	.7	1.2	2.5	1.1	.02	.05	.15	.64	
06 Mental Disorders	115	180	141	46	486	7.6	6.5	5.0	5.8	6.0	.42	.47	.64	1.48	
07 Eyes, Diseases of	8	29	34	16	88	.7	1.4	1.0	1.7	1.2	.04	.10	.13	.43	
08-10 Cardiovascular	64	181	412	361	1,026	3.1	9.9	20.9	32.3	16.8	.17	.72	2.68	8.23	
11 Respiratory (excl. 01)	108	148	136	61	460	5.7	5.5	6.1	5.3	5.7	.32	.40	.78	1.35	
12 Digestive System	218	312	321	112	976	12.0	13.4	12.1	9.2	12.0	.66	.98	1.55	2.35	
13 Nephritis	9	16	29	18	73	.3	.8	1.2	1.4	1.0	.02	.06	.15	.36	
14 Bones, Diseases of	66	71	66	18	225	4.1	2.9	2.6	1.4	2.7	.23	.21	.33	.36	
15 External Violence	347	387	308	112	1,185	19.6	15.5	11.3	9.1	13.5	1.08	1.13	1.45	2.32	
16 Other	377	556	451	148	1,567	19.9	24.4	20.1	12.0	19.9	1.10	1.78	2.57	3.06	
All Causes	1,783	2,388	2,377	1,134	7,813	100.0%	100.0%	100.0%	100.0%	100.0%	5.53	7.28	12.80	25.50	

* Including data for ages under 20 not shown separately.

TABLE 15j
 DISTRIBUTION OF CODED CLAIMS BY CAUSE OF DISABILITY
 CERTAIN CONTRIBUTORS ONLY
 (Includes claims incurred in first two policy years)
 BENEFIT 3—PERIOD 2

CAUSE	(1) NUMBER OF CLAIMS (POLICIES)					(2) PERCENTAGE DISTRIBUTION BASED ON AMOUNT					(3) CRUDE RATE OF DISABLE- MENT PER 1,000 FROM TABLE 1c, DISTRIBUTED AS PER (2)			
	Ages at Policy Anniversary Preceding Disablement													
	20-29	30-39	40-49	50-59	All	20-29	30-39	40-49	50-59	All	20-29	30-39	40-49	50-59
01 Pulmonary Tuberculosis.....	61	105	111	25	302	15.7%	9.4%	5.8%	1.4%	5.5%	.65	.52	.60	.28
02 Syphilis and sequelae.....	3	8	21	17	49	.4	.5	.9	1.0	.8	.02	.03	.09	.20
03 Malignant Neoplasms.....	6	36	122	109	273	1.2	3.4	5.6	6.7	5.3	.05	.19	.58	1.34
04 Rheumatism, etc.....	27	62	122	68	279	5.2	5.4	5.8	4.5	5.2	.22	.30	.60	.90
05 Diabetes.....	1	2	12	14	29	.2	.1	.5	1.7	.8	.01	.01	.05	.34
06 Mental Disorders.....	33	102	108	68	311	8.8	7.7	7.4	4.2	6.5	.37	.43	.77	.84
07 Eyes, Diseases of.....	2	8	37	15	62	.6	.8	2.0	1.5	1.5	.02	.04	.21	.30
08-10 Cardiovascular.....	15	95	400	549	1,059	3.2	9.2	25.7	44.2	27.6	.14	.51	2.66	8.80
11 Respiratory (excl. 01).....	24	99	107	45	275	5.0	7.4	6.6	3.4	5.7	.21	.41	.69	.68
12 Digestive System.....	46	188	201	127	562	12.7	14.7	9.7	9.6	10.8	.53	.81	1.01	1.91
13 Nephritis.....	1	9	19	8	37	.1	.8	1.7	.8	1.2	†	.04	.18	.16
14 Bones, Diseases of.....	16	36	44	12	108	3.3	2.7	2.1	.8	1.8	.14	.15	.22	.16
15 External Violence.....	74	192	189	128	583	17.3	14.5	8.7	8.3	10.1	.72	.80	.90	1.66
16 Other.....	104	280	333	183	900	26.3	23.4	17.5	11.9	17.2	1.07	1.30	1.82	2.37
All Causes.....	413	1,222	1,826	1,368	4,829	100.0%	100.0%	100.0%	100.0%	100.0%	4.15	5.54	10.38	19.94

† Less than .005 per thousand.

TABLE 15a
DISTRIBUTION OF CODED CLAIMS BY CAUSE OF DISABILITY
CERTAIN CONTRIBUTORS ONLY
(Includes claims incurred in first two policy years)
BENEFIT 3—PERIOD 3

CAUSE	(1) NUMBER OF CLAIMS (POLICIES)					(2) PERCENTAGE DISTRIBUTION BASED ON AMOUNT					Claim rates not available for Period 3
	Ages at Policy Anniversary Preceding Disablement										
	20-29	30-39	40-49	50-59	All	20-29	30-39	40-49	50-59	All	
01 Pulmonary Tuberculosis	12	75	71	55	213	20.0%	11.8%	4.6%	2.6%	4.4%	
02 Syphilis and sequelae	2	13	12	12	27	.2	.7	.7	.7	.7	
03 Malignant Neoplasms	4	20	124	152	300	3.5	2.4	7.9	7.9	7.3	
04 Rheumatism, etc.	3	38	78	86	205	5.1	6.2	4.5	3.2	4.0	
05 Diabetes	1	5	23	29	29	.1	.3	1.0	1.0	.7	
06 Mental Disorders	16	68	83	87	254	12.5	7.5	5.8	4.9	5.5	
07 Eyes, Diseases of		6	7	28	41		.7	.4	1.0	.8	
08-10 Cardiovascular	2	81	476	869	1,428	1.6	13.4	35.3	48.1	39.6	
11 Respiratory (excl. 01)	5	32	61	61	159	6.8	6.0	5.0	2.3	3.7	
12 Digestive System	5	72	132	174	383	6.4	11.1	8.5	11.0	10.0	
13 Nephritis	2	8	9	18	37	4.8	.8	.4	.7	.6	
14 Bones, Diseases of	1	21	26	17	65	.6	2.6	3.0	.8	1.8	
15 External Violence	14	113	160	124	411	17.1	15.2	9.3	5.6	8.0	
16 Other	13	141	229	200	583	21.6	22.0	14.3	10.2	12.9	
All Causes	77	678	1,474	1,906	4,135	100.0%	100.0%	100.0%	100.0%	100.0%	

TABLE 15/

DISTRIBUTION OF CODED CLAIMS BY CAUSE OF DISABILITY
CERTAIN CONTRIBUTORS ONLY
(Includes claims incurred in first two policy years)
BENEFIT 3—PERIOD 4

CAUSE	(1) NUMBER OF CLAIMS (POLICIES)				(2) PERCENTAGE DISTRIBUTION BASED ON AMOUNT				(3) CRUDE RATE OF DISABILITY PER 1,000 FROM TABLE 1c, DISTRIBUTED AS PER (2)			
	Ages at Policy Anniversary Preceding Disablement											
	30-39	40-49	50-59	All	30-39	40-49	50-59	All	30-39	40-49	50-59	
01 Pulmonary Tuberculosis	5	10	22	37	8.5%	3.6%	2.1%	2.5%	Insuffi- cient data	.19	.32	
02 Syphilis and sequelae		3	8	11		.7	.6	.6		.04	.09	
03 Malignant Neoplasms	1	33	95	129	1.4	8.7	10.1	9.6		.46	1.53	
04 Rheumatism, etc.	6	16	30	52	5.3	2.9	2.2	2.4		.15	.33	
05 Diabetes		1	2	3		.2	.2	.2		.01	.03	
06 Mental Disorders	9	32	47	88	19.4	8.2	5.0	5.9		.43	.76	
07 Eyes, Diseases of		7	15	22		1.2	1.1	1.1		.06	.17	
08-10 Cardiovascular	11	134	452	597	11.6	46.1	57.5	54.3		2.44	8.73	
11 Respiratory (excl. 01)	5	8	18	31	10.2	2.8	1.7	2.1		.15	.26	
12 Digestive System	5	23	57	85	6.0	6.4	5.4	5.6		.34	.82	
13 Nephritis	1	7	8	16	.7	1.2	.6	.8		.06	.09	
14 Bones, Diseases of	3	6	17	26	4.9	1.5	1.4	1.5		.08	.21	
15 External Violence	11	34	69	114	20.7	10.0	4.8	6.2		.53	.73	
16 Other	9	34	75	118	11.3	6.5	7.3	7.2		.34	1.11	
All Causes	66	348	915	1,329	100.0%	100.0%	100.0%	100.0%			5.28	15.18

TABLE 15m
 DISTRIBUTION OF CODED CLAIMS BY CAUSE OF DISABILITY
 CERTAIN CONTRIBUTORS ONLY
 (Includes claims incurred in first two policy years)
 BENEFIT 4—PERIOD 1

CAUSE	(1) NUMBER OF CLAIMS (POLICIES)					(2) PERCENTAGE DISTRIBUTION BASED ON AMOUNT					(3) CRUDE RATE OF DISABLE- MENT PER 1,000 FROM TABLE 1d, DISTRIBUTED AS PER (2)			
	Ages at Policy Anniversary Preceding Disablement													
	20-29	30-39	40-49	50-59	15-59*	20-29	30-39	40-49	50-59	15-59*	20-29	30-39	40-49	50-59
01 Pulmonary Tuberculosis.....	270	199	83	23	596	26.9%	15.6%	7.9%	4.4%	13.7%	.93	.75	.64	.91
02 Syphilis and sequelae.....	4	17	18	5	44	.7	.9	1.4	1.6	1.1	.02	.04	.11	.33
03 Malignant Neoplasms.....	9	21	43	13	87	.6	1.9	4.2	3.5	2.6	.02	.09	.34	.72
04 Rheumatism, etc.....	39	93	58	22	218	4.5	7.6	5.5	4.6	5.9	.15	.36	.44	.95
05 Diabetes.....	6	6	10	9	31	.7	1.1	.8	1.0	.9	.02	.05	.06	.21
06 Mental Disorders.....	77	95	48	19	247	6.4	7.5	4.0	6.2	6.0	.22	.36	.32	1.28
07 Eyes, Diseases of.....	12	12	23	9	57	1.2	1.0	2.2	.7	1.4	.04	.05	.18	.14
08-10 Cardiovascular.....	46	107	251	155	563	4.8	9.7	24.9	39.1	17.4	.16	.47	2.01	8.07
11 Respiratory (excl. 01).....	68	108	64	24	271	6.6	7.7	6.8	6.0	7.0	.23	.37	.55	1.24
12 Digestive System.....	98	161	104	29	399	11.2	11.1	9.0	4.0	9.5	.38	.53	.73	.83
13 Nephritis.....	7	14	5	12	38	.4	.7	.3	4.4	1.0	.01	.03	.02	.91
14 Bones, Diseases of.....	23	59	32	3	125	2.8	3.6	2.8	.9	2.9	.10	.17	.23	.19
15 External Violence.....	161	175	135	38	524	13.2	13.7	10.7	7.6	11.9	.45	.66	.86	1.57
16 Other.....	213	269	184	66	753	20.0	17.9	19.5	16.0	18.7	.68	.87	1.58	3.31
All Causes.....	1,033	1,336	1,058	427	3,953	100.0%	100.0%	100.0%	100.0%	100.0%	3.41	4.80	8.07	20.66

* Including data for ages under 20 not shown separately.

