THE 1979 NCCI REMARRIAGE TABLE

PHILIP E. HECKMAN

Abstract

This is an account of the analytical work that eventuated in the table of the title. The problem and the available data are described, and several aspects of the analysis are dealt with in detail: historical studies of the data, the parametric model used to fit the data, the trend analysis that led to the final parameter values, and the population averaging carried out to fit the NCCI age distribution for claimants. A discussion of the actuarial valuation functions follows, including two never previously tabulated: the spouse's dowry and the automatic survivorship benefit.

(Editor's Note: Mr. Heckman's paper was originally presented at the November 1981 meeting of the Society.)

I. INTRODUCTION

An ever-increasing number of workers' compensation laws prescribe lifetime benefits for seriously injured claimants and, in fatal cases, benefits until death or remarriage for surviving spouses. For most purposes requiring prospective valuations of these cases, the annuity tables provided in the statistical plans of the National Council on Compensation Insurance (NCCI), or the independent bureaus, are used. While the numerical proportion of such cases is small (but growing), they nevertheless currently account for a substantial fraction (one-fourth to one-fifth) of the estimated incurred loss dollars.

Thus the financial effect of estimates drawn from these tables is significant and pervasive. The valuations in unit statistical reports affect the following:

- Experience modifications via the NCCI experience rating plan.
- Retrospective premiums under the standard retrospective rating plans.
- Classification relativities in the manual rates.

In addition, many companies use case reserves based on these tables as part of the case basis for their corporate loss reserves. (Approximately one-third of the pending dollars apply to such cases.) These in turn find their way into the financial aggregates used in determining overall manual rate levels.

Clearly, valuation tables with such broad influence on the business of compensation insurance deserve frequent review and careful attention. The NCCI has programs to carry out such review. The main purpose of this paper is to describe the outcome of recent efforts to bring up to date the remarriage assumptions used in computing the spouse's annuity table and to propose tables for valuing certain contingent benefits which are now either reserved by judgment or ignored.

The standard actuarial method for analyzing remarriage (or other) experience is to summarize it into absolute rates of decrement, independent of mortality and other effects, by the use of established exposure formulae. In contrast to mortality studies on the general population, where the experience is adequately described in terms of variation by attained age, it has been found in remarriage studies that variation by duration of widowhood is also significant, at least in the first five years (1). Thus the summaries are typically constructed as tables of annual rates by age at widowhood and duration of widowhood. The usual practice of appending an ultimate column, depending only on attained age, after a fixed term of duration, usually five years, was not followed in the present study, since the rates were modeled select at all durations and the ultimate column constructed from the model.

Such summaries of raw experience present a classical problem of statistical analysis: how to distinguish signal from noise. It is natural to assume that the observed terminations (remarriages) are generated by a binomial rate process with smooth variation in rates from one period to the next. The problem is to infer from the data just which process is at work.

In actuarial parlance, the body of technique applied to this end is termed "graduation." The alternatives available will be discussed in Section IV. Here we may simply remark that the present work differs from past studies in that we propose a *parametric model* for the force of remarriage as a function of age and duration, $\mu^{(r)}_{[x]+t}$. This is closely akin to the use of Gompertz's or Makeham's law in mortality studies. The model is fitted to the absolute annual rates of remarriage by a modified least squares procedure. This rather abstract and mechanical procedure is supplemented by graphical inspection of the results on the principle that no result is valid which fails to please the eye. The utility of this ponderous and difficult approach will become clear in later discussion of the trending procedure applied to the data.

While the present work is empirically independent of earlier studies, it is useful to review these works in order to judge the reasonableness of our results and to get a feeling for the variability of remarriage rates both historically and by group studied. References (1) through (4) give a partial bibliography of the classic studies. Much of the earlier work is ably summarized in reference (1).

The current NCCI valuation tables employ remarriage rates developed from experience under the United States Employee Compensation System (USECS) between 1916 and 1955 (1). Certain results of this study as well as the present work, summarized in Exhibit I, make clear that remarriage is a very volatile phenomenon, with substantial variations in aggregate rates observable on a fairly short time scale—say, five years. There is every reason to expect that remarriage experience is sensitive to trends in social attitudes and to shifts in compensation practice with the result that a fixed and rigid table of rates is likely to become obsolete rather rapidly.

It was in recognition of this likelihood that the NCCI Task Force on Mortality and Remarriage was formed in 1975 with the participation of Aetna Life and Casualty, Travelers, and INA. Due to prevailing record-keeping practices in the industry, remarriage data suitable for analysis are hard to come by. These were provided through the good offices of the administrators of the New York Aggregate Trust Fund (NYATF), which administers all fatal cases in New York for which awards have been made. NCCI staff and Travelers undertook to prepare the data. CNA joined the task force in the spring of 1978 and elected

to provide research personnel and data processing support to the project. As noted above, the main result of these efforts is a parametric model for the force of remarriage as a function of age at accident and duration of claim. From this model, and from mortality assumptions to be described later, we have also generated actuarial functions to be used in valuing future benefits: annuities, dowries, and automatic survivorship benefits.

Though the NYATF provides a rather narrow sample, it is the only compensation data available in sufficient bulk to allow a detailed study. As will be discussed below, the use of a parametric model will facilitate later adjustments to the rates as bits and scraps of nationwide data become available. It should also allow treatment of regional variation, though such a study is far in the future.

This paper is structured so as to confine the copious technical detail to supporting appendices, one for each major section of text. Section II discusses the data used in the study. Section III deals with the analysis of the data. Section IV treats the formulation of the model, with the detailed form, parameter values, and supporting statistics given in Appendix A. Section V describes the fitting procedures and criteria employed, with details in Appendix B. Section VI then describes the trending procedure used to bring the model as near to present conditions as possible, while Appendix C outlines the supporting statistics vital to the interpretation of these results. Section VII presents the actuarial valuation functions which are our chief practical result, with details in Appendix D. The concluding Section VIII outlines future directions in data acquisition and surveillance of the remarriage phenomenon.

II. THE DATA

The data supplied by the administrators of the NYATF represent the detailed experience of the Fund on fatal cases arising from accidents between 1904 and early 1977. The NYATF deserves congratulations for conserving these data since they comprise the only such recent information available on compensation cases.

The information abstracted from these records by NCCI staff and Travelers employees consists of the following items:

a) Cause of termination
   1—Death
   2—Remarriage
   3—Other
   4—Open at end of study
b) Date of accident
c) Widow's birthday
d) Date of termination.

The total number of records on the tape transmitted to CNA was 10,673. Two records were excluded as implausible. The remainder represent 164,209 years of widowhood and 2,113 remarriages.

III. ANALYSIS

The preliminary analysis of the data consisted of preparing tables of observed annual rates and exposures. The absolute remarriage rates were extracted using conventional techniques, as described in reference (5), treating remarriages as valid terminations and all other terminations as withdrawals. The rates and exposures were tabulated by nearest year of age at accident and by year of duration of widowhood. The rules for reckoning exposures on these intervals are set forth in detail later in this section.

Tabulations were prepared for various ranges of date of accident. Aggregate average rates were computed on the actual exposures in each range of dates. The results are presented in Exhibit I along with similar results from USECS experience. This exhibit shows that the aggregate rates of remarriage were much lower before 1930 than after. A likely explanation for this break in the experience is the known fact that referral of cases to the Aggregate Trust Fund was optional and probably delayed during the earlier period, a possibility not considered in the tabulation of the data. In any event, it was decided to exclude accidents before 1930 from further analysis. In the trend study to be discussed in Section VI, the data were further restricted to cases arising in 1935 and after, the actual year when referral to the Fund became mandatory. Since referral dates are not included in the tabulations, we can only be certain of getting correct exposures if referral of all claims is required.

The next step of preliminary analysis consisted of preparing graphical displays of the rates observed for accidents from 1930 to 1977, summarized on five-year age intervals. An example of these displays, showing also the preferred fit of our proposed model, is given in Exhibit II. A key to interpretation of these graphs, with their supporting statistics is given later in this section. Similar displays showing the annual average force of remarriage were also prepared. These displays provided valuable insights into the structure of the data, leading eventually to a simple and successful parametric model. The salient features of the data may be outlined here. On careful inspection, the force of remarriage appears to consist of two distinct components:

- A short-duration component rising from zero at zero duration, peaking around two years, and falling off rapidly at longer durations. This component falls off rapidly at the higher ages;
- A long-duration component, peaking around five years of duration, falling off slowly at longer durations, and falling off slowly at higher ages.

The distinct age dependences make these components worth distinguishing. In the following, we shall refer to them as "prompt" and "delayed" components.

A. Basic Exposure Equation

In the ideal case that every life in the study is under continuous observation and that the expected force of decrement is known at all ages and durations, the expression for the expected number of terminations from a given cause takes on a particularly simple form. By continuous observation, we mean that all dates of entry and all terminations with dates and causes are known, for practical purposes, exactly. If these conditions are fulfilled, we have the basic relation,

$$\hat{N}^{(c)}_{[x]+t,\overline{h}|} = \int_0^h ds\ \mu^{(c)}_{[x]+t+s} \cdot \hat{l}_{[x]+t+s}$$

for the *expected* number of terminations from cause, (c), in the interval of duration t to $t+h$ among lives first exposed to the cause at age x. The force of decrement for the cause, (c), is $\mu^{(c)}_{[x]+t}$; $\hat{l}_{[x]+t}$ is the actual number of lives of age x at first exposure, under observation at exact duration t.

To the best of my knowledge, this relation has not appeared elsewhere. Formulas given in the actuarial literature deal with the situation where the empirical exposure function, $\hat{l}$, is sampled periodically and interest is focused on finding rates of termination based on finite periods.

While we could have used the basic equation in this study, we decided in favor of the more conventional tabulations in terms of annual rates, since the computations are more economical and the extra detail is not actually needed. These are treated in the next section.

B. Absolute Rates of Decrement

An absolute rate of decrement represents the probability of termination within a given period, supposing that all other causes of decrement are turned off. Assuming the two causes, mortality and remarriage, the probability of termination during the year for a life starting the year is

$$q_x^{(T)} = 1 - (1 - q_x'^{(r)})(1 - q_x'^{(m)}).$$

The segregation of this probability by cause invariably involves adopting a model to interpolate the absolute rates on partial years. That most frequently invoked is the Balducci hypothesis (5). To get accuracy better than first order in the rates being studied, one must model the several processes simultaneously. This is nearly never done and is probably not justified unless the data are plentiful, the rates of decrement large, and high accuracy imperative. If we content ourselves with first order accuracy and focus exclusively on one cause of decrement (remarriage in our case), then the same simple rules for reckoning exposure emerge no matter what interpolation model is assumed, Balducci or otherwise.

In a particular year of duration, assuming no entries during the year, these rules as they apply to our analysis are:

Case	Exposure
no termination	1
termination for remarriage	1
termination for any other cause	fraction of year actually exposed

If the number of remarriages is divided by the exposure thus compiled, the result is an estimate of the absolute rate of decrement that is accurate to first order in the rate. That is to say, if a rate of 0.1 is estimated, then the statistical bias in this estimate will be on the order of 0.01. Such inaccuracies are acceptable in most applications and were accepted in the present work.

C. Historical Study and Aggregate Rates

When the historical study, shown in Exhibit I, was carried out by segregating data records by ranges of accident date, the results were summarized as aggre-

gate rates in two different ways. The first way, which produced what we call the crude remarriage rate (column (4) in Exhibit I), involved simply adding up all the remarriages in the period in question and dividing by the sum of all exposures tabulated by the rule for annual rates given above. The result is an average *annual* rate. If, say, a quinquennial rate is desired, a different tabulation of exposures must be performed.

The second way, which produces what we may call standard average rates, involves choosing a base period and using the exposures from the base period by age and duration with the observed rates from another period to deduce what results would be produced in the base period by the rates prevailing in the other period. This is achieved by extending the rates from the base period, summing, and dividing by the summed base period exposures. Cells in which no data appear in the measurement period are excluded from both numerator and denominator. This provides a rough but effective means of isolating real shifts in rates from mere shifts in the population of beneficiaries.

D. Statistics for Graphical Quinquennial Age Summaries

The graphical summaries of rates by quinquennial age groups (Exhibit II) show durations marked off in years on the abscissa. The scale factor printed out on each graph tells how many of the vertical divisions add up to unity. Some of the points, the reader will note, are bracketed by error flags. (In some cases these are too short to show up on the graph.) These extend one standard error in each direction from the observed value, spanning a range which includes the *true* value with something like two-to-one odds. If N remarriages occur in the year of duration on exposure, W, the standard error is calculated as

$$((N/W)(1 - N/W)/(W - 1))^{1/2} \qquad \text{[Ref. (6), p. 151]}$$

This is developed from a binomial model, ignoring the fact that W is non-integral due to our approximate method of filtering out the effects of the other causes of decrement. These flags are included to give a feeling for how seriously various features of the data are to be taken. In particular, bumps and wiggles in the data of a scale smaller than one or two flag spans (standard errors) can be ignored on purely statistical grounds as random fluctuations. (Other features can be excluded because it makes no financial sense to reproduce them in the model.) This is an essential and often ignored aspect of any empirical analysis. Note that our interpretation fails if no remarriages are observed. In this case, the needed information can be drawn from neighboring cells which do contain events. Naturally enough, if there are no exposures ($W=0$), no conclusion can be drawn.

IV. THE MODEL

In order to proceed with the analysis, it was then necessary to translate these observations into a specific model. The choice of a model was closely intertwined with another decision: what method of graduation to use.

The methods of graduation available fall into three general classes:

1. Optical: that is, graduation by inspection;
2. Algorithmic averaging: Whittaker-Henderson methods, moving average methods; and
3. Parametric modeling: fitting an analytical model to the observed rates.

The optical method has the virtue of directness since, regardless of the method used, results displeasing to the eye must be rejected. It is, however, very difficult to control such a procedure or even to characterize the quality of the fit. Algorithmic averaging methods have been known to produce useful results; but, when one searches for a statistical hypothesis—an underlying model—which could indicate the use of such methods, one is led to bizarre correlations among observations in neighboring cells. The parametric modeling method, by contrast, is in close harmony with the usual actuarial hypothesis as to what kind of process is taking place. On the other hand, it requires the use of a great deal of machinery: first, the model itself; second, a method of fitting to the observed data; last, a sensible criterion for assessing the quality of fit to determine whether the chosen method has anything to do with reality. In the present work, it was decided to adopt the third approach. The associated cost, while considerable, was justified by the ease with which the subsequent trending study could be carried out.

This decision made, one was then faced with the choice of which precise quantity to model. Our choice was to model the force of remarriage as a function of age at widowhood and duration. This is the actuary's term for the instantaneous fractional rate at which the population of widows is depleted by remarriage. Other effects, including mortality, may be included simply by adding in the associated force of decrement. Further, the force of remarriage is continuous in the time variables, easy to visualize, and can be manipulated freely by analytical and numerical techniques to yield any desired actuarial quantity. The greatest advantage of modeling the force, rather than rate or survival, is that there are no axiomatic constraints on the force except that it cannot be negative (i.e., the population cannot be increased by remarriage). These properties greatly simplify the task of fitting the data with reasonable parameter values. Reflecting

our observations on the structure of the data, the model consist of two terms, one for the prompt component and one for the delayed component.

The mathematical form of the model, its preferred parameter values with associated statistics, and its relation to the annual rates of remarriage are shown in Appendix A.

This concrete definition of the model makes it easy to see its possibilities. The most interesting of these is the hypothesis that the age and duration dependence of these distinct terms is effectively universal while the strengths vary substantially in time and place. This hypothesis was investigated and, in my opinion, confirmed in our trending study, described in Section VI. The consequences of this are most intriguing, but first a discussion of fitting procedures is in order.

V. FITTING THE DATA

The model as described is elegantly tailored to the phenomenon being modeled, but it stands in very inconvenient mathematical form. Each of the nine parameters must be determined so that the overall fit is the best that can be achieved. First we must define what we mean by a good fit. This is usually done by specifying a loss function, which summarizes in a single value the deviation of the model from the data and is minimized by varying the parameters. Linear least squares is an example of such a procedure in which the best parameter values may be obtained by straightforward linear algebra. The present model is not linear in the parameters and must be optimized the hard way: we must carry out a full parameter search. Further, the choice of a loss function is not trivial. Some seemingly reasonable choices give absurd results; and, in practice, it was necessary to impose a criterion that the fit should please the eye before the loss function was deemed acceptable.

The stochastic process usually presupposed in situations like this is the binomial rate process with different rates in each of the age-duration cells containing exposure. This allows us to compute the mean and variance of the loss function, given the exposures in each annual cell, assuming that the model is correct. This gives us an additional criterion; for, if the excess of the best achievable value of the loss function over its expected mean value, measured in standard deviations, is too great, then the model has not yielded a convincing fit. For instance, if the best-fit loss function exceeds the mean by one standard deviation, then the probability is roughly one in six that, if the model is correct,

random fluctuations in the data could produce a larger excess. One standard deviation seems reasonable as the maximum tolerable excess.

The mathematical details of the procedure are set forth in Appendix B, along with the statistics for the best fit.

