AN AMERICAN REMARRIAGE TABLE

BY

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In many lines of casualty insurance the entire amount of the loss is due and payable immediately upon its determination. In workmen's compensation insurance, however, it is customary for the losses to be paid in installments over an extended period, and in certain instances the payment is contingent upon the beneficiary's remaining alive and in the same conjugal condition. This is especially true of benefits in fatal cases. The compensation laws of the majority of the states provide that in the case of a fatal accident arising out of and in the course of employment, the widow of the deceased employee shall be entitled to compensation, payable periodically over a number of years, usually varying from four to eight, and the payment of such compensation is contingent upon the widow remaining alive and unmarried during the period. In New York and certain other states, such payments continue during the unmarried life of the widow. In order to set up proper reserves, compute present values in case of commutation of future payments to a lump sum, and carry out other calculations in regard to incurred losses, it is necessary to have information regarding death and remarriage probabilities.

There are a number of mortality tables in use at the present time, the most important in the workmen's compensation insurance field being the American Experience Table and the United States Life Tables. The former is based upon the experience of a large life insurance company and was first published in 1868. In some states the use of this table in determining any lump sum settlements payable under the workmen's compensation law is required by statute. The United States Life Tables are based upon census returns and contain separate tabulations regarding male and female lives. The latest complete set are based upon the census of 1910. These tables, being derived from general population statistics, are perhaps more representative of conditions found among beneficiaries under the various workmen's compensation acts than any table based upon life insurance

statistics, the mortality rate of which would be influenced by selection of desirable risks through medical examination.

However, when we come to the question of the rate of remarriage, there has been, up to the present time, no information from American sources available upon this subject; due, no doubt, to the fact that until comparatively recent years, there was no necessity for such information. When the adoption of workmen's compensation legislation made such statistics desirable, it was necessary to resort to foreign sources. The Insurance Departments of New York and Missouri have issued tables for commuting compensation benefits to a present value basis in fatal cases. The remarriage contingency of these tables depends upon statistics of the Dutch State Insurance Fund which administers the Workmen's Compensation Laws of Holland, the fatal benefits of which are much the same as those provided by the Compensation Act of the State of New York. These remarriage data have been in general use in the United States in connection with compensation cases.

Although a comparison of the table based upon the Dutch data with a limited volume of early American remarriage experience showed approximately the same average results,* the continued use of this table is open to question. During recent years there has been a growing feeling that we should have a remarriage table based upon United States statistics. The Dutch Table is based upon European statistics; more extensive American data may yield different results. The period covered was the latter part of the 19th century; customs may have changed considerably since then. The remarriage rates given are ultimate rates depending upon the widow's age; during the early years of widowhood, the duration of widowhood may have a greater effect upon the remarriage rate than the widow's age. No account is taken of the number of dependent children; possibly the number of children will have an influence on the remarriage rate. The construction of an American Remarriage Table was considered at various times by the United States Department of Labor, by the New York Department of Labor, and also by the Casualty Actuarial Society. In 1929 the development of such a table was

* See—"Remarriage Experience of Pennsylvania Compensation Insurance Carriers Policy Years 1916-1919", by E. H. Downey, *Proceedings,* Vol. VIII, Page 201; and Written Discussion by Mr. M. M. Dawson, *Proceedings,* Vol. IX, Page 107.

undertaken by the Society and the project was placed in charge of a committee consisting of seven members.

In considering sources from which the basic data could be obtained, the Committee recognized two possibilities. The data might be obtained either from industrial commissions or other state departments charged with the administration of the compensation laws, or directly from the insurance carriers. Further investigation showed that available state department records were somewhat limited in geographical distribution and in most instances were kept in such manner that the information required was not readily available. Accordingly, it was decided to secure the information directly from the insurance carriers' records, supplementing these data with experience obtained where possible from state departments, rating bureaus and monopolistic state funds.

A rough survey was made of the volume of experience which had developed since the adoption of compensation acts in the United States and it was estimated that between 17,000 and 18,000 cases involving widows would be available.

Inasmuch as most insurance carriers are accustomed to report their workmen's compensation experience to the National Council on Compensation Insurance, it was considered desirable to have the Council serve as the collecting agency for the remarriage data. The National Council agreed to gather the data and to perform all the clerical work necessary in the construction of a remarriage table. On November 15, 1929, the Call for Remarriage Data was issued. This call was sent to all members of the National Council and was supplemented by letters to state compensation insurance funds in monopolistic states and to carriers not affiliated with the National Council, requesting their cooperation and assistance. A supply of blank forms for reporting the experience was furnished to each cooperating organization. A copy of the form with detailed instructions for preparation of the report is appended as Exhibit I.

Before issuing the Call for Remarriage Data, the compensation laws of the various states were examined for conditions which might affect the accuracy of the carriers' claim records regarding remarriage. In some states the rate of compensation is not affected by remarriage and in other states the compensation is unaffected by remarriage when there are dependent children. In

such jurisdictions the insurance carriers have no vital reason to accurately record changes in the marital status of the widow. Accordingly the call was limited to fatal cases coming under compensation laws which provide for a material change in the benefits upon the widow's remarriage. The data were requested for the following jurisdictions: with limitations as indicated:—

Jurisdiction	REPORTS LIMITED TO CASES	
	Resulting From Accidents Occurring On And After	Involving
Alabama		
Arizona	November 3, 1925	
Colorado		Widow with no other dependents
Connecticut		Widow with no other dependents
District of Columbia		
Georgia		
Hawaii		
Idaho		
Illinois	July 1, 1927	Widow with no other dependents
Indiana		
Iowa	July 1, 1917	Widow with no other dependents
Kansas	March 12, 1913	
Kentucky		
Louisiana		
Maine	July 8, 1921	Widow with no other dependents
Maryland		Widow with no other dependents
Massachusetts	August 10, 1922	
Michigan	September 5, 1927	Widow with no other dependents
Minnesota		Widow with no other dependents
Missouri		Widow with no other dependents
Montana		
New Jersey	April 1, 1913	
New Mexico		
New York		
Rhode Island	April 1, 1926	
South Dakota		Widow with no other dependents
Tennessee		Widow with no other dependents
Utah		Widow with no other dependents
U. S. Longshoremen's Act		
Vermont		
Virginia		Widow with no other dependents

Except as noted above a report was requested on each fatal case, involving a dependent widow, arising at any time since the inception date of the compensation act. In states where information was desired only on cases arising after specified dates, the compensation laws prior to those dates were of such nature that

benefits to the widow were not materially altered by her remarriage.

The reporting agencies were asked to advise the National Council of any period for which their files did not contain the records for all reportable cases arising during that period. The carriers were also requested to report every case, showing all available information, even though their files were incomplete with regard to one or more items called for.

It will be noted from the blank form provided for reporting these statistics that the following items are listed:

Reporting Carrier

1. Husband's Name
2. Widow's Name
3. Identification No.
4. Policy Year
5. State
6. Classification
7. Date of Husband's Death (Month, Day, Year)
8. Date of Widow's Birth (or age at husband's death)
9. Date of Widow's Death
10. Date of Widow's Remarriage
11. (I) Date of Termination of Widow's Benefit other than (9) or (10)
    (II) Mode of Termination
12. Date Status of Case was Last Observed—Open Cases
13. Number of Dependent Children at Date of Husband's Death.

The name of the Carrier and the first six items were requested primarily for identification purposes. Item 4—"Policy Year" allowed of a division of the cases by period of occurrence. Item 5—"State" was included to permit an analysis by geographical division, and Item 6—"Classification" to provide the basic information for a study by kind of industry.

The remaining items are the essential ones which were used in the calculation of the remarriage rates. In order to give a clearer idea of the nature and purpose of these items it is desirable to present a definition of a remarriage rate and to outline the general principles of calculation.

For the purposes of this investigation, the remarriage rate is

defined as the probability that any specific widow, considered at a definite date, will remarry within one year from that date. In determining the remarriage rate, the Committee decided that the influence of the widow's age, the period of widowhood, the number of dependent children, the geographical division, and the type of industry in which her husband was engaged at time of the fatal injury, would be studied.

In general the method employed in determining the remarriage rate was to study the remarriage history of a large group of widows of the same age under observation for a period of one year. The remarriage rate was taken as the ratio of the number of remarriages to the total number under observation. Actually each case was observed for as long a period as possible and adjustments were made for duration of widowhood, and for withdrawals from observation due to death, end of legal period, or other causes.

As an initial step in the calculation of remarriage rates it was necessary to ascertain from the reports the following facts:—

(1) the widow's age at husband's death,
(2) the cause of withdrawal from observation, and
(3) the period of observation.

The widow's age at husband's death was determined in many cases directly from Item 8, which provides that in the event the exact date of the widow's birth is unknown, her age at husband's death shall be reported. Where the date of widow's birth was given, it was necessary to calculate the widow's age by computing the time from the date of her birth to the date of husband's death. It is customary for a person in stating his age to give it as of his last birthday. In order to keep the data homogenous, the widow's age at her birthday immediately preceding the date of her husband's death was calculated in cases where the date of birth was given. It was realized that this procedure would result in a remarriage table in which the tabulated ages would be on the average one-half year under the actual ages. However, no error will result if in the use of the table the widow's age at last birthday is used to enter.

The date and cause of withdrawal from observation were determined from the information reported under Items 9 to 12 inclusive. If the status of the widow remained unchanged during the period of observation, this fact was indicated by an entry

for Item 12 with Items 9, 10 and 11 blank. The following code was adopted to indicate the cause of withdrawal:—

Case still open at end of period	0
Death of widow	1
Remarriage of widow	2
Lump sum settlement	3
End of legal period	4
Claim disallowed	5
Any other	6

The period of observation was determined by calculating the elapsed time between the date of husband's death and the date of the last observation. On closed cases the date of last observation would be the date of the widow's death or remarriage, or the date of the final compensation payment. On open cases the date of last observation was that entered under Item 12. The period of observation was calculated in years and nearest whole months.

As the reports were received at the National Council they were audited and the required calculations made. The widow's age, the cause of withdrawal and the period of observation were noted on each report.

In cases where there were conflicting notations or apparent errors in the information given, the carriers were communicated with to ascertain the required corrections; and, in cases where some of the essential data were lacking, an attempt was made to secure the missing information.

The basic data were obtained from the individual case reports of the insurance carriers. The Pennsylvania data for all carriers were prepared by the Pennsylvania Compensation Rating and Inspection Bureau and furnished to the National Council. The New Jersey Compensation Rating and Inspection Bureau assisted in securing the data for New Jersey from carriers which are not members of the National Council, and the North Dakota Workmen's Compensation Bureau reported the data for that state. For all other states the insurance carriers reported directly to the Council. Considerable work was required in obtaining the necessary information from the files, and not all carriers were able to give the matter their immediate attention. As a result there was some delay in filing these reports and the returns were not all received until early in 1931.

In the meantime consideration was given to methods of tabulating and compiling the data submitted. It was felt that the use of punch cards for recording these data would be of great advantage, as the mechanical sorting would permit the data to be quickly assembled in any order desired, and the printer tabulator would allow the presentation of figures in the order decided upon and would facilitate the obtaining of sub-totals. Accordingly, a punch card for recording the remarriage data was drawn up and approved by the Committee on Remarriage Table. This punch card was arranged to record all of the essential information given on the remarriage form report. A facsimile of the card is given on page 287.

It will be noted that the items recorded are:—

1. Carrier Code Number
2. Policy Year
3. State Code Number
4. Classification and Schedule Code Number
5. Date of Husband's Death
6. Widow's Age at Husband's Death
7. Period of Observation—Years and Months
8. Mode of Withdrawal Code Number
9. Number of Dependent Children
10. Counter (Always Punched "1")
11. Case Serial Number

Standard codes for "Carrier" and "State" already existed and were adapted to this recording by the necessary additions. The numerical code, which was used to indicate the reason for withdrawal from observation, has already been given. The remaining items were numerical items and could be transferred to the punch card directly. The "counter" column was included as an aid in the summary of tabulations and was punched "1" for each case. The last item, "Case Serial Number," was included as an aid in identification in case it should be found desirable to refer back to the original report from the punch card. This serial number was assigned to the original report at the National Council.

It will be noted that the items recorded on the punch cards permit studies of remarriage to be made by state, by industry schedule, and by period.

The reports filed covered the experience for policy years 1911 to 1929 inclusive. A preliminary review of the data revealed that

CARRIER	POLICY YEAR	STATE	MANUAL CLASS		DATE OF HUSBAND'S DEATH			WIDOWS AGE LAST BIRTH-DAY	PERIOD OF OBSERVATION		WITH-DRAWAL	NO. OF DEP. CHILD.	COUNTER	SERIAL NUMBER	
			CODE	SCHED.	MO.	DAY	YR.		YRS.	MOS.					
0 0 0	0 0	0 0	0 0 0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0	0 0	0	0	0 0 0 0 0 0 0 0 0 0 0 0 0 0
1 1 1	1 1	1 1	1 1 1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1	1 1	1	1	1 1 1 1 1 1 1 1 1 1 1 1 1 1
2 2 2	2 2	2 2	2 2 2 2	2 2	2	2 2	2 2	2 2	2 2	2 2	2	2 2	2	2	2 2 2 2 2 2 2 2 2 2 2 2 2 2
3 3 3	3 3	3 3	3 3 3 3	3 3	3	3 3	3 3	3 3	3 3	3 3	3	3 3	3	3	3 3 3 3 3 3 3 3 3 3 3 3 3 3
4 4 4	4 4	4 4	4 4 4 4	4 4	4	4	4 4	4 4	4 4	4 4	4	4 4	4	4	4 4 4 4 4 4 4 4 4 4 4 4 4 4
5 5 5	5 5	5 5	5 5 5 5	5 5	5	5	5 5	5 5	5 5	5 5	5	5 5	5	5	5 5 5 5 5 5 5 5 5 5 5 5 5 5
6 6 6	6 6	6 6	6 6 6 6	6 6	6	6	6 6	6 6	6 6	6 6	6	6 6	6	6	6 6 6 6 6 6 6 6 6 6 6 6 6 6
7 7 7	7 7	7 7	7 7 7 7	7 7	7	7	7 7	7 7	7 7	7 7	7	7 7	7	7	7 7 7 7 7 7 7 7 7 7 7 7 7 7
8 8 8	8 8	8 8	8 8 8 8	8 8	8	8	8 8	8 8	8 8	8 8	8	8 8	8	8	8 8 8 8 8 8 8 8 8 8 8 8 8 8
9 9 9	9 9	9 9	9 9 9 9	9 9	9	9	9 9	9 9	9 9	9 9	9	9 9	9	9	9 9 9 9 9 9 9 9 9 9 9 9 9 9
1 2 3	4 5	6 7	8 9 10 11	12 13	14 15	16 17	18 19	20 21	22 23	24 25	26	27 28	29	30	31 32 33 34 35 36 37 38 39 40 41 42 43 44 45

in many companies, claim files on closed cases had been destroyed for the early policy years and the required data could only be reported on cases that were still open. Inclusion of such cases as were reported for the earlier period would give a false basis of exposure and tend to distort the results. Therefore, it was decided that the study would be confined to data reported for policy years 1921 to 1929 inclusive.

Exhibit II presents a summary of the volume of the data which serves as the basis for the calculated remarriage rates. The number of cases observed, number of remarriages, and total exposure are given by age groups. The completed tables are based on 10,699 cases representing a total exposure of 37,040 years.

A further review of the data indicated that the remarriage rate varied more with the year of widowhood during the first few years than with the age of the widow. It was decided to prepare a select table showing remarriage rates by age of widow for each of the first six years of widowhood, the values for the sixth year to be considered as ultimate.

It was evident that the data were too limited to give dependable remarriage rates when each year of widowhood was separated into individual ages. In order to obtain a more substantial volume of data, it was decided to calculate remarriage rates for each individual age by using, under each year of widowhood, a five year moving average centered at the mid-age of the five year age period. For example the average remarriage rates for ages 16 to 20 inclusive would be taken for age 18; the average rates for 21 to 25 inclusive would be taken for age 23, etc. Then by considering a different grouping of ages, for example 17 to 21, 22 to 26, etc., the average rates for ages 19, 24, 29, etc., would be obtained. By continuing this process under each year of widowhood for five different tabulations a moving average of the remarriage rates for each consecutive age would be obtained.

In order to carry out this project, the punch cards were sorted according to widow's age at husband's death and were assembled in five year age groups. The cards for each age group were then sorted by "period of observation," (i.e. "duration of widowhood"). Finally, the "withdrawals" from observation during each year of widowhood were arranged according to "cause of withdrawal." The cards so arranged were then run through the printer tabulator and sub-totals obtained for each age group showing the total

number of withdrawals from observation according to the year of widowhood and according to cause of withdrawal. The summation of the number of months each case was under observation during the year of withdrawal was also obtained.

As previously stated, it was necessary to make five tabulations in all, a different age grouping being adopted for each. The various age groupings were as follows:—

Tabulation I		Tabulation II		Tabulation III		Tabulation IV		Tabulation V	
Age Group	Ave. Age	Age Group	Ave. Age	Age Group	Ave. Age	Age Group	Ave. Age	Age Group	Ave. Age
16 to 20	18	17 to 21	19	18 to 22	20	19 to 23	21	20 to 24	22
21 to 25	23	22 to 26	24	23 to 27	25	24 to 28	26	25 to 29	27
26 to 30	28	27 to 31	29	28 to 32	30	29 to 33	31	30 to 34	32
31 to 35	33	32 to 36	34	33 to 37	35	34 to 38	36	35 to 39	37
etc.		etc.		etc.		etc.		etc.	

The results of the tabulations were posted to work sheets which had been designed to facilitate the calculation of the remarriage rates. The form of these work sheets is given in Exhibit III. The total number of withdrawals from observation during each year of widowhood are entered in column (3) of the work sheet. A period of observation of under 12 months is considered as a withdrawal during the first year of widowhood. A period of observation of 12 months or more but under 24 months is considered as a withdrawal during the second year of widowhood, etc. The figures in column (4) are calculated by upward summation of column (3) and, for any particular year of widowhood, give the number surviving that year of widowhood; i.e. passing through that year of observation unmarried and entering the next year of observation. The number of deaths and number of remarriages during the particular year of observation are entered in columns (5) and (6) respectively. Column (7) shows for each year of widowhood the total of the fractional years of exposure incurred during the year by each case passing out of observation during that particular year for causes other than death or remarriage. The rate of remarriage has already been defined as the probability that any specific widow, considered at a definite date, will remarry within one year from that date. It follows from the definition that in determining this probability from observation, any case which remains under observation for a full year, will be regarded as "one trial" because remarriage at any time within a year from the beginning of observation will be a "successful

trial." Since the definition establishes the requirement of a full year's observation, it is evident that any observation for a period of less than one year in which the ultimate disposition of the case is unknown cannot be regarded as a full unit of exposure, or a "complete trial." Therefore, in obtaining the total exposure it is necessary to count each withdrawal from observation, in any particular year of widowhood, where the facts regarding subsequent remarriage of the widow are unknown, as a fractional unit of exposure equal to the fractional portion of the year the case remained under observation, and it is necessary to sum these fractional parts to obtain the whole units of exposure represented by such cases. As previously stated, the period of observation was calculated in terms of years and nearest whole months. In running the cards through the machine, the tabulator was set to take off the sub-totals of the months of observation for all cases withdrawing during each year. The figures shown in column (7) were obtained by combining the number of months exposure for cases other than death or remarriage and converting these totals to years.

The use of the fractional unit of exposure does not apply in the case of a death or of a remarriage. In each of these cases the ultimate disposition of the case is known. Using the language of probability, each death is a definite "failure," as the death makes remarriage impossible; and each remarriage is a "success," as the subsequent history of the case after remarriage is of no importance for the present investigation. Therefore, each death and each remarriage must be counted as a full "trial," or a full unit of exposure.