TABLE 15n

DISTRIBUTION OF CODED CLAIMS BY CAUSE OF DISABILITY
CERTAIN CONTRIBUTORS ONLY
(Includes claims incurred in first two policy years)
BENEFIT 4—PERIOD 2

CAUSE	(1) NUMBER OF CLAIMS (POLICIES)					(2) PERCENTAGE DISTRIBUTION BASED ON AMOUNT					(3) CRUDE RATE OF DISABLE- MENT PER 1,000 FROM TABLE 1d, DISTRIBUTED AS PER (2)			
	Ages at Policy Anniversary Preceding Disablement													
	20-29	30-39	40-49	50-59	15-59*	20-29	30-39	40-49	50-59	15-59*	20-29	30-39	40-49	50-59
01 Pulmonary Tuberculosis.....	73	106	61	20	260	19.9%	13.0%	6.9%	2.3%	8.2%	.49	.46	.45	.34
02 Syphilis and sequelae.....	1	8	11	12	32	.1	1.0	.8	1.3	.9	†	.04	.05	.19
03 Malignant Neoplasms.....	2	32	58	47	139	.9	3.8	6.5	6.3	5.4	.02	.14	.43	.94
04 Rheumatism, etc.....	22	49	55	38	164	7.7	5.4	6.4	5.9	6.1	.18	.19	.42	.88
05 Diabetes.....	1	6	2	8	17	.1	.6	.1	1.3	.5	†	.02	.01	.19
06 Mental Disorders.....	48	96	72	26	243	12.7	10.3	7.3	5.5	8.0	.30	.37	.48	.82
07 Eyes, Diseases of.....	8	8	13	10	39	5.1	1.8	1.4	1.5	1.8	.12	.06	.09	.22
08-10 Cardiovascular.....	14	65	249	260	589	2.8	9.0	27.7	41.7	24.8	.07	.32	1.81	6.22
11 Respiratory (excl. 01).....	19	57	56	27	159	5.6	7.0	6.0	2.6	5.4	.13	.25	.39	.39
12 Digestive System.....	38	80	89	50	257	11.2	8.5	7.6	7.5	8.1	.27	.30	.50	1.12
13 Nephritis.....	4	6	7	6	23	1.1	.8	.6	1.6	1.0	.03	.03	.04	.24
14 Bones, Diseases of.....	9	17	19	4	49	3.7	2.2	1.9	.6	1.8	.09	.08	.12	.09
15 External Violence.....	56	129	99	55	339	14.0	15.3	10.2	11.1	12.0	.34	.55	.67	1.66
16 Other.....	56	162	174	86	479	15.1	21.3	16.6	10.8	16.0	.36	.76	1.08	1.61
All Causes.....	351	821	965	649	2,789	100.0%	100.0%	100.0%	100.0%	100.0%	2.40	3.57	6.54	14.91

* Including data for ages under 20 not shown separately.

† Less than .005 per thousand.

TABLE 150

DISTRIBUTION OF CODED CLAIMS BY CAUSE OF DISABILITY
CERTAIN CONTRIBUTORS ONLY
(Includes claims incurred in first two policy years)
BENEFIT 4—PERIOD 3

CAUSE	(1) NUMBER OF CLAIMS (POLICIES)					(2) PERCENTAGE DISTRIBUTION BASED ON AMOUNT				
	Ages at Policy Anniversary Preceding Disablement									
	20-29	30-39	40-49	50-59	All	20-29	30-39	40-49	50-59	All
01 Pulmonary Tuberculosis . . .	20	117	91	47	275	17.2%	16.3%	6.6%	2.9%	6.4%
02 Syphilis and sequelae	2	7	12	11	30	. . . . .	.6	.8	.7	.7
03 Malignant Neoplasms	2	23	68	109	202	3.4	3.7	6.0	8.3	6.7
04 Rheumatism, etc	4	24	41	66	135	4.4	4.3	4.1	6.1	5.1
05 Diabetes		4	8	22	34	. . . . .	.3	.7	1.7	1.1
06 Mental Disorders	12	70	97	60	239	11.4	9.6	7.7	4.1	6.4
07 Eyes, Diseases of	2	7	11	21	41	4.8	1.2	.9	1.2	1.1
08-10 Cardiovascular	5	73	331	607	1,016	7.5	12.3	32.3	48.2	36.5
11 Respiratory (excl. 01)	1	32	49	61	143	.7	5.7	4.2	4.0	4.3
12 Digestive System	5	58	123	74	260	4.4	10.2	10.5	6.1	8.3
13 Nephritis		7	12	3	22	. . . . .	1.0	.6	.4	.6
14 Bones, Diseases of	6	17	29	17	69	5.8	2.7	2.3	1.1	1.8
15 External Violence	22	71	106	72	271	22.4	12.5	7.9	4.5	7.1
16 Other	13	140	171	145	469	18.0	19.6	15.4	10.7	13.9
All Causes	92	650	1,149	1,315	3,206	100.0%	100.0%	100.0%	100.0%	100.0%

Claim rates not available for Period 3

TABLE 15p
 DISTRIBUTION OF CODED CLAIMS BY CAUSE OF DISABILITY
 CERTAIN CONTRIBUTORS ONLY
 (Includes claims incurred in first two policy years)
 BENEFIT 4—PERIOD 4

CAUSE	(1) NUMBER OF CLAIMS (POLICIES)				(2) PERCENTAGE DISTRIBUTION BASED ON AMOUNT				(3) CRUDE RATE OF DISABILITY PER 1,000 FROM TABLE 1d, DISTRIBUTED AS PER (2)		
	Ages at Policy Anniversary Preceding Disablement										
	30-39	40-49	50-59	All	30-39	40-49	50-59	All	30-39	40-49	50-59
01 Pulmonary Tuberculosis.....	19	22	20	61	13.6%	3.4%	1.5%	2.5%	Insuffi- cient data	.13	.17
02 Syphilis and sequelae.....		4	6	10		.6	.5	.5		.02	.06
03 Malignant Neoplasms.....	1	42	79	122	.9	8.0	6.8	7.0		.31	.76
04 Rheumatism, etc.....	4	22	53	79	4.6	4.6	5.3	5.1		.18	.59
05 Diabetes.....	3	5	21	29	1.4	.5	2.1	1.6		.02	.24
06 Mental Disorders.....	13	69	39	121	10.7	12.3	4.1	6.9		.48	.46
07 Eyes, Diseases of.....		9	17	26		2.5	1.7	1.9		.10	.19
08-10 Cardiovascular.....	12	180	471	663	8.5	38.8	55.3	48.5		1.50	6.18
11 Respiratory (excl. 01).....	3	13	25	41	2.3	2.7	1.9	2.1		.10	.21
12 Digestive System.....	6	30	47	83	8.2	6.1	5.5	5.8		.24	.62
13 Nephritis.....	6	4	3	13	4.6	.7	.2	.5		.03	.02
14 Bones, Diseases of.....	1	13	11	25	.5	2.8	.7	1.4		.11	.08
15 External Violence.....	22	35	50	107	18.4	5.2	3.9	4.8		.20	.44
16 Other.....	21	67	106	194	26.3	11.8	10.5	11.4		.46	1.18
All Causes.....	111	515	948	1,574	100.0%	100.0%	100.0%	100.0%		3.88	11.20

TABLE 15g
DISTRIBUTION OF CODED CLAIMS BY CAUSE OF DISABILITY
CERTAIN CONTRIBUTORS ONLY
(Includes claims incurred in first two policy years)
BENEFIT 5—PERIOD 2

CAUSE	(1) NUMBER OF CLAIMS (POLICIES)					(2) PERCENTAGE DISTRIBUTION BASED ON AMOUNT					(3) CRUDE RATE OF DISABLE- MENT PER 1,000 FROM TABLE 1c, DISTRIBUTED AS PER (2)				
	Ages at Policy Anniversary Preceding Disablement														
	20-29	30-39	40-49	50-59	15-59*	20-29	30-39	40-49	50-59	15-59*	20-29	30-39	40-49	50-59	
01 Pulmonary Tuberculosis.....	275	207	100	17	608	39.1%	18.6%	9.3%	2.4%	16.0%	.38	.24	.20	.12	
02 Syphilis and sequelae.....	3	5	10	4	22	.3	.5	.5	1.0	.5	†	.01	.01	.05	
03 Malignant Neoplasms.....	7	32	49	28	117	.9	5.2	7.0	9.6	5.8	.01	.07	.15	.50	
04 Rheumatism, etc.....	32	44	27	19	125	3.9	3.5	2.0	3.7	3.1	.04	.05	.04	.19	
05 Diabetes.....	1		5	4	11			.7	1.0	.4	†		.02	.05	
06 Mental Disorders.....	92	113	87	34	336	12.4	11.0	13.1	9.0	11.7	.12	.14	.28	.46	
07 Eyes, Diseases of.....	2	7	12	6	28	.1	1.0	.8	1.1	.8	†	.01	.02	.06	
08-10 Cardiovascular.....	19	126	226	157	529	3.6	14.2	31.0	50.0	23.9	.03	.18	.66	2.57	
11 Respiratory (excl. 01).....	26	63	28	10	128	5.7	9.1	2.6	1.6	5.1	.05	.12	.06	.08	
12 Digestive System.....	29	78	33	23	165	2.7	7.3	3.4	4.2	4.7	.03	.09	.07	.22	
13 Nephritis.....	2	3	7	1	13	.1	.4	1.3	.3	.7	†	.01	.03	.02	
14 Bones, Diseases of.....	29	28	11	3	72	4.6	2.9	1.0	.3	2.1	.04	.04	.02	.02	
15 External Violence.....	104	105	84	19	321	13.1	12.5	11.7	6.9	11.5	.13	.16	.25	.36	
16 Other.....	91	127	107	37	370	13.5	13.8	15.6	8.9	13.7	.13	.18	.34	.46	
All Causes.....	712	938	786	362	2,845	100.0%	100.0%	100.0%	100.0%	100.0%	.96	1.30	2.15	5.16	

* Including data for ages under 20 not shown separately.

† Less than .005 per thousand.

TABLE 15r

DISTRIBUTION OF CODED CLAIMS BY CAUSE OF DISABILITY
CERTAIN CONTRIBUTORS ONLY
(Includes claims incurred in first two policy years)
BENEFIT 5—PERIOD 3

CAUSE	(1) NUMBER OF CLAIMS (POLICIES)					(2) PERCENTAGE DISTRIBUTION BASED ON AMOUNT				
	Ages at Policy Anniversary Preceding Disablement									
	20-29	30-39	40-49	50-59	15-59*	20-29	30-39	40-49	50-59	15-59*
01 Pulmonary Tuberculosis . . .	419	518	264	70	1,285	39.3%	22.4%	9.1%	4.2%	13.7%
02 Syphilis and sequelae	5	20	22	18	65	.3	.7	.5	.8	.6
03 Malignant Neoplasms	11	90	188	119	408	1.6	4.0	6.7	6.5	5.5
04 Rheumatism, etc.	40	78	108	87	318	4.1	4.2	3.7	3.2	3.7
05 Diabetes	1	4	12	12	29	.1	.3	.6	.6	.3
06 Mental Disorders	138	236	156	73	609	11.3	10.6	5.7	4.8	7.1
07 Eyes, Diseases of	5	14	28	47	94	.2	.9	1.5	2.1	1.4
08-10 Cardiovascular	31	285	783	894	1,998	2.3	16.3	37.7	54.7	34.2
11 Respiratory (excl. 01)	37	55	59	79	234	3.6	2.5	1.9	3.0	2.5
12 Digestive System	45	110	127	64	348	5.9	6.5	5.4	4.9	5.6
13 Nephritis	5	14	10	17	46	.3	.5	.3	.5	.4
14 Bones, Diseases of	21	69	51	40	186	1.5	3.5	2.3	1.6	2.3
15 External Violence	147	250	197	100	708	15.0	11.8	7.7	3.6	8.2
16 Other	156	337	368	174	1,043	14.6	16.0	17.2	9.5	14.5
All Causes	1,061	2,080	2,373	1,794	7,371	100.0%	100.0%	100.0%	100.0%	100.0%

Claim rates not
available for
Period 3

* Including data for ages under 20 not shown separately.