VI. TRENDING

If the hypothesis can be upheld that secular variation in remarriage rates is describable by changes in our model coefficients, we have a method ready to make use of sparse but recent data. One may simply vary the coefficients of the model, while keeping the other seven parameters fixed at the values obtained in the fit to the NYATF data, to bring the rates into overall accord with the new data. It would be desirable to update the model in this fashion using data drawn from recent experience in the NCCI states, but such will not be available until the results of the NCCI Pension Study are analyzed. To provide a near-term solution, the Task Force decided to undertake a historical trend analysis of the NYATF data itself.

The data were compiled as described for the overall study, but in five-year segments by accident year, beginning in 1935. The partial period from 1975 to early 1977 contained no remarriages and thus could not be analyzed with confidence. The fitting procedure was then carried out on each segment independently, varying only the two coefficients. The results are tabulated in Exhibit III-A and displayed graphically in Exhibit III-B. The table shows the fitting statistics discussed previously. The last column shows the difference of the best fit and the expected value of the loss function, measured in standard deviations. One can see that the fits are better than expected on all the pieces except 1935–39. The fit for this early period is just marginal, but the fine results for the other periods yield a dramatic confirmation for our initial hypothesis. Indeed these fits are superior in quality to the overall fit for 1930–77, whose statistics are shown on the bottom line of Exhibit III-A.

The graphic display in Exhibit III-B is richly suggestive. The coefficient of the prompt component is plotted on the abscissa, that of the delayed component on the ordinate. The ellipse associated with each point is enclosed in a box two standard errors on a side and is presented as an approximate forty percent joint confidence region for the values of the coefficients. Doubling the scale of the ellipse gives roughly an eighty-six percent confidence region. The shape and direction of the ellipses give an idea of how the parameter estimates are correlated.

This graph makes it clear that there has been significant variation in these coefficients over the years. It also makes clear the gain in precision from looking at the more homogeneous five-year intervals. (The ellipse for the overall fit, 1930–77, covers nearly the entire display.)

As regards the pattern of variation of these numbers, it is difficult to argue for anything more systematic than a random walk, that is, a tendency for the leaps from one period to the next to be small ones. Consequently, the preferred near-term solution is to use the most recent set of values. Currently, the best estimate is the point for 1970–74, which sits in the midst of an elongated ellipse which betokens, naturally enough, a sparsity of information on what is going on at the longer duration. However, the coefficient for the prompt component is resolved well enough to be distinct from all other recent values; and that for the delayed component is well within the range of plausibility. Hence the Task Force has decided to proceed to construction of the rate table and the relevant actuarial functions using these values from 1970–74.

The details of the statistical underpinnings of this exhibit are given in Appendix C.

VII. TABLES

The choice of model and parameters outlined in the preceding determines the remarriage rates uniquely. A number of decisions remain, however, before we can specify the practical valuation tables that are needed in the current environment.

A. Mortality

Mortality rates have not come under close scrutiny in the present cycle of activity since it was felt that remarriage was a more urgent problem. What the Task Force is proposing at this turn is a simple update. The tables currently in use are based on the U.S. Life Table, 1959–61, White Females and Total Population. We propose to adopt in the update the U.S. Life Tables, 1969–71, All Females and Total Population (7). It is felt that the current racial composition of the population of workers' spouses is much closer than formerly to that of the total female population, so that there is no longer any justification for using White Female experience. The Task Force also proposes another update when the 1979–81 tables become available. Tentative proposals to trend the mortality rates will be discussed in the concluding section. The proposed rates are displayed in Exhibit IV-A.

B. Escalation

Certain jurisdictions prescribe that weekly benefits on certain categories of new and existing claims shall escalate annually in proportion to some index, usually the state average weekly wage. It is not feasible to predict the detailed fluctuations of such indices, nor would the result, if attainable, be useful in constructing valuation tables. The practical solution is to choose a reasonable average rate of escalation, assumed to apply indefinitely into the future. Nearly all of the affected NCCI jurisdictions have approved a six-percent rate for use in valuing future benefits. We have used this in the proposed tables, giving values per dollar of *present* annual benefit.

C. Benefits

Our basic objective is to provide subscribing carriers with a valuation basis for the long-term contingent benefits required by law. At this writing these include:

1. Life annuities to claimants and certain other beneficiaries,
2. Annuities for life unremarried to spouses of deceased workers,
3. Dowries payable on remarriage to spouses of deceased workers, and
4. The automatic survivorship benefit: a life annuity payable to the surviving spouse of a claimant who dies of causes unrelated to the accident.

One of our goals in the current revision is to propose tables for the latter two types which have not, until now, been provided for. The procedures for calculating these benefits are set forth in Appendix D.

D. Format

Remarriage rates typically show strong selection by duration during the first several years on claim. This is true of the USECS experience as well as the NYATF data. In the present study, the data were treated as select at all durations, whence the model can be extrapolated to all durations at fixed age without fear of mischief. One possible approach in building the table would be to keep as many select columns as one likes and then to average the benefit values for the advanced durations at fixed attained age using up-to-date population age distributions. This procedure, however, would make the definition of commutation functions impossible. The alternative approach, less attractive as a financial model, but more in accord with usual actuarial practice, is to average the model *rates* to create an ultimate column.

This approach allows much more to be done with the rates outside the computer while maintaining numerical reproducibility. On inspection of the

observed and fitted NYATF rates, the Task Force concluded that variation at fixed attained age is insignificant at the fifth year of duration and beyond. Hence it was decided to publish the new rates in six-column format with select columns for valuation at durations zero through four years and an ultimate column for durations five and greater. This table was then written to a data file and read into a different program which produced the tables of actuarial functions. Hence the numerical results are all reproducible by hand calculation from the published rates. These rates are shown in Exhibit IV-B. The details of the population averaging are discussed in Appendix D.

E. Exhibits

The tables of actuarial functions, derived from the rates shown in Exhibits IV-A and B, are displayed in Exhibits IV-C through H in the following order.

IV-C. Spouse's select, $D^{(T)}_{[x]+t}$, combining mortality and remarriage.
IV-D. $N^{(T)}_{[x]+t}$, the upward sum of IV-C.
IV-E. Spouse's annuities payable continuously for life unremarried ($\bar{a}^{(T)}_{[x]+t}$) per dollar of annual benefit.
IV-F. Spouse's dowry insurance payable at remarriage ($\bar{A}^{(r)}_{[x]+t}$) per dollar at lump sum.
IV-G. Automatic survivorship benefit per dollar of prospective annual benefit, tabulated by attained age of injured worker and age differential of spouse.
IV-H. Claimant's annuities and commutation functions, $\bar{a}_x$, D_x, N_x, tabulated by attained age.

All these exhibits assume 3.5% interest, and all are recalculated to show values for six-percent escalation, as well as no escalation.

F. Comparison

A final display in Exhibit V shows a comparison of the proposed annuity values with those currently in use in the NCCI Statistical Plan. The proposed spouse's values are averaged over all durations at fixed attained age. Attained age distributions for spouses and for claimants (derived from the NCCI Injury Table age-at-accident distributions for widows and for permanent total injuries) are also shown and used to compute the overall averages at the bottom. Both averages are larger than the values for the current table, reflecting both the new mortality rates and the new remarriage rates, which are substantially lower on average than the USECS rates used previously. Note that these averages are based on the total current population of claimants and are intended to represent

the effect of the proposed tables on the total reserve for future payments on tabular claims currently pending. The percentage effects are +4.6% on fatals and +2.5% on permanent disability claims. On an accident year incurred basis, the effects will be somewhat larger.

VIII. THE FUTURE

A historical view of remarriage experience shows that the problem cannot be left alone for very long; any particular tabulation can be expected to become obsolete on a time scale of about five years and should be reviewed at least that often. One of my hopes in submitting this work is that it may make this periodic review easier by allowing the use of sparse or fragmentary data to make simple adjustments to an already established form. Naturally the entire model should be reviewed on a longer time scale to check its general validity.

One adjustment that should be made as soon as practicable is to use data from the NCCI Pension Study to revalue the coefficients of the model. This adjustment would reduce the heavy dependence on New York experience, which may or may not be apt for application in the NCCI jurisdictions. Further in the future, after the improved NCCI data gathering and the statistical plan revisions have had time to take hold, one may envision valuation tables based entirely on NCCI experience. These actions become more important in view of the rapidly changing ratio of lifetime compensation claims to limited-payment claims.

Until an NCCI Mortality Study can be undertaken, it may be feasible to improve the valuation tables by trending the population rates to the period of application. The experience gained thereby would be useful also in future application to NCCI data.

It is a pleasure to thank Ed Seligman of CNA for helpful discussions; and Claus Metzner, Carl Meier, and Richard Palczynski, of the Task Force, and Frank Harwayne and Charles Gruber of NCCI, for their support and guidance in this work. My thanks also go to Barbara Dudman of CNA for typing the manuscript.

APPENDIX A
DETAILS OF THE MODEL

1. *Forces of Decrement*

Let us examine a closed population model in which remarriage acts specifically by age at widowhood and duration on claim and mortality acts specifically by attained age. In this situation, the *expected* number of widows going off claim between duration, t and $t + \delta t$, δt small, is

$$-\left(\frac{\partial}{\partial t} l^{(T)}_{[x]+t}\right) \delta t = \left(\mu^{(r)}_{[x]+t} + \mu^{(m)}_{x+t}\right) \cdot l^{(T)}_{[x]+t} \delta t,$$

where $l^{(T)}_{[x]+t}$ is the number of spouses, widowed at age x, remaining on claim at duration t; $\mu^{(r)}_{[x]+t}$ is the force of remarriage at duration t, on lives widowed at age x; and $\mu^{(m)}_{x+t}$ is the force of mortality acting at age $x + t$. The *expected* number of remarriages is $\mu^{(r)}_{[x]+t} \cdot l^{(T)}_{[x]+t} \cdot \delta t$ and so on. Always supposing that these two causes of decrement are the only ones acting, our differential equation can be intergrated very simply to give

$$l^{(T)}_{[x]+t} = l^{(T)}_{[x]} \exp\left\{-\int_0^t ds \left[\mu^{(r)}_{[x]+s} + \mu^{(m)}_{x+s}\right]\right\}.$$

We may also separate these effects, and define absolute rates of decrement (annual):

$$q'^{(r)}_{[x]+t} = 1 - \exp\left\{-\int_t^{t+1} ds\ \mu^{(r)}_{[x]+s}\right\},$$

$$q'^{(m)}_{x+t} = 1 - \exp\left\{-\int_t^{t+1} ds\ \mu^{(m)}_{x+s}\right\}.$$

The first, given an appropriate expression for the force of remarriage, represents the expected values of the rates tabulated in our analysis of the remarriage data. The second corresponds to the rates to be found in our preferred mortality table. Given these two sets of rates, the values of $l^{(T)}_{[x]+t}$ at integral values of t can be reconstructed.

2. *Proposed Model for the Force of Remarriage*

We present here the detailed mathematical form of our proposed model for the force of remarriage with interpretations and preferred values of the parameters. The parameter subscripts reflect not the structure of the model but the order in which various features were added to it:

$$\mu^{(r)}_{[x]+t} = P_1 e^{-P_2 x} t^{P_8 - 1} e^{-P_3 t}$$

$$+ \Theta(t - P_7) \cdot P_4 e^{-P_5 x}(t - P_7)^{P_9 - 1} e^{-P_6(t - P_7)}, \quad \Theta(z) = \begin{cases} 1, & z \geq 0 \\ 0, & z < 0. \end{cases}$$

The parameters are tabulated below:

		Accident Dates	
		1930–77	1970–74
Prompt Component:			2.30957
Coefficient:	P_1	3.96777	
Age dependence:	P_2	.103286	
Duration dependence:	P_3	.778577	
Threshold behavior:	P_8	2.31311	
Delayed Component:			
Coefficient:	P_4	6.64463	4.36433
Age dependence:	P_5	.0781633	
Duration dependence:	P_6	.171092	
Threshold behavior:	P_9	1.80892	
Threshold value:	P_7	.583219	

The last significant digit for each value is underscored. This corresponds to the finest step size used in the parameter search. The most recent coefficient values from the trending study are shown for comparison. For reference Table A-1 presents the correlation matrix of the parameter estimates, derived by the methods of Appendix C.

TABLE A-I

CORRELATION MATRIX OF PARAMETER ESTIMATES

	1	2	3	4	5	6	7	8	9	Standard Error
1	1.0000	−.3750	−.5189	−.3517	−.2175	−.0141	−.6365	−.7130	−.02940	2.0105
2		1.0000	.3753	.5731	−.2260	−.5226	−.7495	.4696	−.4186	.023683
3			1.0000	.1431	.0341	.2162	−.4697	.7497	.1582	.22626
4				1.0000	.5184	−.8505	−.1542	−.1471	−.8806	3.6188
5					1.0000	−.1775	.2867	−.2839	−.2986	.005563
6						1.0000	.01349	.3761	.9612	.06033
7							1.0000	−.8470	−.1662	2.2944
8								1.0000	.4899	.70439
9									1.0000	.79877

A large positive (or negative) correlation between two parameters indicates that the corresponding linear combination of parameters is weakly determined. This means that, while the quality of fit may be acceptable, the model has too much freedom, and caution must be used when extrapolating beyond the data.

APPENDIX B
FITTING MACHINERY

1. Loss Function

As remarked in the main text, the variety of possible loss functions is bewildering and the choice depends in some degree on optical inspection of the results. We do have some axiomatic guidance, however. In the first place, we are dealing with a rate process in which the *observed rate* in each cell is statistically independent of what is going on in all other cells. This means that the preferred loss function should be a sum of terms each of which depends on events and exposures in one cell only. That is $\tilde{L} = \Sigma_{x,t}\tilde{L}_{x,t}$, where the tilde is used to emphasize that the object is a random variable. (Those familiar with Whittaker-Henderson and related methods will note that these methods violate this requirement by introducing terms involving local differences, thus assuming, very tacitly, an intricate pattern of correlations among nearby cells.) If we require, as is usual, that the loss function be quadratic, we are led to the form

$$\tilde{L} = \sum_{x,t} R_{x,t}\left(\frac{\tilde{N}_{x,t}}{W_{x,t}} - q'^{(r)}_{[x]+t}(\alpha)\right)^2$$

Here, $\tilde{N}_{x,t}$ is the number of remarriages in the given cell, and α denotes the set of parameters. This leaves open the choice of the weighting factor, $R_{x,t}$. Experience teaches that great trouble will ensue if $R_{x,t}$ depends on the parameters. This rules out the "minimum variance" weight, $W_{x,t}/q'^{(r)}_{[x]+t}(1 - q'^{(r)}_{[x]+t})$, [Ref. (6), p. 95]. This was tried, in fact, and gave catastrophically slow fall-off at long durations, where data are sparse. This leaves two possible choices, $R_{x,t} = W_{x,t}$, and $R_{x,t} = l_{[x]}$, the latter being the number of lives widowed at age x. The former alternative was chosen as being satisfactory, though one cannot say that it is the best possible. Thus the loss function that was finally used is:

$$\tilde{L} = \sum_{x,t} W_{x,t}\left(\frac{\tilde{N}_{x,t}}{W_{x,t}} - q'^{(r)}_{[x]+t}(\alpha)\right)^2$$

2. Fitting Statistics

The loss function can be minimized by parameter search to yield a best fit for any prescribed set of parameter step sizes, but we need also a basis for judging whether the fit achieved is a reasonable representation of the data. If it is implausible that the deviations from the model are mere "noise," then we must reject the model. As remarked before, the foremost criterion is optical: data and model must be presented to the eye and judgment made as to whether the model follows the shape of the data. However, we can also make use of mathematical-statistical criteria which reduce—but do not eliminate—the element of judgment.

Specifically, we can make use of our characterization of $\tilde{N}_{x,t}$ as a binomial random variable with rate parameter, $q'^{(r)}_{[x]+t}$. We again ignore the fact that $W_{x,t}$ is non-integral, and we also assume that the model, evaluated at the best fit values, is correct. Under these assumptions, we can calculate the risk function, that is, the expected value of the loss function: $L = E[\tilde{L}|\alpha_{bestfit}] = \Sigma_{x,t}V_{x,t}$, where $V_{x,t} \equiv q'^{(r)}_{[x]+t}(1 - q'^{(r)}_{[x]+t})$. Further, with considerably more algebra, we can find the variance of the loss function,

$$Var[\tilde{L}] = E[(\tilde{L} - L)^2|\alpha_{b.f.}] = \sum_{x,t}\left[\frac{V_{x,t}}{W_{x,t}} + 2V_{x,t}^2\left(1 - \frac{3}{W_{x,t}}\right)\right].$$

This gives the standard deviation directly: $SD[\tilde{L}] = Var[\tilde{L}]^{1/2}$.

One now has a scale on which to measure the excess of the best-fit loss function over the risk function. Its use in drawing inferences is discussed in the main text and illustrative values are shown in Exhibit III-A.

The reader should note that these estimates of the expected loss function and its variance give a *conservative* basis for evaluating the fit. This is because the estimate for the variance of observed rates in a single cell is based on the assumption of a homogenous population, which gives the smallest possible variance. When we test for quality of fit, we are simultaneously testing this assumption as well.