Finally any case which remains under observation for a complete year is an "unsuccessful trial," and the total number of such cases must be included in the total exposure. The total exposure during any year of widowhood is the sum of the figures in columns (4) to (7) inclusive. The total is given in column (8).

Given a large number of "trials" the probability of the occurrence of an event in a single trial is expressed by the ratio of the number of "successful trials" to the total number of "trials." In this particular instance, the probability is determined from the ratio of the number of remarriages (column (6)) to the total units of exposure (column (8)).

Work sheets were filled in for each of the five tabulations, and

remarriage rates were calculated in the manner described. The complete set of these work sheets showing remarriage rates is given in Exhibit III. As the exposure after the sixth year of widowhood was too small to yield reliable results, the calculations were not carried beyond that point.

For convenience of study, the ungraduated remarriage rates by age for each year of widowhood have been brought together in the first seven columns of Exhibit IV.

An examination of these ungraduated remarriage rates reveals in general the same type of curve for each year of widowhood, that is a declining rate from the younger ages to the older ages. As a first approach to the problem of graduating these data, it was assumed that the rate by age for each year of widowhood would respond to the same general function. Some of the earlier efforts were directed toward attempts to fit curves of the same general type to the data for each year of widowhood. Several methods of fitting curves were tried, but, due to the inadequacy of the data when subdivided by year of widowhood, the variations in ungraduated remarriage rates by age were so large that none of the resulting curves gave a satisfactory fit to the original data. However, when the remarriage rates were plotted against the ages, the same characteristic type of curve was produced for each year of widowhood, and this led to an investigation of the effect of combining the data for the six years of widowhood.

Average yearly rates of remarriage by age, based upon the combined experience, were calculated. These average rates are given in column (8) of Exhibit IV. It will be noted that the same general type of curve as for each year is produced, but the fluctuations are greatly reduced due to the increased volume of exposure. Therefore, it was decided that better results would be obtained by graduating these average rates, and then reconstructing the values for each year of widowhood from the smoothed data.

A number of methods of graduating these average rates were tried, namely:—

(1) The method described by Mr. H. C. Carver ("On the Graduation of Frequency Distributions," *Proceedings*, Volume VI, page 52). Briefly this method sets up the formula $\frac{l_{x+1}}{l_x} = \frac{x^2 + c_1 x + c_2}{x^2 + c_3 x + c_4}$. Values of the constants are determined from the ungraduated data.

(2) The method described by Mr. E. Olifiers ("Graduation of Marriage and Remarriage Tables by Mathematical Formulas," *Transactions,* Actuarial Society of America, Volume XXXI, page 223). This method assumes a general formula, colog $(1-r'_x) = \alpha' \beta^x$, where "$r'_x$" is the probability of marrying within one year at age x, and α' and β are constants. Values of the constants were determined from the ungraduated values of "r'_x." (The notation has been changed from the original article to agree with the notation used in the other methods).

(3) A method which consisted of fitting a simple exponential curve of the type $\log r'_x = a + bx$, to the data from age 18 to age 50. The curve was extended to obtain rates at ages over 50.

(4) A method which consisted of fitting a second degree parabola of the type $r'_x = a + bx + cx^2$ to the first differences of the ungraduated remarriage rates, and then recalculating the rates by use of these graduated differences, assuming the rate for the age with the greatest exposure to be correct.

(5) A method which consisted of fitting a third degree parabola of the type $r'_x = a + bx + cx^2 + dx^3$ directly to the original data.

Values of the constants in methods (3), (4) and (5) were obtained from the ungraduated data by the principles of the method of least squares. In methods (2), (3) and (5) two graduations were obtained; the first depending upon the simple ungraduated remarriage rates and the second depending upon these same rates weighted by the exposure.

The closeness of fit obtained by the various methods was tested by observation of the deviations of the ungraduated rates from the graduated. The most satisfactory graduation was obtained by use of the third degree parabola of the type described in (5) above, using the total exposures as shown on Exhibit IV, column (9) as weights. The constants in this formula were obtained by the method of least squares. The essential details of the calculations are given in Exhibit V. The formula so determined is:—

$$r'_x = .0134313 - .0011977\, y + .000061384\, y^2 - .0000011336\, y^3$$

where r'_x is the yearly probability of remarriage or the remarriage rate per unit of exposure, x the widow's age at husband's death, and $y = x - 45$. The substitution of y for $x - 45$ is made for convenience in calculating the constants by the method of least squares.

Graduated remarriage rates were obtained by substitution in the above formula, y passing from -27 for age 18 to plus 28 for age 73. These rates are shown in Exhibit VI, which also gives a comparison of graduated and ungraduated average rates showing both the deviations and the cumulative deviations. It will be noted that the number of "plus" deviations is approximately equal to the number of "minus" deviations, and furthermore that these deviations are not large. It will also be observed that the accumulated deviations as given in column (5) are small, indicating a fairly good fit for the entire range of data. The Committee accepted these graduated average rates as satisfactory.

The next problem was to obtain rates by year of widowhood from these graduated average rates. The relationship between the ungraduated rates for each year of widowhood and the average ungraduated rates for the six year period was examined by age. The linear relationship was established by the method of least squares and it was found that an approximately constant ratio by age for each year of widowhood prevailed. Some trend was observed but for certain years of widowhood the trend was in one direction and for other years the trend was in the opposite direction. A graphical illustration of this is given in Exhibit VII in which these trends have been plotted by age. It will be noted that the second, third and sixth years of widowhood show an increase with age in the ratio of the actual rate for the particular year of widowhood to the average rate for all six years combined, whereas the first, fourth and fifth years show a decreasing tendency. In view of the apparent lack of any laws governing the trend, it was decided that these trends had no special significance, but were due entirely to chance, and no appreciable error would be introduced by assuming a constant ratio by age for each year of widowhood.

Accordingly, the data for all ages were combined, and average remarriage rates by year of widowhood and in total were calculated. Differentials to the average rate were then calculated for

each year of widowhood. The details of these calculations are given in the first five columns of Exhibit VIII.

These differentials were applied to the graduated average rates, thus giving graduated remarriage rates by age for each year of widowhood. These rates were tested by applying them to the original exposure and comparing the resulting number of expected remarriages with the observed number of actual remarriages. The results of this test are given in Exhibit IX.

It was found that the expected number of remarriages did not exactly reproduce the actual number. Therefore, it was decided to introduce a slight modification of the differentials so that the resulting remarriage rates would reproduce the actual number of remarriages for each year of widowhood when applied against the exposure. The necessary modifications for each year of widowhood were obtained by taking the ratios of the expected number of remarriages to the actual number from the first test. The actual calculations are shown at the bottom of Exhibit IX. Adjustment factors obtained in this manner are shown in Exhibit VIII, column (6) and the revised differentials are given in column (7).

These revised differentials were applied to the graduated average remarriage rates producing the final graduated rates by age and by year of widowhood given in Exhibit X. These final rates were tested in the manner described for Exhibit IX and it was found that the number of expected remarriages exactly reproduced the actual number for each year of widowhood.

Questions were raised as to the necessity of introducing some differentials for a possible variation in remarriage rates due to a difference in racial stock, economic and social conditions, or due to the influence of a lump sum allowance on remarriage as under the New York Compensation Law. The data were divided geographically into New York, Pennsylvania and All Other States. The data for Pennsylvania were subdivided into experience for Coal Mines and experience for All Other classifications. Average ungraduated remarriage rates for the first six years of widowhood were calculated for each division in accordance with the previous procedure. The results of this test, which are shown in Exhibit XI, indicate a substantial agreement. It was decided that any variations could be accounted for by chance fluctuations due to

small exposure, and that the remarriage rates as originally determined are satisfactory for all districts.

An investigation was also made of the effect of the number of dependent children upon remarriage. To accomplish this the punch cards were sorted into the following five subdivisions:—

(a) widows with no dependent children,
(b) widows with one dependent child,
(c) widows with two dependent children,
(d) widows with three dependent children, and
(e) widows with four or more dependent children.

The age grouping used was 19 to 23, 24 to 28, 29 to 33, etc.

The tabulations were then carried through in the same manner as previously described and remarriage rates by age and according to the number of dependent children were calculated. These rates are shown in Exhibit XII and represent the average yearly rates from the combined data for the first six years of widowhood. The exposure by year of widowhood, when subdivided according to the number of dependent children, is too small to give reliable results.

Examination of the remarriage rates shown in Exhibit XII does not reveal any definite law regarding the effect of the number of dependent children. Although there does appear to be a very slight tendency for the rate to vary inversely with the number of dependent children, yet this tendency is so slight and there is so much variation in the results obtained that no definite conclusions can be drawn. Therefore, it appears that the influence of the number of dependent children need not be considered in determining the remarriage rates and that the rates as determined and shown in Exhibit X are satisfactory, at least until such time as it is possible to obtain a broader exposure.

The period covered by the data represents a fairly typical or average condition. There is a range from the depression of 1921 to the peak of prosperity in 1929. Furthermore, by commencing with policy year 1921 data, the effect of the war time period is excluded. While it is quite possible that present economic conditions have a material effect upon remarriage rates, it is the thought that some of these influences are offsetting, that the present conditions are abnormal, and that the calculated rates are fairly representative for normal conditions.

These remarriage rates have been combined with mortality rates for white females as obtained from the United States Life Tables for 1910. A slight adjustment in these mortality rates was necessary. The rates as given in the United States Tables are pure death rates whereas the desired rate is the probability of dying unmarried. This adjustment was made in the following manner:—

Let l_x^r equal the number living unmarried at beginning of age x
m_x^r equal the number remarrying at age x
d_x equal the number dying during age x
d_x^r equal the number dying unmarried during age x
r_x^r equal the probability of remarriage during age x
q_x equal the probability of death during age x
and q_x^r equal the probability of dying unmarried during age x

$$\text{Now } l_{x+1}^r = l_x^r - m_x^r - d_x^r$$
$$m_x^r = l_x^r \cdot r_x^r$$
$$\text{And } d_x = l_x^r \cdot q_x$$

If we assume an even distribution of deaths and remarriages throughout the year, of the d_x people dying during the year

$\frac{1}{2} m_x^r \cdot q_x$ die subsequent to remarriage.

$$\text{Therefore } d_x^r = d_x - \tfrac{1}{2} m_x^r \cdot q_x$$
$$= \left(l_x^r - \tfrac{1}{2} m_x^r\right) q_x$$
$$= \left(l_x^r - \tfrac{1}{2} l_x^r \cdot r_x^r\right) q_x$$
$$= l_{x\frac{1}{2}}^r \left(q_x - \tfrac{1}{2} r_x^r \cdot q_x\right)$$
$$\text{But } d_x^r = l_x^r \cdot q_x^r$$
$$\text{Therefore } q_x^r = q_x - \tfrac{1}{2} r_x^r \cdot q_x$$

A mortality and remarriage table has been calculated assuming a radix of 100,000 at age 18. Tables are appended giving the customary values. Commutation column values assuming 3½% interest are also exhibited. The values are given in the form of select tables, giving five years of select experience in addition to ultimate values for ages up to and including age at entry 73. Values beyond this age are "ultimate" depending only upon mortality rates, as there are no remarriages beyond age at entry 73.

The following values are presented:

		Symbol
Table I	Number Living Unmarried at beginning of age x	l'_x
Table II	Number Remarrying during age x	m'_x
Table III	Number Dying Unmarried during age x	d'_x
Table IV	Probability of Remarriage during age x	r'_x
Table V	Probability of Dying Unmarried during age x	q'_x
Table VI	Probability of Surviving Unmarried during age x	p'_x
Table VII	Complete Expectation of Unmarried Life at age x	$\mathring{e}'_x$
Table VIII	Commutation Columns, 3½%	D'_x
Table IX	Commutation Columns, 3½%	N'_x
Table X	Commutation Columns, 3½% (Payable continuously)	$\overline{N}'_x$
Table XI	Commutation Columns, 3½%	$\overline{M}'_x$
Table XII	Ultimate Values (beyond age at entry 73)	

The following relationship exists between these tables:

1. $m'_x = l'_x \cdot r'_x$
2. $d'_x = l'_x \cdot q'_x$
3. $p'_x = 1.0 - (r'_x + q'_x)$
4. $l'_{x+1} = l'_x \cdot p'_x = l'_x - m'_x - d'_x$
5. $\mathring{e}'_x = (\Sigma l'_{x+1} \div l'_x) + \frac{1}{2}$
6. $D'_x = v^x \cdot l'_x$
7. $N'_x = \Sigma D'_x$
8. $\overline{N}'_x = \frac{1}{2}(N'_x + N'_{x+1})$
9. $\overline{M}'_x = \Sigma V^{x+\frac{1}{2}} \cdot m'_x$

It is not possible to make a direct comparison of remarriage rates from the tables listed above with corresponding values from the Dutch and Danish Tables because of the additional factor of year of widowhood which has been introduced. However, a comparison can be made of the expectation of remarriage at corresponding ages of entry from the two tables. The expectation of remarriage is taken as the ratio of the number of persons remarry-

ing at age at entry x and higher ages to the number living unmarried at the beginning of the age interval x, $(\Sigma m'_x \div l''_x)$. Such a comparison is shown in Exhibit XIII, columns (2) and (3). It will be noted that the expectation of remarriage is lower at the younger ages for the American experience. Exhibit XIII also shows comparisons of yearly mortality rates and of complete expectation of unmarried life. It will be observed that the mortality rates for American experience are higher than the corresponding Danish survivorship rates for ages 30 and older. The rates given for the American experience are the adjusted "unmarried death rates" during the first year of widowhood. Finally it will be noted that the complete expectation of unmarried life is greater in the American experience at the younger ages and greater in the Dutch and Danish at the older ages. The transition point is in the neighborhood of age 34. Reserves set up according to the American Table will be greater than reserves depending upon the Dutch and Danish Tables for ages under 34 and less for ages over 34.

The American Remarriage Table based upon an adequate volume of American experience and constructed as outlined in the preceding paragraphs may with reasonable safety be adopted for countrywide use. At some future date when more experience becomes available it may be desirable to introduce added refinements which are not practical at the present time.

EXHIBIT I

NATIONAL COUNCIL ON COMPENSATION INSURANCE

On Behalf of The Casualty Actuarial Society

INVESTIGATION OF REMARRIAGE RATE—1929

Reported by.....

1. Husband's Name

..... 4. Policy Year.....

2. Widow's Name

..... 5. State.....

3. Identification..... 6. Classification.....

	Mo.	Day	Year	Leave this space blank
7. Date of Husband's Death	.....	.....	.....	
8. Date of Widow's Birth (if unknown give widow's age at husband's death)	.....	.....	.....	.....
9. Date of Widow's Death	.....	.....	.....	
10. Date of Widow's Remarriage	.....	.....	.....	.....
11. I—Date of Termination of Widow's Benefit other than (9) or (10).....				
II—Mode of Termination				.....
a Lump Sum Settlement.....				
b End of Legal Period.....				
c Any Other				
12. Date Status of Case Was Last Observed—Open Cases	.....	.....	.....	
13. Number of Dependent Children at Date of Husband's Death	.....			

Form NC 220

EXHIBIT I (Cont.)

NATIONAL COUNCIL ON COMPENSATION INSURANCE

November 15, 1929

CALL FOR REMARRIAGE DATA

Instructions for Preparation of Report

Item 1 and 2 call for the names of the husband and widow respectively. These should be given in full.

3. Identification—Each carrier should use its own index system so that it may later identify the case, if necessary.

4. Policy Year—Under item 4 the carrier should record the year of issue of the policy covering the case reported.

5. State—Record the state under whose law the case was adjusted.

6. Classification—Give the code number of the classification to which the death case was assigned.

7. Date of Husband's Death—Fill in the date of the death of the husband. The dates in items 7 to 12 inclusive should if possible give the month, the day of the month and the year.

8. Date of Widow's Birth—Fill in the date of the birth of the widow. If the file does not disclose this information give the age of the widow at the time of the death of the husband.

9. Date of Widow's Death—Fill in the date of the death of the widow providing she has not been remarried and that compensation payment had not ceased prior to her death.

10. Date of Widow's Remarriage—Fill in the date of the remarriage of the widow provided compensation payments had not ceased prior to her remarriage.

11. Date of Termination—Fill in the date on which compensation payments terminated providing the termination was not caused by the widow's death or remarriage.

    Under 11—II, a b c, the mode of termination should be indicated by checking a or b, or briefly indicating any other termination under c.

12. Date Status of Case Was Last Observed—The date of the latest record in the file giving definite information as to the widow's status should be shown under item 12, if the case is still open. Item 12 should be given for all cases in which items 9, 10 and 11 are left blank.

13. Number of Dependent Children—Under this item the number of dependent children at the date of the husband's death should be indicated.

EXHIBIT II

Remarriage Data

Summary of Volume of Exposure

Widow's Age At Husband's Death	Number Cases Observed	Experience During First Six Years of Widowhood		
		Number Remarriages	Exposure in Years	Average Yearly Probability of Remarriage
(1)	(2)	(3)	(4)	(5)
16 to 20	395	145	1231	.1178
21 to 25	1088	278	3619	.0768
26 to 30	1402	294	4669	.0630
31 to 35	1507	190	5102	.0372
36 to 40	1475	105	5174	.0203
41 to 45	1265	78	4518	.0173
46 to 50	1117	46	3923	.0117
51 to 55	910	22	3462	.0064
56 to 60	728	16	2594	.0062
61 to 65	448	8	1505	.0053
66 to 70	260	4	904	.0044
71 to 75	104	1	339	.0029
Total	10699	1187	37040	.0320

EXHIBIT III

Remarriage Data

Calculation of Ungraduated Remarriage Rates—Tabulation I

Age Husb. Death (1)	Yr. of W.H. (2)	Total With-draw. (3)	No. Surv. Year (4)	No. Dth. (5)	No. Re-mar. (6)	Other Exps. Yrs. (7)	Total Exps. (4) to (7) (8)	Rem. Rate (6) ÷ (8) (9)	Age Husb. Death (1)	Yr. of W.H. (2)	Total With-draw. (3)	No. Surv. Year (4)	No. Dth. (5)	No. Re-mar. (6)	Other Exps. Yrs. (7)	Total Exps. (4) to (7) (8)	Rem. Rate (6) ÷ (8) (9)
	1	61	334	1	32	16	383	.0836		1	196	1311	8	40	85	1444	.0277
16	2	98	236	1	58	17	312	.1859	31	2	262	1049	5	62	83	1199	.0517
to	3	65	171	3	23	14	211	.1090	to	3	255	794	4	41	92	931	.0440
20	4	50	121	2	21	13	157	.1338	35	4	210	584	3	28	75	690	.0406
	5	39	82	0	8	16	106	.0755		5	153	431	4	12	63	510	.0235
Ave. 18									Ave. 33								
	6	74	8	1	3	50	62	.0484		6	352	79	2	7	240	328	.0213
	7	5	3	0	0	2	5			7	50	29	0	3	18	50	
	8	3	0	0	0	1	1			8	22	7	0	2	7	16	
	9	0	0	0	0	0	0			9	7	0	0	0	3	3	
(6 yrs.)	10	0	0	0	(145)	0	(1231)	(.1178)	(6 yrs.)	10	0	0	0	(190)	0	(5102)	(.0372)
	1	125	963	3	42	38	1046	.0402		1	178	1297	17	23	67	1404	.0164
21	2	218	745	1	93	57	896	.1038	36	2	232	1065	6	28	85	1184	.0236
to	3	222	523	4	64	69	660	.0970	to	3	245	820	4	28	87	939	.0298
25	4	138	385	0	53	38	476	.1113	40	4	193	627	6	11	82	726	.0152
	5	106	279	0	18	35	332	.0542		5	139	488	2	12	57	559	.0215
Ave. 23									Ave. 38								
	6	238	41	0	8	160	209	.0383		6	386	102	1	3	256	362	.0083
	7	22	19	0	3	6	28			7	55	47	2	1	22	72	
	8	16	3	0	4	4	11			8	35	12	0	2	13	27	
	9	3	0	0	1	0	1			9	10	2	0	0	2	4	
(6 yrs.)	10	0	0	0	(278)	0	(3619)	(.0768)	(6 yrs.)	10	2	0	0	(105)	1	(5174)	(.0203)
	1	169	1233	3	43	62	1341	.0321		1	128	1137	8	10	55	1210	.0083
26	2	297	936	3	119	83	1141	.1043	41	2	208	929	8	30	80	1047	.0287
to	3	248	688	3	59	85	835	.0707	to	3	204	725	6	16	75	822	.0195
30	4	175	513	2	49	57	621	.0789	45	4	166	559	4	13	71	647	.0201
	5	135	378	3	15	47	443	.0339		5	146	413	4	8	60	485	.0165
Ave. 28									Ave. 43								
	6	296	82	4	9	193	288	.0313		6	314	99	5	1	202	307	.0033
	7	58	24	1	0	25	50			7	55	44	1	1	18	64	
	8	17	7	0	1	7	15			8	36	8	0	0	15	23	
	9	7	0	0	0	1	1			9	8	0	0	0	2	2	
(6 yrs.)	10	0	0	0	(294)	0	(4669)	(.0630)	(6 yrs.)	10	0	0	0	(78)	0	(4518)	(.0173)