TABLE 15s

DISTRIBUTION OF CODED CLAIMS BY CAUSE OF DISABILITY
CERTAIN CONTRIBUTORS ONLY
(Includes claims incurred in first two policy years)
BENEFIT 5—PERIOD 4

CAUSE	(1) NUMBER OF CLAIMS (POLICIES)					(2) PERCENTAGE DISTRIBUTION BASED ON AMOUNT					(3) CRUDE RATE OF DISABLE- MENT PER 1,000 FROM TABLE 1c, DISTRIBUTED AS PER (2)			
	Ages at Policy Anniversary Preceding Disablement													
	20-29	30-39	40-49	50-59	15-59*	20-29	30-39	40-49	50-59	15-59*	20-29	30-39	40-49	50-59
01 Pulmonary Tuberculosis.....	151	304	241	60	765	31.2%	20.8%	9.2%	2.1%	9.8%	.19	.15	.15	.10
02 Syphilis and sequelae.....		9	19	7	35		1.0	.5	.2	.4		.01	.01	.01
03 Malignant Neoplasms.....	14	79	252	262	610	2.2	5.5	9.9	12.4	9.6	.01	.04	.16	.59
04 Rheumatism, etc.....	16	49	75	78	220	1.8	2.9	3.0	2.4	2.7	.01	.02	.05	.11
05 Diabetes.....		3	13	23	39		.1	.8	.9	.7		†	.01	.04
06 Mental Disorders.....	63	198	190	113	568	10.0	11.1	6.6	4.6	6.8	.07	.08	.11	.22
07 Eyes, Diseases of.....	8	12	45	39	105	.9	.7	1.8	1.4	1.4	.01	.01	.03	.07
08-10 Cardiovascular.....	22	174	807	1,148	2,151	3.8	16.2	38.5	56.7	39.4	.03	.11	.65	2.70
11 Respiratory (excl. 01).....	5	24	66	56	153	.9	1.2	2.2	1.7	1.8	.01	.01	.04	.08
12 Digestive System.....	14	68	79	86	248	3.0	4.9	3.8	4.0	4.0	.02	.04	.06	.19
13 Nephritis.....	11	6	18	6	41	2.6	.4	.6	.1	.5	.02	†	.01	†
14 Bones, Diseases of.....	11	50	48	28	138	2.3	3.5	2.1	.9	1.9	.02	.03	.03	.04
15 External Violence.....	89	225	219	108	654	20.5	14.5	9.3	4.1	9.0	.14	.11	.15	.19
16 Other.....	119	272	314	238	953	20.8	17.2	11.7	8.5	12.0	.14	.13	.19	.40
All Causes.....	523	1,473	2,386	2,252	6,680	100.0%	100.0%	100.0%	100.0%	100.0%	.67	.74	1.65	4.74

* Including data for ages under 20 not shown separately.

† Less than .005 per thousand.

TABLE 16
SUMMARY COMPARISON BY PERIOD AND BENEFIT OF DISABLE-
MENT EXPERIENCE BY CAUSE
RATIOS OF ACTUAL TO EXPECTED CLAIMS
AGES AT DISABLEMENT 20 AND OVER COMBINED

CAUSE	BENEFIT	RELATIVE EXPERIENCE BY PERIOD (Expected claims by Period 2 denary age group rates for each benefit)			RELATIVE EXPERIENCE BY BENEFIT (Expected claims by Benefit 2 denary age group rates for each period)		
		Period 1	Period 2	Period 4	Period 1	Period 2	Period 4
Pulmonary Tuberculosis (01)	1	147%	100%	41%	109%	92%	(89%)
	2	138	100	(44)	100	100	(100)
	3	167	100	(54)	154	116	(122)
	4	182	100	38	136	99	(76)
	5	.....	100	72	.....	62	(58)
Syphilis and sequelae (02)	1	(235)	(100)	(27)	84	(47)	*
	2	132	100	*	100	100	*
	3	(153)	(100)	(41)	91	(78)	*
	4	(172)	(100)	(32)	(76)	(63)	*
	5	.....	(100)	(47)	.....	(13)	*
Malignant Neoplasms (03)	1	108	100	114	82	59	81
	2	77	100	78	100	100	100
	3	97	100	104	129	102	122
	4	72	100	76	69	77	63
	5	.....	100	104	.....	32	36
Rheumatism, etc. (04)	1	140	100	73	81	63	(92)
	2	98	100	(59)	100	100	(100)
	3	149	100	33	212	140	(82)
	4	129	100	57	130	106	(128)
	5	.....	100	68	.....	19	(36)
Diabetes (05)	1	(139)	(100)	(82)	58	(85)	(110)
	2	183	100	(71)	100	100	(100)
	3	(234)	(100)	*	105	(96)	*
	4	(273)	(100)	(123)	(60)	(47)	(119)
	5	.....	(100)	(76)	.....	(13)	(31)
Mental Disorders (06)	1	134	100	77	102	82	41
	2	114	100	157	100	100	100
	3	109	100	73	173	182	96
	4	89	100	73	110	133	78
	5	.....	100	47	.....	63	27
Eyes, Diseases of (07)	1	179	100	(69)	83	71	(134)
	2	138	100	(42)	100	100	(100)
	3	113	100	(45)	113	143	(139)
	4	(94)	(100)	(88)	95	(121)	(172)
	5	.....	(100)	(118)	.....	(20)	(63)

NOTE: Ratios in parentheses indicate that the data underlying such ratios (numerator, denominator or both) were based on less than 50 but not less than 10 claims.

* Ratios omitted where data that would have entered such ratios were based on less than ten claims.

TABLE 16—Continued

CAUSE	BENEFIT	RELATIVE EXPERIENCE BY PERIOD (Expected claims by Period 2 denary age group rates for each benefit)			RELATIVE EXPERIENCE BY BENEFIT (Expected claims by Benefit 2 denary age group rates for each period)		
		Period 1	Period 2	Period 4	Period 1	Period 2	Period 4
Cardiovascular Disease (08), (09), (10)	1	91	100	75	81	93	82
	2	97	100	85	100	100	100
	3	97	100	99	123	133	150
	4	113	100	94	96	92	102
	5	.....	100	95	.....	35	45
Respiratory Disease (excl. Tuberculosis) (11)	1	97	100	52	28	51	(68)
	2	152	100	(50)	100	100	(100)
	3	122	100	(30)	121	148	(92)
	4	165	100	(36)	95	87	(73)
	5	.....	100	35	.....	28	(33)
Digestive System (12)	1	140	100	52	27	27	32
	2	123	100	50	100	100	100
	3	134	100	38	159	142	110
	4	151	100	51	81	68	83
	5	.....	100	71	.....	14	25
Nephritis (13)	1	146	100	(29)	86	70	(33)
	2	111	100	(57)	100	100	(100)
	3	(123)	(100)	(47)	145	(135)	(85)
	4	(137)	(100)	(29)	(101)	(79)	(44)
	5	.....	(100)	(46)	.....	(21)	(18)
Bones, Diseases of (14)	1	137	100	(57)	67	75	(41)
	2	137	100	(133)	100	100	(100)
	3	160	100	(77)	153	122	(69)
	4	(193)	(100)	(82)	105	(69)	(45)
	5	.....	100	107	.....	26	(27)
External Violence (15)	1	141	100	(43)	15	17	(24)
	2	144	100	44	100	100	100
	3	152	100	48	140	129	143
	4	126	100	30	78	94	75
	5	.....	100	67	.....	29	43
Other (16)	1	136	100	77	44	40	81
	2	117	100	43	100	100	100
	3	134	100	34	142	120	95
	4	146	100	58	84	71	104
	5	.....	100	72	.....	20	36
All Causes	1	120%	100%	72%	58%	61%	72%
	2	116	100	69	100	100	100
	3	128	100	67	142	130	125
	4	133	100	68	94	87	92
	5	.....	100	77	.....	30	39

TABLE 17

PERSISTENCY INDEX BY CAUSE OF DISABILITY FOR CLAIMS ARISING IN PERIODS 1 AND 2
 APPROXIMATE RATIO OF CLAIM EXPECTATION FOR EACH CAUSE TO CLAIM EXPECTATION FOR ALL CAUSES COMBINED
 BASED ON NUMBER

CAUSE	BENEFIT 1				BENEFITS 2 AND 3 COMBINED				BENEFIT 4				BENEFIT 5			
	Age at Policy Anniversary Preceding Disablement															
	20-29	30-39	40-49	50-59	20-29	30-39	40-49	50-59	20-29	30-39	40-49	50-59	20-29	30-39	40-49	50-59
01 Pulmonary Tuberculosis	.60	.64	.72	.75	1.15	1.08	1.02	1.06	1.06	1.16	.78	*	.83	.77	.80	*
02 Syphilis and sequelae	*	1.29	1.40	1.05	*	2.57	1.76	1.41	*	*	*	*	*	*	*	*
03 Malignant Neoplasms	*	.13	.22	.25	.60	.40	.40	.34	*	.22	.33	.41	*	*	.24	*
04 Rheumatism, etc.	1.46	1.42	1.35	1.69	1.18	1.38	1.27	1.37	1.07	1.13	1.30	1.39	*	1.16	*	*
05 Diabetes	*	*	*	*	*	1.69	1.29	1.36	*	*	*	*	*	*	*	*
06 Mental Disorders	1.98	1.47	1.29	1.19	3.13	1.88	1.41	.95	2.48	1.67	1.14	*	2.44	1.59	1.18	*
07 Eyes, Diseases of	*	*	1.88	1.49	*	2.55	1.99	1.76	*	*	*	*	*	*	*	*
08-10 Cardiovascular	1.13	1.04	.95	.97	1.23	1.51	1.44	1.20	1.16	1.53	1.31	1.09	*	.97	1.28	1.13
11 Respiratory (excl. 01)	*	1.25	.85	.95	.83	.74	.72	.92	.54	.83	.90	1.00	*	.76	*	*
12 Digestive System	*	.93	.94	1.07	.37	.52	.70	.75	.47	.62	.78	.89	*	.67	.65	*
13 Nephritis	*	*	*	*	*	.76	.57	.69	*	*	*	*	*	*	*	*
14 Bones, Diseases of	*	.94	1.52	1.43	.64	.90	.95	1.39	*	.71	1.20	*	*	*	*	*
15 External Violence	*	.94	1.31	1.40	.51	.50	.52	.63	.50	.68	.66	.71	.52	.67	.44	*
16 Other	1.07	1.21	1.13	1.19	.92	1.01	.97	.97	.92	.83	.94	1.10	.99	1.22	1.16	*
All Causes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

* Ratios omitted where there were less than 50 claims.

APPENDIX

Graduation of Period 2 Rates of Disablement

The individual age disablement rates for Period 2 were graduated by the Whittaker-Henderson "A" formula minimizing third differences, with $a^* = 4$. At the youngest ages, rates based on exposures of less than \$5 million of life insurance at a single age were excluded from the graduation. The indications as to the trend of the rates at the youngest ages were somewhat contradictory as between benefits and periods; as these rates were in most cases based on only small amounts of exposure, some graphic adjustments were made. The exposure at the oldest ages for Benefit 4 was quite small, and as the rates for this benefit appeared to approach those for Benefit 2, a common set of rates was adopted for these two benefits above age 55. In the case of Benefit 5, there was very light experience at the oldest ages in Period 2, and a graphic adjustment was made after considering the corresponding results in Period 4. The tests of graduation are summarized in Table A.

Graduation of Termination Rates

It will be seen that the select annual termination rates for a given age group at disability decrease very sharply from the high early levels for a number of durations and then level off—in the case of death rates actually commencing to increase. It was found that graduation formulae minimizing second or third differences were not flexible enough to meet this condition. The Whittaker-Henderson formula minimizing fourth differences was finally adopted. It was possible to employ it without excessive labor through the use of a method⁹ worked out by B. Neff and employing the electronic multiplying punch (IBM 604).

The select annual probabilities of death and recovery for disability years 2 and over were first graduated within each duration by age groups. This graduation was performed by using the Whittaker-Henderson Type B formula, minimizing fourth differences, with $h^* = 100$, and weighting the rates for the respective age groups by the following common set of weights based on the number exposed by age groups for all durations

* As defined in "Elements of Graduation," Miller.

⁹ This method is suitable only where, as in the present case, a number of series of equal length are to be graduated. Improved techniques for graduating a single series by means of the electronic multiplying punch, minimizing third differences, were worked out by Messrs. McMahon and Neff and employed in other phases of the graduation.