3. Fitting Procedures

The fits were carried out by a gradient parameter search at an interactive terminal. One begins by specifying starting parameter values and maximum step sizes. The program then computes the loss function and its finite gradient in the parameter space. It steps down this gradient direction, obeying the maximum step size constraints until it reaches a minimum. It then recomputes the gradient

at the new position and repeats the procedure. This continues until no further improvement can be achieved. At this point, control returns to the programmer, who uses output of the loss function, risk function, and standard deviation as well as the parameter values to assess the situation and respecify the step sizes or decide to terminate. This approach would profit from more automatic adjustment of the step sizes, but it is adequate for our purposes.

APPENDIX C
FITTING STATISTICS FOR PARAMETERS

The stochastic model assumed in our treatment of the data is the following:

$$\frac{\tilde{N}_{x,t}}{W_{x,t}} = q_{x,t}(\underline{\alpha}) + \tilde{\epsilon}_{x,t}(\underline{\alpha}); \; -q_{x,t}(\alpha) \leq \tilde{\epsilon}_{x,t} \leq 1 - q_{xt}(\underline{\alpha});$$

$$\langle \tilde{\epsilon}_{x,t} \rangle = 0, \; \langle \tilde{\epsilon}_{xt} \cdot \tilde{\epsilon}_{x't'} \rangle = \delta_{xx'}\delta_{tt'} \frac{q_{xt}(1 - q_{xt})}{W_{x,t}}$$

where x, t refer to annual intervals in age and duration;
$\tilde{N}$ is the observed number of remarriages;
W is the number of exposures, treated approximately as an integer;
$q(\underline{\alpha})$ is the model value for the absolute annual rate of remarriage;
$\underline{\alpha}$ is the vector of true parameter values.
$\tilde{\epsilon}$ is the true value of the fitting residual.

These random variables are skewed, but we have accepted the attendant imprecision in fitting for the sake of mathematical clarity.

Let $\hat{\underline{\alpha}}$ denote an *estimate* of the parameter values; then $\hat{e} = e(\hat{\alpha}) = \tilde{N}/W - q(\hat{\underline{\alpha}})$, is the *estimated* residual at a given (x, t). We adopt vector notation also on the data space (all values of x, t), using an underbar to denote vectors on this space. Letting W denote the diagonal exposure matrix, our chosen loss function is (transposition being denoted by a raised prime)

$$\tilde{L} = \Sigma_{xt} W_{xt} \hat{e}_{xt}(\hat{\underline{\alpha}})^2 = \underline{\hat{e}}' \cdot W \cdot \underline{\hat{e}}.$$

Also, in vector notation, we have the covariance matrix of residuals:

$$\langle \underline{\tilde{\epsilon}}\, \underline{\tilde{\epsilon}}' \rangle = \Omega, \; [\Omega]_{xt,x't'} = \delta_{xx'}\delta_{tt'} \frac{q_{xt}(1 - q_{xt})}{W_{xt}} .$$

The loss function is minimized by a choice of the parameters, $\hat{\underline{\alpha}} = \hat{\underline{\alpha}}_0$ such that

$$\underline{e}'(\hat{\underline{\alpha}}) \cdot W \cdot \frac{\partial q(\hat{\underline{\alpha}})}{\partial(\hat{\underline{\alpha}})}\bigg|_{\hat{\underline{\alpha}}=\hat{\underline{\alpha}}_0} = \underline{0}.$$

Letting $\tilde{q} = \tilde{N}/W$, $\hat{\nabla} = \partial/\partial\hat{\underline{\alpha}}$, we may restate the least squares condition:

$$(\hat{\nabla} \cdot \hat{q}') \cdot W \cdot (\tilde{q} - \hat{q}) = \underline{0}.$$

Our goal is to find an appropriate expression for the $\hat{\underline{\alpha}}$ in terms of the $\underline{\alpha}$ and the true residuals, $\underline{\epsilon}$. To achieve this, we expand in $(\hat{\underline{\alpha}} - \underline{\alpha})$, keeping only terms to first order in the residuals:

$$\hat{q} = \underline{q} + (\hat{\underline{\alpha}} - \underline{\alpha}) \cdot \hat{\nabla}\underline{q} + O(\epsilon^2),$$

whence the least squares condition becomes, approximately,

$$[\hat{\nabla}\underline{q}' + O(\epsilon)] \cdot W \cdot [\underline{\tilde{\epsilon}} - (\hat{\underline{\alpha}} - \underline{\alpha}) \cdot \hat{\nabla}\underline{q} + O(\epsilon^2)] = \underline{0},$$

or

$$\{(\hat{\nabla}\underline{q}') \cdot W \cdot (\hat{\nabla}'\underline{q})\} \cdot (\hat{\underline{\alpha}}_0 - \underline{\alpha}) = (\hat{\nabla}\underline{q}') \cdot W \cdot \underline{\tilde{\epsilon}}.$$

Denoting the parameter-space matrix in braces by $\mathcal{W}$, we obtain

$$\hat{\underline{\alpha}}_0 - \underline{\alpha} = \mathcal{W}^{-1} \cdot (\hat{\nabla}\underline{q}') \cdot W \cdot \underline{\tilde{\epsilon}} + O(\epsilon^2).$$

Whence the covariance matrix of the parameter estimates is

$$\begin{aligned}\langle(\hat{\underline{\alpha}}_0 - \underline{\alpha})(\hat{\underline{\alpha}}_0 - \underline{\alpha})'\rangle &\cong \mathcal{W}^{-1} \cdot (\hat{\nabla}\underline{q}') \cdot W \cdot \langle\underline{\tilde{\epsilon}}\,\underline{\tilde{\epsilon}}'\rangle \cdot W \cdot \hat{\nabla}'q \cdot \mathcal{W}^{-1} \\ &= \mathcal{W}^{-1}\{(\hat{\nabla} \cdot \underline{q}') \cdot W \cdot \Omega \cdot W \cdot (\hat{\nabla}'\underline{q})\}\mathcal{W}^{-1} \\ &= \mathcal{W}^{-1}\mathcal{V}\mathcal{W}^{-1} = \hat{\Sigma}_0\end{aligned}$$

These parameter-space matrices can be expressed as

$$\mathcal{W} = \sum_{xt} W_{xt}(\hat{\nabla}\underline{q}_{xt})(\hat{\nabla}'q_{xt});$$

$$\mathcal{V} = \sum_{xt} W_{xt}q_{xt}(1 - q_{xt})(\hat{\nabla}\underline{q}_{xt})(\hat{\nabla}'q_{xt}).$$

These are compiled by a special-purpose program which evaluates the gradients by finite differences. The results appear in Exhibit III-B, where the ellipses around the data points represent the equation

$$(\hat{\underline{\alpha}} - \hat{\underline{\alpha}}_0)' \cdot \hat{\Sigma}_0^{-1} \cdot (\hat{\underline{\alpha}} - \hat{\underline{\alpha}}_0) = 1, \text{ and}$$

where $\hat{\Sigma}_0 = {}^{\circ}W^{-1} {}^{\circ}V {}^{\circ}W^{-1}$, evaluated at the least squares parameter values.

The ellipses are enclosed by a box two standard deviations on a side. A suggested rule of inference is that points whose ellipses do not overlap are statistically distinct, while those whose ellipses do overlap are confounded (Rayleigh criterion). As remarked in the main text, the ellipses represent, approximately, a joint 40% confidence region. This rests on the assumption that the parameter errors have an approximate joint normal distribution. Such an assumption is reasonable since the parameter errors are the sum of many fitting residuals from individual data cells. Granting this, the quadratic form which defines the ellipses has a chi-square distribution with n degrees of freedom, where n is the number of parameters being examined. In Exhibit III-B, $n = 2$; and inspection of a chi-square table (8) gives a probability of .39347 that the true parameter values are contained in the ellipse. Doubling the size of the ellipse (chi-square = 4) gives 86% confidence.

The ellipsoidal region is used because it occupies minimal volume in the parameter space and thus is easy to characterize.

APPENDIX D
ACTUARIAL FUNCTIONS

1. Population Averaging

To carry out our analyses, we need some information about the current distribition of widowed spouses by attained age and by duration at fixed attained age. The first is needed to assess the financial consequences of the new remarriage and mortality assumptions, the second to evaluate the ultimate remarriage rates without relying solely on the population mix implicit in the data, which changes significantly over time and may not be appropriate in NCCI jurisdictions in the recent period.

Unfortunately this information is not directly available, though some will be as soon as the Pension Study results are usable. However, a reasonable approximation can be derived easily from the age-at-accident distribution in the recent NCCI Injury Table, granting a few assumptions.

Suppose that

1. The probability that the age at time of accident of a widowed spouse lies between x and $x + dx$ is $f_x(x)dx$;
2. a constant number of widowed spouses enters the population each year; and
3. the assumed mortality rates by attained age and the model remarriage rates, select at all durations, are appropriate for all such spouses.

Then the probability density of attained ages of widowed spouses now receiving benefits will be given by

$$f_z(z) = \frac{\int_0^z dt f_x(z - t) \cdot {}_tP^{(T)}_{[z-t]}}{\int_0^\infty dz' \int_0^{z'} dt f_x(z' - t) \cdot {}_tP^{(T)}_{[z'-t]}}$$

where ${}_tP^{(T)}_{[x]}$ is the probability that a spouse widowed at age x will survive unremarried to age $x + t$.

Under the same assumptions, the probability density of durations t, from time of accident for all spouses on claim at attained age z, will be

$$f_T(t|z) = \frac{f_x(z - t) \cdot {}_tP^{(T)}_{[z-t]}}{\int_0^z dt' f_x(z - t') \cdot {}_{t'}P^{(T)}_{[z-t']}}, \quad 0 \leq t \leq z.$$

This latter, summarized as probabilities on annual intervals, was used to average the model remarriage rates which appear as the ultimate column of Exhibit IV-B. The attained age distribution, used to evaluate overall average annuity values, is displayed in Exhibit V, along with a similar distribution for claimants derived from the Injury Table distribution for permanent totals.

2. Annuity Values

Annuity values are developed in the conventional way by first defining commutation functions.

$$D^{(T)}_{[x]+t} = D^{(T)}_{[x]+t+1}/v \cdot (1 - q'^{(m)}_{x+t})(1 - q'^{(r)}_{[x]+t}),$$

where superscript m indicates mortality and r remarriage. The primes are used to remined us that these are absolute rates. When the duration, t, is five years or greater, the remarriage rates from the ultimate column are used. The discount factor v, also contains the effect of escalation, if appropriate:

$$v = \frac{1 + r_e}{1 + i}.$$

The numerator function is

$$\bar{N}^{(T)}_{[x]+t} = \int_0^\infty ds\, D^{(T)}_{[x]+t+s} \doteq N^{(T)}_{[x]+t} - \frac{1}{2} D^{(T)}_{[x]+t}.$$

The values of $D^{(T)}_{[x]+t}$ are tabulated in Exhibit IV-C; $N^{(T)}_{[x]+t}$ are shown in IV-D. The continuous annuity commencing promptly,

$$\bar{a}^{(T)}_{[x]+t} = \int_0^\infty ds\, v^s \cdot {}_sP^{(T)}_{[x]+t} \doteq \frac{N^{(T)}_{[x]+t}}{D^{(T)}_{[x]+t}} - \frac{1}{2},$$

is shown in Exhibit IV-E.

3. Dowries

The dowry function tabulated in Exhibit IV-F represents the expected value per dollar of lump sum payable to a widowed spouse on remarriage. It has the structure of a partial insurance:

$$\bar{A}^{(r)}_{[x]+t} = \int_0^\infty ds\, v^s \cdot \mu^{(r)}_{[x]+t+s} \cdot {}_sP^{(T)}_{[x]+t}$$

$$\doteq \sum_{k=0}^{1} v^k \int_0^1 ds [v^s \cdot {}_{k+s}P^{(m)}_{x+t}] \cdot [\mu^{(r)}_{[x]+t+k+s} \cdot {}_{k+s}P^{(r)}_{[x]+t}]$$

$$\doteq \sum_{k=0}^{\infty} v^k \frac{1}{2} [1 + vP^{(m)}_{x+t+k}] \cdot [{}_kP^{(T)}_{[x]+t} \cdot q^{(r)}_{[x]+t+k}],$$

where we have used separate approximate annual averages of the factors in brackets. This may be evaluated from previously defined quantities if we take

$$\bar{M}^{(r)}_{[x]+t} \doteq \sum_{k=0}^{\infty} D^{(T)}_{[x]+t+k} \cdot q^{(r)}_{[x]+t+k} \quad [1 + v(1 - q^{(m)}_{x+t+k})];$$

$$\bar{A}^{(r)}_{[x]+t} = \bar{M}^{(r)}_{[x]+t} / D^{(T)}_{[x]+t}.$$

4. Automatic Survivorship Benefit

Recalling that this is a continuous annuity for life unremarried to the spouse on the death of the claimant for causes unrelated to the accident, we may write down

$$B_{x_1:x_2} = \int_0^\infty ds\, v_c^s [\mu^{(1)}_{x_1+s} \cdot {}_sP^{(1)}_{x_1}] [{}_sP^{(2)}{}_{x_2} \cdot \bar{a}^{(T),v}_{[x_2+s]}],$$

where

x_1 = attained age of claimant,
x_2 = attained age of spouse,
v_c = interest/escalation factor while claimant survives.

Superscripts (1) and (2) refer to the respective mortality assumptions (remarriage rates affect only the annuity function).

This expression has a structure similar to that of the dowry function and may be approximated by the same methods. The values are tabulated in Exhibit IV-G for three distinct escalation assumptions:

1. No escalation;
2. No escalation before claimant's death, 6% after; and
3. Uniform 6% escalation.

The latter two are both shown because of some fiscally significant uncertainties in interpretation of the benefit phrasing in the US Longshoremen's and Harbor Workers' Act.

BIBLIOGRAPHY

(1.) John P. Jones, "Remarriage Tables Based on Experience under OASDI and US Employees Compensation Systems," USDHEW, Social Security Administration, Actuarial Study No. 55, (1962).

(2.) Robert J. Myers, "Further Remarriage Experience," *PCAS* XXXVI, (1949) p. 73.

(3.) A. M. Niessen, "A Revised American Remarriage Table," *Record of the American Institute of Actuaries* XXXVIII, (1949) p. 5..

(4.) W. F. Roeber, R. M. Marshall, "An American Remarriage Table," *PCAS* XIX, (1932–33) p. 279.

(5.) Robert W. Batten, *Mortality Table Construction,* Prentice Hall, Englewood Cliffs, N.J. (1978). The Balducci Hypothesis is described on p. 5.

(6.) K. A. Brownlee, *Statistical Theory and Methodology in Science and Engineering,* John Wiley and Sons, Inc., New York (1965).

(7.) T. N. E. Greville, United States Life Tables: 1969–71, U.S. Government Printing Office: 1975, 0-575-957.

(8.) E. S. Pearson and H. O. Hartley (editors), *Biometrika Tables for Statisticians,* Vol. I., Cambridge University Press, Cambridge, England (1954).

EXHIBIT I

HISTORICAL AGGREGATE REMARRIAGE RATES BY ACCIDENT PERIOD
NYATF DATA

Range of Accident Years	(1) Cases	(2) Remar-riages	(3) Exposure (years)	(4) Crude Remarriage Rates (2) ÷ (3)	(5) % Std. Err.	(6) Overlap† Exposure (years)	(7) Standard Population Remarriage Rates‡
1900–1919	151	22	4810	.0046	21	25970	.0071
1920–1929	219	18	7383	.0024	24	27802	.0010
1930–1941	1872	576	37368	.0154	4	31174	.0184
1942–1945	1162	356	21299	.0167	5	31133	.0267
1946–1960	3567	691	62061	.0111	4	31231	.0172
*1960–1976	3700	450	31289	.0144	5	31289	.0144
1900–1976	10671	2113	164209	.0129	2	31289	.0169

* Base period for standard exposures. † Exposures from base period, excluding annual cells with zero exposure in current period. ‡ Crude annual rates averaged over base period exposures.