	1	149	968	18	8	59	1053	.0076		1	66	382	12	2	24	420	.0048
46	2	183	785	8	19	77	889	.0214	61	2	77	305	10	4	30	349	.0115
to	3	154	631	12	6	59	708	.0085	to	3	71	234	5	0	31	270	.0000
50	4	123	508	3	4	47	562	.0071	65	4	50	184	4	1	21	210	.0048
	5	139	369	6	6	58	439	.0137		5	53	131	2	1	23	157	.0064
Ave. 48									Ave. 63								
	6	293	76	2	3	191	272	.0110		6	98	33	3	0	63	99	.0000
	7	45	31	3	0	16	50			7	17	16	2	0	7	25	
	8	24	7	0	0	10	17			8	14	2	0	0	7	9	
	9	7	0	0	0	4	4			9	2	0	0	0	0	0	
(6 yrs.)	10	0	0	0	(46)	0	(3923)	(.0117)	(6 yrs.)	10	0	0	0	(8)	0	(1505)	(.0053)
	1	84	826	8	4	39	877	.0046		1	35	225	5	1	16	247	.0040
51	2	125	701	11	7	50	769	.0091	66	2	39	186	7	0	15	208	.0000
to	3	130	571	5	5	53	634	.0079	to	3	38	148	5	3	14	170	.0176
55	4	107	464	7	5	42	518	.0097	70	4	41	107	5	0	15	127	.0000
	5	111	353	7	1	48	409	.0024		5	31	76	4	0	12	92	.0000
Ave. 53									Ave. 68								
	6	277	76	4	0	175	255	.0000		6	57	19	2	0	39	60	.0000
	7	52	24	2	1	20	47			7	15	4	2	0	5	11	
	8	15	9	1	0	6	16			8	3	1	0	0	0	1	
	9	8	1	0	1	1	3			9	1	0	0	0	1	1	
(6 yrs.)	10	1	0	0	(22)	0	(3462)	(.0064)	(6 yrs.)	10	0	0	0	(4)	0	(904)	(.0044)
	1	93	635	10	0	44	689	.0000		1	13	91	3	0	5	99	.0000
56	2	107	528	12	8	43	591	.0135	71	2	22	69	7	1	6	83	.0120
to	3	98	430	14	5	31	480	.0104	to	3	21	48	2	0	9	59	.0000
60	4	100	330	7	1	44	382	.0026	75	4	9	39	5	0	2	46	.0000
	5	97	233	11	0	34	278	.0000		5	15	24	7	0	4	35	.0000
Ave. 58									Ave. 73								
	6	170	63	2	2	107	174	.0115		6	19	5	1	0	11	17	.0000
	7	33	30	4	0	12	46			7	5	0	0	0	3	3	
	8	26	4	1	0	8	13			8	0	0	0	0	0	0	
	9	4	0	0	0	1	1			9	0	0	0	0	0	0	
(6 yrs.)	10	0	0	0	(16)	0	(2594)	(.0062)	(6 yrs.)	10	0	0	0	(1)	0	(339)	(.0029)

EXHIBIT III—*Continued*

REMARRIAGE DATA

CALCULATION OF UNGRADUATED REMARRIAGE RATES—TABULATION II

Age Husb. Death	Yr. of W.H.	Total With-draw.	No. Surv. Year	No. Dth.	No. Re-mar.	Other Exps. Yrs.	Total Exps. (4) to (7)	Rem. Rate (6) ÷ (8)	Age Husb. Death	Yr. of W.H.	Total With-draw.	No. Surv. Year	No. Dth.	No. Re-mar.	Other Exps. Yrs.	Total Exps. (4) to (7)	Rem. Rate (6) ÷ (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	1	74	465	2	40	19	526	.0760		1	189	1310	8	39	76	1433	.0272
17	2	122	343	1	71	20	435	.1632	32	2	259	1051	6	57	82	1196	.0477
to	3	97	246	3	32	24	305	.1049	to	3	248	803	3	36	90	932	.0386
21	4	66	180	1	28	18	227	.1233	36	4	205	598	3	24	76	701	.0342
	5	59	121	0	13	22	156	.0833		5	152	446	4	13	47	510	.0255
Ave. 19									Ave. 34								
	6	109	12	1	4	80	97	.0412		6	361	85	2	5	246	338	.0148
	7	7	5	0	0	2	7			7	51	34	1	3	18	56	
	8	5	0	0	1	1	2			8	26	8	0	2	9	19	
	9	0	0	0	0	0	0			9	7	1	0	0	3	4	
(6 yrs.)	10	0	0	0	(188)	0	(1746)	(.1077)	(6 yrs.)	10	1	0	0	(174)	1	(5110)	(.0341)
	1	137	1060	2	43	47	1152	.0373		1	171	1294	18	18	65	1395	.0129
22	2	262	798	2	108	70	978	.1104	37	2	233	1061	5	34	85	1185	.0287
to	3	231	567	4	65	60	696	.0934	to	3	247	814	3	30	91	938	.0320
26	4	156	411	1	54	45	511	.1057	41	4	187	627	7	9	81	724	.0124
	5	110	301	0	16	38	355	.0451		5	140	487	4	12	56	559	.0215
Ave. 24									Ave. 39								
	6	254	47	0	8	182	237	.0338		6	382	105	1	4	250	360	.0111
	7	25	22	0	3	7	32			7	57	48	1	1	22	72	
	8	19	3	0	4	6	13			8	37	11	0	2	14	27	
	9	3	0	0	0	1	1			9	10	1	0	0	2	3	
(6 yrs.)	10	0	0	0	(294)	0	(3929)	(.0748)	(6 yrs.)	10	1	0	0	(107)	0	(5161)	(.0207)
	1	173	1220	4	42	55	1321	.0318		1	131	1074	7	11	58	1150	.0096
27	2	263	957	2	95	78	1132	.0839	42	2	210	864	12	28	81	985	.0284
to	3	255	702	5	57	88	852	.0669	to	3	190	674	11	12	67	764	.0157
31	4	176	526	2	47	55	630	.0746	46	4	156	518	3	11	67	599	.0184
	5	141	385	3	13	36	437	.0297		5	131	387	2	6	55	450	.0133
Ave. 29									Ave. 44								
	6	302	83	4	10	194	291	.0344		6	297	90	6	0	194	290	.0000
	7	59	24	1	0	24	49			7	51	39	1	1	17	58	
	8	17	7	0	1	6	14			8	31	8	0	0	13	21	
	9	7	0	0	0	1	1			9	8	0	0	0	3	3	
(6 yrs.)	10	0	0	0	(264)	0	(4663)	(.0566)	(6 yrs.)	10	0	0	0	(68)	0	(4238)	(.0160)

	1	133	957	19	6	50	1032	.0058		1	65	364	10	2	27	403	.0050
47	2	163	794	6	14	72	886	.0158	62	2	77	287	11	4	28	330	.0121
to	3	150	644	8	5	59	716	.0070	to	3	62	225	5	1	27	258	.0039
51	4	125	519	2	4	49	574	.0070	66	4	47	178	3	1	18	200	.0050
	5	142	377	7	6	58	448	.0134		5	50	128	2	0	22	152	.0000
Ave. 49									Ave. 64								
	6	297	80	1	3	194	278	.0108		6	95	33	4	0	61	98	.0000
	7	53	27	1	3	20	51			7	16	17	1	0	4	22	
	8	21	6	0	0	8	14			8	15	2	0	0	28	30	
	9	6	0	0	0	3	3			9	2	0	0	0	1	1	
(6 yrs.)	10	0	0	0	(38)	0	(3934)	(.0097)	(6 yrs.)	10	0	0	0	(8)	0	(1441)	(.0056)
	1	94	808	8	4	46	866	.0046		1	30	198	4	0	13	215	.0000
52	2	133	675	12	8	53	748	.0107	67	2	34	164	8	0	12	184	.0000
to	3	119	556	6	6	46	614	.0098	to	3	38	126	6	2	16	150	.0133
56	4	107	449	8	5	43	505	.0099	71	4	34	92	4	0	12	108	.0000
	5	120	329	9	1	49	388	.0026		5	27	65	3	0	32	100	.0000
Ave. 54									Ave. 69								
	6	251	78	5	0	141	224	.0000		6	50	15	2	0	34	51	.0000
	7	47	31	2	0	18	51			7	14	1	2	0	5	8	
	8	22	9	1	0	9	19			8	1	0	0	0	0	0	
	9	8	1	0	1	1	3			9	0	0	0	0	0	0	
(6 yrs.)	10	1	0	0	(24)	0	(3345)	(.0072)	(6 yrs.)	10	0	0	0	(2)	0	(808)	(.0025)
	1	85	570	11	1	38	620	.0016		1							
57	2	89	481	9	6	35	531	.0113		2							
to	3	97	384	12	4	31	431	.0093		3							
61	4	94	290	8	1	42	341	.0029		4							
	5	77	213	9	1	27	250	.0040		5							
Ave. 59																	
	6	163	50	1	2	99	152	.0132		6							
	7	27	23	3	2	9	37			7							
	8	19	4	1	0	6	11			8							
	9	4	0	0	0	1	1			9							
(6 yrs.)	10	0	0	0	(15)	0	(2325)	(.0065)		10							

EXHIBIT III—*Continued*

REMARRIAGE DATA

CALCULATION OF UNGRADUATED REMARRIAGE RATES—TABULATION III

Age Husb. Death	Yr. of W.H.	Total With-draw.	No. Surv. Year	No. Dth.	No. Re-mar.	Other Exps. Yrs.	Total Exps. (4) to (7)	Rem. Rate (6) ÷ (8)	Age Husb. Death	Yr. of W.H.	Total With-draw.	No. Surv. Year	No. Dth.	No. Re-mar.	Other Exps. Yrs.	Total Exps. (4) to (7)	Rem. Rate (6) ÷ (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	1	306	589	2	45	24	660	.0682		1	198	1277	7	37	79	1400	.0264
18	2	143	446	1	74	30	551	.1343	33	2	256	1021	7	55	83	1166	.0472
to	3	124	322	4	43	30	399	.1078	to	3	248	773	3	41	84	901	.0455
22	4	85	237	1	33	24	295	.1119	37	4	202	571	4	23	73	671	.0343
	5	70	167	0	13	26	206	.0631		5	133	438	3	11	56	508	.0217
Ave. 20									Ave. 35								
	6	148	19	1	5	103	128	.0391		6	360	78	1	3	244	326	.0092
	7	11	8	0	1	4	13			7	45	33	1	1	17	52	
	8	5	3	0	1	2	6			8	26	7	0	3	8	18	
	9	3	0	0	1	0	1			9	6	1	0	0	2	3	
(6 yrs.)	10				(213)		(2239)	(.0951)	(6 yrs.)	10	1	0	0	(170)		(4972)	(.0342)
	1	145	1107	1	47	51	1206	.0390		1	162	1299	17	19	63	1398	.0136
23	2	271	836	2	114	70	1022	.1115	38	2	241	1058	8	39	81	1186	.0329
to	3	248	588	3	68	79	738	.0921	to	3	236	822	2	23	87	934	.0246
27	4	163	425	1	56	49	531	.1055	42	4	176	646	7	11	74	738	.0149
	5	116	309	0	18	33	360	.0500		5	164	482	4	14	64	564	.0248
Ave. 25									Ave. 40								
	6	255	54	0	7	171	232	.0302		6	366	116	2	4	240	362	.0110
	7	33	21	1	2	11	35			7	63	53	1	1	23	78	
	8	17	4	0	3	7	14			8	41	12	0	1	17	30	
	9	4	0	0	0	1	1			9	11	1	0	0	3	4	
(6 yrs.)	10				(310)		(4089)	.0758	(6 yrs.)	10	1	0	0	(110)	0	(5182)	(.0212)
	1	167	1278	6	35	63	1382	.0253		1	127	996	10	8	54	1068	.0075
28	2	261	1017	3	82	82	1184	.0693	43	2	189	807	11	21	80	919	.0229
to	3	255	762	6	48	94	910	.0527	to	3	170	637	13	13	60	723	.0180
32	4	186	576	3	39	66	684	.0570	47	4	150	487	1	2	66	556	.0036
	5	151	425	4	12	60	501	.0240		5	122	365	4	4	52	425	.0094
Ave. 30									Ave. 45								
	6	336	89	5	12	215	321	.0374		6	286	79	4	1	188	272	.0037
	7	60	29	0	2	25	56			7	44	35	1	1	15	52	
	8	21	8	0	1	8	17			8	29	6	0	0	10	16	
	9	8	0	0	0	2	2			9	6	0	0	0	2	2	
(6 yrs.)	10				(228)		(4982)	(.0458)	(6 yrs.)	10				(49)		(3963)	(.0124)

	1	129	969	19	5	51	1044	.0048		1	57	314	8	1	24	347	.0029
48	2	160	809	4	13	71	897	.0145	63	2	69	245	12	3	25	285	.0105
to	3	149	660	7	5	58	730	.0068	to	3	49	196	6	2	19	223	.0090
52	4	131	529	4	6	50	589	.0102	67	4	42	154	4	1	15	174	.0057
	5	143	386	6	6	60	458	.0131		5	45	109	2	0	21	132	.0000
Ave. 50									Ave. 65								
	6	306	80	2	2	197	281	.0071		6	83	26	2	0	57	85	.0000
	7	53	27	3	1	20	51			7	12	14	0	0	5	19	
	8	18	9	0	0	7	16			8	12	2	0	0	5	7	
	9	9	0	0	0	3	3			9	2	0	0	0	1	1	
(6 yrs.)	10				(37)		(3999)	(.0093)	(6 yrs.)	10				(7)		(1246)	(.0056)
	1	93	761	6	3	47	817	.0037		1	24	172	3	0	11	186	.0000
53	2	127	634	17	6	48	705	.0085	68	2	23	149	7	0	7	163	.0000
to	3	112	522	6	5	47	580	.0086	to	3	33	116	4	1	15	136	.0074
57	4	100	422	8	3	40	473	.0063	72	4	28	88	4	0	9	101	.0000
	5	118	304	12	0	46	362	.0000		5	28	60	5	0	9	74	.0000
Ave. 55									Ave. 70								
	6	228	76	4	2	140	222	.0090		6	46	14	2	0	30	46	.0000
	7	44	32	4	0	16	52			7	13	1	1	0	4	6	
	8	24	8	2	0	9	19			8	1	0	0	0	0	0	
	9	7	1	0	1	1	3			9							
(6 yrs.)	10	1	0	0	(19)	1	(3159)	(.0060)	(6 yrs.)	10				(1)		(706)	(.0014)
	1	82	520	13	2	45	580	.0034		1							
58	2	88	432	5	6	37	480	.0125		2							
to	3	101	331	12	3	35	381	.0079		3							
62	4	83	248	6	1	37	292	.0034		4							
	5	59	189	5	1	23	218	.0046		5							
Ave. 60																	
	6	142	47	3	0	86	136	.0000		6							
	7	29	18	4	0	11	33			7							
	8	16	2	0	0	5	7			8							
	9	2	0	0	0	0	0			9							
(6 yrs.)	10	0	0	0	(13)	0	(2087)	(.0062)		10							

EXHIBIT III—*Continued*

Remarriage Data

Calculation of Ungraduated Remarriage Rates—Tabulation IV

Age Husb. Death	Yr. of W.H.	Total With-draw.	No. Surv. Year	No. Dth.	No. Re-mar.	Other Exps. Yrs.	Total Exps. (4) to (7)	Rem. Rate (6) ÷ (8)	Age Husb. Death	Yr. of W.H.	Total With-draw.	No. Surv. Year	No. Dth.	No. Re-mar.	Other Exps. Yrs.	Total Exps. (4) to (7)	Rem. Rate (6) ÷ (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	1	99	707	2	47	28	784	.0599		1	205	1313	9	31	86	1439	.0215
19	2	166	541	0	79	39	659	.1199	34	2	261	1052	7	47	87	1193	.0394
to	3	152	389	3	48	44	484	.0992	to	3	249	803	4	34	85	926	.0367
23	4	103	286	1	43	24	354	.1215	38	4	191	612	4	19	75	710	.0268
	5	79	207	0	15	29	251	.0598		5	135	477	3	13	55	548	.0237
Ave. 21									Ave. 36								
	6	184	23	1	5	128	157	.0319		6	384	93	1	3	257	354	.0085
	7	12	11	0	1	4	16			7	48	45	1	1	20	67	
	8	8	3	0	2	2	7			8	33	12	0	4	10	26	
	9	3	0	0	1	0	1			9	10	2	0	1	2	5	
(6 yrs.)	10				(237)		(2689)	(.0881)	(6 yrs.)	10	2		0	(147)	1	(5170)	.(0284)
	1	156	1176	2	45	58	1281	.0351		1	145	1234	15	15	56	1320	.0114
24	2	285	891	2	122	76	1091	.1118	39	2	228	1006	7	35	83	1131	.0309
to	3	258	633	4	67	81	785	.0854	to	3	229	777	1	21	88	887	.0237
28	4	165	468	1	51	51	571	.0893	43	4	170	607	6	13	67	693	.0188
	5	129	339	2	18	44	403	.0447		5	152	455	4	11	62	532	.0207
Ave. 26									Ave. 41								
	6	274	65	1	9	183	258	.0349		6	343	112	3	2	223	340	.0059
	7	43	22	1	2	15	40			7	64	48	1	1	23	73	
	8	17	5	0	2	8	15			8	38	10	0	0	15	25	
	9	5	0	0	0	1	1			9	10	0	0	0	2	2	
(6 yrs.)	10				(312)		(4389)	(.0711)	(6 yrs.)	10				(97)		(4903)	(.0198)
	1	172	1283	6	39	64	1392	.0280		1	129	975	11	8	55	1049	.0076
29	2	255	1028	3	72	78	1181	.0610	44	2	176	799	11	22	73	905	.0243
to	3	244	784	5	49	88	926	.0529	to	3	166	633	13	8	60	714	.0112
33	4	204	580	4	37	75	696	.0532	48	4	140	493	2	7	60	562	.0125
	5	159	421	3	13	62	499	.0261		5	119	374	5	3	48	430	.0070
Ave. 31									Ave. 46								
	6	336	85	4	11	221	321	.0343		6	298	76	4	3	193	276	.0109
	7	56	29	0	2	23	54			7	43	33	1	1	15	50	
	8	21	8	0	1	8	17			8	28	5	0	0	10	15	
	9	8	0	0	0	2	2			9	5	0	0	0	2	2	
(6 yrs.)	10				(221)		(5015)	(.0441)	(6 yrs.)	10				(51)		(3936)	(.0130)