TABLE A
PERIOD 2 RATES OF DISABLEMENT—SUMMARY OF TESTS OF GRADUATION
Unit—\$1,000 of Life Insurance

Attained Ages	Actual Claims	Expected Claims*	Actual minus Expected	Actual Claims	Expected Claims*	Actual minus Expected
	BENEFIT 1			BENEFIT 2		
20-24.....	\$ 24.0	\$ 31.9	\$- 7.9	\$ 142.9	\$ 165.0	\$- 22.1
25-29.....	297.5	290.7	6.8	1,492.1	1,443.6	48.5
30-34.....	691.1	676.6	14.5	4,092.2	4,068.2	24.0
35-39.....	1,167.0	1,260.1	- 93.1	7,186.1	7,218.7	- 32.6
40-44.....	2,425.1	2,226.2	198.9	11,152.5	11,312.2	-159.7
45-49.....	2,618.6	2,880.0	-261.4	15,305.5	15,342.3	- 36.8
50-54.....	3,363.7	3,122.4	241.3	17,484.0	16,867.3	616.7
55-59.....	2,567.2	2,678.0	-110.8	15,014.4	15,549.9	-535.5
Total.....	\$13,154.2	\$13,165.9	\$- 11.7	\$71,869.7	\$71,967.2	\$- 97.5
	BENEFIT 3			BENEFIT 4		
15-19.....				\$ 4.0	\$ 12.2	\$- 8.2
20-24.....	\$ 493.2	\$ 439.5	\$ 53.7	395.7	359.5	36.2
25-29.....	2,333.4	2,288.0	45.4	1,013.3	1,084.9	- 71.6
30-34.....	4,845.7	4,909.3	- 63.6	2,105.6	2,079.8	25.8
35-39.....	7,796.6	7,895.2	- 98.6	2,984.5	2,902.0	82.5
40-44.....	11,311.2	11,325.8	- 14.6	3,421.1	3,688.7	-267.6
45-49.....	12,827.4	12,603.7	223.7	3,828.8	3,689.7	139.1
50-54.....	11,230.6	11,328.1	- 97.5	3,145.3	3,063.8	81.5
55-59.....	8,560.2	8,661.9	-101.7	1,758.9	1,770.1	- 11.2
Total.....	\$59,398.3	\$59,451.5	\$- 53.2	\$18,657.2	\$18,650.7	\$ 6.5
	BENEFIT 5					
15-19.....	\$ 26.0	\$ 25.9	\$.1			
20-24.....	217.3	217.2	.1			
25-29.....	581.5	625.3	- 43.8			
30-34.....	1,050.5	996.5	54.0			
35-39.....	1,126.1	1,165.7	- 39.6			
40-44.....	1,298.9	1,264.2	34.7			
45-49.....	1,107.3	1,093.6	13.7			
50-54.....	856.6	852.4	4.2			
55-59.....	408.9	436.8	- 27.9			
Total.....	\$6,673.1	\$6,677.6	\$- 4.5			

* Computed by individual age rates.

and benefits combined. (A common set of weights was required in order to adapt the formula to machine capabilities.)

Age Group	Weight	Age Group	Weight	Age Group	Weight
15-19	0.64	30-34	9.11	45-49	17.32
20-24	3.44	35-39	11.82	50-54	19.01
25-29	6.66	40-44	14.61	55-59	17.39

The probabilities resulting from this first graduation were then re-graduated, by duration within each age group, by the same formula as just described except that weighting was dispensed with and conditions were imposed to secure a smooth junction of the select and ultimate curves at the appropriate duration (after 15 years for death rates, after 10 years for recovery rates).

Disability year 1 was excluded from the above steps. It was treated as a special case, chiefly because of its inclusion of the waiting period. The graduated annual rate for disability year 1 was obtained by constructing continuance tables from the graduated monthly probabilities referred to in the following paragraph.

Monthly rates for the first two disability years were graduated in a similar manner, except that the second graduation (within each age group by duration) minimized third differences (using $a = 3$) and blended into one-twelfth of the force of mortality or recovery at the 25th, 26th, and 27th months, derived from the graduated annual rates for years 3 to 6. (These monthly-rate graduations were performed on true rates, not probabilities, and the results converted to probabilities.) The monthly probabilities for disability year 2 were adjusted slightly so as to reconcile exactly to the annual rates for year 2 which had been obtained in the graduation of annual rates for years 2 and over.

Some contributions recorded scattered terminations (mostly deaths) during the waiting period. These presumably arose under provisions waiving the waiting period for definitely permanent conditions such as loss of limbs. Other contributions reported similar terminations as if they had occurred at the end of the waiting period. For uniformity and convenience, all such terminations were treated in the graduated rates as if they had occurred in the first month after the waiting period.

Ultimate rates were derived and graduated as follows. For all income benefits combined, all periods combined, there was formed a table of death rates at durations over 15 years and a table of recovery rates at durations over 10 years. These were graduated by the Whittaker-Henderson formula, minimizing second differences for recoveries, with $a = 3.0$, and minimizing third differences for deaths, with $a = 3.6$ (in the case of

death rates the function graduated was the excess of the observed death rate over the basic table underlying the CSO Table¹⁰). The table of ultimate death rates was extended to the end of life by assuming, from age 73 on, a constant excess of 20 per thousand over the basic table referred to. The expected deaths and expected recoveries according to these tables were compared with the actual, separately for Benefit 1 and for the combined Benefits 2 and 3, and adjustments were applied to obtain a set of tables which would reproduce the total actual deaths and total actual recoveries for each of these two benefit groups.

TABLE B

COMPARISON OF GRADUATED AND CRUDE DISABILITY ANNUITY VALUES
1930-1950 EXPERIENCE
VALUE AT DATE OF DISABLEMENT OF \$1 PAYABLE AT END OF EACH YEAR
Interest at 3%

AGE AT POL. ANNIV. PRECEDING DISABLEMENT	BENEFIT 1		BENEFIT 2		BENEFIT 3		BENEFIT 5	
	Grad.	Crude	Grad.	Crude	Grad.	Crude	Grad.*	Crude†
15-19.....	\$ 5.33	\$ 5.49	\$ 2.51	\$ 2.89	\$ 2.18	\$ 1.76	\$ 3.14	\$ 3.04
20-24.....	6.22	6.29	2.77	2.80	2.34	2.02	2.96	3.10
25-29.....	6.87	6.36	3.05	3.27	2.61	2.55	2.90	3.06
30-34.....	7.27	7.22	3.35	3.37	2.93	2.78	3.02	2.89
35-39.....	7.35	7.61	3.66	3.76	3.29	3.34	3.30	3.24
40-44.....	7.23	7.24	3.99	3.81	3.66	3.54	3.74	3.74
45-49.....	6.96	6.91	4.31	4.22	4.03	4.13	4.30	4.25
50-54.....	6.70	6.61	4.71	4.81	4.43	4.48	5.00	4.79
55-59.....	6.50	6.62	5.21	5.22	4.90	4.85	5.78	5.67
Sum All Ages..	\$60.43	\$60.35	\$33.56	\$34.15	\$30.37	\$29.45	\$34.14	\$33.78

* Using rates of Benefits 2 and 3 combined from end of 15th year.

† Because of scanty data, the graduated rates were used from the end of the 10th year (using those for Benefits 2 and 3 combined from the end of the 15th year).

The results of the graduation by formula are presented with a minimum of arbitrary adjustment. At age group 15-19, the graduated Benefit 5 death rate for the second disability year appeared too low and was increased to be in line with other results. In a few cases the graduated select rates as originally calculated were slightly below the ultimate curve just before the junction point, or remained slightly above it at the junction point; in these cases the ultimate rates were substituted.

The graduated annual termination rates reproduce the crude annuity values rather closely, as indicated by Tables B and C. A summary comparison is also given, in Tables D to F, between the actual terminations and those expected according to the graduated tables.

¹⁰ TASA, XLIII, 85.

TABLE C
COMPARISON OF GRADUATED AND CRUDE DISABILITY ANNUITY VALUES
1930-1950 EXPERIENCE
VALUE AT VARIOUS DURATIONS OF \$1 PAYABLE AT END OF EACH YEAR
Interest at 3%

AGE AT POL. ANNIV. PRECEDING DISABLEMENT	BENEFIT 1		BENEFITS 2 AND 3 COMBINED		BENEFIT 5	
	Graduated	Crude	Graduated	Crude	Graduated*	Crude†
1 Year after Date of Disablement						
15-19	\$ 5.29	\$ 5.57	\$ 4.06	\$ 4.16	\$ 2.93	\$ 3.06
20-24	6.23	6.32	4.62	4.33	2.85	3.01
25-29	7.05	6.47	5.19	5.41	2.91	2.98
30-34	7.69	7.60	5.73	5.56	3.19	3.00
35-39	8.01	8.17	6.19	6.33	3.65	3.52
40-44	8.04	8.20	6.52	6.33	4.26	4.20
45-49	7.78	7.74	6.65	6.61	4.94	4.93
50-54	7.39	7.25	6.68	6.77	5.61	5.20
55-59	6.89	7.06	6.59	6.59	6.13	6.03
Sum All Ages	\$64.37	\$64.38	\$52.23	\$52.09	\$36.47	\$35.93
5 Years after Date of Disablement						
15-19	\$ 8.29	\$ 8.87	\$ 7.98	\$ 8.00	\$ 7.36	\$ 9.64
20-24	9.34	9.20	8.69	7.93	7.74	8.15
25-29	10.11	9.33	9.30	9.47	8.15	7.92
30-34	10.57	10.51	9.75	9.69	8.53	8.60
35-39	10.49	10.49	9.92	9.79	8.76	8.35
40-44	10.03	9.83	9.76	9.41	8.79	8.13
45-49	9.21	9.06	9.17	8.95	8.52	8.01
50-54	8.26	8.34	8.41	8.46	8.06	7.50
55-59	7.19	7.25	7.49	7.49	7.38	6.89
Sum All Ages	\$83.49	\$82.88	\$80.47	\$79.19	\$73.29	\$73.19
15 Years after Date of Disablement						
15-19	\$11.71	\$11.37	\$10.26	\$10.13	No Data	No Data
20-24	11.91	11.66	10.45	10.69		
25-29	11.76	11.62	10.51	10.73		
30-34	11.28	11.47	10.38	10.33		
35-39	10.48	10.63	9.94	9.93		
40-44	9.37	9.52	9.13	9.09		
45-49	8.15	8.34	8.12	8.27		
50-54	6.91	6.92	7.04	7.20		
55-59	5.63	5.93	5.82	6.23		
Sum All Ages	\$87.20	\$87.46	\$81.65	\$82.60		

* See footnote to Table B.

† See footnote to Table B.

TABLE D
SUMMARY OF TEST OF GRADUATION OF ANNUAL TERMINATION RATES
1930-1950 ACTUAL TERMINATIONS
COMPARED WITH EXPECTED BY GRADUATED TERMINATION RATES OF TABLE 7

	BENEFIT 1			BENEFITS 2 AND 3 COMBINED			BENEFIT 5		
	Actual Terminations		Ratio of Actual Amts. to Exp.	Actual Terminations		Ratio of Actual Amts. to Exp.	Actual Terminations		Ratio of Actual Amts. to Exp.
	Number	Amount*		Number	Amount*		Number	Amount*	
SUMMARIZED BY DURATION									
Disability Year									
1	2,817	\$101,141	101%	68,318	\$2,397,449	100%	5,796	\$ 875,900	98%
2	2,317	77,953	103	24,044	821,738	106	6,024	824,724	105
3	1,622	52,449	99	10,767	385,619	90	2,681	347,760	94
4	1,166	37,154	96	6,848	250,380	92	1,277	153,799	87
5	875	27,887	93	5,040	190,612	102	736	98,668	105
6	1,818	58,478	99	3,905	143,121	102	419	52,541	98
7	1,532	52,753	107	3,041	124,015	107	247	36,672	108
8	1,304	46,139	110	2,605	106,535	108	154	26,209	114
9	999	33,927	95	2,096	85,988	100	145	19,728	122
10	922	33,477	109	1,839	73,884	99	77	17,349	166
11-15	2,716	94,625	101	6,001	251,765	105	115	14,583	80
1-15	18,088	\$615,983	101%	134,504	\$4,831,106	100%	17,671	\$2,467,933	100%
16 and over	1,310	47,352	98	2,331	101,471	93	4	683	100†
All Years	19,398	\$663,335	101%	136,835	\$4,932,577	100%	17,675	\$2,468,616	100%
SUMMARIZED BY AGE AT POLICY ANNIVERSARY PRECEDING DISABLEMENT (Disability Years 1 to 15 Only)									
Ages									
15-19	127	\$ 1,855	94%	981	\$ 17,062	103%	230	\$ 10,925	110%
20-24	686	11,919	100	5,469	109,269	103	1,055	54,558	97
25-29	1,231	26,196	110	10,418	248,967	99	1,887	133,116	94
30-34	1,631	42,063	103	14,129	400,810	101	2,497	225,676	103
35-39	1,897	57,845	97	17,666	581,144	99	2,780	318,297	100
40-44	2,489	88,190	101	20,958	775,773	102	2,918	464,536	98
45-49	3,009	111,069	103	23,158	940,595	100	2,933	539,537	100
50-54	3,492	140,019	101	22,557	953,234	99	2,209	471,379	100
55-59	3,526	136,827	100	19,168	804,252	101	1,162	249,909	100
All Ages	18,088	\$615,983	101%	134,504	\$4,831,106	100%	17,671	\$2,467,933	100%

* \$100 of Life Insurance for income benefits, dollars of annual premiums waived for Benefit 5.