USECS Data

Years	Exposures	Remarriages	Rate
1916–25	5794	209	.0361
1925–30	6741	114	.0169
1930–35	8907	105	.0117
1935–40	11273	129	.0114
1940–45	15486	382	.0247
1945–50	20505	530	.0258
1950–55	21794	269	.0123

EXHIBIT II

Remarriage Rates 1930-1977 by
Quinquennial Age Intervals
Preferred Model Fit at Beginning
and End of Interval

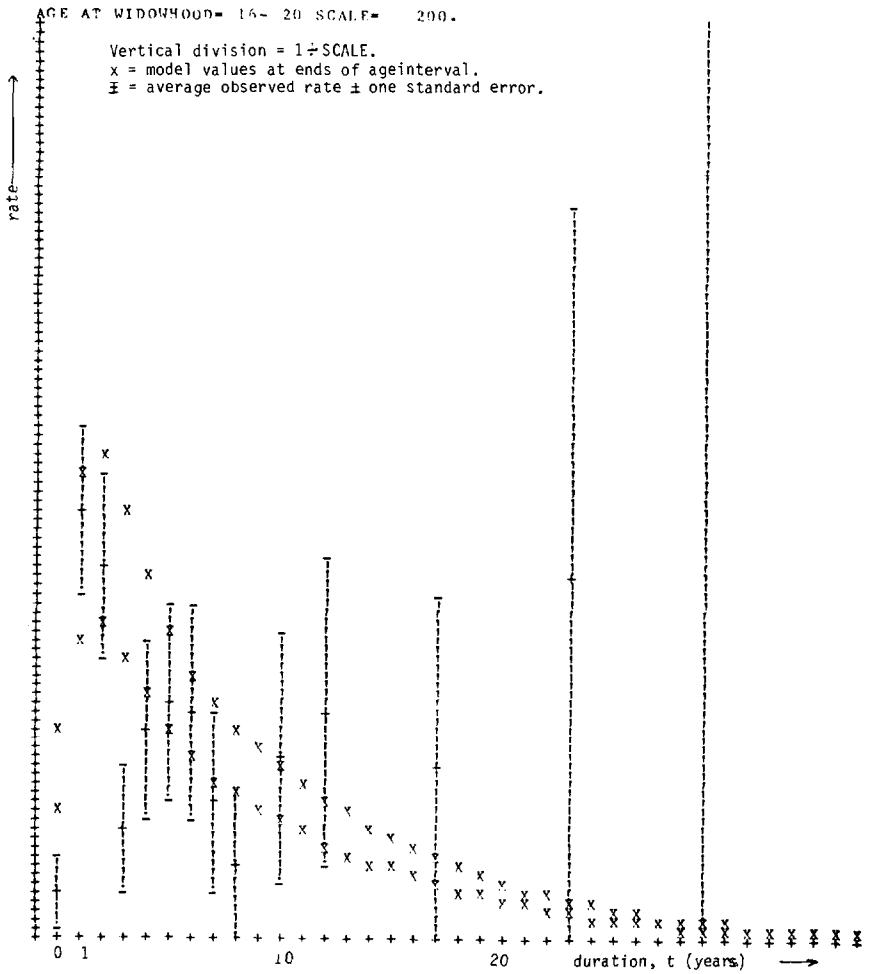

EXHIBIT II (cont'd)

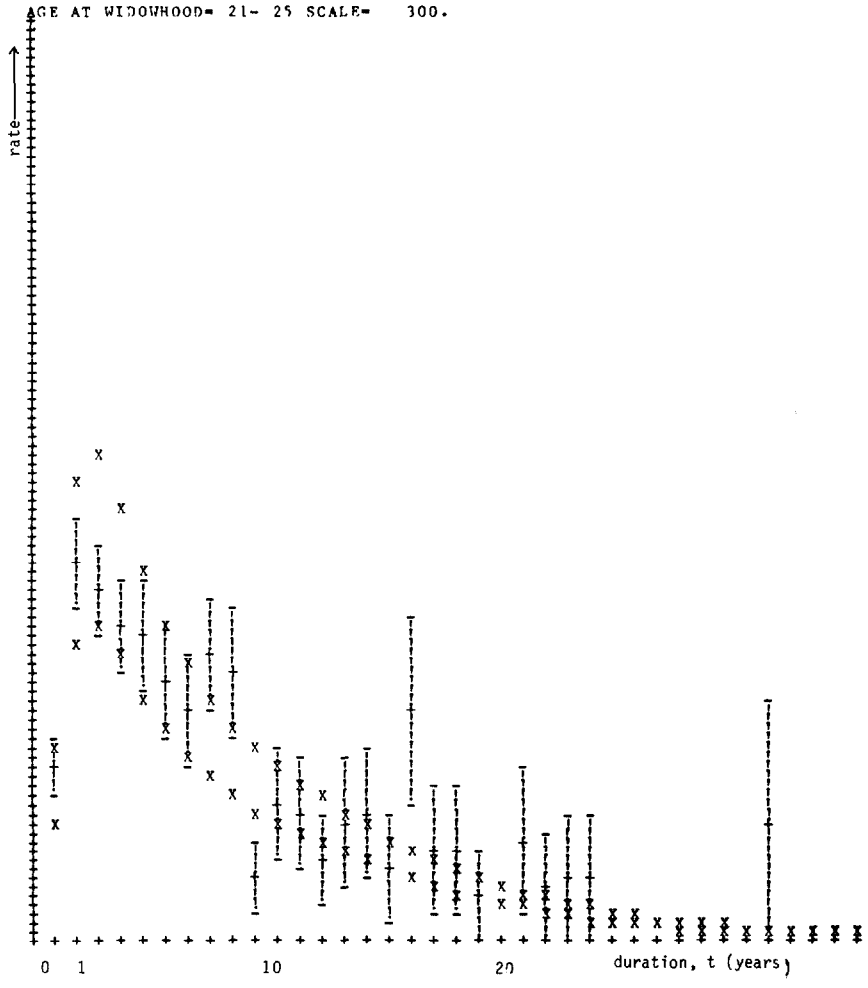

EXHIBIT II (cont'd)

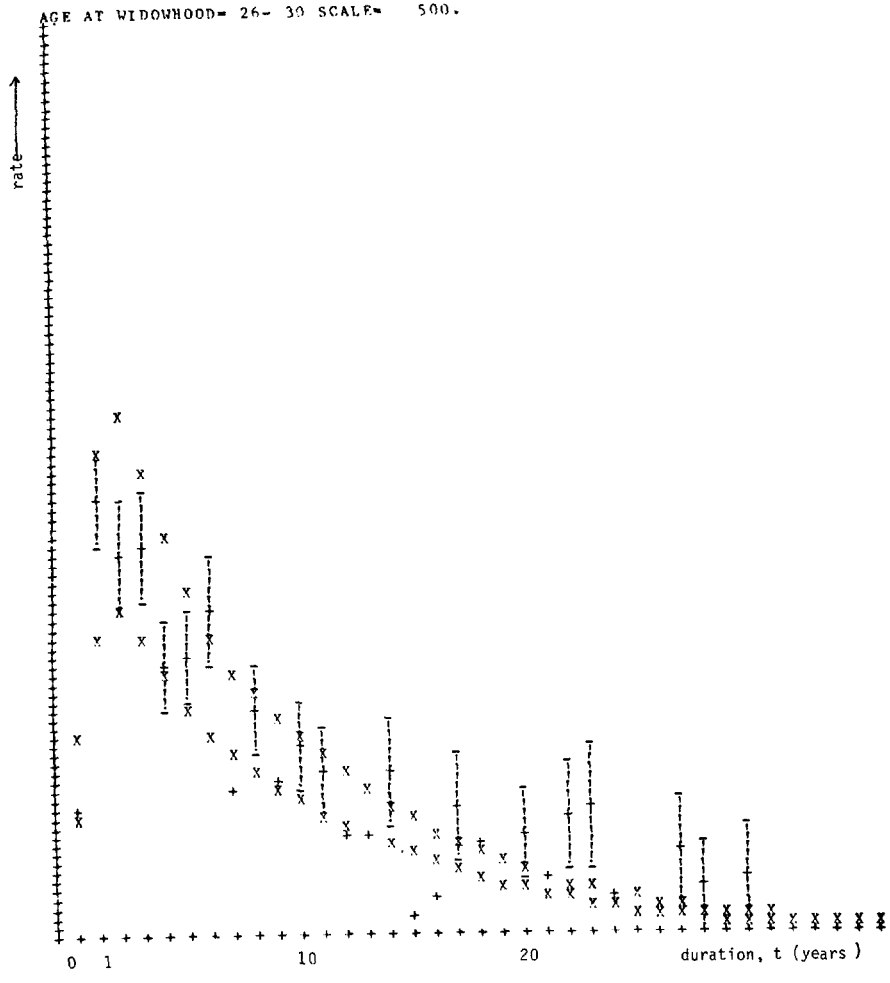

EXHIBIT II (cont'd)

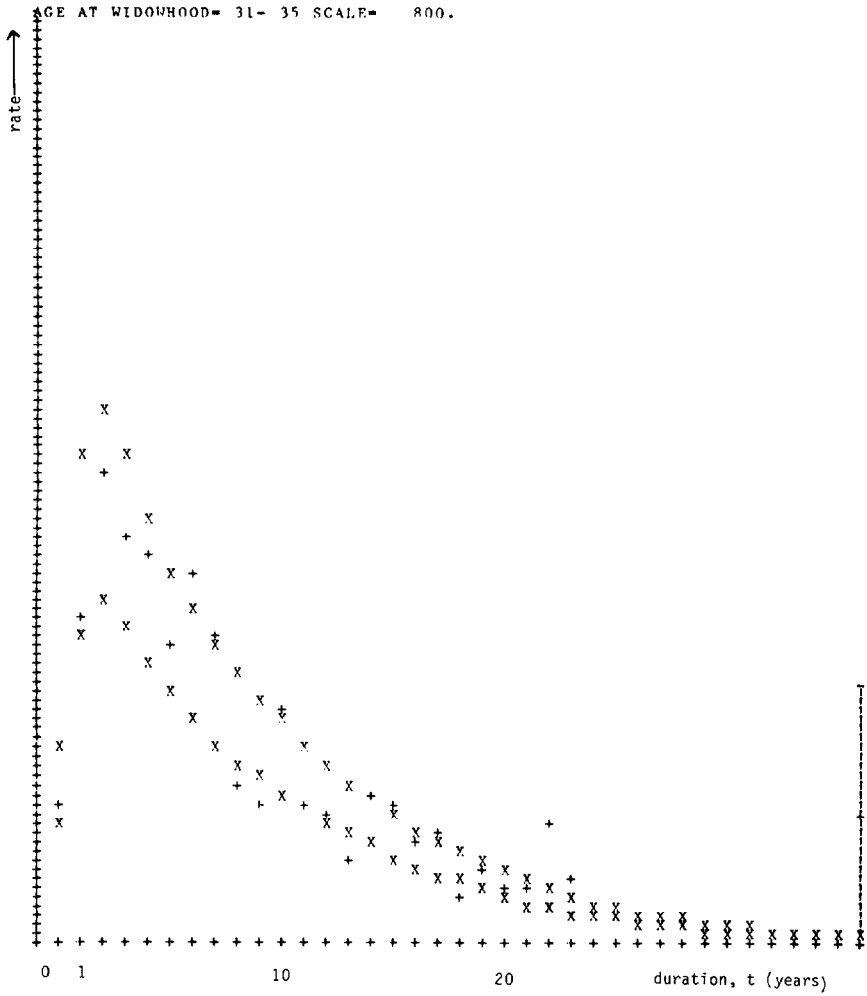

EXHIBIT II (cont'd)

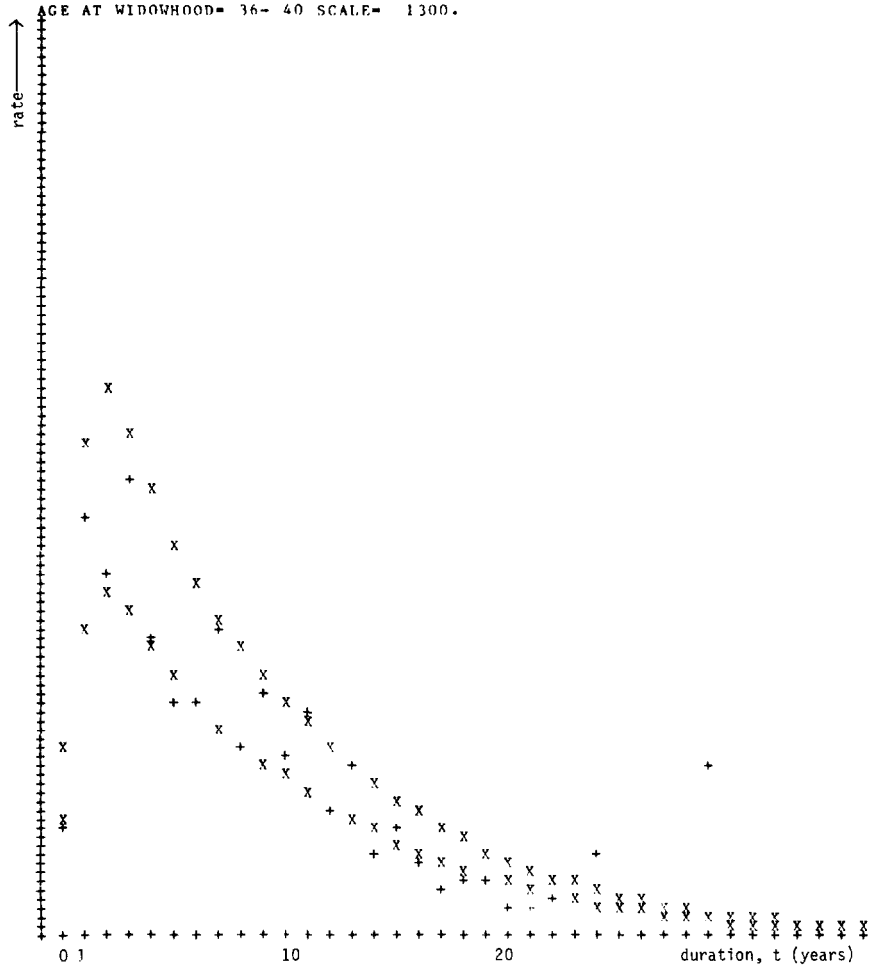

EXHIBIT II (cont'd)

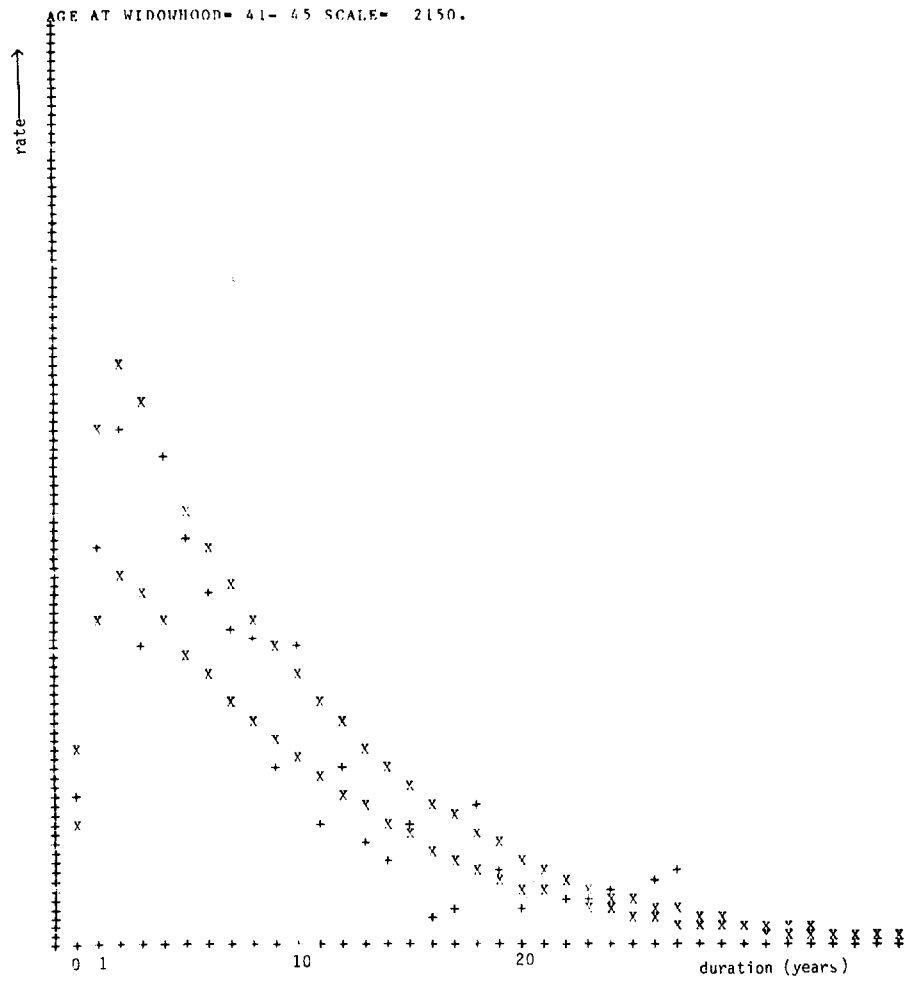

EXHIBIT II (cont'd)