	1	101	942	16	6	50	1014	.0059		1	50	276	5	1	22	304	.0033
49	2	157	785	4	9	70	868	.0104	64	2	63	213	12	3	23	251	.0120
to	3	137	648	7	3	54	712	.0042	to	3	36	177	5	2	12	196	.0102
53	4	128	520	4	4	51	579	.0069	68	4	37	140	4	1	13	158	.0063
	5	144	376	6	4	62	448	.0089		5	44	96	3	0	19	118	.0000
Ave. 51									Ave. 66								
	6	296	80	3	0	189	272	.0000		6	77	19	3	0	53	75	.0000
	7	53	27	3	1	20	51			7	10	9	0	0	5	14	
	8	16	11	0	0	6	17			8	7	2	0	0	2	4	
	9	11	0	0	1	3	4			9	2	0	0	0	1	1	
(6 yrs.)	10	0	0	0	(26)		(3893)	(.0067)	(6 yrs.)	10				(7)		(1102)	(.0064)
	1	106	689	8	2	51	750	.0027		1	17	152	4	0	7	163	.0000
54	2	118	571	18	6	45	640	.0094	69	2	25	127	8	0	6	141	.0000
to	3	113	458	8	8	43	517	.0155	to	3	33	94	5	1	15	115	.0087
58	4	98	360	8	2	42	412	.0049	73	4	24	70	4	0	9	83	.0000
	5	109	251	10	0	41	302	.0000		5	25	45	8	0	7	60	.0000
Ave. 56									Ave. 71								
	6	185	66	4	2	117	189	.0106		6	31	14	1	0	20	35	.0000
	7	38	28	4	0	14	46			7	14	0	2	0	6	8	
	8	23	5	2	0	8	15			8		0		0	0	0	
	9	4	1	0	0	1	2			9		0					
(6 yrs.)	10	1			(20)		(2810)	(.0071)	(6 yrs.)	10				(1)		(597)	(.0017)
	1	72	504	14	2	29	549	.0036		1							
59	2	83	421	5	6	33	465	.0129		2							
to	3	97	324	11	0	35	370	.0000		3							
64	4	78	246	5	1	34	286	.0035		4							
	5	45	191	5	1	21	218	.0046		5							
Ave. 61																	
	6	142	49	2	0	84	135	.0000		6							
	7	28	21	4	0	9	34			7							
	8	19	2	0	0	7	9			8							
	9	2	0	0	0	0	0			9							
(6 yrs.)	10				(10)		(2023)	(.0049)		10							

EXHIBIT III—*Continued*

REMARRIAGE DATA

CALCULATION OF UNGRADUATED REMARRIAGE RATES—TABULATION V

Age Husb. Death	Yr. of W.H.	Total With-draw.	No. Surv. Year	No. Dth.	No. Re-mar.	Other Exps. Yrs.	Total Exps. (4) to (7)	Rem. Rate (6) ÷ (8)	Age Husb. Death	Yr. of W.H.	Total With-draw.	No. Surv. Year	No. Dth.	No. Re-mar.	Other Exps. Yrs.	Total Exps. (4) to (7)	Rem. Rate (6) ÷ (8)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	1	110	837	3	43	33	916	.0469		1	199	1277	14	28	80	1399	.0200
20	2	193	644	0	92	48	784	.1173	35	2	250	1027	8	35	88	1158	.0302
to	3	182	462	2	51	58	573	.0890	to	3	234	793	5	28	83	909	.0308
24	4	117	345	0	51	30	426	.1197	39	4	188	605	4	16	82	707	.0226
	5	95	250	0	18	34	302	.0596		5	140	465	2	14	56	537	.0261
Ave. 22									Ave. 37								
	6	215	35	1	7	147	190	.0368		6	370	95	2	3	248	348	.0086
	7	17	18	0	3	4	25			7	51	44	1	1	22	68	
	8	14	4	0	3	4	11			8	31	13	0	3	11	27	
	9	4	0	0	1	0	1			9	11	2	0	1	2	5	
(6 yrs.)	10				(262)		(3191)	(.0821)	(6 yrs.)	10	2	0		(124)	1	(5058)	(.0245)
	1	158	1190	2	49	56	1297	.0378		1	132	1209	10	11	55	1285	.0086
25	2	291	899	4	118	77	1098	.1075	40	2	214	995	6	35	78	1114	.0314
to	3	251	648	5	63	79	795	.0792	to	3	229	766	3	22	83	874	.0251
29	4	169	479	1	48	54	582	.0824	44	4	161	605	6	13	65	689	.0189
	5	129	350	2	14	45	411	.0341		5	154	451	5	10	65	531	.0188
Ave. 27									Ave. 42								
	6	280	70	2	10	185	267	.0375		6	340	111	2	2	219	334	.0060
	7	50	20	1	0	23	44			7	60	51	1	2	21	75	
	8	16	4	0	1	6	11			8	42	9	0	0	17	26	
	9	4	0	0	0	1	1			9	9	0	0	0	2	2	
(6 yrs.)	10				(302)		(4450)	(.0679)	(6 yrs.)	10				(93)		(4827)	(.0193)
	1	184	1313	7	40	70	1430	.0280		1	133	974	15	9	51	1049	.0086
30	2	256	1057	2	70	81	1210	.0579	45	2	183	791	11	26	75	903	.0265
to	3	255	802	4	49	92	947	.0517	to	3	163	628	12	7	60	707	.0099
34	4	217	585	4	33	77	699	.0472	49	4	132	496	2	4	53	555	.0072
	5	153	432	4	12	63	511	.0235		5	130	366	5	3	56	430	.0070
Ave. 32									Ave. 47								
	6	352	80	3	8	233	324	.0247		6	286	80	5	3	185	272	.0110
	7	50	30	0	2	18	50			7	48	32	1	0	17	50	
	8	21	9	0	2	8	19			8	26	6	0	0	9	15	
	9	9	0	0	0	3	3			9	6	0	0	0	2	2	
(6 yrs.)	10				(212)		(5121)	(.0414)	(6 yrs.)	10				(52)		(3916)	(.0133)

	1	108	909	13	4	46	972	.0041		1	42	248	4	1	20	273	.0037
50	2	148	761	6	9	67	843	.0107	65	2	53	195	12	1	19	227	.0044
to	3	133	628	6	3	53	690	.0043	to	3	44	151	5	3	17	176	.0170
54	4	124	504	5	6	50	565	.0106	69	4	35	116	5	0	13	134	.0000
	5	124	380	5	4	52	441	.0091		5	38	78	4	0	16	98	.0000
Ave. 52									Ave. 67								
	6	306	74	2	0	197	273	.0000		6	60	18	2	0	40	60	.0000
	7	50	24	2	1	19	46			7	11	7	1	0	4	12	
	8	16	8	0	0	6	14			8	6	1	0	0	2	3	
	9	7	1	0	1	2	4			9	1	0			1	1	
(6 yrs.)	10	1			(26)	0	(3784)	(.0069)	(6 yrs.)	10				(5)		(968)	(.0052)
	1	103	621	9	1	50	681	.0015		1	18	130	4	0	8	142	.0000
55	2	100	521	15	5	38	579	.0086	70	2	30	100	7	1	8	116	.0086
to	3	100	421	13	7	34	475	.0147	to	3	25	75	3	0	11	89	.0000
59	4	92	329	9	0	41	379	.0000	74	4	15	60	2	0	5	67	.0000
	5	105	224	12	0	36	272	.0000		5	22	38	8	0	6	52	.0000
Ave. 57									Ave. 72								
	6	160	64	4	2	100	170	.0118		6	27	11	1	0	19	31	.0000
	7	36	28	5	0	13	46			7	11	0	1	0	4	5	
	8	24	4	2	0	8	14			8					0	0	
	9	4	0	0	0	1	1			9					0	0	
(6 yrs.)	10				(15)		(2556)	(.0059)	(6 yrs.)	10				(1)		(497)	(.0020)
	1	70	473	13	2	29	517	.0039		1							
60	2	85	388	7	7	32	434	.0161		2							
to	3	87	301	7	0	35	343	.0000		3							
64	4	73	228	4	2	33	267	.0075		4							
	5	52	176	3	1	21	201	.0050		5							
Ave. 62																	
	6	134	42	3	0	84	129	.0000		6							
	7	23	19	3	0	8	30			7							
	8	16	3	0	0	6	9			8							
	9	3	0	0	0	0	0			9							
(6 yrs.)	10				(12)		(1891)	(.0063)		10							

EXHIBIT IV

UNGRADUATED REMARRIAGE RATES BY AGE AND YEAR OF WIDOWHOOD

Age at Entry [x]	YEARLY PROBABILITY OF REMARRIAGE BY YEAR OF WIDOWHOOD						Ave. Rate	Exposure	y
	1st	2nd	3rd	4th	5th	6th	r'_x	W_x	$x-45$
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
18	.0836	.1859	.1090	.1338	.0755	.0484	.1178	1231	−27
19	.0760	.1632	.1049	.1233	.0833	.0412	.1077	1746	−26
20	.0682	.1343	.1078	.1119	.0631	.0391	.0951	2239	−25
21	.0599	.1199	.0992	.1215	.0598	.0319	.0881	2689	−24
22	.0469	.1173	.0890	.1197	.0596	.0368	.0821	3191	−23
23	.0402	.1038	.0970	.1113	.0542	.0383	.0768	3619	−22
24	.0373	.1104	.0934	.1057	.0451	.0338	.0748	3929	−21
25	.0390	.1115	.0921	.1055	.0500	.0302	.0758	4089	−20
26	.0351	.1118	.0854	.0893	.0447	.0349	.0711	4389	−19
27	.0378	.1075	.0792	.0824	.0341	.0375	.0679	4450	−18
28	.0321	.1043	.0707	.0789	.0339	.0313	.0630	4669	−17
29	.0318	.0839	.0669	.0746	.0297	.0344	.0566	4663	−16
30	.0253	.0693	.0527	.0570	.0240	.0374	.0458	4982	−15
31	.0280	.0610	.0529	.0532	.0261	.0343	.0441	5015	−14
32	.0280	.0579	.0517	.0472	.0235	.0247	.0414	5121	−13
33	.0277	.0517	.0440	.0406	.0235	.0213	.0372	5102	−12
34	.0272	.0477	.0386	.0342	.0255	.0148	.0341	5110	−11
35	.0264	.0472	.0455	.0343	.0217	.0092	.0342	4972	−10
36	.0215	.0394	.0367	.0268	.0237	.0085	.0284	5170	− 9
37	.0200	.0302	.0308	.0226	.0261	.0086	.0245	5058	− 8
38	.0164	.0236	.0298	.0152	.0215	.0083	.0203	5174	− 7
39	.0129	.0287	.0320	.0124	.0215	.0111	.0207	5161	− 6
40	.0136	.0329	.0246	.0149	.0248	.0110	.0212	5182	− 5
41	.0114	.0309	.0237	.0188	.0207	.0059	.0198	4903	− 4
42	.0086	.0314	.0251	.0189	.0188	.0060	.0193	4827	− 3
43	.0083	.0287	.0195	.0201	.0165	.0033	.0173	4518	− 2
44	.0096	.0284	.0157	.0184	.0133	....	.0160	4238	− 1
45	.0075	.0229	.0180	.0036	.0094	.0037	.0124	3963	0
46	.0076	.0243	.0112	.0125	.0070	.0109	.0130	3936	1
47	.0086	.0265	.0099	.0072	.0070	.0110	.0133	3916	2
48	.0076	.0214	.0085	.0071	.0137	.0110	.0117	3923	3
49	.0058	.0158	.0070	.0070	.0134	.0108	.0097	3934	4
50	.0048	.0145	.0068	.0102	.0131	.0071	.0093	3999	5
51	.0059	.0104	.0042	.0069	.0089	....	.0067	3893	6
52	.0041	.0107	.0043	.0106	.0091	....	.0069	3784	7

EXHIBIT IV—*Continued*

UNGRADUATED REMARRIAGE RATES BY AGE AND YEAR OF WIDOWHOOD

Age at Entry [x]	Yearly Probability of Remarriage by Year of Widowhood						Ave. Rate	Exposure	y
	1st	2nd	3rd	4th	5th	6th	r_x^r	W_x	$x-45$
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
53	.0046	.0091	.0079	.0097	.0024	....	.0064	3462	8
54	.0046	.0107	.0098	.0099	.0026	....	.0072	3345	9
55	.0037	.0085	.0086	.0063	....	.0090	.0060	3159	10
56	.0027	.0094	.0155	.0049	....	.0106	.0071	2810	11
57	.0015	.0086	.0147	....	....	.0118	.0059	2556	12
58	....	.0135	.0104	.0026	....	.0115	.0062	2594	13
59	.0016	.0113	.0093	.0029	.0040	.0132	.0065	2325	14
60	.0034	.0125	.0079	.0034	.0046	....	.0062	2087	15
61	.0036	.0129	....	.0035	.0046	....	.0049	2023	16
62	.0039	.0161	....	.0075	.0050	....	.0063	1891	17
63	.0048	.0115	....	.0048	.0064	....	.0053	1505	18
64	.0050	.0121	.0039	.0050	....	....	.0056	1441	19
65	.0029	.0105	.0090	.0057	....	....	.0056	1246	20
66	.0033	.0120	.0102	.0063	....	....	.0064	1102	21
67	.0037	.0044	.0170	....	....	....	.0052	968	22
68	.0040	....	.0176	....	....	....	.0044	904	23
69	....	....	.0133	....	....	....	.0025	808	24
70	....	....	.0074	....	....	....	.0014	706	25
71	....	....	.0087	....	....	....	.0017	597	26
72	....	.0086	....	....	....	....	.0020	497	27
73	....	.0120	....	....	....	....	.0029	339	28

EXHIBIT V

Graduation of Remarriage Rates by Method of Least Squares

Normal Equations and Constants

General equation

$$W_x \cdot r'_x = W_x \cdot a + W_x \cdot b \cdot y + W_x \cdot c \cdot y^2 + W_x \cdot d \cdot y^3$$

Normal equation I

$$\Sigma (W_x \cdot r'_x) = a \Sigma W_x + b \Sigma (W_x \cdot y) + c \Sigma (W_x \cdot y^2) + d \Sigma (W_x \cdot y^3)$$

Normal equation II

$$\Sigma (W_x \cdot r'_x \cdot y) = a \Sigma (W_x \cdot y) + b \Sigma (W_x \cdot y^2) + c \Sigma (W_x \cdot y^3) + d \Sigma (W_x \cdot y^4)$$

Normal equation III

$$\Sigma (W_x \cdot r'_x \cdot y^2) = a \Sigma (W_x \cdot y^2) + b \Sigma (W_x \cdot y^3) + c \Sigma (W_x \cdot y^4) + d \Sigma (W_x \cdot y^5)$$

Normal equation IV

$$\Sigma (W_x \cdot r'_x \cdot y^3) = a \Sigma (W_x \cdot y^3) + b \Sigma (W_x \cdot y^4) + c \Sigma (W_x \cdot y^5) + d \Sigma (W_x \cdot y^6)$$

From columns (8), (9) and (10) of Exhibit IV by multiplication and summation:—

$\Sigma W_x \cdot r_x = 5760.1530$	$\Sigma W_x \cdot y^2 = 33{,}043{,}423$
$\Sigma W_x \cdot r_x \cdot y = -81343.8753$	$\Sigma W_x \cdot y^3 = -279{,}107{,}681$
$\Sigma W_x \cdot r_x \cdot y^2 = 1{,}671{,}211.8583$	$\Sigma W_x \cdot y^4 = 12{,}280{,}606{,}471$
$\Sigma W_x \cdot r_x \cdot y^3 = -32{,}592{,}929.$	$\Sigma W_x \cdot y^5 = -122{,}867{,}202{,}665$
$\Sigma W_x = 183{,}150$	$\Sigma W_x \cdot y^6 = 5{,}816{,}915{,}438{,}000$
$\Sigma W_x \cdot y = -797765$	

Substituting these values in the normal equation and solving simultaneously the following values for the constants are obtained:—

$a = +.0134313$	$c = +.000061384$
$b = -.0011977$	$d = -.0000011336$

The graduation formula thus becomes:—

$$r'_x = .0134313 - .0011977y + .000061384y^2 - .0000011336y^3$$

EXHIBIT VI

REMARRIAGE RATES—AVERAGE OF 6 YEARS OF WIDOWHOOD

Age at Husband's Death (1)	Ungraduated 6 Year Average Rate (2)	Graduated 6 Year Average Rate (3)	Deviations (3) − (2) (4)	Cumulative Deviations Σ Col. (4) (5)
18	.1178	.1128	−.0050	−.0050
19	.1077	.1060	−.0017	−.0067
20	.0951	.0995	+.0044	−.0023
21	.0881	.0932	+.0051	+.0028
22	.0821	.0872	+.0051	+.0079
23	.0768	.0816	+.0048	+.0127
24	.0748	.0762	+.0014	+.0141
25	.0758	.0710	−.0048	+.0093
26	.0711	.0661	−.0050	+.0043
27	.0679	.0615	−.0064	−.0021
28	.0630	.0571	−.0059	−.0080
29	.0566	.0530	−.0036	−.0116
30	.0458	.0490	+.0032	−.0084
31	.0441	.0453	+.0012	−.0072
32	.0414	.0419	+.0005	−.0067
33	.0372	.0386	+.0014	−.0053
34	.0341	.0355	+.0014	−.0039
35	.0342	.0327	−.0015	−.0054
36	.0284	.0300	+.0016	−.0038
37	.0245	.0275	+.0030	−.0008

EXHIBIT VI—*Continued*

REMARRIAGE RATES—AVERAGE OF 6 YEARS OF WIDOWHOOD

Age at Husband's Death (1)	Ungraduated 6 Year Average Rate (2)	Graduated 6 Year Average Rate (3)	Deviations (3) − (2) (4)	Cumulative Deviations Σ Col. (4) (5)
38	.0203	.0252	+.0049	+.0041
39	.0207	.0231	+.0024	+.0065
40	.0212	.0211	−.0001	+.0064
41	.0198	.0193	−.0005	+.0059
42	.0193	.0176	−.0017	+.0042
43	.0173	.0161	−.0012	+.0030
44	.0160	.0147	−.0013	+.0017
45	.0124	.0134	+.0010	+.0027
46	.0130	.0123	−.0007	+.0020
47	.0133	.0113	−.0020	+.0000
48	.0117	.0104	−.0013	−.0013
49	.0097	.0095	−.0002	−.0015
50	.0093	.0088	−.0005	−.0020
51	.0067	.0082	+.0015	−.0005
52	.0069	.0077	+.0008	+.0003
53	.0064	.0072	+.0008	+.0011
54	.0072	.0068	−.0004	+.0007
55	.0060	.0065	+.0005	+.0012
56	.0071	.0062	−.0009	+.0003
57	.0059	.0059	+.0000	+.0003

EXHIBIT VI—*Continued*

REMARRIAGE RATES—AVERAGE OF 6 YEARS OF WIDOWHOOD

Age at Husband's Death (1)	Ungraduated 6 Year Average Rate (2)	Graduated 6 Year Average Rate (3)	Deviations (3) − (2) (4)	Cumulative Deviations Σ Col. (4) (5)
58	.0062	.0057	−.0005	−.0002
59	.0065	.0056	−.0009	−.0011
60	.0062	.0055	−.0007	−.0018
61	.0049	.0053	+.0004	−.0014
62	.0063	.0052	−.0011	−.0025
63	.0053	.0051	−.0002	−.0027
64	.0056	.0051	−.0005	−.0032
65	.0056	.0050	−.0006	−.0038
66	.0064	.0049	−.0015	−.0053
67	.0052	.0047	−.0005	−.0058
68	.0044	.0046	+.0002	−.0056
69	.0025	.0044	+.0019	−.0037
70	.0014	.0041	+.0027	−.0010
71	.0017	.0039	+.0022	+.0012
72	.0020	.0035	+.0015	+.0027
73	.0029	.0031	+.0002	+.0029