† Expected for Benefit 5 by ultimate rates for Benefits 2 and 3 combined for disability years 16 and over.

TABLE E
SUMMARY OF TEST OF GRADUATION OF ANNUAL RECOVERY PROBABILITIES
1930-1950 ACTUAL RECOVERIES
COMPARED WITH EXPECTED BY GRADUATED RECOVERY RATES OF TABLE 7

	BENEFIT 1		BENEFITS 2 AND 3 COMBINED				BENEFIT 5		
	Actual Recoveries		Ratio of Actual		Actual Recoveries		Ratio of Actual		
	Number	Amount*	Amts. to Exp.	Number	Amount*	Amts. to Exp.	Number	Amount*	
SUMMARIZED BY DURATION									
Disability Year									
1	409	\$ 15,213	99%	57,615	\$1,987,593	100%	4,207	\$ 625,992	98%
2	1,040	32,952	98	17,079	566,134	108	4,783	643,853	106
3	781	24,760	107	6,809	229,440	86	2,027	240,934	90
4	544	15,539	95	4,003	139,619	93	882	97,276	83
5	387	10,466	89	2,626	87,282	97	483	61,653	110
6	656	18,124	109	1,902	63,924	110	274	30,561	107
7	458	11,425	93	1,343	48,214	109	117	13,595	85
8	387	10,711	116	1,130	41,297	114	83	16,355	164
9	279	7,110	100	897	33,192	109	70	8,378	131
10	241	6,233	111	718	25,200	97	36	10,988	281
11-15	649	16,893	106	2,274	86,023	108	38	3,109	52
1-15	5,831	\$169,426	102%	96,396	\$3,307,918	100%	13,000	\$1,752,694	100%
16 and over	191	5,597	83	624	23,536	77	1	306	101†
All Years	6,022	\$175,023	101%	97,020	\$3,331,454	100%	13,001	\$1,753,000	100%
SUMMARIZED BY AGE AT POLICY ANNIVERSARY PRECEDING DISABLEMENT (Disability Years 1 to 15 Only)									
Ages									
15-19	76	\$ 1,145	98%	849	\$ 14,942	106%	215	\$ 10,037	112%
20-24	421	7,149	97	4,780	96,300	102	932	49,041	97
25-29	706	15,894	109	9,145	220,130	99	1,651	117,963	95
30-34	944	25,052	110	12,154	347,052	101	2,075	191,026	102
35-39	948	26,663	96	14,680	482,388	100	2,252	262,487	100
40-44	906	30,003	95	16,375	600,143	103	2,158	360,907	99
45-49	847	29,795	111	15,963	633,008	99	1,967	382,960	101
50-54	622	21,611	100	13,351	548,067	99	1,264	274,295	98
55-59	361	12,114	91	9,099	365,888	101	486	103,978	102
All Ages	5,831	\$169,426	102%	96,396	\$3,307,918	100%	13,000	\$1,752,694	100%

* \$100 of Life Insurance for income benefits, dollars of annual premiums waived for Benefit 5.

† Expected for Benefit 5 by ultimate rates for Benefits 2 and 3 combined for disability years 16 and over.

TABLE F

SUMMARY OF TEST OF GRADUATION OF ANNUAL DEATH PROBABILITIES
1930-1950 ACTUAL DEATHS
COMPARED WITH EXPECTED BY GRADUATED DEATH RATES OF TABLE 7

	BENEFIT 1			BENEFITS 2 AND 3 COMBINED			BENEFIT 5		
	Actual Deaths		Ratio of Actual Amts. to Exp.	Actual Deaths		Ratio of Actual Amts. to Exp.	Actual Deaths		Ratio of Actual Amts. to Exp.
	Number	Amount*		Number	Amount*		Number	Amount*	
SUMMARIZED BY DURATION									
Disability Year									
1.....	2,408	\$ 85,928	101%	10,703	\$ 409,856	100%	1,589	\$249,908	99%
2.....	1,277	45,001	106	6,965	255,604	104	1,241	180,871	101
3.....	841	27,689	93	3,958	156,179	97	654	106,826	103
4.....	622	21,615	96	2,845	110,761	91	395	56,523	95
5.....	488	17,421	96	2,414	103,330	106	253	37,015	98
6.....	1,162	40,354	96	2,003	79,197	97	145	21,980	87
7.....	1,074	41,328	111	1,698	75,801	106	130	23,077	130
8.....	917	35,428	108	1,475	65,238	104	71	9,854	75
9.....	720	26,817	93	1,199	52,796	96	75	11,350	116
10.....	681	27,244	109	1,121	48,684	101	41	6,361	97
11-15.....	2,067	77,732	100	3,727	165,742	104	77	11,474	93
1-15.....	12,257	\$446,557	101%	38,108	\$1,523,188	101%	4,671	\$715,239	100%
16 and over.....	1,119	41,755	100	1,707	77,935	100	3	377	100†
All Years.....	13,376	\$488,312	101%	39,815	\$1,601,123	101%	4,674	\$715,616	100%
SUMMARIZED BY AGE AT POLICY ANNIVERSARY PRECEDING DISABLEMENT (Disability Years 1 to 15 Only)									
Ages									
15-19.....	51	\$ 710	88%	132	\$ 2,120	90%	15	\$ 888	94%
20-24.....	265	4,770	104	689	12,969	107	123	5,517	99
25-29.....	525	10,302	111	1,273	28,837	100	236	15,153	89
30-34.....	687	17,011	94	1,975	53,758	102	422	34,650	108
35-39.....	949	31,182	98	2,986	98,756	96	528	55,810	97
40-44.....	1,583	58,187	105	4,583	175,630	100	760	103,629	96
45-49.....	2,162	81,274	100	7,195	307,587	103	966	156,577	98
50-54.....	2,870	118,408	101	9,206	405,167	100	945	197,084	104
55-59.....	3,165	124,713	101	10,069	438,364	101	676	145,931	98
All Ages.....	12,257	\$446,557	101%	38,108	\$1,523,188	101%	4,671	\$715,239	100%

* \$100 of Life Insurance for income benefits, dollars of annual premiums waived for Benefit 5.

† Expected for Benefit 5 by ultimate rates for Benefits 2 and 3 combined for disability years 16 and over.

LETTER OF INSTRUCTIONS DATED
NOVEMBER 27, 1950

Re: Instructions for Contributors to Intercompany Disability Experience Study

Under date of May 23, 1950 we wrote you a preliminary letter with regard to the proposed study of the experience in connection with Ordinary disability benefits. The response from the companies was very helpful, and we are now able to attach a set of instructions for the completion and submission of the necessary data.

Perhaps the following brief outline of the proposed investigation will be helpful.

The benefits to be covered and the companies invited to contribute are indicated on Page 1 of the instructions. For each benefit it is proposed to study the rate of inception of claims (referred to as the Active Lives study), and the rate of termination of claims by death or recovery (referred to as the Disabled Lives study).

The experience will be studied for the following periods, running between policy anniversaries for the Active Lives study and between anniversaries of dates of disability for the Disabled Lives study:

- Period 1 Between 1930 and 1935 anniversaries
- 2 Between 1935 and 1939 anniversaries
- 3 Between 1939 and 1946 anniversaries (Disabled Lives study only)
- 4 Between 1946 and 1950 anniversaries

The Active Lives study will not cover the period 1939-46, primarily because of the difficulties that would be encountered in determining the exposure during the war period, when termination or suspension of coverage upon entry into military service was called for by the terms of the provisions of many companies.

For the Active Lives study each contributing company is asked to submit punched exposure cards giving exposures on a policy year basis together with corresponding incurred claims. Exposures and claims are to be given by individual attained ages for the income benefits, and by individual ages at issue and duration for the waiver benefit. These data are to be by amount of insurance primarily, but provision has been made on the card for reporting also data by number where this is available. June 30, 1951 will be the dividing line between admitted and outstanding claims.

For the Disabled Lives study the companies are asked to submit an individual punched card for each policy admitted to benefit. This study will include not only the claims entering into the Active Lives study but also claims originating before 1930 which were in force at some time during the defined periods, and claims originating during the period 1939-46. Provision is made for studies based on either number or amount of insurance, and in the case of the waiver only benefit, on amount of premium. The Committee proposes to undertake the

work of deriving exposures and claim termination rates from these individual claim cards for all companies combined.

It is not proposed to study the experience of individual companies except to the extent necessary to make homogeneous groupings.

In both the Active and Disabled Lives studies the object is to secure rates for business standard for both disability and life insurance; substandard business is to be excluded where this is feasible and suitable adjustment is to be made where it cannot be excluded. To the extent that it proves practicable we plan to study the relative claim rates and relative persistency of claims for the principal causes of disability; companies which can readily supply the cause of disability on the claim card are requested to do so. Similarly, we propose to study the experience by sex where separate data are submitted.

You will note that a questionnaire, to be returned when the data are submitted, accompanies the instructions. This questionnaire will serve to advise the Committee as to the nature and extent of each company's contribution.

Plates for the necessary uniform punch-cards are in course of preparation and we will place an open order with International Business Machines Corporation so that each company can order its own supply. It will expedite completion of the study if data can be submitted on or before the following dates:

Active Life Exposure Cards, Periods 1 and 2	May 15, 1951
Disabled Life Claim Cards, other than Period 4	June 15, 1951
All cards for Period 4	Aug. 15, 1951

INTERCOMPANY DISABILITY EXPERIENCE STUDY—INSTRUCTIONS

Disability Benefits to be Studied and Companies Being Asked to Contribute

[Instructions—Page 1]

	BENEFIT CODE				
	1	2	3	4	5
Metropolitan	Yes(a)			Yes	Yes
Prudential	Yes(a)	Yes	Yes	Yes	
Equitable, N.Y.	Yes(b)	Yes	Yes	Yes	Yes
New York Life		Yes	Yes	Yes	Yes
John Hancock				Yes	Yes
Northwestern Mutual					Yes
Mutual Life		Yes	Yes	Yes	Yes
Travelers	Yes(a)		Yes		Yes
Aetna Life		Yes		Yes	Yes
Sun Life of Canada		Yes		Yes	Yes
Massachusetts Mutual				Yes	Yes

(a) Income payments commencing as of date of disablement.

(b) Income payments commencing after 6 months.

Code	Disability Benefit
1	Waiver of premium and \$10 per thousand monthly income, total and permanent clause, with coverage to age 60.
2	Waiver of premium and \$10 per thousand monthly income, 90-day presumptive clause, nonretroactive, with coverage to age 60.
3	Waiver of premium and \$10 per thousand monthly income, 90-day presumptive clause, retroactive, with coverage to age 60.
4	Waiver of premium and \$10 per thousand monthly income, 120-day presumptive clause, income benefits nonretroactive, with coverage to age 60.
5	Waiver of premium, 6 months presumptive clause, retroactive, with coverage to age 60, issued only when applied for and subject to a specific extra premium.

Definition of Terms [Instructions—Pages 2-3]

1. *Date of disability*

Where possible use (for both prompt and delayed claims) the date of disablement as defined on Page 103 of *Actuarial Study #5*—i.e., the date on which the life actually became totally disabled. If this date is not available without undue labor, use the nearest approach to that date which can readily be obtained. In particular, where the date at the end of the waiting period has been recorded, please translate to the date at the beginning of the waiting period.

2. *Age preceding disability*

The age preceding disability is defined for purposes of this study as the age nearest birthday at the commencement of the policy year in which the date of disability falls.

3. *Date of termination of disability*

(i) Deaths. Use the date of death.

(ii) Recoveries.

a. If possible use the actual date of recovery, that is, the date on which the claimant is presumed, because of medical or other evidence, to have recovered.

b. Otherwise use the date halfway between the effective date of the last income payment made (or premium waived, for Benefit 5) and the effective date of the first payment (premium waiver, for Benefit 5) not made.