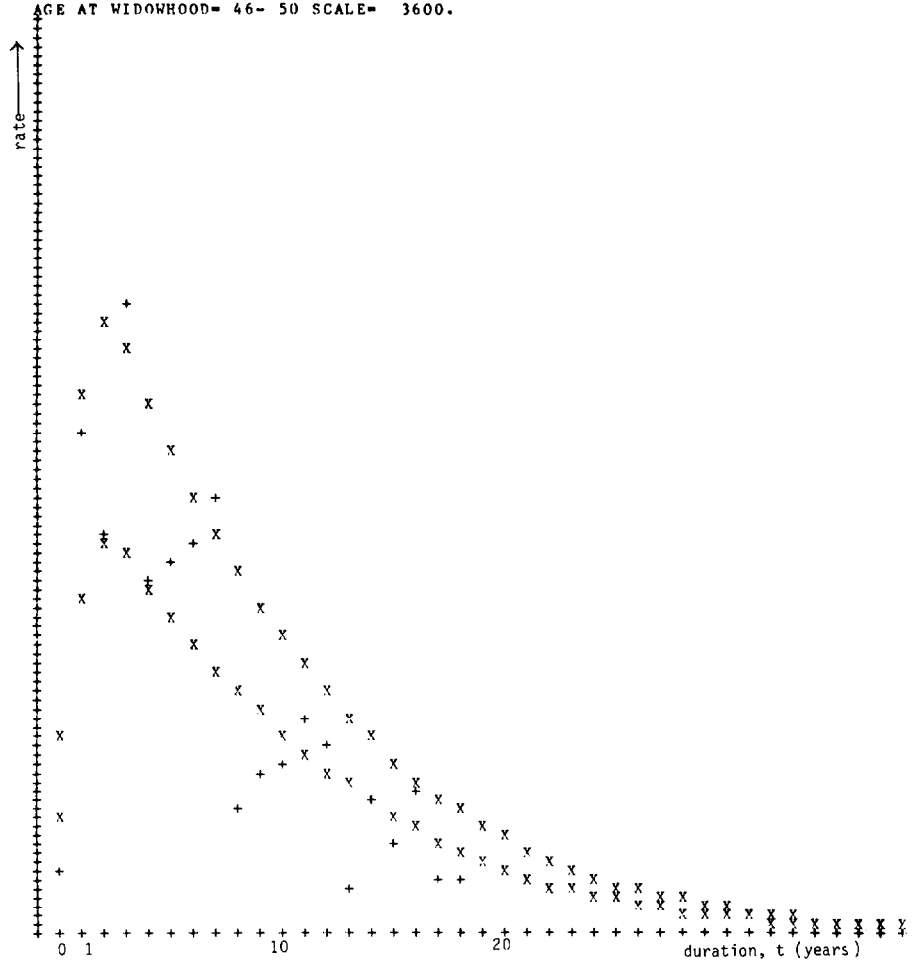

EXHIBIT II (cont'd)

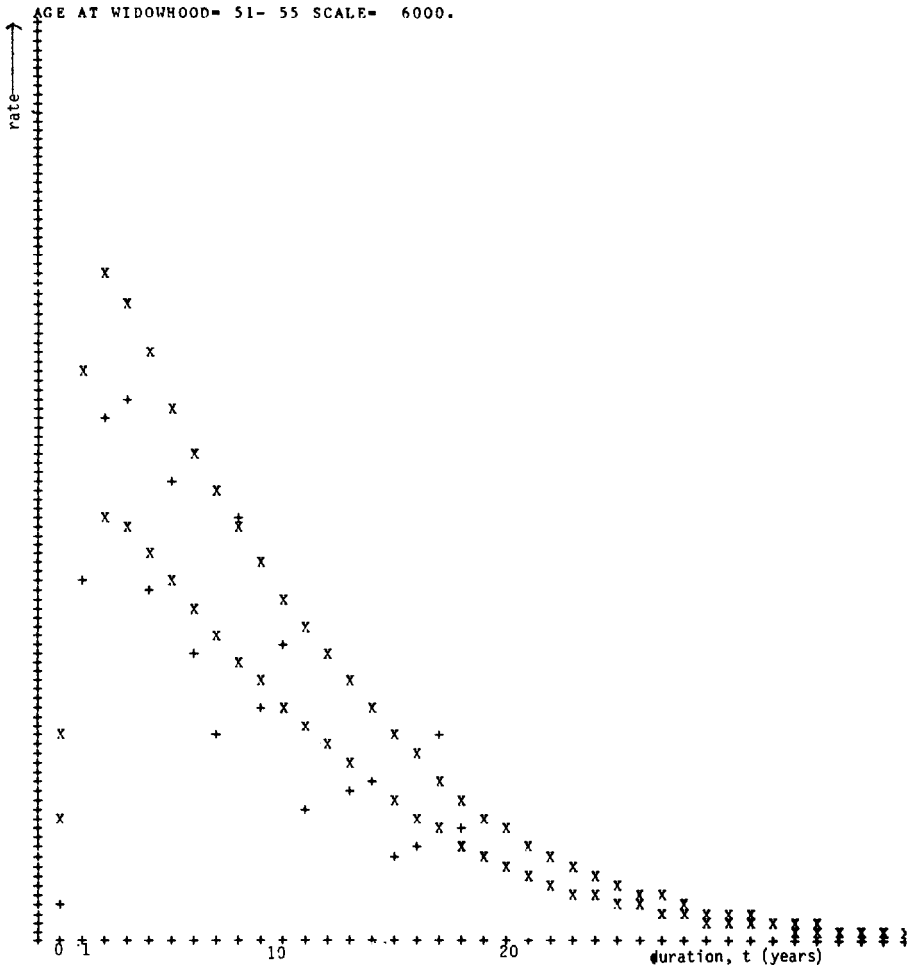

EXHIBIT II (cont'd)

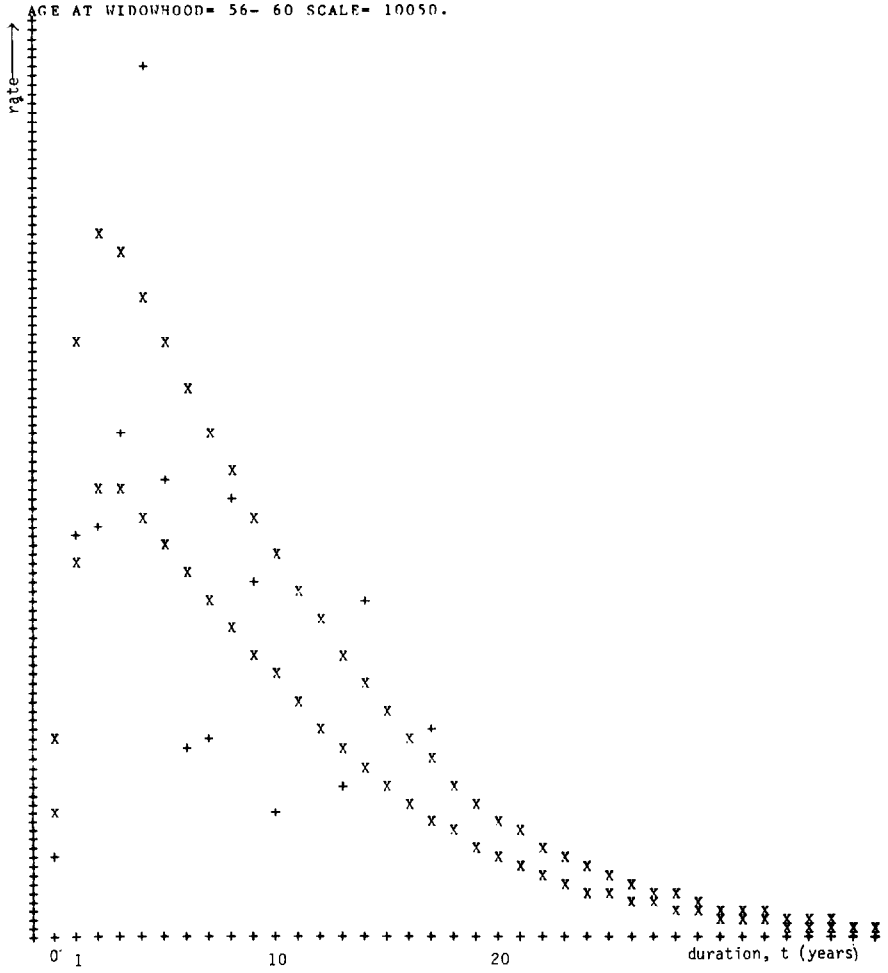

EXHIBIT III-A

REMARRIAGE TRENDING

Acc. Yr.	Exposure	P_1	P_4/P_1	P_4	Loss Function		
					Best Fit	Expected	Deviation
35–39	22603	2.91764	3.35049	9.77552	31.3013	28.6709	.99
40–44	25344	4.02828	2.74015	11.03809	31.2111	32.7288	−.54
45–49	25162	5.43403	1.06197	5.77078	22.3771	22.7655	−.16
50–54	23640	4.68924	1.29891	6.09090	20.2867	21.8005	−.59
55–59	18912	4.81341	.914997	4.40426	16.6808	18.4435	−.70
60–64	16480	4.11459	1.14955	4.72993	13.9554	16.3780	−1.04
65–69	11134	4.92020	.525821	2.58714	12.1081	13.2716	−.46
70–74	3643	2.30957	1.88967	4.36433	6.25557	6.82770	−.23
30–77	152016	3.97777	1.675	6.64463	29.0661	27.5244	.66

EXHIBIT III-B

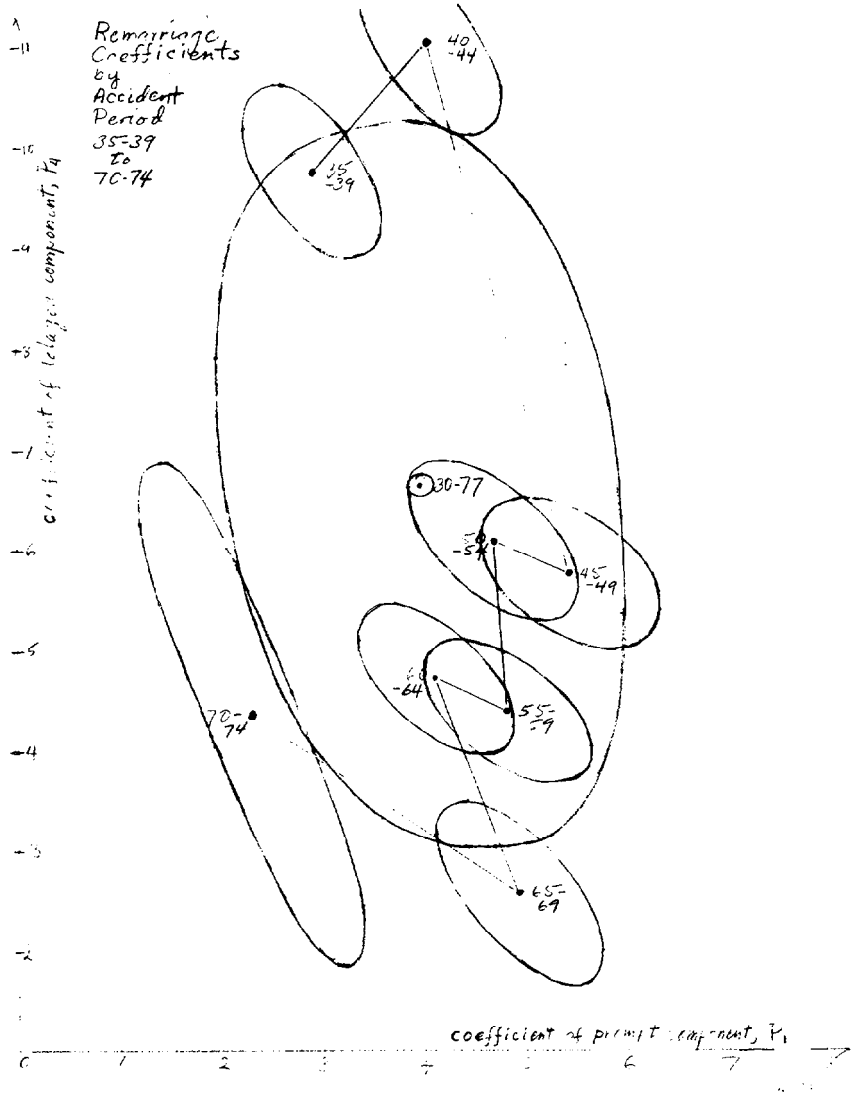

EXHIBIT IV-A

MORTALITY RATES: U.S. LIFE TABLES, 1969–71

Age	Tot Fem	Tot Pop	Age	Tot Fem	Tot Pop	Age	Tot Fem	Tot Pop
0	0.01746	0.02002	37	0.00180	0.00244	74	0.03893	0.05075
1	0.00116	0.00125	38	0.00197	0.00266	75	0.04325	0.05552
2	0.00077	0.00086	39	0.00215	0.00290	76	0.04790	0.06060
3	0.00060	0.00069	40	0.00233	0.00314	77	0.05295	0.06596
4	0.00051	0.00057	41	0.00251	0.00341	78	0.05840	0.07153
5	0.00043	0.00051	42	0.00273	0.00370	79	0.06432	0.07741
6	0.00038	0.00046	43	0.00297	0.00404	80	0.07097	0.08394
7	0.00034	0.00043	44	0.00325	0.00443	81	0.07834	0.09122
8	0.00031	0.00039	45	0.00354	0.00484	82	0.08612	0.09892
9	0.00028	0.00034	46	0.00384	0.00528	83	0.09419	0.10695
10	0.00026	0.00031	47	0.00416	0.00574	84	0.10275	0.11548
11	0.00025	0.00030	48	0.00449	0.00624	85	0.11282	0.12561
12	0.00027	0.00035	49	0.00484	0.00678	86	0.12462	0.13748
13	0.00033	0.00046	50	0.00523	0.00738	87	0.13685	0.14979
14	0.00040	0.00063	51	0.00565	0.00804	88	0.14859	0.16158
15	0.00049	0.00082	52	0.00611	0.00876	89	0.16006	0.17292
16	0.00058	0.00101	53	0.00660	0.00957	90	0.17264	0.18502
17	0.00066	0.00117	54	0.00712	0.01043	91	0.18718	0.19888
18	0.00069	0.00128	55	0.00768	0.01136	92	0.20243	0.21363
19	0.00071	0.00134	56	0.00829	0.01236	93	0.21750	0.22870
20	0.00072	0.00140	57	0.00894	0.01341	94	0.23186	0.24336
21	0.00073	0.00147	58	0.00962	0.01452	95	0.24584	0.25745
22	0.00075	0.00152	59	0.01035	0.01570	96	0.25854	0.26959
23	0.00077	0.00153	60	0.01113	0.01695	97	0.26980	0.28024
24	0.00079	0.00151	61	0.01200	0.01829	98	0.27996	0.28977
25	0.00081	0.00147	62	0.01298	0.01974	99	0.28949	0.29869
26	0.00083	0.00143	63	0.01411	0.02133	100	0.29836	0.30696
27	0.00086	0.00142	64	0.01538	0.02306	101	0.30659	0.31461
28	0.00090	0.00144	65	0.01678	0.02495	102	0.31420	0.32167
29	0.00096	0.00149	66	0.01832	0.02699	103	0.32122	0.32817
30	0.00102	0.00155	67	0.02004	0.02918	104	0.32768	0.33414
31	0.00110	0.00163	68	0.02195	0.03152	105	0.33361	0.33960
32	0.00119	0.00172	69	0.02407	0.03400	106	0.33904	0.34460
33	0.00129	0.00183	70	0.02632	0.03661	107	0.34401	0.34917
34	0.00140	0.00195	71	0.02879	0.03943	108	0.34855	0.35333
35	0.00152	0.00209	72	0.03165	0.04266	109	0.35269	0.35712
36	0.00165	0.00225	73	0.03503	0.04644			

EXHIBIT IV-B

SELECT ABSOLUTE RATES OF REMARRIAGE

AGE	0	1	2	3	4	ULT	AGE
16	0.06641	0.15455	0.16373	0.14581	0.12422	0.10604	21
17	0.06021	0.14129	0.15013	0.13396	0.11434	0.09613	22
18	0.05458	0.12909	0.13758	0.12301	0.10522	0.08732	23
19	0.04946	0.11789	0.12602	0.11292	0.09680	0.07966	24
20	0.04481	0.10761	0.11538	0.10362	0.08903	0.07284	25
21	0.04059	0.09818	0.10560	0.09506	0.08186	0.06687	26
22	0.03677	0.08955	0.09661	0.08718	0.07526	0.06139	27
23	0.03330	0.08165	0.08837	0.07994	0.06918	0.05624	28
24	0.03015	0.07443	0.08081	0.07329	0.06359	0.05150	29
25	0.02730	0.06784	0.07387	0.06718	0.05844	0.04716	30
26	0.02471	0.06181	0.06753	0.06157	0.05370	0.04316	31
27	0.02237	0.05631	0.06171	0.05643	0.04935	0.03949	32
28	0.02025	0.05129	0.05640	0.05171	0.04534	0.03614	33
29	0.01833	0.04672	0.05153	0.04738	0.04166	0.03308	34
30	0.01659	0.04255	0.04708	0.04341	0.03828	0.03026	35
31	0.01502	0.03875	0.04301	0.03978	0.03517	0.02767	36
32	0.01359	0.03529	0.03930	0.03645	0.03231	0.02528	37
33	0.01230	0.03213	0.03590	0.03340	0.02969	0.02309	38
34	0.01113	0.02926	0.03280	0.03060	0.02728	0.02109	39
35	0.01008	0.02664	0.02996	0.02804	0.02507	0.01926	40
36	0.00912	0.02426	0.02737	0.02569	0.02303	0.01759	41
37	0.00826	0.02209	0.02501	0.02355	0.02117	0.01607	42
38	0.00747	0.02012	0.02285	0.02158	0.01945	0.01468	43
39	0.00677	0.01832	0.02088	0.01978	0.01788	0.01342	44
40	0.00612	0.01669	0.01908	0.01813	0.01643	0.01227	45
41	0.00554	0.01520	0.01744	0.01662	0.01510	0.01122	46
42	0.00502	0.01385	0.01594	0.01523	0.01388	0.01027	47
43	0.00454	0.01261	0.01457	0.01396	0.01276	0.00940	48
44	0.00411	0.01149	0.01332	0.01280	0.01173	0.00860	49
45	0.00373	0.01047	0.01217	0.01174	0.01079	0.00788	50
46	0.00337	0.00954	0.01113	0.01077	0.00992	0.00721	51
47	0.00306	0.00870	0.01018	0.00987	0.00912	0.00661	52
48	0.00277	0.00793	0.00931	0.00906	0.00839	0.00605	53
49	0.00251	0.00723	0.00851	0.00831	0.00771	0.00554	54
50	0.00227	0.00659	0.00779	0.00762	0.00709	0.00507	55
51	0.00206	0.00601	0.00712	0.00699	0.00653	0.00465	56
52	0.00186	0.00548	0.00652	0.00642	0.00600	0.00425	57
53	0.00169	0.00500	0.00596	0.00589	0.00552	0.00389	58
54	0.00153	0.00456	0.00546	0.00541	0.00508	0.00356	59
55	0.00139	0.00416	0.00500	0.00496	0.00468	0.00325	60
56	0.00126	0.00379	0.00457	0.00456	0.00430	0.00297	61
57	0.00114	0.00346	0.00419	0.00418	0.00396	0.00271	62
58	0.00103	0.00316	0.00384	0.00384	0.00365	0.00247	63
59	0.00094	0.00288	0.00351	0.00353	0.00336	0.00225	64
60	0.00085	0.00263	0.00322	0.00324	0.00309	0.00205	65