EXHIBIT VII

RATIOS OF REMARRIAGE RATES IN EACH OF FIRST SIX YEARS
OF WIDOWHOOD TO THE AVERAGE RATE
FOR THE SIX YEAR PERIOD
TREND LINES FITTED TO DATA FOR AGES 18 TO 60

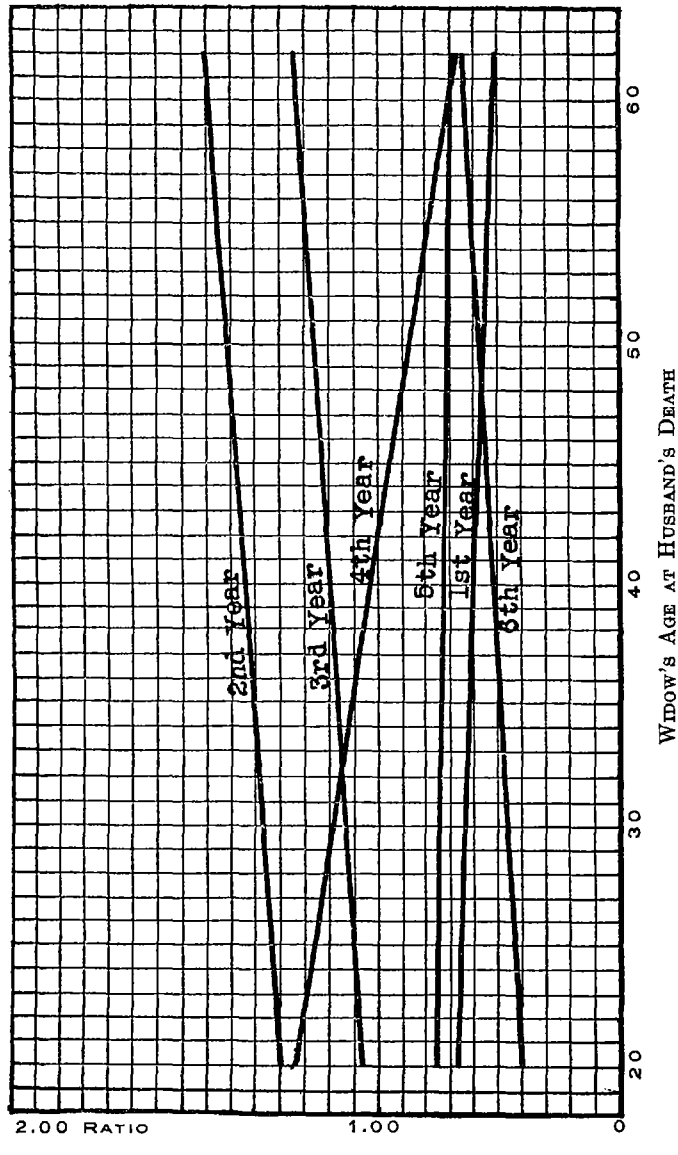

EXHIBIT VIII

AVERAGE RATE OF REMARRIAGE BY YEAR OF WIDOWHOOD AND RATIO TO AVERAGE RATE OF FIRST SIX YEARS

ADJUSTMENT TO REPRODUCE ACTUAL NUMBER OF REMARRIAGES
(Using Data for Widows From Age 16 to Age 75)

Year of Widowhood (1)	Number of Remarriages (2)	Exposure (3)	Remarriage Rate (2) ÷ (3) (4)	Ratio to Average Rate (4) ÷ (4a) (5)	Adjustment Factors (Exhibit IX) (6)	Adjusted Ratios to Average Rate (5) ÷ (6) (7)
1.....	205	10213	.02007246	.626355	1.0265	.6102
2.....	429	8668	.04949239	1.54440	1.0332	1.4948
3.....	250	6719	.03720792	1.16106	.9846	1.1793
4.....	186	5162	.03603255	1.12439	.9776	1.1502
5.....	81	3845	.02106632	.65738	.9403	.6991
6.....	36	2433	.01479655	.461722	.9343	.4942
(a) Total and Average	1187	37040	.03204644	1.0000	xx	xx

EXHIBIT IX

Test of Unadjusted Graduated Remarriage Rates
Comparison of Number of Expected Remarriages With Actual Number
(Number of Expected Remarriages Obtained by Applying Graduated Remarriage Rates to Exposure)

Age at Husband's Death	Number of Remarriages by Year of Widowhood												Total for First 6 Years of Widowhood	
	1st Year		2nd Year		3rd Year		4th Year		5th Year		6th Year			
	Act.	Exp.	Act.	Exp.	Act.	Exp.	Act.	Exp.	Act.	Exp.	Act.	Exp.	Act.	Exp.
18	32	27.1	58	54.4	23	27.6	21	19.9	8	7.9	3	3.2	145	140.1
19	40	34.9	71	71.2	32	37.5	28	27.1	13	10.9	4	4.7	188	186.3
20	45	41.1	74	84.7	43	46.1	33	33.0	13	13.5	5	5.9	213	224.3
21	47	45.8	79	94.8	48	52.4	43	37.1	15	15.4	5	6.8	237	252.3
22	43	50.0	92	105.6	51	58.0	51	41.7	18	17.3	7	7.7	262	280.3
23	42	53.5	93	112.9	64	62.5	53	43.7	18	17.8	8	7.9	278	298.3
24	43	55.0	108	115.1	65	61.6	54	43.8	16	17.8	8	8.3	294	301.6
25	47	53.7	114	112.1	68	60.8	56	42.4	18	16.8	7	7.6	310	293.4
26	45	53.0	122	111.4	67	60.2	51	42.4	18	17.5	9	7.9	312	292.4
27	49	49.9	118	104.3	63	56.8	48	40.3	14	16.6	10	7.6	302	275.5
28	43	48.0	119	100.6	59	55.4	49	39.9	15	16.6	9	7.6	294	268.1
29	42	43.9	95	92.7	57	52.4	47	37.5	13	15.2	10	7.1	264	248.8
30	35	42.4	82	89.6	48	51.8	39	37.7	12	16.1	12	7.3	228	244.9
31	39	39.5	72	82.7	49	48.7	37	35.4	13	14.9	11	6.7	221	227.9
32	40	37.5	70	78.3	49	46.1	33	32.9	12	14.1	8	6.3	212	215.2
33	40	34.9	62	71.5	41	41.7	28	29.9	12	13.0	7	5.8	190	196.8
34	39	31.8	57	65.5	36	38.4	24	28.0	13	11.9	5	5.4	174	181.0
35	37	28.7	55	58.9	41	34.2	23	24.7	11	10.9	3	4.9	170	162.3
36	31	27.1	47	55.2	34	32.2	19	23.9	13	10.8	3	4.9	147	154.1
37	28	24.1	35	49.2	28	29.0	16	21.8	14	9.7	3	4.4	124	138.2
38	23	22.2	28	46.1	28	27.5	11	20.5	12	9.3	3	4.2	105	129.8
39	18	20.2	34	42.3	30	25.1	9	18.8	12	8.5	4	3.9	107	118.8
40	19	18.5	39	38.7	23	22.9	11	17.5	14	7.8	4	3.5	110	108.9
41	15	16.0	35	33.7	21	19.9	13	15.0	11	6.8	2	3.0	97	94.4
42	11	14.1	35	30.3	22	17.8	13	13.6	10	6.2	2	2.7	93	84.7
43	10	12.2	30	26.1	16	15.4	13	11.7	8	5.1	1	2.3	78	72.8
44	11	10.6	28	22.4	12	13.1	11	9.9	6	4.4	0	2.0	68	62.4
45	8	9.0	21	19.0	13	11.3	2	8.4	4	3.7	1	1.7	49	53.1
46	8	8.1	22	17.2	8	10.2	7	7.8	3	3.5	3	1.6	51	48.4
47	9	7.4	26	15.8	7	9.3	4	7.0	2	3.2	1	1.4	50	44.1

48	8	6.8	19	14.3	6	8.6	4	6.6	6	3.0	3	1.3	46	40.6
49	6	6.2	14	13.0	5	7.9	4	6.1	6	2.8	3	1.2	38	37.2
50	5	5.7	13	12.2	5	7.4	6	5.8	6	2.7	2	1.2	37	35.0
51	6	5.2	9	11.0	3	6.8	4	5.3	4	2.4	0	1.0	26	31.7
52	4	4.7	9	10.0	3	6.1	6	4.9	4	2.2	0	1.0	26	28.9
53	4	3.9	7	8.5	5	5.3	5	4.2	1	1.9	0	0.8	22	24.6
54	4	3.7	8	7.9	6	4.9	5	3.8	1	1.7	0	0.7	24	22.7
55	3	3.3	6	7.1	5	4.4	3	3.5	0	1.6	2	0.7	19	20.6
56	2	2.9	6	6.1	8	3.7	2	2.9	0	1.2	2	0.5	20	17.3
57	1	2.5	5	5.3	7	3.3	0	2.5	0	1.1	2	0.5	15	15.2
58	0	2.5	8	5.2	5	3.2	1	2.4	0	1.0	2	0.5	16	14.8
59	1	2.2	6	4.6	4	2.8	1	2.1	1	0.9	2	0.4	15	13.0
60	2	2.0	6	4.1	3	2.4	1	1.8	1	0.8	0	0.3	13	11.4
61	2	1.8	6	3.8	0	2.3	1	1.7	1	0.8	0	0.3	10	10.7
62	2	1.7	7	3.5	0	2.1	2	1.5	1	0.7	0	0.3	12	9.8
63	2	1.3	4	2.8	0	1.6	1	1.2	1	0.5	0	0.2	8	7.6
64	2	1.3	4	2.6	1	1.5	1	1.1	0	0.5	0	0.2	8	7.2
65	1	1.1	3	2.2	2	1.3	1	1.0	0	0.4	0	0.2	7	6.2
66	1	0.9	3	1.9	2	1.1	1	0.9	0	0.4	0	0.2	7	5.4
67	1	0.8	1	1.7	3	1.0	0	0.7	0	0.3	0	0.1	5	4.6
68	1	0.7	0	1.5	3	0.9	0	0.7	0	0.3	0	0.1	4	4.2
69	0	0.6	0	1.3	2	0.8	0	0.5	0	0.3	0	0.1	2	3.6
70	0	0.5	0	1.0	1	0.7	0	0.5	0	0.2	0	0.1	1	3.0
71	0	0.4	0	0.8	1	0.5	0	0.4	0	0.2	0	0.1	1	2.4
72	0	0.3	1	0.6	0	0.4	0	0.3	0	0.2	0	0.0	1	1.8
73	0	0.2	1	0.4	0	0.2	0	0.2	0	0.1	0	0.0	1	1.1
Totals	997	1023.4	2067	2135.7	1226	1207.1	896	875.9	395	371.4	178	166.3	5759	5779.8
Differential Correction Factors	1023.4 / 997 = 1.0265		2135.7 / 2067 = 1.0332		1207.1 / 1226 = .9846		875.9 / 896 = .9776		371.4 / 395 = .9403		166.3 / 178 = .9343		XXX	

EXHIBIT X

Graduated Remarriage Rates

Adjusted to Approximate Actual Number of Remarriages in Each Year of Widowhood

Age at Entry $[x]$	Average Remarriage Rate	YEARS ELAPSED SINCE HUSBAND'S DEATH						Age Attained $x+5$
		0	1	2	3	4	5 or more	
		$r^r_{[x]}$	$r^r_{[x]+1}$	$r^r_{[x]+2}$	$r^r_{[x]+3}$	$r^r_{[x]+4}$	r^r_{x+5}	
		(2)x .6102	(2)x 1.4948	(2)x 1.1793	(2)x 1.1502	(2)x .6991	(2)x .4942	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
18	.1128	.0688	.1686	.1330	.1297	.0789	.0557	23
19	.1060	.0647	.1584	.1250	.1219	.0741	.0524	24
20	.0995	.0607	.1487	.1173	.1144	.0696	.0492	25
21	.0932	.0569	.1393	.1099	.1072	.0652	.0461	26
22	.0872	.0532	.1303	.1028	.1003	.0610	.0431	27
23	.0816	.0498	.1220	.0962	.0939	.0570	.0403	28
24	.0762	.0465	.1139	.0899	.0876	.0533	.0377	29
25	.0710	.0433	.1061	.0837	.0817	.0496	.0351	30
26	.0661	.0403	.0988	.0780	.0760	.0462	.0327	31
27	.0615	.0375	.0919	.0725	.0707	.0430	.0304	32
28	.0571	.0348	.0854	.0673	.0657	.0399	.0282	33
29	.0530	.0323	.0792	.0625	.0610	.0371	.0262	34
30	.0490	.0299	.0732	.0578	.0564	.0343	.0242	35
31	.0453	.0276	.0677	.0534	.0521	.0317	.0224	36
32	.0419	.0256	.0626	.0494	.0482	.0293	.0207	37
33	.0386	.0236	.0577	.0455	.0444	.0270	.0191	38
34	.0355	.0217	.0531	.0419	.0408	.0248	.0175	39
35	.0327	.0200	.0489	.0386	.0376	.0229	.0162	40
36	.0300	.0183	.0448	.0354	.0345	.0210	.0148	41
37	.0275	.0168	.0411	.0324	.0316	.0192	.0136	42
38	.0252	.0154	.0377	.0297	.0290	.0176	.0125	43
39	.0231	.0141	.0345	.0272	.0266	.0161	.0114	44
40	.0211	.0129	.0315	.0249	.0243	.0148	.0104	45
41	.0193	.0118	.0288	.0228	.0222	.0135	.0095	46
42	.0176	.0107	.0263	.0208	.0202	.0123	.0087	57

43	.0161	.0098	.0241	.0190	.0185	.0113	.0080	48
44	.0147	.0090	.0220	.0173	.0169	.0103	.0073	49
45	.0134	.0082	.0200	.0158	.0154	.0094	.0066	50
46	.0123	.0075	.0184	.0145	.0141	.0086	.0061	51
47	.0113	.0069	.0169	.0133	.0130	.0079	.0056	52
48	.0104	.0063	.0155	.0123	.0120	.0073	.0051	53
49	.0095	.0058	.0142	.0112	.0109	.0066	.0047	54
50	.0088	.0054	.0132	.0104	.0101	.0062	.0043	55
51	.0082	.0050	.0123	.0097	.0094	.0057	.0041	56
52	.0077	.0047	.0115	.0091	.0089	.0054	.0038	57
53	.0072	.0044	.0108	.0085	.0083	.0050	.0036	58
54	.0068	.0041	.0102	.0080	.0078	.0048	.0034	59
55	.0065	.0040	.0097	.0077	.0075	.0045	.0032	60
56	.0062	.0038	.0093	.0073	.0071	.0043	.0031	61
57	.0059	.0036	.0088	.0070	.0068	.0041	.0029	62
58	.0057	.0035	.0085	.0067	.0066	.0040	.0028	63
59	.0056	.0034	.0084	.0066	.0064	.0039	.0028	64
60	.0055	.0034	.0082	.0065	.0063	.0038	.0027	65
61	.0053	.0032	.0079	.0063	.0061	.0037	.0026	66
62	.0052	.0032	.0078	.0061	.0060	.0036	.0026	67
63	.0051	.0031	.0076	.0060	.0059	.0036	.0025	68
64	.0051	.0031	.0076	.0060	.0059	.0036	.0025	69
65	.0050	.0031	.0075	.0059	.0058	.0035	.0025	70
66	.0049	.0030	.0073	.0058	.0056	.0034	.0024	71
67	.0047	.0029	.0070	.0055	.0054	.0033	.0023	72
68	.0046	.0028	.0069	.0054	.0053	.0032	.0023	73
69	.0044	.0027	.0066	.0052	.0051	.0031	.0022	74
70	.0041	.0025	.0061	.0048	.0047	.0029	.0020	75
71	.0039	.0024	.0058	.0046	.0045	.0027	.0019	76
72	.0035	.0021	.0052	.0041	.0040	.0024	.0017	77
73	.0031	.0019	.0046	.0037	.0036	.0022	.0015	78

EXHIBIT XI

AVERAGE UNGRADUATED REMARRIAGE RATES BY STATE DIVISIONS
AVERAGE YEARLY PROBABILITY OF REMARRIAGE
(First Six Years of Widowhood Combined)

	Penn. C. M.	Penn. Inds.	N. Y.	A. O.	Total
16 to 20	.1086	.1111	.1733	.1035	.1178
21 to 25	.0653	.0689	.0992	.0759	.0768
26 to 30	.0606	.0494	.0759	.0655	.0630
31 to 35	.0414	.0264	.0378	.0438	.0372
36 to 40	.0210	.0169	.0220	.0211	.0203
41 to 45	.0154	.0113	.0201	.0207	.0173
46 to 50	.0176	.0087	.0142	.0092	.0117
51 to 55	.0106	.0028	.0038	.00115	.0064
56 to 60	.0080	.0041	.0061	.0076	.0062
61 to 65	.0137	.0040	.0024	.0078	.0053
66 to 70	.0000	.0000	.0145	.0000	.0044
71 to 75	.0000	.0104	.0000	.0000	.0029
All Ages	.0372	.0245	.0334	.0351	.0320

EXHIBIT XII

AVERAGE UNGRADUATED REMARRIAGE RATE FOR FIRST SIX YEARS OF WIDOWHOOD BY AGE GROUP AND NUMBER OF DEPENDENT CHILDREN

Number of Children	AVERAGE YEARLY PROBABILITY OF REMARRIAGE ACCORDING TO WIDOW'S AGE					
	19 to 23	24 to 28	29 to 33	34 to 38	39 to 43	44 to 48
0	.0893	.0880	.0554	.0317	.0286	.0216
1	.0831	.0558	.0508	.0307	.0241	.0101
2	.1098	.0644	.0273	.0395	.0196	.0102
3	.0679	.0647	.0510	.0272	.0119	.0000
4 or more	.0816	.0769	.0443	.0217	.0134	.0096

EXHIBIT XIII

COMPARISON OF AMERICAN REMARRIAGE EXPERIENCE WITH DUTCH AND DANISH

Age at Entry	Expectation of Remarriage		Yearly Mortality Rates		Complete Expectation of Unmarried Life	
	American	D. & D.	American	D. & D.	American	D. & D.
(1)	(2)	(3)	(4)	(5)	(6)	(7)
20	.676	.782	.00407	.00533	18.170	14.171
25	.538	.656	.00511	.00549	21.920	18.180
30	.403	.491	.00594	.00569	24.406	22.545
35	.285	.319	.00706	.00611	25.315	25.826
40	.193	.179	.00798	.00677	24.729	26.938
45	.128	.087	.00987	.00789	22.911	25.878
50	.086	.036	.01256	.00980	20.314	23.357
55	.061	.012	.01789	.01302	17.328	20.124
60	.046	.003	.02579	.01845	14.387	16.692
65	.035	.000	.03780	.02759	11.629	13.375
70	.023	.000	.05656	.04287	9.197	10.347
75	.000	.000	.08244	.06821	7.155	7.724
80	.000	.000	.12579	.10963	5.354	5.553