NOTE: Any definition of the date of recovery which gives the same duration of disability as either (a) or (b) may be used. For instance, for claims involving monthly income payments where the payments fall due on monthly anniversaries of the date of disability, the effective date of the last income payment made may be used as the date of recovery since this will give the same curtate duration as if a date of recovery between the two payments had been used. However, the Committee will not use data for Benefit 5 for the first two disability years for

those companies which use a date of recovery other than the actual date of recovery as defined in (a). See Page 6, last item [col. 26].

- (iii) **Compromises.** Calculate the hypothetical date as of which the benefits payable under the original provisions (including premium waiver) would equal the disability payment made. (The cash value of any policy canceled as part of the settlement should not be included in arriving at the disability payment.) Use this date if earlier than 1950 anniversary; otherwise classify as Existing; see (v) below.
- (iv) **Expiries and Maturities.** For Benefit 5 for claims expiring because no further premiums are due, use the policy anniversary immediately following the expiration of the premium paying period. If any income claims are included under which income ceased at maturity of an endowment or at some fixed age, use the appropriate date.
- (v) **Existing at end of final observation period.** Use claim anniversary in 1950.

Disabled Lives Study—General Remarks [Instructions—Page 4]

A card should be submitted for each policy admitted to benefit under the types of benefit for which the company is contributing, except for the following:

- (1) Any claim which terminated prior to its claim anniversary in 1930.
- (2) Any claim for which the date of disability occurs after the policy anniversary in 1950.
- (3) Any claim, substandard for either insurance or disability, which is not included in the contribution to the Active Lives study.

With these exceptions, a card should be punched even though the corresponding claim will not be included in the numerators for the Active Lives study. In particular, punch cards should be prepared for claims with dates of disability between 1939 and 1946 policy anniversaries.

Control sheets are to be submitted with the punch cards as indicated in the questionnaire. These control totals will be useful in controlling the ensuing machine work. They do not, however, in themselves guarantee the accuracy of the contributed material. Each company is expected to apply sufficient checks against internal records to insure that the claim cards contributed do actually represent its experience.

Disabled Lives Study—Outline of Individual Claim Card

[Instructions—Pages 5-7]

Column
Numbers

Description of Item and Codes

- 1 *Control code*
1—Disabled life claim card.
- 2- 3 *Company number*
The code number for your company throughout this study is _____.
- 4 *Disability benefit*
Codes defined on Page 1.

164 COMMITTEE ON DISABILITY AND DOUBLE INDEMNITY

5 *Sex*

Code	Sex
1	Male
2	Female
3	Sex not available

Sex is to be indicated on claim cards if possible whether or not the Active Life exposure is analyzed by sex.

6- 7 *Age at issue*

Age nearest birthday at issue of policy under which claim is made. Required for Benefit 5; optional for other Benefits.

8- 9 *Duration to date of disability*

Curtate duration in years from date of issue of policy to date of disability.

10-11 *Calendar year of policy anniversary preceding date of disability*

Last two digits of year of issue (cols. 14-15) plus curtate duration to date of disability (cols. 8-9).

12-13 *Age preceding disability*

Age preceding disability defined on Page 2. Alternatively, age preceding disability equals age at issue (cols. 6-7) plus curtate duration to date of disability (cols. 8-9).

14-15 *Year of issue*

Last two digits of calendar year of issue of policy under which claim is made.

16 *Claim classification*

Code	
1	Claims, standard for insurance and disability, which have been included in the Active Lives study.
2	Claims, substandard for insurance and/or disability, which have been included in the Active Lives study.
3	Claims, standard for insurance and disability, which have not been included in the Active Lives study.

17-18 *Calendar year of claim*

Last two digits of calendar year in which date of disability falls. Date of disability defined on Page 2.

19-20 *Cause of disability*

To be furnished only by those companies which find it convenient to do so. The code is given on Page 12, defined in terms of various codes in use.

21 *Mode of termination*

Code	Mode
1	Death
2	Recovery (including compromise settlements where hypothetical termination date is prior to 1950 anniversary)

- 3 Expiry or maturity
- 4 Existing as of 1950 claim anniversary (including compromise settlements not included in Code 2)

22-25 *Duration of disability*

Curtate duration from date of disability to date of termination, both dates defined on Page 2. For durations under two years, punch 00 in cols. 22-23 and curtate duration in months in cols. 24-25; for durations two years and higher, punch curtate duration in years in cols. 22-23 and 00 in cols. 24-25.

26 *Basis for date of recovery on Benefit 5 claims*

For Benefit 5 claims only. If the company based the duration of disability on the actual date of recovery as defined on Page 2, definition 3 (ii) (a), gang-punch 1 on all Benefit 5 claim cards, whether terminated or existing. Otherwise gang-punch 2 on all Benefit 5 claim cards.

27-28 *Policy count*

If disability benefit has been rated (code 2 in col. 16), and claim is to be included in Active Lives study for a weighted amount, punch the weight in tenths (e.g., claim to be included for one-half face amount of insurance, punch 05). For other claims, punch 10. See Page 8, fourth paragraph.

29-32 *Amount of life insurance* (to nearest hundred)

For claims under rated disability benefit clauses which are to be included in Active Lives study for weighted amount, punch weighted or reduced amount here. For other claims, punch full face amount in hundreds of dollars.

33-37 *Amount of premium waived per annum—for Benefit 5 only* (to nearest dollar)

Any additional amounts for accidental death benefits, fractional premium loadings, etc., may be included or excluded at the company's convenience.

38-53 *Claim identification number*

Punch number sufficient to identify the card against a particular claim.

54-80 *Blank*

Active Lives Study—General Remarks [Instructions—Pages 8-9]

Disability claim rates will be determined for each of the disability benefits defined on Page 1 over each of the following periods:

- Period 1—1930 to 1935 policy anniversaries
- 2—1935 to 1939 policy anniversaries
- 4—1946 to 1950 policy anniversaries

Benefits 1 to 4 will be studied by attained age only, while Benefit 5 will be studied by issue age and policy duration.

The basic study of disability claim rates will be by amounts of insurance. Companies that can conveniently do so should also furnish these data by number of policies. Three separate summary cards (males, females, total) should be furnished by those companies that can conveniently subdivide their exposure and claims by sex.

Where possible, substandard life insurance and substandard disability insurance should be excluded from this study. Where this is not feasible, the exposures or claims (numbers as well as amounts) should be adjusted so as to produce as nearly as possible the disability claim rates applicable to standard disability insurance issued in connection with standard life insurance. This adjustment may take the form of weighting upward the exposures or weighting downward the claims on such substandard cases. If it is not possible either to exclude substandard experience or to eliminate its effect by weighting, the Committee is to be furnished an estimate of the proportion of such insurance included in the exposures. (See question 3 of the questionnaire.)

If the exposures are taken from valuation records, the December 31st in-force may generally be taken as the exposure for the policy year then current. Each company should make any adjustments to these valuation figures that they consider necessary. For example, the lag in reporting terminations, such as under a suspended cancellation system, may necessitate adjustments. In considering the necessity for adjusting the in-force figures, it should be borne in mind that the experience during the first two policy years will be excluded for Benefits 1 to 4 and the first policy year will be excluded for Benefit 5. It is intended to exclude disabled lives from the exposures; for those companies which cannot do this without undue labor, the Committee proposes to make an approximate correction. Each company will please inform the Committee through the questionnaire whether their exposures include or exclude disabled lives.

For plans with insurance varying in amount by duration, care should be taken that exposures and claims are on a consistent basis as to amount.

Although it is desired to obtain the data for all plans of insurance combined, companies may submit their data for principal plans of insurance only, if this is more convenient.

The claim data shown in cols. 29-39 should include all claims actually admitted up to June 30, 1951 which were incurred in one of the three specified experience periods, plus an estimate of the claims which were incurred in such periods but which will be admitted after June 30, 1951. This estimate of the outstanding claims will no doubt affect only the claims for the period 1946-50. Each company will be asked to make its own estimate for outstanding claims and to show in the questionnaire the amount of this adjustment for each benefit. A disability claim is considered to be incurred on the date which will become the date of disability (see Page 2) when the claim is admitted or approved.

Compromised claims and lump-sum settlements should be included in the total claims. Do not include as a claim any case admitted after death or recovery where no payment was made and no premium waived. Where a claim changes

in amount after admission, due, for instance, to discovery of a misstatement in age, it is desired to treat it as if it had been originally admitted for the new amount at the correct age, but no adjustment in exposure is necessary.

Active Lives Study—Outline of Exposure Card [Instructions—Pages 10–11]

Column Numbers	Description of Item and Codes								
1	<i>Control code</i> 2—Active Lives Study summary card.								
2– 3	<i>Company number</i> The code number for your company throughout this study is _____.								
4	<i>Disability benefit</i> Codes defined on Page 1.								
5	<i>Sex</i>								
	<table border="0" style="margin-left: 40px;"> <thead> <tr> <th style="text-align: left;">Code</th> <th style="text-align: left;">Sex</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Male only</td> </tr> <tr> <td>2</td> <td>Female only</td> </tr> <tr> <td>3</td> <td>Male and Female combined</td> </tr> </tbody> </table> <p style="margin-left: 40px;">Supply three separate cards if separation by sex is available.</p>	Code	Sex	1	Male only	2	Female only	3	Male and Female combined
Code	Sex								
1	Male only								
2	Female only								
3	Male and Female combined								
6– 7	<i>Age at issue</i> For Benefits 1–4, punch XX ; for Benefit 5 punch the age nearest birthday at issue.								
8– 9	<i>Exposure duration</i> For Benefits 1–4, punch XX . Note that all data for Benefits 1–4 which arise from curtate policy durations 0 and 1 yr. are to be omitted. For Benefit 5, the duration will be the duration in years from the date of issue to commencement of the policy year of exposure. The duration punched is the same as that in cols. 8–9 of the Disabled Lives claim card for policies which become claims during the policy year of exposure. Note that the first policy year is excluded, so there should be no summary cards for curtate duration 0 for Benefit 5.								
10	<i>Period of observation</i>								
	<table border="0" style="margin-left: 40px;"> <thead> <tr> <th style="text-align: left;">Code</th> <th style="text-align: left;">Exposures and claims between:</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1930 and 1935 policy anniversaries</td> </tr> <tr> <td>2</td> <td>1935 and 1939 policy anniversaries</td> </tr> <tr> <td>4</td> <td>1946 and 1950 policy anniversaries</td> </tr> </tbody> </table>	Code	Exposures and claims between:	1	1930 and 1935 policy anniversaries	2	1935 and 1939 policy anniversaries	4	1946 and 1950 policy anniversaries
Code	Exposures and claims between:								
1	1930 and 1935 policy anniversaries								
2	1935 and 1939 policy anniversaries								
4	1946 and 1950 policy anniversaries								
11–12	<i>Exposure attained age</i> For Benefits 1–4, this is the attained age (nearest birthday) on the policy anniversary at the commencement of the policy year of exposure. The age punched is the same as the “age preceding disability” in cols. 12–13 of the Disabled Lives claim card for policies which become claims during the policy year of exposure. For Benefit 5, punch XX .								

168 COMMITTEE ON DISABILITY AND DOUBLE INDEMNITY

13-28 *Exposure to disability claims*

Col. No.

13-20—Number of Policies (Punch X in col. 20 if not available)

21-28—Amount of Life Insurance (in thousands of dollars)

29-39 *Disability claims incurred*

Col. No.