AGE	0	1	2	3	4	ULT	AGE
61	0.00077	0.00240	0.00295	0.00298	0.00284	0.00186	66
62	0.00070	0.00220	0.00270	0.00273	0.00262	0.00168	67
63	0.00063	0.00200	0.00247	0.00251	0.00241	0.00152	68
64	0.00057	0.00183	0.00227	0.00231	0.00222	0.00136	69
65	0.00052	0.00167	0.00208	0.00212	0.00205	0.00123	70
66	0.00047	0.00153	0.00191	0.00195	0.00188	0.00110	71
67	0.00043	0.00140	0.00175	0.00179	0.00174	0.00098	72
68	0.00039	0.00128	0.00160	0.00165	0.00160	0.00087	73
69	0.00035	0.00117	0.00147	0.00152	0.00147	0.00078	74
70	0.00032	0.00107	0.00135	0.00139	0.00136	0.00069	75
71	0.00029	0.00098	0.00124	0.00128	0.00125	0.00061	76
72	0.00026	0.00089	0.00113	0.00118	0.00115	0.00054	77
73	0.00024	0.00082	0.00104	0.00108	0.00106	0.00048	78
74	0.00022	0.00075	0.00095	0.00100	0.00098	0.00042	79
75	0.00020	0.00068	0.00088	0.00092	0.00090	0.00037	80
76	0.00018	0.00063	0.00080	0.00084	0.00083	0.00033	81
77	0.00016	0.00057	0.00074	0.00078	0.00077	0.00028	82
78	0.00015	0.00052	0.00068	0.00071	0.00071	0.00025	83
79	0.00013	0.00048	0.00062	0.00066	0.00065	0.00022	84
80	0.00012	0.00044	0.00057	0.00061	0.00060	0.00019	85
81	0.00011	0.00040	0.00053	0.00056	0.00055	0.00017	86
82	0.00010	0.00037	0.00048	0.00051	0.00051	0.00014	87
83	0.00009	0.00034	0.00044	0.00047	0.00047	0.00013	88
84	0.00008	0.00031	0.00041	0.00044	0.00043	0.00011	89
85	0.00008	0.00028	0.00037	0.00040	0.00040	0.00009	90
86	0.00007	0.00026	0.00034	0.00037	0.00037	0.00008	91
87	0.00006	0.00024	0.00032	0.00034	0.00034	0.00007	92
88	0.00006	0.00022	0.00029	0.00031	0.00031	0.00006	93
89	0.00005	0.00020	0.00027	0.00029	0.00029	0.00005	94
90	0.00005	0.00018	0.00025	0.00027	0.00027	0.00005	95
91	0.00004	0.00017	0.00023	0.00024	0.00025	0.00004	96
92	0.00004	0.00015	0.00021	0.00023	0.00023	0.00003	97
93	0.00004	0.00014	0.00019	0.00021	0.00021	0.00003	98
94	0.00003	0.00013	0.00018	0.00019	0.00019	0.00003	99
95	0.00003	0.00012	0.00016	0.00018	0.00018	0.00002	100
96	0.00003	0.00011	0.00015	0.00016	0.00017	0.00002	101
97	0.00002	0.00010	0.00014	0.00015	0.00015	0.00002	102
98	0.00002	0.00009	0.00013	0.00014	0.00014	0.00001	103
99	0.00002	0.00008	0.00012	0.00013	0.00013	0.00001	104
100	0.00002	0.00008	0.00011	0.00012	0.00012	0.00001	105
101	0.00002	0.00007	0.00010	0.00011	0.00011	0.00001	106
102	0.00002	0.00007	0.00009	0.00010	0.00010	0.00001	107
103	0.00001	0.00006	0.00008	0.00009	0.00009	0.00001	108
104	0.00001	0.00006	0.00008	0.00008	0.00009	0.00001	109
105	0.00001	0.00005	0.00007	0.00008	0.00008	0.0	110

EXHIBIT IV-C

SELECT D_X FOR LIFE UNREMARRIED @ 3.5%/0.0%

AGE	0	1	2	3	4	ULT	AGE	AGE	0	1	2	3	4	ULT	AGE
16	100000.0	90149.6	73591.0	59419.8	49004.6	41436.1	21	61	2645.0	2523.0	2400.2	2279.6	2162.2	2048.2	66
17	81027.2	73525.0	60959.5	50020.1	41824.4	35763.4	22	62	2517.7	2399.3	2280.5	2163.6	2049.7	1939.1	67
18	66760.1	60939.9	51242.0	42667.0	36126.8	31208.9	23	63	2394.7	2279.7	2164.4	2051.0	1940.5	1832.9	68
19	55831.8	51239.3	43638.8	36822.8	31536.5	27499.4	24	64	2275.8	2163.8	2051.8	1941.6	1834.1	1729.4	69
20	47307.0	43627.7	37588.9	32103.3	27782.2	24433.6	25	65	2160.4	2051.3	1942.3	1835.2	1730.6	1628.5	70
21	40554.6	37565.3	32707.0	28242.1	24673.6	21870.1	26	66	2048.4	1941.9	1835.8	1731.5	1629.5	1530.1	71
22	35127.1	32666.8	28713.6	25042.6	22068.5	19701.1	27	67	1939.5	1835.6	1732.1	1630.4	1531.1	1434.2	72
23	30713.4	28664.5	25413.8	22366.4	19866.0	17851.0	28	68	1833.5	1731.9	1631.0	1531.9	1435.1	1340.5	73
24	27088.5	25363.3	22663.3	20110.7	17991.1	16262.7	29	69	1730.1	1630.8	1532.4	1435.8	1341.3	1248.7	74
25	24081.4	22613.5	20349.7	18193.5	16382.6	14889.2	30	70	1629.3	1532.3	1436.3	1342.0	1249.5	1158.6	75
26	21562.8	20302.0	18387.2	16550.8	14992.1	13693.3	31	71	1531.0	1436.3	1342.5	1250.1	1159.3	1070.3	76
27	19435.6	18342.5	16709.3	15133.4	13782.5	12645.3	32	72	1435.2	1342.4	1250.5	1159.8	1070.9	984.0	77
28	17623.6	16667.8	15263.6	13901.4	12722.8	11721.3	33	73	1341.5	1250.5	1160.2	1071.4	984.5	899.9	78
29	16067.8	15225.2	14008.8	12823.5	11788.8	10901.5	34	74	1249.7	1160.2	1071.7	984.9	900.3	818.3	79
30	14721.6	13973.6	12912.3	11874.2	10960.5	10170.2	35	75	1159.6	1071.7	985.2	900.7	818.7	739.4	80
31	13549.3	12880.3	11948.3	11033.5	10221.9	9514.4	36	76	1071.2	985.2	901.0	819.0	739.8	663.5	81
32	12521.4	11919.3	11095.5	10284.6	9560.1	8923.6	37	77	984.8	901.0	819.2	740.1	663.8	590.6	82
33	11614.6	11069.6	10337.1	9614.3	8964.1	8388.7	38	78	900.7	819.3	740.3	664.0	590.9	521.4	83
34	10810.2	10313.9	9658.8	9011.2	8424.9	7902.3	39	79	819.0	740.3	664.2	591.1	521.6	456.2	84
35	10092.3	9638.0	9049.1	8465.9	7934.6	7458.0	40	80	740.1	664.2	591.2	521.8	456.4	395.4	85
36	9448.1	9030.5	8498.1	7970.3	7486.8	7050.5	41	81	664.1	591.3	521.9	456.5	395.5	338.8	86
37	8867.7	8481.7	7998.1	7518.2	7076.3	6675.5	42	82	591.1	521.9	456.6	395.6	339.0	286.5	87
38	8341.3	7983.2	7541.8	7103.7	6698.5	6328.8	43	83	521.8	456.6	395.7	339.1	286.6	238.9	88
39	7862.1	7528.6	7124.1	6722.6	6349.4	6007.1	44	84	456.6	395.8	339.1	286.7	239.0	196.5	89
40	7423.8	7112.2	6740.1	6370.5	6025.5	5707.5	45	85	395.7	339.2	286.8	239.1	196.6	159.5	90
41	7021.3	6729.4	6385.5	6044.0	5723.9	5427.5	46	86	339.1	286.8	239.1	196.6	159.5	127.5	91
42	6650.5	6375.9	6056.9	5740.1	5442.2	5165.2	47	87	286.8	239.1	196.7	159.5	127.5	100.1	92
43	6307.1	6048.1	5751.2	5456.3	5178.3	4918.8	48	88	239.1	196.7	159.6	127.5	100.1	77.1	93
44	5988.3	5743.3	5465.9	5190.7	4930.4	4686.6	49	89	196.7	159.6	127.5	100.1	77.1	58.3	94
45	5691.1	5458.8	5198.9	4941.3	4697.0	4467.5	50	90	159.6	127.6	100.2	77.2	58.3	43.3	95
46	5413.2	5192.5	4948.3	4706.6	4476.7	4260.0	51	91	127.5	100.2	77.2	58.3	43.3	31.5	96
47	5152.7	4942.5	4712.6	4485.1	4268.2	4063.2	52	92	100.2	77.2	58.3	43.3	31.5	22.6	97
48	4907.7	4707.4	4490.3	4275.6	4070.4	3876.0	53	93	77.2	58.3	43.3	31.5	22.6	15.9	98
49	4676.9	4485.5	4280.0	4076.9	3882.5	3697.7	54	94	58.3	43.3	31.5	22.6	15.9	11.1	99
50	4458.8	4275.8	4080.8	3888.2	3703.5	3527.6	55	95	43.3	31.5	22.6	15.9	11.1	7.6	100
51	4252.4	4077.0	3891.5	3708.5	3532.7	3364.9	56	96	31.5	22.6	15.9	11.1	7.6	5.2	101
52	4056.5	3888.1	3711.4	3537.1	3369.5	3209.2	57	97	22.6	15.9	11.1	7.6	5.2	3.5	102
53	3870.2	3708.3	3539.6	3373.4	3213.3	3059.9	58	98	15.9	11.1	7.6	5.2	3.5	2.3	103
54	3692.6	3537.0	3375.6	3216.8	3063.6	2916.6	59	99	11.1	7.6	5.2	3.5	2.3	1.5	104
55	3523.2	3373.2	3218.7	3066.6	2919.9	2778.9	60	100	7.6	5.2	3.5	2.3	1.5	1.0	105
56	3361.2	3216.5	3068.3	2922.6	2781.8	2646.4	61	101	5.2	3.5	2.3	1.5	1.0	0.6	106
57	3206.0	3066.4	2924.1	2784.2	2649.0	2518.7	62	102	3.5	2.3	1.5	1.0	0.6	0.4	107
58	3057.3	2922.5	2785.6	2651.2	2521.1	2395.4	63	103	2.3	1.5	1.0	0.6	0.4	0.3	108
59	2914.4	2784.1	2652.4	2523.0	2397.6	2276.1	64	104	1.5	1.0	0.6	0.4	0.3	0.2	109
60	2777.1	2651.1	2524.1	2399.3	2278.1	2160.5	65	105	1.0	0.6	0.4	0.3	0.2	0.1	110

EXHIBIT IV-C (cont'd)

SELECT D_X FOR LIFE UNREMARRIED @ 3.5%/6.0%

AGE	0	1	2	3	4	ULT	AGE	AGE	0	1	2	3	4	ULT	AGE
16	100000.0	95558.6	82686.9	70769.9	61867.2	55450.8	21	61	36407.9	36811.5	37122.0	37371.7	37573.4	37727.8	66
17	85888.9	82612.7	72603.7	63149.3	55970.5	50731.1	22	62	36734.9	37107.9	37385.6	37597.9	37756.6	37860.7	67
18	75011.7	72580.4	64691.9	57098.0	51246.5	46926.7	23	63	37037.0	37372.8	37611.5	37780.0	37888.4	37934.3	68
19	66496.6	64688.5	58398.6	52233.9	47419.3	43829.8	24	64	37308.8	37600.9	37793.7	37911.2	37960.9	37940.1	69
20	59724.0	58383.6	53320.5	48271.5	44280.6	41280.0	25	65	37542.6	37784.6	37924.9	37983.4	37966.3	37869.7	70
21	54271.1	53287.0	49179.2	45013.6	41685.6	39165.9	26	66	37731.3	37916.9	37996.3	37987.2	37894.3	37717.1	71
22	49828.5	49118.8	45765.1	42308.9	39521.3	37398.6	27	67	37869.1	37990.2	38000.6	37915.2	37741.3	37474.8	72
23	46181.6	45686.9	42936.0	40054.7	37711.6	35919.7	28	68	37946.9	37995.6	37928.1	37761.4	37498.1	37128.9	73
24	43175.0	42850.8	40586.6	38176.2	36201.6	34687.1	29	69	37956.8	37924.7	37774.2	37517.6	37151.2	36661.7	74
25	40685.0	40497.3	38629.7	36608.8	34942.8	33663.1	30	70	37889.8	37771.6	37530.0	37169.8	36683.0	36057.4	75
26	38615.8	38539.2	36998.6	35301.7	33895.8	32816.8	31	71	37740.6	37528.5	37182.0	36700.6	36077.6	35306.8	76
27	36894.6	36908.8	35639.6	34215.2	33030.5	32123.5	32	72	37500.3	37180.9	36712.4	36094.6	35325.9	34406.6	77
28	35462.2	35551.3	34509.4	33315.6	32320.4	31562.7	33	73	37156.7	36712.4	36105.8	35341.8	34424.5	33353.8	78
29	34271.4	34422.8	33572.9	32576.2	31744.5	31116.6	34	74	36691.1	36106.5	35352.8	34439.7	33370.5	32149.1	79
30	33284.2	33488.5	32801.9	31974.5	31284.9	30770.9	35	75	36087.7	35353.9	34450.0	33384.5	32164.6	30795.0	80
31	32471.7	32720.5	32174.0	31493.2	30927.5	30514.1	36	76	35337.2	34451.0	33393.9	32177.4	30809.1	29289.6	81
32	31808.7	32096.1	31670.4	31117.1	30660.4	30336.3	37	77	34436.9	33395.9	32186.8	30821.2	29302.5	27638.0	82
33	31275.6	31596.3	31275.9	30834.5	30474.2	30229.1	38	78	33383.5	32188.4	30829.5	29313.4	27649.9	25660.7	83
34	30855.8	31205.7	30977.1	30634.2	30359.3	30184.9	39	79	32177.8	30831.3	29321.0	27659.6	25871.0	23984.7	84
35	30535.2	30910.5	30763.0	30507.1	30308.1	30196.9	40	80	30822.4	29323.1	27666.5	25879.8	23993.8	22035.2	85
36	30301.5	30699.6	30623.2	30444.4	30313.4	30260.0	41	81	29315.4	27668.5	25886.1	24001.5	22043.2	20017.6	86
37	30146.2	30564.2	30550.7	30440.5	30370.7	30369.4	42	82	27661.8	25887.6	24006.8	22049.8	20024.4	17943.2	87
38	30058.0	30493.9	30536.4	30488.1	30474.1	30519.6	43	83	25882.4	24008.7	22054.6	20030.2	17949.2	15859.6	88
39	30031.4	30482.9	30575.9	30583.6	30619.0	30706.4	44	84	24004.4	22056.4	20034.4	17954.0	15864.3	13827.4	89
40	30058.4	30524.8	30663.1	30720.5	30800.4	30925.3	45	85	22052.6	20035.6	17957.4	15868.5	13831.4	11893.4	90
41	30134.6	30614.5	30793.1	30894.9	31014.1	31172.9	46	86	20033.0	17958.8	15871.5	13834.8	11896.7	10076.9	91
42	30255.5	30746.6	30960.9	31101.9	31257.0	31446.4	47	87	17956.7	15872.7	13837.3	11899.5	10079.5	8387.9	92
43	30414.9	30916.1	31162.0	31338.4	31525.7	31742.6	48	88	15870.8	13838.2	11901.4	10081.6	8389.9	6851.0	93
44	30610.1	31119.2	31393.1	31601.3	31817.5	32059.2	49	89	13836.9	11902.3	10083.3	8391.6	6852.6	5490.1	94
45	30836.7	31352.3	31651.4	31888.2	32130.2	32393.7	50	90	11901.4	10084.0	8393.0	6854.0	5491.3	4318.8	95
46	31090.5	31612.3	31933.6	32195.7	32460.4	32742.5	51	91	10083.1	8393.4	6854.9	5492.2	4319.7	3335.6	96
47	31369.9	31896.1	32236.9	32521.3	32805.7	33103.5	52	92	8392.8	6855.3	5493.0	4320.4	3336.2	2532.8	97
48	31671.5	32201.4	32559.3	32862.5	33163.0	33473.3	53	93	6854.9	5493.3	4320.9	3336.7	2533.3	1894.1	98
49	31992.4	32524.8	32896.6	33215.8	33529.3	33849.5	54	94	5492.9	4321.1	3337.1	2533.6	1894.4	1396.7	99
50	32331.1	32864.1	33247.2	33578.6	33902.3	34229.6	55	95	4320.9	3337.3	2533.9	1894.7	1396.9	1016.3	100
51	32684.5	33216.3	33607.6	33948.8	34279.9	34610.8	56	96	3337.1	2534.0	1894.8	1397.1	1016.5	730.3	101
52	33049.2	33578.1	33975.0	34322.7	34657.8	34989.5	57	97	2533.9	1894.9	1397.2	1016.6	730.4	518.6	102
53	33423.0	33947.0	34346.8	34698.2	35034.2	35363.4	58	98	1894.8	1397.3	1016.7	730.5	518.7	364.3	103
54	33803.4	34320.9	34720.9	35072.2	35405.7	35729.6	59	99	1397.3	1016.7	730.5	518.7	364.3	253.2	104
55	34187.5	34696.1	35093.0	35441.2	35769.8	36085.0	60	100	1016.7	730.6	518.8	364.3	253.2	174.4	105
56	34572.0	35069.3	35460.4	35803.2	36123.0	36426.5	61	101	730.6	518.8	364.4	253.3	174.4	119.0	106
57	34954.9	35438.7	35821.2	36154.6	36462.7	36749.2	62	102	518.8	364.4	253.3	174.4	119.0	80.5	107
58	35332.9	35801.4	36172.0	36492.7	36783.9	37047.7	63	103	364.4	253.3	174.4	119.0	80.6	54.1	108
59	35703.2	36153.1	36508.8	36812.3	37080.8	37314.8	64	104	253.3	174.4	119.0	80.6	54.1	36.1	109
60	36062.6	36491.6	36827.4	37107.5	37346.2	37543.7	65	105	174.4	119.0	80.6	54.1	36.1	23.9	110