TABLE I

Remarriage Tables

Number Living Unmarried

Age at Entry [x]	Years Elapsed Since Husband's Death						Age Attained x+5
	0	1	2	3	4	5 or more	
	$l^r_{[x]}$	$l^r_{[x]+1}$	$l^r_{[x]+2}$	$l^r_{[x]+3}$	$l^r_{[x]+4}$	l^r_{x+5}	
18.....	100000	92777	76807	66291	57415	52626	23
19.....	90401	84214	70549	61434	53674	49446	24
20.....	82149	76828	65085	57163	50362	46612	25
21.....	75003	70409	60293	53390	47412	44081	26
22.....	68801	64826	56085	50051	44783	41817	27
23.....	63466	60005	52401	47100	42435	39788	28
24.....	58787	55764	49138	44467	40336	37962	29
25.....	54653	52007	46224	42110	38439	36313	30
26.....	51044	48717	43647	40003	36737	34823	31
27.....	47861	45806	41347	38116	35199	33471	32
28.....	45042	43222	39288	36415	33803	32241	33
29.....	42552	40932	37453	34886	32540	31119	34
30.....	40300	38856	35779	33487	31381	30092	35
31.....	38302	37010	34274	32221	30326	29152	36
32.....	36533	35365	32922	31074	29360	28288	37
33.....	34918	33863	31862	30020	28472	27493	38
34.....	33460	32505	30553	29053	27654	26759	39
35.....	32160	31290	29536	28179	26908	26083	40
36.....	30958	30167	28594	27367	26212	25453	41
37.....	29872	29148	27731	26619	25568	24867	42
38.....	28890	28226	26945	25932	24968	24316	43
39.....	27995	27382	26221	25294	24406	23795	44
40.....	27172	26605	25550	24697	23878	23301	45
41.....	26420	25891	24926	24136	23375	22829	46
42.....	25717	25222	24335	23602	22894	22375	47
43.....	25079	24609	23787	23101	22435	21937	48
44.....	24473	24023	23259	22616	21988	21511	49
45.....	23899	23467	22755	22149	21556	21096	50
46.....	23369	22951	22280	21704	21139	20692	51
47.....	22865	22458	21824	21273	20730	20292	52
48.....	22381	21985	21382	20852	20327	19892	53
49.....	21908	21518	20943	20432	19922	19488	54
50.....	21468	21082	20526	20024	19518	19076	55
51.....	21037	20653	20109	19609	19103	18653	56
52.....	20620	20232	19693	19191	18678	18214	57

TABLE I—*Continued*

Age at Entry [x]	Years Elapsed Since Husband's Death						Age Attained x+5
	0	1	2	3	4	5 or more	
	$l^r_{[x]}$	$l^r_{[x]+1}$	$l^r_{[x]+2}$	$l^r_{[x]+3}$	$l^r_{[x]+4}$	l^r_{x+5}	
53.....	20198	19802	19264	18756	18236	17762	58
54.....	19775	19369	18826	18310	17784	17299	59
55.....	19354	18930	18379	17852	17318	16823	60
56.....	18913	18473	17915	17382	16841	16335	61
57.....	18460	18006	17444	16902	16352	15832	62
58.....	17998	17531	16961	16411	15849	15312	63
59.....	17534	17052	16470	15906	15329	14772	64
60.....	17054	16556	15963	15382	14787	14212	65
61.....	16549	16038	15433	14836	14226	13636	66
62.....	16041	15510	14887	14275	13650	13044	67
63.....	15511	14959	14322	13695	13057	12434	68
64.....	14968	14397	13745	13103	12448	11807	69
65.....	14402	13813	13147	12490	11820	11164	70
66.....	13812	13207	12529	11857	11175	10505	71
67.....	13202	12581	11892	11209	10515	9835	72
68.....	12582	11944	11242	10546	9844	9161	73
69.....	11941	11288	10576	9873	9169	8488	74
70.....	11273	10607	9893	9191	8494	7819	75
71.....	10603	9927	9213	8515	7825	7159	76
72.....	9909	9232	8528	7840	7163	6510	77
73.....	9218	8544	7851	7175	6513	5874	78

Values Beyond Age at Entry 73 Are Ultimate Depending Upon Mortality Rates Only

See Table XII

TABLE II

Remarriage Tables

Number Remarrying

$(l^r_{[18]} = 100{,}000)$

Age at Entry [x]	Years Elapsed Since Husband's Death						Age Attained x+5
	0	1	2	3	4	5 or more	
	$m^r_{[x]}$	$m^r_{[x]+1}$	$m^r_{[x]+2}$	$m^r_{[x]+3}$	$m^r_{[x]+4}$	m^r_{x+5}	
18.....	6880	15642	10215	8598	4530	2932	23
19.....	5849	13339	8819	7489	3977	2591	24
20.....	4987	11424	7634	6539	3505	2294	25
21.....	4268	9808	6626	5723	3091	2032	26
22.....	3660	8447	5766	5020	2732	1802	27
23.....	3160	7320	5041	4423	2419	1604	28
24.....	2734	6352	4418	3895	2150	1431	29
25.....	2367	5518	3869	3441	1907	1275	30
26.....	2057	4813	3405	3040	1698	1139	31
27.....	1795	4210	2997	2695	1513	1017	32
28.....	1568	3691	2644	2392	1348	909	33
29.....	1374	3242	2341	2128	1207	815	34
30.....	1205	2844	2068	1889	1076	728	35
31.....	1057	2505	1830	1678	961	653	36
32.....	935	2214	1626	1498	860	585	37
33.....	824	1954	1441	1333	768	525	38
34.....	726	1726	1281	1185	686	468	39
35.....	643	1530	1140	1059	616	422	40
36.....	566	1352	1012	944	551	377	41
37.....	502	1198	898	841	491	339	42
38.....	444	1064	800	752	439	304	43
39.....	395	945	713	673	393	271	44
40.....	350	838	636	600	354	242	45
41.....	312	745	568	536	316	217	46
42.....	275	663	506	476	282	194	47
43.....	246	593	452	427	254	176	48
44.....	220	529	403	383	226	157	49
45.....	196	470	359	341	202	139	50
46.....	175	422	323	306	182	126	51
47.....	158	379	290	277	164	114	52
48.....	141	341	263	250	148	102	53
49.....	127	306	235	223	131	92	54
50.....	116	278	213	202	121	82	55
51.....	105	254	195	184	109	76	56
52.....	97	233	179	171	101	69	57

TABLE II—*Continued*

Age at Entry [x]	Years Elapsed Since Husband's Death						Age Attained x+5
	0	1	2	3	4	5 or more	
	$m^r_{[x]}$	$m^r_{[x]+1}$	$m^r_{[x]+2}$	$m^r_{[x]+3}$	$m^r_{[x]+4}$	m^r_{x+5}	
53.....	89	214	164	156	91	64	58
54.....	81	198	151	143	85	59	59
55.....	78	184	142	134	78	54	60
56.....	72	172	131	123	72	51	61
57.....	66	158	122	115	67	46	62
58.....	63	149	114	108	63	43	63
59.....	60	143	109	102	60	41	64
60.....	58	136	104	97	56	38	65
61.....	53	127	97	90	53	36	66
62.....	51	121	91	86	49	34	67
63.....	48	114	86	81	47	31	68
64.....	46	109	82	77	45	30	69
65.....	45	104	78	73	41	28	70
66.....	42	96	73	66	38	25	71
67.....	38	88	65	61	35	23	72
68.....	35	82	61	56	32	21	73
69.....	32	75	55	50	28	19	74
70.....	28	65	47	43	25	16	75
71.....	25	58	42	38	21	14	76
72.....	21	48	35	31	17	11	77
73.....	18	39	29	26	14	9	78

No Remarriages Beyond Age at Entry 73

TABLE III

Remarriage Tables

Number Dying Unmarried

($l'_{[18]} = 100{,}000$)

Age at Entry [x]	Years Elapsed Since Husband's Death						Age Attained x+5
	0	1	2	3	4	5 or more	
	$d'_{[x]}$	$d'_{[x]+1}$	$d'_{[x]+2}$	$d'_{[x]+3}$	$d'_{[x]+4}$	d'_{x+5}	
18.....	343	328	301	278	259	248	23
19.....	338	326	296	271	251	243	24
20.....	334	319	288	262	245	237	25
21.....	326	308	277	255	240	232	26
22.....	315	294	268	248	234	227	27
23.....	301	284	260	242	228	222	28
24.....	289	274	253	236	224	218	29
25.....	279	265	245	230	219	215	30
26.....	270	257	239	226	216	213	31
27.....	260	249	234	222	215	213	32
28.....	252	243	229	220	214	213	33
29.....	246	237	226	218	214	212	34
30.....	239	233	224	217	213	212	35
31.....	235	231	223	217	213	211	36
32.....	233	229	222	216	212	210	37
33.....	231	227	221	215	211	209	38
34.....	229	226	219	214	209	208	39
35.....	227	224	217	212	209	208	40
36.....	225	221	215	211	208	209	41
37.....	222	219	214	210	210	212	42
38.....	220	217	213	212	213	217	43
39.....	218	216	214	215	218	223	44
40.....	217	217	217	219	223	230	45
41.....	217	220	222	225	230	237	46
42.....	220	224	227	232	237	244	47
43.....	224	229	234	239	244	250	48
44.....	230	235	240	245	251	258	49
45.....	236	242	247	252	258	265	50
46.....	243	249	253	259	265	274	51
47.....	249	255	261	266	274	286	52
48.....	255	262	267	275	287	302	53
49.....	263	269	276	287	303	320	54
50.....	270	278	289	304	321	341	55
51.....	279	290	305	322	341	363	56
52.....	291	306	323	342	363	383	57

TABLE III—*Continued*

Age at Entry [x]	Years Elapsed Since Husband's Death						Age Attained x+5
	0	1	2	3	4	5 or more	
	$d^r_{[x]}$	$d^r_{[x]+1}$	$d^r_{[x]+2}$	$d^r_{[x]+3}$	$d^r_{[x]+4}$	d^r_{x+5}	
53.....	307	324	344	364	383	399	58
54.....	325	345	365	383	400	417	59
55.....	346	367	385	400	417	434	60
56.....	368	386	402	418	434	452	61
57.....	388	404	420	435	453	474	62
58.....	404	421	436	454	474	497	63
59.....	422	439	455	475	497	519	64
60.....	440	457	477	498	519	538	65
61.....	458	478	500	520	537	556	66
62.....	480	502	521	539	557	576	67
63.....	504	523	541	557	576	596	68
64.....	525	543	560	578	596	613	69
65.....	544	562	579	597	615	631	70
66.....	563	582	599	616	632	645	71
67.....	583	601	618	633	645	651	72
68.....	603	620	635	646	651	652	73
69.....	621	637	648	654	653	650	74
70.....	638	649	655	654	650	644	75
71.....	651	656	656	652	645	635	76
72.....	656	656	653	646	636	625	77
73.....	656	654	647	636	625	613	78

Values Beyond Age at Entry 73 Are Ultimate Depending Upon Mortality Rates Only

See Table XII

TABLE IV

Remarriage Tables

Yearly Probability of Remarriage

($l'_{[18]} = 100{,}000$)

Age at Entry [x]	Years Elapsed Since Husband's Death						Age Attained x+5
	0	1	2	3	4	5 or more	
	$r^r_{[x]}$	$r^r_{[x]+1}$	$r^r_{[x]+2}$	$r^r_{[x]+3}$	$r^r_{[x]+4}$	r^r_{x+5}	
18.....	.0688	.1686	.1330	.1297	.0789	.0557	23
19.....	.0647	.1584	.1250	.1219	.0741	.0524	24
20.....	.0607	.1487	.1173	.1144	.0696	.0492	25
21.....	.0569	.1393	.1099	.1072	.0652	.0461	26
22.....	.0532	.1303	.1028	.1003	.0610	.0431	27
23.....	.0498	.1220	.0962	.0939	.0570	.0403	28
24.....	.0465	.1139	.0899	.0876	.0533	.0377	29
25.....	.0433	.1061	.0837	.0817	.0496	.0351	30
26.....	.0403	.0988	.0780	.0760	.0462	.0327	31
27.....	.0375	.0919	.0725	.0707	.0430	.0304	32
28.....	.0348	.0854	.0673	.0657	.0399	.0282	33
29.....	.0323	.0792	.0625	.0610	.0371	.0262	34
30.....	.0299	.0732	.0578	.0564	.0343	.0242	35
31.....	.0276	.0677	.0534	.0521	.0317	.0224	36
32.....	.0256	.0626	.0494	.0482	.0293	.0207	37
33.....	.0236	.0577	.0455	.0444	.0270	.0191	38
34.....	.0217	.0531	.0419	.0408	.0248	.0175	39
35.....	.0200	.0489	.0386	.0376	.0229	.0162	40
36.....	.0183	.0448	.0354	.0345	.0210	.0148	41
37.....	.0168	.0411	.0324	.0316	.0192	.0136	42
38.....	.0154	.0377	.0297	.0290	.0176	.0125	43
39.....	.0141	.0345	.0272	.0266	.0161	.0114	44
40.....	.0129	.0315	.0249	.0243	.0148	.0104	45
41.....	.0118	.0288	.0228	.0222	.0135	.0095	46
42.....	.0107	.0263	.0208	.0202	.0123	.0087	47
43.....	.0098	.0241	.0190	.0185	.0113	.0080	48
44.....	.0090	.0220	.0173	.0169	.0103	.0073	49
45.....	.0082	.0200	.0158	.0154	.0094	.0066	50
46.....	.0075	.0184	.0145	.0141	.0086	.0061	51
47.....	.0069	.0169	.0133	.0130	.0079	.0056	52
48.....	.0063	.0155	.0123	.0120	.0073	.0051	53
49.....	.0058	.0142	.0112	.0109	.0066	.0047	54
50.....	.0054	.0132	.0104	.0101	.0062	.0043	55
51.....	.0050	.0123	.0097	.0094	.0057	.0041	56
52.....	.0047	.0115	.0091	.0089	.0054	.0038	57

TABLE IV—*Continued*

Age at Entry [x]	Years Elapsed Since Husband's Death						Age Attained x+5
	0	1	2	3	4	5 or more	
	$r^{\tau}_{[x]}$	$r^{\tau}_{[x]+1}$	$r^{\tau}_{[x]+2}$	$r^{\tau}_{[x]+3}$	$r^{\tau}_{[x]+4}$	r^{τ}_{x+5}	
53.....	.0044	.0108	.0085	.0083	.0050	.0036	58
54.....	.0041	.0102	.0080	.0078	.0048	.0034	59
55.....	.0040	.0097	.0077	.0075	.0045	.0032	60
56.....	.0038	.0093	.0073	.0071	.0043	.0031	61
57.....	.0036	.0088	.0070	.0068	.0041	.0029	62
58.....	.0035	.0085	.0067	.0066	.0040	.0028	63
59.....	.0034	.0084	.0066	.0064	.0039	.0028	64
60.....	.0034	.0082	.0065	.0063	.0038	.0027	65
61.....	.0032	.0079	.0063	.0061	.0037	.0026	66
62.....	.0032	.0078	.0061	.0060	.0036	.0026	67
63.....	.0031	.0076	.0060	.0059	.0036	.0025	68
64.....	.0031	.0076	.0060	.0059	.0036	.0025	69
65.....	.0031	.0075	.0059	.0058	.0035	.0025	70
66.....	.0030	.0073	.0058	.0056	.0034	.0024	71
67.....	.0029	.0070	.0055	.0054	.0033	.0023	72
68.....	.0028	.0069	.0054	.0053	.0032	.0023	73
69.....	.0027	.0066	.0052	.0051	.0031	.0022	74
70.....	.0025	.0061	.0048	.0047	.0029	.0020	75
71.....	.0024	.0058	.0046	.0045	.0027	.0019	76
72.....	.0021	.0052	.0041	.0040	.0024	.0017	77
73.....	.0019	.0046	.0037	.0036	.0022	.0015	78

No Remarriages Beyond Age at Entry 73

TABLE V

Remarriage Tables

Yearly Probability of Dying Unmarried

($l^r_{[18]} = 100{,}000$)

Age at Entry [x]	Years Elapsed Since Husband's Death						Age Attained x+5
	0	1	2	3	4	5 or more	
	$q^r_{[x]}$	$q^r_{[x]+1}$	$q^r_{[x]+2}$	$q^r_{[x]+3}$	$q^r_{[x]+4}$	q^r_{x+5}	
18.....	.00343	.00354	.00392	.00419	.00451	.00472	23
19.....	.00374	.00387	.00420	.00441	.00468	.00491	24
20.....	.00407	.00415	.00442	.00458	.00486	.00509	25
21.....	.00435	.00437	.00459	.00477	.00505	.00527	26
22.....	.00457	.00454	.00478	.00496	.00523	.00542	27
23.....	.00474	.00473	.00497	.00514	.00538	.00559	28
24.....	.00492	.00492	.00515	.00530	.00555	.00575	29
25.....	.00511	.00510	.00531	.00547	.00571	.00592	30
26.....	.00528	.00527	.00548	.00564	.00589	.00613	31
27.....	.00544	.00544	.00565	.00582	.00610	.00635	32
28.....	.00560	.00561	.00583	.00603	.00632	.00659	33
29.....	.00577	.00579	.00604	.00625	.00656	.00681	34
30.....	.00594	.00600	.00626	.00649	.00678	.00704	35
31.....	.00614	.00623	.00650	.00672	.00702	.00725	36
32.....	.00637	.00647	.00673	.00696	.00722	.00742	37
33.....	.00660	.00670	.00697	.00717	.00740	.00759	38
34.....	.00683	.00694	.00718	.00735	.00757	.00777	39
35.....	.00706	.00715	.00736	.00752	.00775	.00796	40
36.....	.00726	.00733	.00752	.00770	.00795	.00822	41
37.....	.00744	.00750	.00771	.00790	.00820	.00854	42
38.....	.00760	.00769	.00791	.00816	.00852	.00893	43
39.....	.00778	.00789	.00817	.00849	.00892	.00937	44
40.....	.00798	.00815	.00849	.00888	.00935	.00986	45
41.....	.00823	.00848	.00889	.00932	.00984	.01038	46
42.....	.00855	.00887	.00932	.00981	.01037	.01089	47
43.....	.00895	.00931	.00982	.01033	.01088	.01140	48
44.....	.00938	.00980	.01034	.01085	.01139	.01197	49
45.....	.00987	.01033	.01085	.01136	.01195	.01255	50
46.....	.01039	.01084	.01137	.01193	.01254	.01324	51
47.....	.01090	.01135	.01193	.01251	.01323	.01411	52
48.....	.01141	.01192	.01251	.01320	.01410	.01520	53
49.....	.01198	.01250	.01321	.01407	.01519	.01644	54
50.....	.01256	.01319	.01408	.01516	.01643	.01799	55
51.....	.01325	.01406	.01517	.01640	.01788	.01946	56
52.....	.01412	.01515	.01641	.01785	.01945	.02099	57

TABLE V—*Continued*

Age at Entry [x]	Years Elapsed Since Husband's Death						Age Attained x+5
	0	1	2	3	4	5 or more	
	$q^r_{[x]}$	$q^r_{[x]+1}$	$q^r_{[x]+2}$	$q^r_{[x]+3}$	$q^r_{[x]+4}$	q^r_{x+5}	
53.....	.01521	.01639	.01785	.01942	.02098	.02247	58
54.....	.01645	.01784	.01942	.02095	.02246	.02409	59
55.....	.01789	.01941	.02095	.02243	.02408	.02579	60
56.....	.01946	.02093	.02243	.02404	.02577	.02770	61
57.....	.02099	.02241	.02405	.02574	.02768	.02993	62
58.....	.02247	.02403	.02574	.02765	.02991	.03246	63
59.....	.02409	.02572	.02765	.02987	.03245	.03508	64
60.....	.02579	.02763	.02987	.03241	.03506	.03781	65
61.....	.02770	.02985	.03241	.03502	.03779	.04079	66
62.....	.02992	.03238	.03502	.03775	.04077	.04413	67
63.....	.03246	.03500	.03775	.04072	.04411	.04790	68
64.....	.03508	.03772	.04072	.04406	.04787	.05200	69
65.....	.03780	.04069	.04406	.04782	.05198	.05656	70
66.....	.04078	.04403	.04782	.05192	.05653	.06138	71
67.....	.04413	.04779	.05193	.05648	.06135	.06625	72
68.....	.04789	.05189	.05648	.06129	.06622	.07121	73
69.....	.05200	.05644	.06129	.06616	.07118	.07662	74
70.....	.05656	.06126	.06617	.07112	.07659	.08244	75
71.....	.06138	.06614	.07113	.07653	.08241	.08880	76
72.....	.06626	.07110	.07654	.08235	.08877	.09601	77
73.....	.07122	.07652	.08237	.08872	.09598	.10434	78