29-33—Number of Policies (to nearest integer where weighted claims are involved)

34-39—Amount of Life Insurance (in hundreds of dollars)

40-80 *Blank*

CODE FOR CAUSE OF DISABILITY [Instructions—Page 12]

Code	PROPOSED GROUPINGS Cause of Disability	MEDICO- ACTUARIAL MORTALITY INVESTIGATION	1935 JOINT COM- MITTEE	INTERNATIONAL CLASSIFICATION		
				1909 (2nd Rev.)	1929 (4th Rev.)	1938 (5th Rev.)
01	Pulmonary Tuberculosis	17	17	28	23	13
02	Syphilis; Locomotor Ataxia; General Paralysis of the Insane	19, 31, 36	19, 31, 36	37, 62, 67	34, 80, 83	30
03	Malignant Neoplasms	21	X1-X8	39-45	45-53	45-55
04	Rheumatism; Arthritis; Gout	22-23	22-23	47-48	56-58	58-60
05	Diabetes	24	24	50	59	61
06	Psychoses, Psychoneuroses, Other Forms of Mental Alienation	37	37	68	84	84
07	Diseases of the Eyes and Annexa	40	40	75	88	88
08	Cerebral Hemorrhage, etc.	33-35	33, 35	64-66	82	83
09	Diseases of the Heart	42-44	42-45	77-80	90-95	90-95
10	Other Diseases of the Circulatory System	45-47, 77	46-47	81-85, 142	96-103	96-103
11	Diseases of the Respiratory System (except Tuberculosis)	5, 48-54	5, 48-54	10, 86-98	11, 104-114	33, 104-114
12	Diseases of the Digestive System	55-67	55-67	99-103, 105-118	115-129	115-129
13	Nephritis	68	68	119-120	130-132	130-132
14	Diseases of the Bones and Organs of Movement (except Tuberculosis, Rheumatism, Arthritis, Gout)	79	79	146-149	154-156	154-156
15	External Violence (except Attempted Suicide)	82-91	82-96	164-186	172-214	165-198
16	All Other Causes	Balance	Balance	Balance	Balance	Balance

NOTE—The Medico-Actuarial Mortality Investigation and 1909 (2nd) International Classification correspond exactly and so do the other three. As between the M.A.M.I. and 1909 and the other three there are only minor differences. Punch the two-column code given at the extreme left.

INTERCOMPANY DISABILITY EXPERIENCE STUDY—QUESTIONNAIRE

1. Please state the basis used for determining the date of disability for each benefit.
2. Please indicate whether the Active Lives exposures for the benefits for which you are contributing include or exclude Disabled Lives.
3. If you have been unable to eliminate the effect of substandard business in the

Active Lives study, please furnish an estimate of the proportion of such insurance included in the exposures and/or claims.

4. Please indicate whether your contribution includes the following information:
 - (a) Cause of Disability code on claim cards.
 - (b) Separate Active Lives exposures and claims for Females.
 - (c) Separate Active Lives exposures and claims by number.
 - (d) Active Lives exposures and claims on (1) all plans, or (2) principal plans only.
5. Please furnish a summary of your contribution to the Active Lives study, as follows:

BENEFIT

PERIOD OF OBSERVATION	ACTIVE LIVES EXPOSURE		CLAIMS INCURRED	
	Number	Amount of Insurance	Number	Amount of Insurance
1—Years 1930-35.....		\$		\$
2—Years 1935-39.....		\$		\$
4—Years 1946-50.....		\$	*	*
Total.....		\$		\$

* Includes estimated outstanding at June 30, 1951; Number, Amount \$

6. Please furnish a summary of your contribution to the Disabled Lives study as shown in the table attached. It should be noted that the totals for the claims included in the numerators for the Active Lives study plus the estimated outstanding claims should prove to the corresponding totals in question 5. It is requested that the claim cards be submitted in the order shown in this table, using marker cards to separate each group.
7. Please furnish copies of the disability clauses the experience under which is contributed, specifying the periods when such clauses were issued; if there has been any general liberalization of benefits beyond the contract terms, please give particulars and dates.

It would also be helpful if you furnished a general statement which would assist the Committee to characterize your claims administration as being strict (from the point of view of enforcement of policy forms and conditions), liberal or in-between.

NAME OF COMPANY _____
 SUMMARY OF CLAIM CARDS CONTRIBUTED
 BENEFIT _____

CALENDAR YEAR IN WHICH DATE OF DISABILITY FALLS	CLAIMS INCLUDED IN NUMERATOR FOR ACTIVE LIVES STUDY				CLAIMS NOT INCLUDED IN NUMERATOR FOR ACTIVE LIVES STUDY	
	Standard Claims		Substandard Claims		Number	Amount of Life Insurance*
	Number	Amount of Life Insurance*	Number	Amount of Life Insurance*		
19--	xxx	xxx	xxx	xxx		
"	xxx	xxx	xxx	xxx		
"	xxx	xxx	xxx	xxx		
"	xxx	xxx	xxx	xxx		
1929	xxx	xxx	xxx	xxx		
1930						
1931						
1932						
1933						
1934						
1935 (Period 1)					(incl. Periods 1 and 2)	
Total Period 1					xxx	xxx
1935 (Period 2)					(included above)	
1936						
1937						
1938						
1939						
Total Period 2					xxx	xxx
1940	xxx	xxx	xxx	xxx		
1941	xxx	xxx	xxx	xxx		
1942	xxx	xxx	xxx	xxx		
1943	xxx	xxx	xxx	xxx		
1944	xxx	xxx	xxx	xxx		
1945	xxx	xxx	xxx	xxx		
1946						
1947						
1948						
1949						
1950						
Total Period 4					xxx	xxx
GRAND TOTAL						

* For Benefit 5 only, please include additional column showing Amount of Premium Waiver.

SPECIMEN DISABILITY CLAUSES

While the text of the disability clauses used varied from company to company and from time to time, it may be of some value to have at hand the following specimen clauses. For Benefit 1, the clause given is that used by the company whose contribution formed the basis of the Active Lives experience for that benefit. For the other benefits, the clauses given are those used by one large contributor.

Benefit 1

Total and Permanent Disability

WAIVER OF PREMIUMS AND PAYMENT OF MONTHLY INCOME

Supplementary Contract attached to and made part of Life Insurance Policy No..... issued on the life of.....

. . . LIFE INSURANCE COMPANY

IN CONSIDERATION of the application for this Contract, as contained in the application for said Policy, the latter being the basis for the issuance hereof, and in consideration of.....dollars and.....cents, payable.....as an additional premium herefor, such payment being simultaneous with, and under the same conditions as, the regular premium under the said Policy, except as hereinafter provided.

HEREBY AGREES, that upon receipt by the Company at its Home Office in the City of of due proof, on forms which will be furnished by the Company, on request, that the insured has, while said Policy and this Supplementary Contract are in full force and prior to the anniversary date of said Policy nearest to the sixtieth birthday of the insured, become totally and permanently disabled, as the result of bodily injury or disease occurring and originating after the issuance of said Policy, so as to be prevented thereby from engaging in any occupation and performing any work for compensation or profit, and that such disability has already continued uninterruptedly for a period of at least three months, it will, during the continuance of such disability,

1. Waive the payment of each premium falling due under said Policy and this Supplementary Contract, and,
2. Pay to the insured, or a person designated by him for the purpose, or if such disability is due to, or is accompanied by, mental incapacity, to the beneficiary of record under said Policy, a monthly income of \$10 for each \$1,000 of insurance, or of commuted value of instalments, if any, under said Policy.

Such waiver shall begin as of the anniversary of said Policy next succeeding the date of the commencement of such disability, and such payments shall begin

as of the date of the commencement of such disability, provided, however, that in no case shall such waiver begin as of any such anniversary occurring, nor shall such payments begin as of a date, more than six months prior to the date of receipt of the required proof.

The disability benefit herein provided shall not be payable if, at the date of disability, the said Policy shall be in force by virtue of any non-forfeiture provisions thereof, or if disability shall have resulted from bodily injuries sustained by the insured while participating in aviation or aeronautics, except as a fare-paying passenger, or sustained while the insured is in the Military or Naval Service in time of war, or as the result of violation of law by the insured.

Notwithstanding that proof of disability may have been accepted by the Company as satisfactory, the insured shall at any time, on demand from the Company, furnish due proof of the continuance of such disability, but after such disability shall have continued for two full years the Company will not demand such proof more often than once in each subsequent year. If the insured shall fail to furnish such proof, or if the insured shall be able to perform any work or engage in any business whatsoever for compensation or profit, the monthly income herein provided shall immediately cease, and all premiums thereafter falling due shall be payable according to the terms of said Policy and of this Supplementary Contract.

The waiver of premiums and monthly income payments herein provided shall be in addition to all other benefits under said Policy, provided, however, that, if there be indebtedness to the Company under said Policy, the interest on such indebtedness shall, if not otherwise paid, be deducted from said monthly income payments. Monthly income payments shall not be subject to commutation.

If premiums continue to be payable under the terms of said Policy after the anniversary of said Policy nearest to the sixtieth birthday of the insured, this Supplementary Contract shall, nevertheless, terminate and be of no further force or effect and the additional premium on account hereof shall cease to be payable, both on the anniversary of said Policy nearest to the sixtieth birthday of the insured.

The insurance under this Supplementary Contract shall be suspended while the Insured is in the Military or Naval Service in time of war, in which event that portion of the additional premium unearned during the period of such suspense shall be refunded.

This Supplementary Contract may be canceled by the insured on the due date of any premium or instalment thereof, by written request to the Company, together with the return of said Policy and this Supplementary Contract to the Company and the endorsement of such cancellation hereon.

This Supplementary Contract shall automatically terminate and be of no further force or effect if any premium on said Policy, or on this Supplementary Contract, shall remain unpaid at the end of the period of grace allowed under said Policy for payment of premium thereunder or if said Policy be surrendered or converted under one of its non-forfeiture provisions or otherwise terminated.

Whenever this Supplementary Contract shall be canceled or otherwise terminated, the additional premium shall no longer be payable.

This Supplementary Contract shall be deemed to be a part of the above numbered Policy and the provisions of said Policy concerning declarations and representations by the insured, restrictions, payment of premiums, change of beneficiary, and assignment, are hereby referred to and by such reference made a part hereof. No other provisions of said Policy shall be held or deemed to be a part hereof, except

(a) The provision of the said Policy as to incontestability shall apply hereto, but shall not preclude the Company from requiring as a condition to recovery hereunder, due proof of such total and permanent disability as entitles him to the benefits hereof.

(b) The provision of said Policy as to reinstatement shall apply hereto, except that this Supplementary Contract shall not be reinstated unless said Policy is in force and no premium is in default thereon, or unless said Policy is reinstated at the time of reinstatement of this Supplementary Contract.

No change in, addition to, waiver or permit, under this Supplementary Contract, shall be valid unless endorsed hereon and signed by an executive officer of the Company.

In Witness Whereof the . . . Life Insurance Company has caused this Supplementary Contract to be executed this . . . day of . . .

Secretary

President

Benefit 2

DISABILITY BENEFITS

1. Disability Benefits shall be effective upon receipt at the Company's Home Office, before default in the payment of premium, of due proof that the Insured became totally and permanently disabled after he received this Policy and before its anniversary on which the Insured's age at nearest birthday is sixty years.

Disability shall be deemed to be total whenever the Insured becomes wholly disabled by bodily injury or disease so that he is prevented thereby from engaging in any occupation whatsoever for remuneration or profit, and under this contract disability shall be presumed to be permanent after the Insured has been continuously so disabled for not less than three months and during all of that period prevented from engaging in any occupation for remuneration or profit. The permanent loss of the sight of both eyes, or the severance of both hands or of both feet, or of one entire hand and one entire foot, shall be considered total and permanent disability without prejudice to other causes of disability.

2. *Income Payments.*—The Company will pay the Insured, or if such disability results from insanity will pay the beneficiary in lieu of the Insured, a month-

ly income of one per cent of the face of the Policy during the lifetime of the Insured and the continuance of such disability. The first income payment shall become due on the first day of the calendar month following receipt of proof of total and permanent disability or proof of continuous total disability for three consecutive months, as above, and succeeding payments shall become due on the first day of each calendar month thereafter. Any income payments becoming due before the Company approves the proof of disability shall become payable upon such approval, and subsequent payments will be made as they become due.

3. *Waiver of Premiums.*—The Company will waive payment of any premium falling due after approval of such proof of disability and during such disability. Any premium due prior to such approval is payable in accordance with the terms of the Policy, but if due after receipt of said proof will, if paid, be refunded upon approval of such proof.

4. The sum payable in any settlement of the Policy shall not be reduced by income payments made or premiums waived under the above provisions. The loan and surrender values, provided for in Sections 3 and 4 of this Policy, shall be calculated on the basis employed in said sections the same as if the waived premiums had been paid as they became due. The amount of the dividends provided for in Section 2 will be the same as if the waived premiums had been paid as they became due.