EXHIBIT IV-D

SELECT N_X FOR LIFE UNREMARRIED @ 3.5%/0.0%

AGE	0	1	2	3	4	ULT	AGE	AGE	0	1	2	3	4	ULT	AGE
16	852344.	752344.	662195.	588604.	529184.	480179.	21	61	36769.	34124.	31601.	29201.	26921.	24759.	66
17	746100.	665072.	591547.	530588.	480568.	438743.	22	62	34122.	31604.	29205.	26924.	24761.	22711.	67
18	660716.	593955.	533016.	481774.	439107.	402980.	23	63	31602.	29208.	26928.	24764.	22713.	20772.	68
19	590840.	535008.	483769.	440130.	403307.	371771.	24	64	29206.	26930.	24767.	22715.	20773.	18939.	69
20	532681.	485374.	441746.	404157.	372054.	344272.	25	65	26930.	24769.	22718.	20776.	18940.	17210.	70
21	483580.	443026.	405461.	372754.	344512.	319838.	26	66	24769.	22720.	20778.	18942.	17211.	15581.	71
22	441587.	406459.	373793.	345079.	320036.	297968.	27	67	22720.	20780.	18945.	17213.	15582.	14051.	72
23	405291.	374577.	345913.	320499.	298133.	278267.	28	68	20780.	18947.	17215.	15584.	14052.	12617.	73
24	373633.	346544.	321181.	298518.	278467.	260416.	29	69	18947.	17217.	15586.	14054.	12618.	11277.	74
25	345774.	321692.	299079.	278729.	260536.	244153.	30	70	17217.	15588.	14056.	12619.	11277.	10028.	75
26	321059.	299496.	279194.	260807.	244256.	229264.	31	71	15588.	14057.	12621.	11279.	10028.	8869.	76
27	298974.	279538.	261196.	244486.	229353.	215571.	32	72	14058.	12622.	11280.	10030.	8870.	7799.	77
28	279105.	261481.	244813.	229549.	215648.	202925.	33	73	12623.	11281.	10031.	8871.	7799.	6815.	78
29	261118.	245050.	229825.	215816.	202993.	191204.	34	74	11282.	10032.	8872.	7800.	6815.	5915.	79
30	244745.	230023.	216049.	203137.	191263.	180302.	35	75	10033.	8873.	7801.	6816.	5915.	5097.	80
31	229766.	216216.	203336.	191388.	180354.	170132.	36	76	8873.	7802.	6817.	5916.	5097.	4357.	81
32	215999.	203477.	191558.	180462.	170178.	160618.	37	77	7803.	6818.	5917.	5098.	4358.	3694.	82
33	203294.	191679.	180610.	170273.	160658.	151694.	38	78	6818.	5918.	5098.	4358.	3694.	3103.	83
34	191524.	180714.	170400.	160742.	151730.	143306.	39	79	5918.	5099.	4359.	3694.	3103.	2582.	84
35	180583.	170491.	160853.	151804.	143338.	135403.	40	80	5099.	4359.	3695.	3104.	2582.	2126.	85
36	170379.	160931.	151900.	143402.	135432.	127945.	41	81	4359.	3695.	3104.	2582.	2126.	1730.	86
37	160837.	151969.	143487.	135489.	127971.	120895.	42	82	3696.	3104.	2583.	2126.	1730.	1391.	87
38	151888.	143546.	135563.	128021.	120918.	114219.	43	83	3105.	2583.	2126.	1731.	1391.	1105.	88
39	143477.	135615.	128087.	120962.	114240.	107890.	44	84	2583.	2127.	1731.	1392.	1105.	866.	89
40	135555.	128132.	121019.	114279.	107909.	101883.	45	85	2127.	1731.	1392.	1105.	866.	669.	90
41	128080.	121059.	114329.	107944.	101900.	96176.	46	86	1731.	1392.	1105.	866.	669.	510.	91
42	121014.	114363.	107987.	101931.	96190.	90748.	47	87	1392.	1105.	866.	670.	510.	382.	92
43	114324.	108017.	101969.	96218.	90761.	85583.	48	88	1105.	866.	670.	510.	382.	282.	93
44	107983.	101994.	96251.	90785.	85595.	80664.	49	89	866.	670.	510.	383.	282.	205.	94
45	101965.	96274.	90815.	85616.	80675.	75978.	50	90	670.	510.	383.	282.	205.	147.	95
46	96247.	90834.	85642.	80694.	75987.	71510.	51	91	510.	383.	282.	205.	147.	104.	96
47	90811.	85659.	80716.	76004.	71518.	67250.	52	92	383.	282.	205.	147.	104.	72.	97
48	85639.	80731.	76023.	71533.	67258.	63187.	53	93	282.	205.	147.	104.	72.	50.	98
49	80713.	76036.	71551.	67271.	63194.	59311.	54	94	205.	147.	104.	72.	50.	34.	99
50	76021.	71562.	67286.	63205.	59317.	55613.	55	95	147.	104.	72.	50.	34.	23.	100
51	71548.	67296.	63219.	59327.	55619.	52086.	56	96	104.	72.	50.	34.	23.	15.	101
52	67284.	63227.	59339.	55628.	52091.	48721.	57	97	72.	50.	34.	23.	15.	10.	102
53	63217.	59346.	55638.	52099.	48725.	45512.	58	98	50.	34.	23.	15.	10.	6.	103
54	59337.	55645.	52108.	48732.	45515.	42452.	59	99	34.	23.	15.	10.	6.	4.	104
55	55637.	52114.	48741.	45522.	42455.	39535.	60	100	23.	15.	10.	6.	4.	3.	105
56	52107.	48746.	45529.	42461.	39538.	36756.	61	101	15.	10.	6.	4.	3.	2.	106
57	48740.	45534.	42467.	39543.	36759.	34110.	62	102	10.	6.	4.	3.	2.	1.	107
58	45529.	42472.	39549.	36764.	34112.	31591.	63	103	6.	4.	3.	2.	1.	1.	108
59	42467.	39553.	36769.	34117.	31593.	29196.	64	104	4.	3.	2.	1.	1.	0.	109
60	39549.	36772.	34121.	31597.	29198.	26920.	65	105	3.	2.	1.	1.	0.	0.	110

EXHIBIT IV-D (cont'd)

SELECT N_X FOR LIFE UNREMARRIED @ 3.5%/6.0%

AGE	0	1	2	3	4	ULT	AGE	AGE	0	1	2	3	4	ULT	AGE
16	2777029.	2677029.	2581471.	2498784.	2428014.	2366147.	21	61	981675.	945267.	908455.	871333.	833961.	796388.	66
17	2670921.	2585032.	2502420.	2429816.	2366667.	2310696.	22	62	945243.	908508.	871400.	834015.	796417.	758660.	67
18	2580593.	2505582.	2433001.	2368310.	2311212.	2259965.	23	63	908489.	871452.	834079.	796468.	758688.	720799.	68
19	2502275.	2435778.	2371090.	2312691.	2260458.	2213038.	24	64	871441.	834132.	796531.	758737.	720826.	682865.	69
20	2433189.	2373465.	2315081.	2261761.	2213489.	2169208.	25	65	834127.	796584.	758800.	720875.	682891.	644925.	70
21	2371365.	2317094.	2263807.	2214628.	2169614.	2127928.	26	66	796581.	758850.	720933.	682937.	644950.	607055.	71
22	2315305.	2265477.	2216358.	2170593.	2128284.	2088763.	27	67	758855.	720986.	682995.	644995.	607080.	569338.	72
23	2263935.	2217753.	2172066.	2129130.	2089075.	2051364.	28	68	720993.	683047.	645051.	607123.	569362.	531863.	73
24	2216434.	2173259.	2130409.	2089822.	2051646.	2015444.	29	69	683059.	645102.	607178.	569403.	531886.	494735.	74
25	2172121.	2131436.	2090938.	2052309.	2015700.	1980757.	30	70	645117.	607227.	569456.	531926.	494756.	458073.	75
26	2130445.	2091829.	2053290.	2016291.	1980990.	1947094.	31	71	607245.	569504.	531976.	494794.	458093.	422015.	76
27	2090966.	2054071.	2017162.	1981523.	1947308.	1914277.	32	72	569523.	532022.	494842.	458129.	422035.	386709.	77
28	2053313.	2017850.	1982299.	1947790.	1914474.	1882154.	33	73	532043.	494887.	458174.	422068.	386727.	352302.	78
29	2017179.	1982907.	1948484.	1914912.	1882335.	1850591.	34	74	494909.	458218.	422111.	386758.	352319.	318948.	79
30	1982308.	1949024.	1915536.	1882734.	1850759.	1819474.	35	75	458240.	422152.	386798.	352348.	318964.	286799.	80
31	1948490.	1916019.	1883298.	1851124.	1819631.	1788703.	36	76	422173.	386836.	352385.	318991.	286813.	256004.	81
32	1915542.	1883733.	1851637.	1819967.	1788850.	1758189.	37	77	386858.	352421.	319025.	286838.	256017.	226714.	82
33	1883309.	1852034.	1820438.	1789162.	1758327.	1727853.	38	78	352441.	319058.	286869.	256040.	226726.	199076.	83
34	1851656.	1820800.	1789594.	1758617.	1727983.	1697624.	39	79	319076.	286899.	256067.	226746.	199087.	173216.	84
35	1820463.	1789928.	1759017.	1728254.	1697747.	1667439.	40	80	286917.	256094.	226771.	199105.	173225.	149231.	85
36	1789624.	1759323.	1728623.	1698000.	1667556.	1637242.	41	81	256110.	226795.	199127.	173240.	149239.	127196.	86
37	1759054.	1728908.	1698344.	1667793.	1637353.	1606982.	42	82	226809.	199147.	173259.	149252.	127203.	107178.	87
38	1728663.	1698605.	1668111.	1637575.	1607087.	1576613.	43	83	199160.	173278.	149269.	127214.	107184.	89235.	88
39	1698386.	1668355.	1637872.	1607296.	1576712.	1546093.	44	84	173289.	149285.	127228.	107194.	89240.	73375.	89
40	1668154.	1638096.	1607571.	1576908.	1546187.	1515387.	45	85	149294.	127241.	107205.	89248.	73379.	59548.	90
41	1637913.	1607778.	1577164.	1546370.	1515476.	1484461.	46	86	127250.	107217.	89258.	73386.	59551.	47655.	91
42	1607610.	1577355.	1546608.	1515647.	1484546.	1453289.	47	87	107223.	89267.	73394.	59557.	47657.	37578.	92
43	1577199.	1546784.	1515868.	1484706.	1453368.	1421842.	48	88	89272.	73401.	59563.	47661.	37580.	29190.	93
44	1546641.	1516031.	1484911.	1453518.	1421917.	1390100.	49	89	73406.	59569.	47666.	37583.	29191.	22339.	94
45	1515899.	1485062.	1453710.	1422059.	1390170.	1358040.	50	90	59572.	47671.	37587.	29194.	22340.	16849.	95
46	1484939.	1453849.	1422236.	1390303.	1358107.	1325647.	51	91	47673.	37590.	29197.	22342.	16850.	12530.	96
47	1453734.	1422364.	1390468.	1358231.	1325710.	1292904.	52	92	37592.	29199.	22344.	16851.	12531.	9194.	97
48	1422258.	1390587.	1358385.	1325826.	1292964.	1259801.	53	93	29201.	22346.	16853.	12532.	9195.	6662.	98
49	1390486.	1358494.	1325969.	1293072.	1259857.	1226327.	54	94	22347.	16854.	12533.	9196.	6662.	4767.	99
50	1358401.	1326070.	1293206.	1259959.	1226380.	1192478.	55	95	16854.	12534.	9196.	6662.	4768.	3371.	100
51	1325985.	1293301.	1260084.	1226477.	1192528.	1158248.	56	96	12534.	9197.	6663.	4768.	3371.	2354.	101
52	1293220.	1260171.	1226593.	1192618.	1158295.	1123637.	57	97	9197.	6663.	4768.	3371.	2355.	1624.	102
53	1260097.	1226674.	1192727.	1158380.	1123682.	1088648.	58	98	6664.	4769.	3371.	2355.	1624.	1106.	103
54	1226608.	1192804.	1158483.	1123762.	1088690.	1053285.	59	99	4769.	3372.	2355.	1624.	1106.	741.	104
55	1192742.	1158555.	1123859.	1088766.	1053325.	1017555.	60	100	3372.	2355.	1624.	1106.	741.	488.	105
56	1158498.	1123926.	1088857.	1053396.	1017593.	981470.	61	101	2355.	1624.	1106.	741.	488.	314.	106
57	1123875.	1088921.	1053482.	1017661.	981506.	945043.	62	102	1625.	1106.	741.	488.	314.	195.	107
58	1088877.	1053544.	1017743.	981571.	945078.	908294.	63	103	1106.	741.	488.	314.	195.	114.	108
59	1053505.	1017802.	981648.	945140.	908327.	871247.	64	104	741.	488.	314.	195.	114.	60.	109
60	1017767.	981705.	945213.	908386.	871278.	833932.	65	105	488.	314.	195.	114.	60.	24.	110