Values Beyond Age at Entry 73 Are Ultimate Depending on Mortality Rates Only

See Table XII

TABLE VI

Remarriage Tables

Yearly Probability of Surviving Unmarried

$(l_{[18]} = 100{,}000)$

Age at Entry [x]	Years Elapsed Since Husband's Death						Age Attained x+5
	0	1	2	3	4	5 or more	
	$p^l_{[x]}$	$p^l_{[x]+1}$	$p^l_{[x]+2}$	$p^l_{[x]+3}$	$p^l_{[x]+4}$	p^l_{x+5}	
18.....	.92777	.82786	.86308	.86611	.91659	.93958	23
19.....	.93156	.83773	.87080	.87369	.92122	.94269	24
20.....	.93523	.84715	.87828	.88102	.92554	.94571	25
21.....	.93875	.85633	.88551	.88803	.92975	.94863	26
22.....	.94223	.86516	.89242	.89474	.93377	.95148	27
23.....	.94546	.87327	.89883	.90096	.93762	.95411	28
24.....	.94858	.88118	.90495	.90710	.94115	.95655	29
25.....	.95159	.88880	.91099	.91283	.94469	.95898	30
26.....	.95442	.89593	.91652	.91836	.94791	.96117	31
27.....	.95706	.90266	.92185	.92348	.95090	.96325	32
28.....	.95960	.90899	.92687	.92827	.95378	.96521	33
29.....	.96193	.91501	.93146	.93275	.95634	.96699	34
30.....	.96416	.92080	.93594	.93711	.95892	.96876	35
31.....	.96626	.92607	.94010	.94118	.96128	.97035	36
32.....	.96803	.93093	.94387	.94484	.96348	.97188	37
33.....	.96980	.93560	.94753	.94843	.96560	.97331	38
34.....	.97147	.93996	.95092	.95185	.96763	.97473	39
35.....	.97294	.94395	.95404	.95488	.96935	.97584	40
36.....	.97444	.94787	.95708	.95780	.97105	.97698	41
37.....	.97576	.95140	.95989	.96050	.97260	.97786	42
38.....	.97700	.95461	.96239	.96284	.97388	.97857	43
39.....	.97812	.95761	.96463	.96491	.97498	.97923	44
40.....	.97912	.96035	.96661	.96682	.97585	.97974	45
41.....	.97997	.96272	.96831	.96848	.97666	.98012	46
42.....	.98075	.96483	.96988	.96999	.97733	.98041	47
43.....	.98125	.96659	.97118	.97117	.97782	.98060	48
44.....	.98162	.96820	.97236	.97225	.97831	.98073	49
45.....	.98193	.96967	.97335	.97324	.97865	.98085	50
46.....	.98211	.97076	.97413	.97397	.97886	.98066	51
47.....	.98220	.97175	.97477	.97449	.97887	.98029	52
48.....	.98229	.97258	.97519	.97480	.97860	.97970	53
49.....	.98222	.97330	.97559	.97503	.97821	.97886	54
50.....	.98204	.97361	.97552	.97474	.97737	.97781	55
51.....	.98175	.97364	.97513	.97420	.97642	.97644	56
52.....	.98118	.97335	.97449	.97325	.97515	.97521	57

TABLE VI—*Continued*

Age at Entry [x]	Years Elapsed Since Husband's Death						Age Attained x+5
	0	1	2	3	4	5 or more	
	$p^{r}_{[x]}$	$p^{r}_{[x]+1}$	$p^{r}_{[x]+2}$	$p^{r}_{[x]+3}$	$p^{r}_{[x]+4}$	p^{r}_{x+5}	
53.....	.98039	.97281	.97365	.97228	.97402	.97393	58
54.....	.97945	.97196	.97258	.97125	.97274	.97251	59
55.....	.97811	.97089	.97135	.97007	.97142	.97101	60
56.....	.97674	.96977	.97027	.96886	.96993	.96920	61
57.....	.97541	.96879	.96895	.96746	.96822	.96717	62
58.....	.97403	.96747	.96756	.96575	.96609	.96474	63
59.....	.97251	.96588	.96575	.96373	.96365	.96212	64
60.....	.97081	.96417	.96363	.96129	.96114	.95949	65
61.....	.96910	.96225	.96129	.95888	.95851	.95661	66
62.....	.96688	.95982	.95888	.95625	.95563	.95327	67
63.....	.96444	.95740	.95625	.95338	.95229	.94960	68
64.....	.96182	.95468	.95328	.95004	.94853	.94550	69
65.....	.95910	.95181	.95004	.94638	.94452	.94094	70
66.....	.95622	.94867	.94638	.94248	.94007	.93622	71
67.....	.95297	.94521	.94257	.93812	.93535	.93145	72
68.....	.94931	.94121	.93812	.93341	.93058	.92649	73
69.....	.94530	.93696	.93351	.92874	.92572	.92118	74
70.....	.94094	.93264	.92903	.92418	.92051	.91556	75
71.....	.93622	.92806	.92427	.91897	.91489	.90930	76
72.....	.93164	.92370	.91936	.91365	.90883	.90229	77
73.....	.92688	.91888	.91393	.90768	.90182	.89416	78

Values Beyond Age at Entry 73 Are Ultimate Depending Upon Mortality Rates Only See Table XII

TABLE VII

Remarriage Rates

Complete Expectation of Unmarried Life

($l_{[18]} = 100{,}000$)

Age at Entry [x]	Years Elapsed Since Husband's Death						Age Attained x+5
	0	1	2	3	4	5 or more	
	$\mathring{e}^{r}_{[x]}$	$\mathring{e}^{r}_{[x]+1}$	$\mathring{e}^{r}_{[x]+2}$	$\mathring{e}^{r}_{[x]+3}$	$\mathring{e}^{r}_{[x]+4}$	$\mathring{e}^{r}_{x+5}$	
18.....	16.475	16.719	19.091	21.040	23.216	24.283	23
19.....	17.330	17.567	19.872	21.747	23.819	24.812	24
20.....	18.170	18.394	20.623	22.411	24.370	25.291	25
21.....	18.993	19.200	21.337	23.031	24.872	25.714	26
22.....	19.791	19.973	22.008	23.601	25.319	26.079	27
23.....	20.536	20.691	22.621	24.111	25.707	26.384	28
24.....	21.245	21.370	23.184	24.567	26.032	26.629	29
25.....	21.920	22.010	23.701	24.968	26.304	26.815	30
26.....	22.534	22.586	24.152	25.306	26.511	26.941	31
27.....	23.091	23.104	24.542	25.580	26.659	27.009	32
28.....	23.590	23.562	24.871	25.794	26.749	27.020	33
29.....	24.021	23.952	25.130	25.942	26.777	26.977	34
30.....	24.406	24.295	25.341	26.042	26.756	26.880	35
31.....	24.720	24.565	25.486	26.078	26.677	26.731	36
32.....	24.955	24.762	25.563	26.053	26.545	26.532	37
33.....	25.142	24.909	25.590	25.979	26.364	26.285	38
34.....	25.266	24.994	25.558	25.852	26.135	25.992	39
35.....	25.315	25.005	25.460	25.662	25.851	25.653	40
36.....	25.321	24.972	25.318	25.430	25.529	25.275	41
37.....	25.261	24.876	25.122	25.151	25.164	24.859	42
38.....	25.139	24.718	24.870	24.822	24.761	24.411	43
39.....	24.959	24.506	24.569	24.452	24.323	23.935	44
40.....	24.729	24.246	24.226	24.046	23.853	23.432	45
41.....	24.446	23.935	23.843	23.607	23.359	22.906	46
42.....	24.125	23.588	23.430	23.142	22.842	22.360	47
43.....	23.749	23.193	22.977	22.644	22.302	21.797	48
44.....	23.345	22.772	22.504	22.130	21.747	21.219	49
45.....	22.911	22.324	22.007	21.595	21.175	20.626	50
46.....	22.437	21.837	21.480	21.036	20.585	20.019	51
47.....	21.938	21.326	20.931	20.460	19.983	19.404	52
48.....	21.417	20.794	20.366	19.871	19.371	18.784	53
49.....	20.882	20.251	19.793	19.276	18.756	18.163	54
50.....	20.314	19.677	19.196	18.665	18.136	17.545	55
51.....	19.733	19.091	18.594	18.055	17.520	16.931	56
52.....	19.136	18.494	17.986	17.444	16.909	16.327	57

TABLE VII—*Continued*

Age at Entry [x]	Years Elapsed Since Husband's Death						Age Attained x+5
	0	1	2	3	4	5 or more	
	$\mathring{e}^r_{[x]}$	$\mathring{e}^r_{[x]+1}$	$\mathring{e}^r_{[x]+2}$	$\mathring{e}^r_{[x]+3}$	$\mathring{e}^r_{[x]+4}$	$\mathring{e}^r_{x+5}$	
53.....	18.538	17.899	17.385	16.842	16.308	15.730	58
54.....	17.936	17.302	16.786	16.245	15.711	15.137	59
55.....	17.328	16.705	16.191	15.654	15.121	14.552	60
56.....	16.372	16.119	15.605	15.069	14.537	13.971	61
57.....	16.142	15.537	15.021	14.487	13.957	13.399	62
58.....	15.556	14.957	14.443	13.910	13.386	12.837	63
59.....	14.967	14.376	13.866	13.340	12.824	12.288	64
60.....	14.387	13.805	13.299	12.782	12.276	11.753	65
61.....	13.822	13.246	12.746	12.239	11.742	11.228	66
62.....	13.256	12.692	12.203	11.704	11.217	10.715	67
63.....	12.703	12.153	11.672	11.183	10.705	10.216	68
64.....	12.159	11.621	11.149	10.670	10.205	9.732	69
65.....	11.629	11.103	10.640	10.174	9.722	9.264	70
66.....	11.115	10.601	10.148	9.694	9.255	8.814	71
67.....	10.615	10.114	9.671	9.230	8.806	7.880	72
68.....	10.123	9.637	9.208	8.782	8.373	7.960	73
69.....	9.649	9.178	8.762	8.351	7.953	7.551	74
70.....	9.197	8.743	8.338	7.936	7.547	7.155	75
71.....	8.754	8.316	7.921	7.530	7.150	6.768	76
72.....	8.335	7.910	7.521	7.138	6.765	6.393	77
73.....	7.925	7.511	7.130	6.755	6.391	6.031	78

Values Beyond Age at Entry 73 Are Ultimate Depending Upon Mortality Rates Only

See Table XII

Note: $\mathring{e}^r_x = (\Sigma l^r_{x+1} \div l^r_x) + \frac{1}{2}$ Values of l^r_x From Table I

TABLE VIII

Remarriage Tables

Commutation Columns (3½% Interest) – D^r_x

($l^r_{[18]} = 100{,}000$)

Age at Entry [x]	Years Elapsed Since Husband's Death						Age Attained x+5
	0	1	2	3	4	5 or more	
	$D^r_{[x]}$	$D^r_{[x]+1}$	$D^r_{[x]+2}$	$D^r_{[x]+3}$	$D^r_{[x]+4}$	D^r_{x+5}	
18.....	53836.1	48258.5	38600.6	32189.0	26936.3	23854.6	23
19.....	47022.6	42323.1	34256.5	28821.8	24329.7	21655.2	24
20.....	41285.3	37305.4	30534.7	25911.2	22056.4	19723.7	25
21.....	36419.3	33032.5	27330.0	23382.5	20062.2	18022.0	26
22.....	32278.1	29384.7	24562.8	21178.9	18309.0	16518.2	27
23.....	28768.2	26279.6	22173.3	19256.3	16762.3	15185.2	28
24.....	25746.2	23596.4	20089.5	17565.0	15394.4	13998.4	29
25.....	23126.3	21262.4	18259.0	16071.4	14174.3	12937.5	30
26.....	20868.7	19243.8	16658.1	14751.0	13088.6	11987.1	31
27.....	18905.7	17482.0	15246.6	13579.9	12116.6	11132.1	32
28.....	17190.5	15938.0	13997.5	12535.1	11242.5	10360.4	33
29.....	15691.0	14583.2	12892.4	11602.7	10456.5	9661.70	34
30.....	14358.0	13375.4	11899.7	10760.8	9743.05	9026.91	35
31.....	13184.7	12309.2	11013.7	10003.8	9097.10	8449.21	36
32.....	12150.5	11364.3	10221.5	9321.49	8509.50	7921.55	37
33.....	11220.7	10513.6	9503.87	8700.79	7973.07	7438.56	38
34.....	10388.5	9750.75	8855.27	8135.77	7482.12	6995.15	39
35.....	9647.26	9068.87	8271.03	7624.17	7304.10	6587.84	40
36.....	8972.65	8447.73	7736.45	7154.09	6620.42	6211.32	41
37.....	8365.12	7886.34	7249.24	6723.21	6239.38	5863.12	42
38.....	7816.54	7378.64	6805.55	6328.21	5886.93	5539.33	43
39.....	7318.26	6915.93	6398.74	5963.79	5559.83	5237.33	44
40.....	6862.89	6492.44	6024.15	5626.12	5255.60	4955.17	45
41.....	6447.30	6104.55	5678.29	5312.38	4970.90	4690.63	46
42.....	6063.53	5745.72	5356.18	5019.18	4703.98	4441.89	47
43.....	5713.15	5416.49	5058.52	4746.52	4453.80	4207.65	48
44.....	5386.56	5108.71	4778.98	4489.73	4217.43	3986.42	49
45.....	5082.34	4821.72	4517.32	4248.31	3994.76	3777.30	50
46.....	4801.58	4556.23	4273.44	4022.19	3785.00	3579.67	51
47.....	4539.16	4307.58	4044.42	3808.99	3586.25	3391.77	52
48.....	4292.81	4074.26	3828.51	3607.35	3397.62	3212.48	53
49.....	4059.99	3852.86	3623.10	3415.17	3217.32	3040.81	54
50.....	3843.91	3647.14	3430.88	3233.80	3045.49	2875.86	55
51.....	3639.36	3452.11	3247.52	3059.69	2879.93	2717.00	56
52.....	3446.59	3267.39	3072.80	2893.20	2720.64	2563.33	57

TABLE VIII—*Continued*

Age at Entry [x]	Years Elapsed Since Husband's Death						Age Attained x+5
	0	1	2	3	4	5 or more	
	$D^r_{[x]}$	$D^r_{[x]+1}$	$D^r_{[x]+2}$	$D^r_{[x]+3}$	$D^r_{[x]+4}$	D^r_{x+5}	
53.....	3261.90	3089.81	2904.20	2732.00	2566.43	2415.19	58
54.....	3085.59	2920.03	2742.20	2576.84	2418.18	2272.69	59
55.....	2917.77	2757.34	2586.55	2427.43	2275.19	2135.41	60
56.....	2754.87	2599.78	2435.99	2283.60	2137.70	2003.36	61
57.....	2597.95	2448.37	2291.74	2145.44	2005.44	1876.01	62
58.....	2447.28	2303.17	2152.93	2012.68	1878.03	1753.02	63
59.....	2303.56	2164.48	2019.91	1884.78	1754.97	1634.02	64
60.....	2164.73	2030.46	1891.54	1761.04	1635.68	1518.91	65
61.....	2029.60	1900.42	1766.88	1641.10	1520.40	1408.07	66
62.....	1900.78	1775.69	1646.74	1525.64	1409.51	1301.39	67
63.....	1775.81	1654.70	1530.66	1414.16	1302.68	1198.58	68
64.....	1655.70	1538.68	1419.32	1307.27	1199.92	1099.66	69
65.....	1539.21	1426.34	1311.66	1203.97	1100.87	1004.60	70
66.....	1426.24	1317.65	1207.73	1104.31	1005.59	913.336	71
67.....	1317.15	1212.75	1107.57	1008.65	914.206	826.170	72
68.....	1212.84	1112.42	1011.62	916.901	826.926	743.525	73
69.....	1112.14	1015.76	919.509	829.362	744.174	665.612	74
70.....	1014.41	922.204	831.042	745.960	666.082	592.414	75
71.....	921.857	833.898	747.746	667.729	592.869	524.067	76
72.....	832.386	749.288	668.749	594.005	524.360	460.439	77
73.....	748.151	670.003	594.839	525.239	460.651	401.412	78

Values Beyond Age at Entry 73 Are Ultimate Depending Upon Mortality Rates Only See Table XII

Note: $D^r_x = v^x \cdot l^r_x$ Values of v^x at 3½%. Values of l^r_x From Table I.