5. *Recovery from Disability.*—The Company may from time to time demand due proof of the continuance of such total disability but not oftener than once a year after such disability has continued for two full years, and upon failure to furnish such proof, or if it shall appear to the Company that the Insured is able to engage in any occupation for remuneration or profit, income payments shall cease and the payment of any premium thereafter falling due shall not be waived.

6. These Disability Benefits will not apply if the disability of the Insured shall result from military or naval service in time of war.

Benefit 3

TOTAL AND PERMANENT DISABILITY

Disability shall be considered total whenever the Insured is so disabled by bodily injury or disease that he is wholly prevented from performing any work, from following any occupation, or from engaging in any business for remuneration or profit, provided such disability occurred after the insurance under this policy took effect and before the anniversary of the policy on which the Insured's age at nearest birthday is sixty.

Upon receipt at the Company's Home Office, before default in payment of premium, of due proof that the Insured is totally disabled as above defined, and will be continuously so totally disabled for life, or if the proof submitted is not conclusive as to the permanency of such disability, but establishes that the Insured is, and for a period of not less than three consecutive months im-

mediately preceding receipt of proof has been, totally disabled as above defined, the following benefits will be granted:

a) *Waiver of Premium.*—The Company will waive the payment of any premium falling due during the period of continuous total disability, the premium waived to be the annual, semi-annual or quarterly premium according to the mode of payment in effect when disability occurred.

b) *Income Payments.*—The Company will pay to the Insured the monthly income stated on the first page hereof (\$10 per \$1,000 of the face of this policy) for each completed month from the commencement of and during the period of continuous total disability. If disability results from insanity, payment will be made to the beneficiary in lieu of the Insured.

In event of default in payment of premium after the Insured has become totally disabled as above defined, the policy will be restored and the benefits shall be the same as if said default had not occurred, provided due proof that the Insured is and has been continuously from date of default so totally disabled and that such disability will continue for life or has continued for a period of not less than three consecutive months, is received by the Company not later than six months after said default.

The total and irrecoverable loss of the sight of both eyes or of the use of both hands or of both feet or of one hand and one foot shall constitute total disability for life.

Before making any income payment or waiving any premium, the Company may demand due proof of the continuance of total disability, but such proof will not be required oftener than once a year after such disability has continued for two full years. Upon failure to furnish such proof, or if the Insured performs any work, or follows any occupation, or engages in any business for remuneration or profit, no further income payments shall be made nor premiums waived.

The sum payable in any settlement of the policy shall not be reduced by income payments made nor by premiums waived under the above provisions. Dividends, loan and surrender values shall be the same as if the waived premiums had been duly paid. Any disability benefit due but unpaid at the time of the Insured's death shall be payable to the person entitled to the proceeds of the policy.

Disability Benefits shall not apply if the disability of the Insured shall result from self-inflicted injury or from military or naval service in time of war, or from engaging as a passenger or otherwise in aviation or aeronautics; nor shall these benefits apply to the Temporary Insurance or to the Paid-up Insurance provided herein under "Surrender Values," or to any Dividend Additions provided under "Participation in Surplus—Dividends."

The total premium stated on the first page hereof includes a.....annual premium of \$.....for Disability Benefits.

Any premium due on or after the anniversary of the policy on which the age of the Insured at nearest birthday is sixty, will be reduced by the amount of premium charged for Disability Benefits. Upon written request signed by the Insured and upon return of this policy for proper indorsement, the Company

will terminate this provision and thereafter the premium shall be reduced by the amount charged for Disability Benefits.

Benefit 4

TOTAL AND PERMANENT DISABILITY

Upon receipt by the Company at its Home Office of due proof, as hereinafter provided, that the Insured has become totally disabled by bodily injury or disease so that he is and will be thereby wholly prevented from performing any work, following any occupation or engaging in any business for remuneration or profit, and that such disability has already continued uninterruptedly for a period of at least four months (such total disability of such duration being presumed to be permanent only for the purpose of determining liability hereunder), and provided that

- (1) such total disability began before default in payment of premium (or, in event of default, not later than the last day of grace) and that
- (2) such total disability began before the anniversary of the Policy on which the Insured's age at nearest birthday is 60, and prior to the maturity of this Policy, and that
- (3) such total disability did not arise from bodily injury or disease occurring before the insurance under this Policy took effect, and known to the Insured, but not disclosed in the application for the insurance under this Policy, and that
- (4) such total disability has been continuous from the beginning of the period of disability claimed,

the Company will grant the following benefits:

a) Waiver of Premium.—The Company will waive the payment of each premium falling due after the commencement of such total disability and during its continuance, provided, however, that no premium shall be waived which shall have fallen due more than one year prior to the date of receipt at the Home Office of the Company of written notice of claim, as hereinafter provided. The premium to be waived shall be the premium according to the mode of payment in effect when such total disability began. If such total disability began during the grace period and the Insured is in default the Policy will be restored if the Insured pays to the Company the premium in default with interest thereon at six per cent per annum when the claim is approved. Any premium falling due after notice of claim is received and prior to approval of claim, shall be payable in accordance with the terms of the Policy, but will, if paid to the Company, be refunded upon approval of such claim.

b) Income Payments.—The Company will pay to the Insured the monthly income stated on the first page hereof (\$10 per \$1,000 of the face of this Policy) for the fourth and each succeeding completed month of such total disability during its continuance, provided, however, that no such monthly payment shall be made for any fractional part of a month of disability nor for any period more

than one year prior to the date of receipt at the Home Office of the Company of written notice of claim. If, in the opinion of the Company, disability results from or is accompanied by mental incapacity, payments may, at the option of the Company, be made to the beneficiary in lieu of the Insured.

Independently of any other cause of disability, the total and irrecoverable loss of the sight of both eyes, or of the use of both hands or of both feet or of one hand and one foot, shall be considered total disability.

Written notice of claim hereunder must be received by the Company at its Home Office during the lifetime and during the continuance of total disability of the Insured. Failure to give such notice within such times, shall not invalidate any such claim if it shall be shown not to have been reasonably possible to give such notice within such times and that notice was given as soon as was reasonably possible.

Due proof of claim must be received at the Home Office of the Company before the expiration of one year after default in payment of premium and in any event, whether or not there be a default not later than one year from the anniversary of the Policy on which the Insured's age at nearest birthday is 60 or one year after maturity of the Policy, whichever is the earlier date, otherwise the claim shall be invalid.

Before making any income payment or waiving any premium, the Company may demand due proof of the continuance of total disability, but such proof will not be required oftener than once a year after such disability has continued for two full years. If such proof shall not be furnished, or if at any time the Insured shall become able to perform any work, follow any occupation, or engage in any business for remuneration or profit, no further income payments shall be made nor premiums waived and if any such payments are made or premiums waived they shall constitute an indebtedness against the Policy unless paid to the Company.

The sum payable in any settlement of the Policy shall not be reduced by income payments made nor by premiums waived under the above provisions. Dividends, loan and surrender values shall be the same as if the waived premiums had been duly paid. Any disability benefit due but unpaid at the time of the Insured's death shall be payable to the person or persons entitled to the proceeds of the Policy.

Disability Benefits shall not apply if the disability of the Insured shall result from self-inflicted injury or from military or naval service in time of war; nor shall these benefits apply to the Temporary Insurance or to the Paid-up Insurance provided herein under "Surrender Values," or to any Dividend Additions provided under "Participation in Surplus—Dividends."

Any premium due on or after the anniversary of the Policy on which the age of the Insured at nearest birthday is 60 will be reduced by the amount of premium charged for Disability Benefits. If for any reason said reduction shall not be made and said amount shall be paid to and received by the Company as a part of any premium, the amount overpaid, with six per cent interest

thereon, will be refunded and the Company shall not incur any other or further obligation or liability.

Upon written request of the Insured on any anniversary of this Policy and upon return of this Policy for proper indorsement, the Company will terminate these provisions for Disability Benefits and thereafter the premium shall be reduced by the amount charged for such Disability Benefits.

Benefit 5

TOTAL AND PERMANENT DISABILITY

This Agreement is issued as a part of and attached to Policy No..... on the life of....., the Insured.

IN CONSIDERATION of the payment in advance of an additional..... annual premium of \$..... which is included in and payable with the premium stated in said Policy and of the payment of a like sum with each premium after the first payable under said Policy, . . . LIFE INSURANCE COMPANY agrees to waive payment of premiums under said Policy upon receipt of due proof that the Insured is totally and presumably permanently disabled before..... age 60, as hereinafter provided.

Upon receipt by the Company at its Home Office of due proof, as hereinafter provided, that the Insured has become totally disabled by bodily injury or disease so that he is and will be thereby wholly prevented from performing any work, following any occupation or engaging in any business for remuneration or profit, and that such disability has already continued uninterruptedly for a period of at least six months (such total disability of such duration being presumed to be permanent only for the purpose of determining liability hereunder), and provided that

- (1) such total disability began before default in payment of premium under said Policy (or, in event of default, not later than the last day of grace), and that
- (2) such total disability began before the anniversary of said Policy on which the Insured's age at nearest birthday is 60, and prior to the maturity of said Policy, and that
- (3) such total disability did not arise from bodily injury or disease occurring before the insurance under said Policy took effect, and known to the Insured, but not disclosed in the application for the insurance under said Policy, and that
- (4) such total disability has been continuous from the beginning of the period of disability claimed,

the Company will waive the payment of each premium under said Policy falling due after the commencement of such total disability and during its continuance, provided, however, that no premium shall be waived which shall have fallen due more than one year prior to the date of receipt at the Home Office of the Company of written notice of claim, as hereinafter provided. The premium to be

waived shall be the premium according to the mode of payment in effect when such total disability began. If such total disability began during the grace period and the Insured is in default said Policy will be restored if the Insured pays to the Company the premium in default with interest thereon at six per cent per annum when the claim is approved. Any premium falling due after notice of claim is received and prior to approval of claim, shall be payable in accordance with the terms of said Policy, but will, if paid to the Company, be refunded upon approval of such claim.

Independently of any other cause of disability, the total and irrecoverable loss of the sight of both eyes, or of the use of both hands or of both feet or of one hand and one foot, shall be considered total disability.

Written notice of claim hereunder must be received by the Company at its Home Office during the lifetime and during the continuance of total disability of the Insured. Failure to give such notice within such times, shall not invalidate any such claim if it shall be shown not to have been reasonably possible to give such notice within such times and that notice was given as soon as was reasonably possible.

Due proof of claim must be received at the Home Office of the Company before the expiration of one year after default in payment of premium under said Policy and in any event, whether or not there be a default, not later than one year from the anniversary of said Policy on which the Insured's age at nearest birthday is 60 or one year after maturity of said Policy, whichever is the earlier date, otherwise the claim shall be invalid.

Before waiving any premium under said Policy, the Company may demand due proof of the continuance of total disability, but such proof will not be required oftener than once a year after such disability has continued for two full years. If such proof shall not be furnished, or if at any time the Insured shall become able to perform any work, follow any occupation, or engage in any business for remuneration or profit, no further premiums shall be waived and if any such premiums are waived they shall constitute an indebtedness against said Policy unless paid to the Company.

The sum payable in any settlement of said Policy shall not be reduced by premiums waived under the above provisions. Dividends, loan and surrender values shall be the same as if the waived premiums had been duly paid. Any disability benefit due but unpaid at the time of the Insured's death shall be payable to the person or persons entitled to the proceeds of said Policy.

The Disability Benefit shall not apply if the disability of the Insured shall result from intentionally self-inflicted injury or from military or naval service in time of war.

Any premium due on or after the anniversary of said Policy on which the age of the Insured at nearest birthday is 60 will be reduced by the amount of premium charged for the Disability Benefit. If for any reason said reduction shall not be made and said amount shall be paid to and received by the Company as a part of any premium under said Policy, the amount over-

paid with six per cent interest thereon, will be refunded and the Company shall not incur any other or further obligation or liability.

Upon written request of the Insured on any anniversary of said Policy and upon return of said Policy and this Agreement for proper indorsement, the Company will terminate this Agreement and thereafter the premium shall be reduced by the amount charged therefor.

This Agreement shall automatically terminate if any premium on said Policy shall not be duly paid or if said Policy shall be surrendered.

The Benefits and Provisions contained in the Sections "Miscellaneous Benefits" and "Other Provisions" of said Policy shall also apply to this Agreement, except as to the provision of said Policy with respect to "Incontestability" and except as to the above conditions under which said Disability Benefit shall not be effective.