TABLE IX

Remarriage Tables

Commutation Columns (3½%) Interest) – N^r_x

($l^r_{[18]} = 100{,}000$)

Age at Entry [x]	Years Elapsed Since Husband's Death						Age Attained x+5
	0	1	2	3	4	5 or more	
	$N^r_{[x]}$	$N^r_{[x]+1}$	$N^r_{[x]+2}$	$N^r_{[x]+3}$	$N^r_{[x]+4}$	N^r_{x+5}	
18.....	530193.2	476357.1	428098.6	389498.0	357309.0	330372.7	23
19.....	483271.8	436249.2	393926.1	359669.6	330847.8	306518.1	24
20.....	441955.9	400670.6	363365.2	332830.5	306919.3	284862.9	25
21.....	405365.7	368946.4	335913.9	308583.9	285201.4	265139.2	26
22.....	372830.7	340552.6	311167.9	286605.1	265426.2	247117.2	27
23.....	343838.7	315070.5	288790.9	266617.6	247361.3	230599.0	28
24.....	317805.3	292059.1	268462.7	248373.2	230808.2	215413.8	29
25.....	294308.8	271182.5	249920.1	231661.1	215589.7	201415.4	30
26.....	273088.1	252219.4	232975.6	216317.5	201566.5	188477.9	31
27.....	253821.6	234915.9	217433.9	202187.3	188607.4	176490.8	32
28.....	236262.3	219071.8	203133.8	189136.3	176601.2	165358.7	33
29.....	220224.1	204533.1	189949.9	177057.5	164454.8	154998.3	34
30.....	205473.6	191115.6	177740.2	165840.5	155079.7	145336.6	35
31.....	191918.2	178733.5	166424.3	155410.6	145406.8	136309.7	36
32.....	179427.8	167277.3	155913.0	145691.5	136370.0	127860.5	37
33.....	167851.0	156630.3	146116.7	136612.9	127912.1	119939.0	38
34.....	157112.8	146724.3	136973.6	128118.3	119982.5	112500.4	39
35.....	147150.7	137503.5	128434.6	120163.6	112539.4	105505.3	40
36.....	137848.7	128876.1	120428.4	112691.9	105537.8	98917.4	41
37.....	129169.4	120804.3	112917.9	105668.7	98945.5	92706.1	42
38.....	121058.9	113242.3	105863.7	99058.1	92729.9	86843.0	43
39.....	113460.2	106141.9	99226.0	92827.2	86863.4	81303.6	44
40.....	106327.5	99464.6	92972.2	86948.0	81321.9	76066.3	45
41.....	99624.5	93177.2	87072.7	81394.4	76082.0	71111.1	46
42.....	93309.1	87245.6	81499.8	76143.7	71124.5	66420.5	47
43.....	87367.1	81653.9	76237.4	71178.9	66432.4	61978.6	48
44.....	81752.4	76365.9	71257.1	66478.2	61988.4	57771.0	49
45.....	76449.1	71366.7	66545.0	62027.7	57779.4	53784.6	50
46.....	71445.7	66644.2	62087.9	57814.5	53792.3	50007.3	51
47.....	66714.0	62174.8	57867.3	53822.8	50013.9	46427.6	52
48.....	62236.4	57943.5	53869.3	50040.8	46433.4	43035.8	53
49.....	57991.7	53931.8	50078.9	46455.8	43040.6	39823.3	54
50.....	53983.7	50139.8	46492.7	43061.8	39828.0	36782.5	55
51.....	50185.3	46546.0	43093.8	39846.3	36786.6	33906.7	56
52.....	46590.3	43143.7	39876.3	36803.5	33910.3	31189.7	57

TABLE IX—*Continued*

Age at Entry [x]	Years Elapsed Since Husband's Death						Age Attained x+5
	0	1	2	3	4	5 or more	
	$N^r_{[x]}$	$N^r_{[x]+1}$	$N^r_{[x]+2}$	$N^r_{[x]+3}$	$N^r_{[x]+4}$	N^r_{x+5}	
53.....	43180.6	39918.7	36828.9	33924.7	31192.7	28626.3	58
54.....	39953.9	36868.4	33948.3	31206.1	28629.3	26211.1	59
55.....	36902.8	33985.0	31227.7	28641.1	26213.7	23938.5	60
56.....	34014.9	31260.1	28660.3	26224.3	23940.7	21803.0	61
57.....	31288.6	28690.7	26242.3	23950.6	21805.1	19799.7	62
58.....	28717.8	26270.5	23967.3	21814.4	19801.7	17923.7	63
59.....	26298.4	23994.8	21830.4	19810.5	17925.7	16170.7	64
60.....	24020.1	21855.3	19824.9	17933.3	16172.3	14536.6	65
61.....	21876.1	19846.5	17946.1	16179.2	14538.1	13017.7	66
62.....	19868.1	17967.3	16191.6	14544.9	13019.2	11609.7	67
63.....	17986.3	16210.5	14555.8	13025.1	11611.0	10308.3	68
64.....	16230.6	14574.9	13036.2	11616.9	10309.6	9109.68	69
65.....	14592.1	13052.9	11626.5	10314.9	9110.89	8010.02	70
66.....	13066.9	11640.7	10323.1	9115.32	8011.01	7005.42	71
67.....	11652.4	10335.3	9122.52	8014.95	7006.30	6092.09	72
68.....	10346.6	9133.79	8021.37	7009.75	6092.85	5265.92	73
69.....	9143.34	8031.20	7015.44	6095.93	5266.56	4522.39	74
70.....	8036.48	7022.07	6099.86	5268.82	4522.86	3856.78	75
71.....	7028.47	6106.61	5272.71	4524.97	3857.24	3264.37	76
72.....	6109.09	5276.70	4527.41	3858.67	3264.66	2740.30	77
73.....	5278.74	4530.59	3860.59	3265.75	2740.51	2279.86	78

Values Beyond Age at Entry 73 Are Ultimate
Depending Upon Mortality Rates Only
See Table XII

Notes: $N^r_x = \Sigma\, D^r_x$ Values of D^r_x From Table VIII

Present Value of 1 Per Annum for Duration of Unmarried Life.

Payable at End of Each Year $a^r_x = N^r_{x+1} \div D^r_x$

Present Value of Temporary Annuity of 1 Per Annum for n Years

Payable at End of Each Year $a^r_{x\,\overline{n}|} = \dfrac{N^r_{x+1} - N^r_{x+n+1}}{D^r_x}$

TABLE X

Remarriage Tables

Commutation Columns ($3\frac{1}{2}\%$ Interest) – $\bar{N}^r_x$

($l^r_{[18]} = 100{,}000$)

Age at Entry $[x]$	Years Elapsed Since Husband's Death						Age Attained $x+5$
	0	1	2	3	4	5 or more	
	$\bar{N}^r_{[x]}$	$\bar{N}^r_{[x]+1}$	$\bar{N}^r_{[x]+2}$	$\bar{N}^r_{[x]+3}$	$\bar{N}^r_{[x]+4}$	$\bar{N}^r_{x+5}$	
18.....	503275.2	452227.9	408798.3	373403.5	343840.9	318445.4	23
19.....	459760.5	415087.7	376797.9	345258.7	318683.0	295690.5	24
20.....	421313.3	382017.9	348097.9	319874.9	295891.1	275001.1	25
21.....	387156.1	352430.2	322248.9	296892.7	275170.3	256128.2	26
22.....	356691.7	325860.3	298886.5	276015.7	256271.7	238858.1	27
23.....	329454.6	301930.7	277704.3	256989.5	238980.2	223006.4	28
24.....	304932.2	280260.9	258418.0	239590.7	223111.0	208414.6	29
25.....	282745.7	260551.3	240790.6	223625.4	208502.6	194946.7	30
26.....	262653.8	242597.5	224646.6	208942.0	195022.2	182484.4	31
27.....	244368.8	226174.9	209810.6	195397.4	182549.1	170924.8	32
28.....	227667.1	211102.8	196135.1	182868.8	170980.0	160178.5	33
29.....	212378.6	197241.5	183503.7	171256.2	160226.6	150167.5	34
30.....	198294.6	184427.9	171790.4	160460.1	150208.2	140823.2	35
31.....	185325.9	172578.9	160917.5	150408.7	140858.3	132085.1	36
32.....	173352.6	161595.2	150802.3	141030.8	132115.3	123899.8	37
33.....	162240.7	151373.5	141364.8	132262.5	123925.6	116219.7	38
34.....	151918.6	141849.0	132546.0	124050.4	116241.5	109002.9	39
35.....	142327.1	132969.1	124299.1	116351.5	109022.4	102211.4	40
36.....	133362.4	124652.3	116560.2	109114.9	102227.6	95811.8	41
37.....	124986.9	116861.1	109293.3	102307.1	95825.8	89774.6	42
38.....	117150.6	109553.0	102460.9	95894.0	89786.5	84073.3	43
39.....	109801.1	102684.0	96026.6	89845.3	84083.5	78685.0	44
40.....	102896.1	96218.4	89960.1	84135.0	78694.1	73588.7	45
41.....	96400.9	90125.0	84233.6	78738.2	73596.6	68765.8	46
42.....	90277.4	84372.7	78821.8	73634.1	68772.5	64199.6	47
43.....	84510.5	78945.7	73708.2	68805.7	64205.5	59874.8	48
44.....	79059.2	73811.5	68867.7	64233.3	59879.7	55777.8	49
45.....	73907.9	68955.9	64286.4	59903.6	55782.0	51896.0	50
46.....	69045.0	64366.1	59951.2	55803.4	51899.8	48217.5	51
47.....	64444.4	60021.1	55845.1	51918.4	48220.8	44731.7	52
48.....	60090.0	55906.4	51955.1	48237.1	44734.6	41429.6	53
49.....	55961.8	52005.4	48267.4	44748.2	41432.0	38302.9	54
50.....	52061.8	48316.3	44777.3	41444.9	38305.3	35344.6	55
51.....	48365.7	44819.9	41470.1	38316.5	35346.7	32548.2	56
52.....	44867.0	41510.0	38339.9	35356.9	32550.0	29908.0	57

TABLE X—*Continued*

Age at Entry [x]	Years Elapsed Since Husband's Death						Age Attained x+5
	0	1	2	3	4	5 or more	
	$\bar{N}^r_{[x]}$	$\bar{N}^r_{[x]+1}$	$\bar{N}^r_{[x]+2}$	$\bar{N}^r_{[x]+3}$	$\bar{N}^r_{[x]+4}$	$\bar{N}^r_{x+5}$	
53.....	41549.7	38373.8	35376.8	32558.7	29909.5	27418.7	58
54.....	38411.2	35408.4	32577.2	29917.7	27420.2	25074.8	59
55.....	35443.9	32606.4	29934.4	27427.4	25076.1	22870.8	60
56.....	32637.5	29960.2	27442.3	25082.5	22871.9	20801.4	61
57.....	29989.7	27466.5	25096.5	22877.9	20802.4	18861.7	62
58.....	27494.2	25118.9	22890.9	20808.1	18862.7	17047.2	63
59.....	25146.6	22912.6	20820.5	18868.1	17048.2	15353.7	64
60.....	22937.7	20840.1	18879.1	17052.8	15354.5	13777.2	65
61.....	20861.3	18896.3	17062.7	15358.7	13777.9	12313.7	66
62.....	18917.7	17079.5	15368.3	13782.1	12314.5	10959.0	67
63.....	17098.4	15383.2	13790.5	12318.1	10959.7	9708.99	68
64.....	15402.8	13805.6	12326.6	10963.3	9709.64	8559.85	69
65.....	13822.5	12339.7	10970.7	9712.90	8560.46	7507.72	70
66.....	12353.8	10981.9	9719.21	8563.17	7508.22	6548.76	71
67.....	10993.9	9728.91	8568.74	7510.63	6549.20	5679.01	72
68.....	9740.20	8577.58	7515.56	6551.30	5679.39	4894.16	73
69.....	8587.27	7523.32	6555.69	5681.25	4894.48	4189.59	74
70.....	7529.28	6560.97	5684.34	4895.84	4189.82	3560.58	75
71.....	6567.54	5689.66	4898.84	4191.11	3560.81	3002.34	76
72.....	5692.90	4902.06	4193.04	3561.67	3002.48	2510.08	77
73.....	4904.67	4195.59	3563.17	3003.13	2510.19	2079.16	78

Values Beyond Age at Entry 73 Are Ultimate Depending Upon Mortality Rates Only See Table XII

Notes: $\bar{N}^r_x = \frac{1}{2}(N^r_x + N^r_{x+1})$ Values of N^r_x From Table IX

Present Value of 1 Per Annum for Duration of Unmarried Life Payable Continuously $\bar{a}^r_x = \bar{N}^r_x \div D^r_x$

Present Value of Temporary Annuity of 1 Per Annum for n Years Payable Continuously $\bar{a}^r_{x\,\overline{n}|} = \dfrac{\bar{N}^r_x - \bar{N}^r_{x+n}}{D^r_x}$

TABLE XI

REMARRIAGE TABLES

COMMUTATION COLUMNS (3½% INTEREST) – $\overline{M}^{r}_{x}$

($l^{r}_{[18]} = 100{,}000$)

Age at Entry [x]	YEARS ELAPSED SINCE HUSBAND'S DEATH						Age Attained x+5
	0	1	2	3	4	5 or more	
	$\overline{M}^{r}_{[x]}$	$\overline{M}^{r}_{[x]+1}$	$\overline{M}^{r}_{[x]+2}$	$\overline{M}^{r}_{[x]+3}$	$\overline{M}^{r}_{[x]+4}$	$\overline{M}^{r}_{x+5}$	
18.....	32207.3	28566.5	20569.0	15522.8	11419.0	9330.02	23
19.....	27038.3	24047.8	17458.4	13249.2	9796.62	8023.65	24
20.....	22767.2	20303.6	14851.1	11330.6	8417.12	6908.25	25
21.....	19215.7	17178.7	12655.7	9703.43	7239.75	5954.10	26
22.....	16257.0	14569.2	10805.6	8323.39	6235.41	5137.52	27
23.....	13810.4	12402.4	9251.24	7154.53	5377.08	4437.84	28
24.....	11749.4	10572.4	7930.45	6155.01	4642.68	3836.11	29
25.....	10003.8	9019.25	6801.75	5299.51	4008.63	3317.43	30
26.....	8540.23	7713.59	5844.82	4567.44	3465.56	2870.92	31
27.....	7303.88	6606.93	5027.56	3941.26	2997.47	2485.53	32
28.....	6255.10	5666.86	4329.03	3403.10	2593.73	2153.05	33
29.....	5368.33	4870.32	3734.97	2942.86	2247.18	1865.93	34
30.....	4602.60	4180.62	3218.32	2542.25	1945.59	1617.21	35
31.....	3952.61	3594.97	2776.03	2198.01	1685.91	1402.55	36
32.....	3404.44	3098.78	2394.45	1903.23	1461.53	1216.52	37
33.....	2928.14	2667.87	2071.54	1646.65	1266.89	1055.49	38
34.....	2519.93	2298.37	1789.44	1424.49	1098.31	915.869	39
35.....	2174.81	1985.22	1549.33	1235.54	953.898	795.614	40
36.....	1872.74	1711.49	1339.34	1070.20	827.641	690.847	41
37.....	1614.51	1476.34	1157.72	926.982	718.191	600.416	42
38.....	1394.06	1275.99	1002.59	803.974	623.592	521.850	43
39.....	1204.89	1103.39	868.778	697.752	541.779	453.778	44
40.....	1041.39	954.496	753.485	606.086	471.734	395.147	45
41.....	901.264	826.425	653.765	526.578	410.616	344.561	46
42.....	778.854	715.120	566.660	457.188	357.689	300.735	47
43.....	676.544	621.459	493.164	398.682	312.443	262.879	48
44.....	586.609	539.012	428.434	347.041	272.305	229.696	49
45.....	508.131	467.161	372.237	302.184	237.894	201.098	50
46.....	442.993	407.649	325.303	264.406	208.666	176.633	51
47.....	386.960	356.128	284.674	231.848	183.096	155.208	52
48.....	338.293	311.710	249.594	203.305	160.793	136.478	53
49.....	294.671	271.537	217.681	177.720	141.082	120.286	54
50.....	259.484	239.069	191.795	156.800	124.734	106.176	55
51.....	228.939	211.084	169.352	138.397	110.177	94.0243	56
52.....	203.321	187.385	150.398	122.944	97.6036	83.1429	57

TABLE XI—*Continued*

Age at Entry [x]	Years Elapsed Since Husband's Death						Age Attained x+5
	0	1	2	3	4	5 or more	
	$\overline{M}^r_{[x]}$	$\overline{M}^r_{[x]+1}$	$\overline{M}^r_{[x]+2}$	$\overline{M}^r_{[x]+3}$	$\overline{M}^r_{[x]+4}$	$\overline{M}^r_{x+5}$	
53.....	179.774	165.646	132.824	108.522	86.1862	73.5978	58
54.....	159.570	147.147	117.806	96.1864	76.4046	65.0439	59
55.....	142.954	131.395	105.051	85.4074	67.4975	57.4248	60
56.....	127.166	116.857	93.0634	75.5544	59.6706	50.6872	61
57.....	112.967	103.837	82.7191	66.9645	52.6160	44.5391	62
58.....	101.424	93.0038	73.7625	59.5387	46.5191	39.1813	63
59.....	91.7050	83.9569	66.1148	52.9747	41.0944	34.3423	64
60.....	82.6339	75.3973	59.0024	46.8893	35.9733	29.8845	65
61.....	73.3430	66.9538	52.1618	41.2458	31.4601	25.8924	66
62.....	65.6977	59.7576	46.1409	36.2465	27.2120	22.2385	67
63.....	58.5662	53.1645	40.7693	31.7348	23.5133	18.9041	68
64.....	52.5571	47.5555	36.1048	27.7818	20.2306	15.9668	69
65.....	46.8233	42.0960	31.5400	23.8907	16.9738	13.2204	70
66.....	40.7414	36.4784	27.0638	20.1470	14.1048	10.7437	71
67.....	35.0093	31.2826	22.9445	16.9939	11.5984	8.60724	72
68.....	30.3549	27.0385	19.5317	14.1362	9.35036	6.70812	73
69.....	25.6588	22.7292	16.0954	11.3950	7.26656	5.03277	74
70.....	20.8381	18.3614	12.8065	8.92573	5.49526	3.56824	75
71.....	17.1460	15.0095	10.2204	6.86968	3.94061	2.37666	76
72.....	13.1624	11.4284	7.59904	4.90123	2.59253	1.36929	77
73.....	10.0506	8.61458	5.60845	3.44869	1.57786	0.604544	78

No Remarriages Beyond Age at Entry 73

Notes: $\overline{M}^r_x = \Sigma v^{x+\frac{1}{2}} \cdot m^r_x$ Values of $v^{x+\frac{1}{2}}$ At 3½% Values of m^r_x From Table II

Present Value of 1 Payable Immediately Upon Remarriage

(a) Remarriage at Any Time Following Husband's Death $\overline{M}^r_x \div D^r_x$

(b) Remarriage During n Years Immediately Following Husband's Death $= \dfrac{\overline{M}^r_x - \overline{M}^r_{x+n}}{D^r_x}$

TABLE XII

REMARRIAGE TABLES

ULTIMATE VALUES

($l^r_{[18]} = 100{,}000$)

Age at Entry x	Number Living Unmarried l^r_x	Number Dying Unmarried d^r_x	Yearly Probab. of Dying Unmarried q^r_x	Yearly Probab. of Surviving Unmarried p^r_x	Complete Expectation of Unmarried Life $\mathring{e}^r_x$	Commut. Column (3½%) D^r_x	Commut. Column (3½%) N^r_x	Commut. Column (3½%) $\overline{N}^r_x$
74	8488	650	.07662	.92118	7.551	665.612	4522.39	4189.59
75	7819	644	.08244	.91556	7.155	592.414	3856.78	3560.58
76	7159	635	.08880	.90930	6.768	524.067	3264.37	3002.34
77	6510	625	.09601	.90229	6.393	460.439	2740.30	2510.08
78	5874	613	.10434	.89416	6.031	401.412	2279.86	2079.16
79	5252	599	.11406	.88594	5.686	346.769	1878.45	1705.07
80	4653	585	.12579	.87421	5.354	296.829	1531.68	1383.27
81	4068	562	.13819	.86181	5.052	250.735	1234.85	1109.48
82	3506	523	.14910	.85090	4.782	208.786	984.113	879.720
83	2983	472	.15811	.84189	4.533	171.636	755.327	689.509
84	2511	422	.16804	.83196	4.291	139.592	603.691	533.895
85	2089	373	.17832	.82168	4.056	112.204	464.099	407.997
86	1716	325	.18967	.81033	3.829	89.0535	351.895	307.368
87	1391	281	.20211	.79789	3.607	69.7461	262.841	227.968
88	1110	240	.21585	.78415	3.394	53.7740	193.095	166.208
89	870	201	.23105	.76895	3.192	40.7221	139.321	118.960
90	669	166	.24759	.75241	3.001	30.2549	98.5990	83.4716
91	503	133	.26504	.73496	2.826	21.9786	68.3441	57.3548
92	370	105	.28282	.71718	2.662	15.6203	46.3655	38.5554
93	265	80	.30044	.69956	2.519	10.8091	30.7452	25.3407

94.....	185	59	.31760	.68240	2.392	7.29085	19.9361	16.2907
95.....	126	42	.33423	.66577	2.278	4.79770	12.6452	10.2464
96.....	84	29	.35048	.64952	2.167	3.09036	7.84751	6.30233
97.....	55	20	.36682	.63318	2.045	1.95503	4.75715	3.77964
98.....	35	13	.38380	.61620	1.929	1.20204	2.80212	2.20110
99.....	22	9	.40179	.59821	1.773	0.730004	1.60008	1.23508
100.....	13	5	.42099	.57901	1.654	0.416780	0.870071	0.661681
101.....	8	4	.44152	.55848	1.375	0.247808	0.453291	0.329387
102.....	4	2	.46345	.53655	1.250	0.119712	0.205483	0.145627
103.....	2	1	.48668	.51332	1.000	0.057832	0.085771	0.056855
104.....	1	1	.51119	.48881	.0500	0.027939	0.027939	0.013969