EXHIBIT IV-E

SELECT ANNUITY FOR LIFE UNREMARRIED @ 3.5%/0.0%

AGE	0	1	2	3	4	ULT	AGE	AGE	0	1	2	3	4	ULT	AGE
16	8.023	7.846	8.498	9.406	10.299	11.088	21	61	13.401	13.025	12.666	12.310	11.951	11.588	66
17	8.708	8.546	9.204	10.107	10.990	11.768	22	62	13.053	12.672	12.307	11.944	11.580	11.212	67
18	9.397	9.247	9.902	10.791	11.655	12.412	23	63	12.697	12.312	11.941	11.574	11.205	10.833	68
19	10.082	9.941	10.586	11.453	12.289	13.019	24	64	12.334	11.946	11.571	11.199	10.826	10.451	69
20	10.760	10.625	11.252	12.089	12.892	13.590	25	65	11.965	11.575	11.196	10.820	10.445	10.068	70
21	11.424	11.294	11.897	12.699	13.463	14.124	26	66	11.592	11.200	10.818	10.440	10.062	9.683	71
22	12.071	11.943	12.518	13.280	14.002	14.624	27	67	11.214	10.821	10.437	10.057	9.677	9.297	72
23	12.696	12.568	13.111	13.830	14.507	15.088	28	68	10.834	10.440	10.055	9.673	9.292	8.912	73
24	13.293	13.163	13.672	14.344	14.975	15.513	29	69	10.451	10.057	9.671	9.288	8.907	8.530	74
25	13.859	13.726	14.197	14.820	15.403	15.898	30	70	10.067	9.673	9.286	8.903	8.526	8.155	75
26	14.389	14.252	14.684	15.258	15.792	16.243	31	71	9.681	9.287	8.901	8.522	8.151	7.787	76
27	14.883	14.740	15.132	15.655	16.141	16.547	32	72	9.295	8.903	8.521	8.147	7.783	7.426	77
28	15.337	15.188	15.539	16.013	16.450	16.813	33	73	8.909	8.522	8.146	7.780	7.422	7.073	78
29	15.751	15.595	15.906	16.330	16.719	17.039	34	74	8.527	8.147	7.778	7.420	7.070	6.729	79
30	16.125	15.961	16.232	16.607	16.950	17.229	35	75	8.152	7.779	7.418	7.068	6.726	6.393	80
31	16.458	16.287	16.518	16.846	17.144	17.381	36	76	7.783	7.419	7.066	6.724	6.390	6.067	81
32	16.750	16.571	16.764	17.047	17.301	17.499	37	77	7.423	7.067	6.722	6.388	6.065	5.754	82
33	17.003	16.816	16.972	17.210	17.422	17.583	38	78	7.070	6.723	6.387	6.063	5.752	5.452	83
34	17.217	17.021	17.142	17.338	17.510	17.635	39	79	6.726	6.388	6.062	5.750	5.450	5.160	84
35	17.393	17.189	17.276	17.431	17.565	17.655	40	80	6.390	6.063	5.749	5.449	5.158	4.876	85
36	17.533	17.321	17.375	17.492	17.590	17.647	41	81	6.065	5.750	5.448	5.157	4.875	4.606	86
37	17.637	17.417	17.440	17.522	17.584	17.610	42	82	5.752	5.448	5.156	4.874	4.605	4.356	87
38	17.709	17.481	17.475	17.522	17.551	17.548	43	83	5.450	5.156	4.873	4.604	4.355	4.124	88
39	17.749	17.513	17.479	17.493	17.492	17.460	44	84	5.158	4.873	4.604	4.354	4.123	3.906	89
40	17.760	17.516	17.455	17.439	17.409	17.351	45	85	4.875	4.604	4.353	4.122	3.905	3.698	90
41	17.742	17.490	17.404	17.360	17.303	17.220	46	86	4.605	4.354	4.122	3.905	3.697	3.501	91
42	17.696	17.437	17.329	17.258	17.175	17.069	47	87	4.355	4.122	3.904	3.696	3.500	3.321	92
43	17.626	17.360	17.230	17.134	17.027	16.899	48	88	4.123	3.905	3.696	3.499	3.320	3.161	93
44	17.532	17.259	17.110	16.990	16.861	16.712	49	89	3.905	3.696	3.499	3.320	3.161	3.020	94
45	17.416	17.137	16.968	16.827	16.676	16.507	50	90	3.697	3.499	3.320	3.160	3.020	2.896	95
46	17.280	16.993	16.807	16.645	16.474	16.287	51	91	3.500	3.320	3.160	3.019	2.895	2.788	96
47	17.124	16.831	16.628	16.446	16.256	16.051	52	92	3.320	3.160	3.019	2.895	2.788	2.694	97
48	16.950	16.650	16.431	16.231	16.023	15.802	53	93	3.161	3.019	2.895	2.787	2.694	2.610	98
49	16.758	16.451	16.217	16.000	15.777	15.540	54	94	3.020	2.895	2.787	2.693	2.610	2.533	99
50	16.549	16.236	15.988	15.756	15.517	15.265	55	95	2.895	2.787	2.693	2.609	2.533	2.461	100
51	16.325	16.006	15.745	15.498	15.244	14.979	56	96	2.788	2.693	2.609	2.532	2.461	2.393	101
52	16.087	15.762	15.488	15.227	14.959	14.682	57	97	2.694	2.609	2.532	2.461	2.393	2.326	102
53	15.834	15.504	15.219	14.944	14.664	14.374	58	98	2.610	2.532	2.461	2.393	2.326	2.256	103
54	15.569	15.232	14.936	14.649	14.357	14.055	59	99	2.533	2.461	2.393	2.326	2.256	2.177	104
55	15.292	14.949	14.643	14.344	14.040	13.727	60	100	2.461	2.393	2.326	2.256	2.177	2.082	105
56	15.003	14.655	14.339	14.028	13.713	13.389	61	101	2.393	2.326	2.256	2.177	2.082	1.957	106
57	14.703	14.349	14.023	13.703	13.376	13.043	62	102	2.326	2.256	2.177	2.082	1.957	1.782	107
58	14.392	14.033	13.698	13.367	13.031	12.688	63	103	2.256	2.177	2.082	1.957	1.782	1.523	108
59	14.071	13.707	13.363	13.022	12.677	12.327	64	104	2.177	2.082	1.957	1.782	1.523	1.125	109
60	13.741	13.370	13.018	12.669	12.317	11.960	65	105	2.082	1.957	1.782	1.523	1.125	0.500	110

EXHIBIT IV-E (cont'd)

SELECT ANNUITY FOR LIFE UNREMARRIED @ 3.5%/6.0%

AGE	0	1	2	3	4	ULT	AGE	AGE	0	1	2	3	4	ULT	AGE
16	27.270	27.515	30.720	34.809	38.746	42.171	21	61	26.463	25.179	23.972	22.815	21.696	20.609	66
17	30.597	30.791	33.967	37.977	41.784	45.048	22	62	25.231	23.983	22.808	21.682	20.593	19.538	67
18	33.903	34.021	37.109	40.978	44.600	47.659	23	63	24.029	22.818	21.676	20.582	19.524	18.501	68
19	37.130	37.154	40.102	43.776	47.170	49.992	24	64	22.857	21.684	20.576	19.514	18.489	17.499	69
20	40.241	40.153	42.918	46.355	49.488	52.049	25	65	21.718	20.582	19.508	18.479	17.487	16.530	70
21	43.195	42.983	45.532	48.699	51.547	53.831	26	66	20.612	19.514	18.474	17.478	16.520	15.595	71
22	45.965	45.622	47.929	50.803	53.352	55.351	27	67	19.539	18.478	17.473	16.512	15.585	14.693	72
23	48.522	48.042	50.088	52.656	54.896	56.610	28	68	18.500	17.477	16.507	15.578	14.684	13.825	73
24	50.836	50.217	51.991	54.242	56.173	57.603	29	69	17.496	16.510	15.574	14.677	13.817	12.995	74
25	52.889	52.132	53.628	55.561	57.186	58.341	30	70	16.526	15.576	14.673	13.811	12.987	12.204	75
26	54.670	53.778	54.996	56.616	57.944	58.832	31	71	15.590	14.675	13.807	12.982	12.197	11.453	76
27	56.174	55.153	56.099	57.414	58.455	59.091	32	72	14.687	13.809	12.979	12.192	11.447	10.739	77
28	57.401	56.259	56.942	57.965	58.734	59.132	33	73	13.819	12.980	12.190	11.442	10.734	10.063	78
29	58.359	57.104	57.537	58.283	58.796	58.973	34	74	12.989	12.191	11.440	10.730	10.058	9.421	79
30	59.057	57.700	57.897	58.382	58.658	58.630	35	75	12.198	11.441	10.728	10.054	9.417	8.813	80
31	59.506	58.057	58.035	58.279	58.335	58.119	36	76	11.447	10.729	10.052	9.413	8.809	8.240	81
32	59.721	58.190	57.966	57.988	57.844	57.457	37	77	10.734	10.053	9.412	8.807	8.237	7.703	82
33	59.717	58.116	57.706	57.525	57.199	56.659	38	78	10.057	9.412	8.805	8.235	7.700	7.198	83
34	59.510	57.848	57.271	56.907	56.418	55.741	39	79	9.416	8.805	8.233	7.698	7.195	6.722	84
35	59.118	57.407	56.680	56.151	55.516	54.719	40	80	8.809	8.234	7.697	7.193	6.720	6.272	85
36	58.561	56.808	55.948	55.274	54.510	53.606	41	81	8.236	7.697	7.192	6.718	6.270	5.854	86
37	57.851	56.066	55.091	54.289	53.412	52.415	42	82	7.699	7.193	6.717	6.269	5.852	5.473	87
38	57.011	55.203	54.127	53.212	52.236	51.159	43	83	7.195	6.717	6.268	5.851	5.472	5.127	88
39	56.054	54.231	53.067	52.054	50.995	49.851	44	84	6.719	6.268	5.850	5.470	5.125	4.807	89
40	54.997	53.164	51.927	50.831	49.700	48.502	45	85	6.270	5.851	5.470	5.124	4.805	4.507	90
41	53.853	52.017	50.718	49.553	48.364	47.120	46	86	5.852	5.470	5.124	4.804	4.506	4.229	91
42	52.635	50.802	49.454	48.232	46.995	45.715	47	87	5.471	5.124	4.804	4.505	4.228	3.980	92
43	51.356	49.532	48.145	46.877	45.601	44.293	48	88	5.125	4.804	4.505	4.228	3.979	3.761	93
44	50.027	48.217	46.801	45.495	44.190	42.860	49	89	4.805	4.505	4.227	3.979	3.760	3.569	94
45	48.659	46.867	45.429	44.095	42.767	41.423	50	90	4.506	4.227	3.978	3.759	3.568	3.401	95
46	47.262	45.490	44.037	42.683	41.339	39.987	51	91	4.228	3.979	3.759	3.568	3.401	3.256	96
47	45.842	44.094	42.633	41.264	39.911	38.556	52	92	3.979	3.759	3.568	3.400	3.256	3.130	97
48	44.407	42.684	41.220	39.845	38.488	37.136	53	93	3.760	3.568	3.400	3.256	3.130	3.017	98
49	42.963	41.268	39.807	38.429	37.075	35.729	54	94	3.568	3.400	3.256	3.129	3.017	2.913	99
50	41.515	39.850	38.397	37.023	35.674	34.338	55	95	3.401	3.256	3.129	3.016	2.913	2.817	100
51	40.069	38.436	36.994	35.627	34.288	32.965	56	96	3.256	3.129	3.016	2.913	2.816	2.724	101
52	38.630	37.030	35.603	34.247	32.921	31.614	57	97	3.130	3.016	2.913	2.816	2.724	2.632	102
53	37.201	35.635	34.226	32.884	31.574	30.285	58	98	3.017	2.913	2.816	2.723	2.631	2.535	103
54	35.786	34.254	32.866	31.541	30.249	28.979	59	99	2.913	2.816	2.723	2.631	2.535	2.427	104
55	34.388	32.892	31.525	30.220	28.947	27.699	60	100	2.816	2.723	2.631	2.535	2.427	2.299	105
56	33.010	31.549	30.206	28.922	27.670	26.444	61	101	2.724	2.631	2.535	2.427	2.299	2.136	106
57	31.652	30.227	28.909	27.647	26.418	25.216	62	102	2.631	2.535	2.427	2.299	2.136	1.917	107
58	30.318	28.927	27.636	26.398	25.193	24.017	63	103	2.535	2.427	2.299	2.136	1.917	1.609	108
59	29.007	27.653	26.388	25.175	23.996	22.849	64	104	2.427	2.299	2.136	1.917	1.609	1.163	109
60	27.722	26.402	25.166	23.980	22.830	21.712	65	105	2.299	2.136	1.917	1.609	1.163	0.500	110

EXHIBIT IV-F

SELECT DOWRIES PAYABLE ON REMARRIAGE @ 3.5%/0.0%

AGE	0	1	2	3	4	ULT	AGE	AGE	0	1	2	3	4	ULT	AGE
16	0.7000	0.7041	0.6765	0.6386	0.6005	0.5658	21	61	0.0189	0.0190	0.0176	0.0155	0.0132	0.0110	66
17	0.6715	0.6748	0.6464	0.6080	0.5697	0.5349	22	62	0.0170	0.0171	0.0157	0.0138	0.0118	0.0097	67
18	0.6424	0.6449	0.6161	0.5776	0.5394	0.5047	23	63	0.0152	0.0153	0.0141	0.0123	0.0104	0.0086	68
19	0.6128	0.6147	0.5858	0.5474	0.5096	0.4753	24	64	0.0136	0.0137	0.0126	0.0110	0.0093	0.0075	69
20	0.5830	0.5844	0.5555	0.5177	0.4805	0.4469	25	65	0.0122	0.0123	0.0113	0.0098	0.0082	0.0066	70
21	0.5531	0.5540	0.5255	0.4884	0.4521	0.4193	26	66	0.0109	0.0110	0.0100	0.0087	0.0072	0.0057	71
22	0.5233	0.5238	0.4958	0.4596	0.4244	0.3925	27	67	0.0097	0.0098	0.0090	0.0077	0.0064	0.0050	72
23	0.4937	0.4940	0.4666	0.4315	0.3974	0.3666	28	68	0.0086	0.0087	0.0080	0.0068	0.0056	0.0043	73
24	0.4647	0.4647	0.4382	0.4043	0.3714	0.3418	29	69	0.0077	0.0078	0.0071	0.0060	0.0049	0.0037	74
25	0.4363	0.4361	0.4105	0.3780	0.3464	0.3180	30	70	0.0068	0.0069	0.0063	0.0053	0.0043	0.0032	75
26	0.4088	0.4084	0.3838	0.3527	0.3226	0.2954	31	71	0.0061	0.0062	0.0056	0.0047	0.0038	0.0028	76
27	0.3821	0.3816	0.3582	0.3285	0.2998	0.2740	32	72	0.0054	0.0055	0.0050	0.0042	0.0033	0.0024	77
28	0.3565	0.3559	0.3336	0.3055	0.2783	0.2537	33	73	0.0048	0.0049	0.0044	0.0037	0.0029	0.0020	78
29	0.3320	0.3314	0.3102	0.2836	0.2579	0.2346	34	74	0.0042	0.0043	0.0039	0.0032	0.0025	0.0017	79
30	0.3086	0.3080	0.2880	0.2629	0.2386	0.2166	35	75	0.0037	0.0038	0.0035	0.0029	0.0022	0.0015	80
31	0.2864	0.2857	0.2670	0.2434	0.2205	0.1998	36	76	0.0033	0.0034	0.0031	0.0025	0.0019	0.0012	81
32	0.2654	0.2647	0.2472	0.2250	0.2035	0.1840	37	77	0.0029	0.0030	0.0027	0.0022	0.0017	0.0010	82
33	0.2455	0.2449	0.2285	0.2078	0.1876	0.1694	38	78	0.0026	0.0027	0.0024	0.0020	0.0015	0.0009	83
34	0.2269	0.2264	0.2110	0.1916	0.1728	0.1557	39	79	0.0023	0.0024	0.0021	0.0017	0.0013	0.0007	84
35	0.2094	0.2089	0.1947	0.1766	0.1591	0.1430	40	80	0.0020	0.0021	0.0019	0.0015	0.0011	0.0006	85
36	0.1931	0.1926	0.1794	0.1626	0.1463	0.1313	41	81	0.0018	0.0019	0.0017	0.0014	0.0010	0.0005	86
37	0.1779	0.1775	0.1652	0.1496	0.1344	0.1204	42	82	0.0015	0.0016	0.0015	0.0012	0.0008	0.0004	87
38	0.1637	0.1633	0.1520	0.1375	0.1234	0.1104	43	83	0.0014	0.0015	0.0013	0.0011	0.0007	0.0004	88
39	0.1505	0.1502	0.1397	0.1263	0.1132	0.1011	44	84	0.0012	0.0013	0.0012	0.0009	0.0006	0.0003	89
40	0.1382	0.1380	0.1283	0.1160	0.1038	0.0926	45	85	0.0010	0.0011	0.0010	0.0008	0.0006	0.0002	90
41	0.1269	0.1267	0.1178	0.1064	0.0951	0.0847	46	86	0.0009	0.0010	0.0009	0.0007	0.0005	0.0002	91
42	0.1164	0.1162	0.1081	0.0975	0.0871	0.0774	47	87	0.0008	0.0009	0.0008	0.0007	0.0004	0.0002	92
43	0.1066	0.1065	0.0990	0.0893	0.0797	0.0707	48	88	0.0007	0.0008	0.0007	0.0006	0.0004	0.0001	93
44	0.0976	0.0976	0.0907	0.0817	0.0728	0.0645	49	89	0.0006	0.0007	0.0007	0.0005	0.0003	0.0001	94
45	0.0893	0.0893	0.0830	0.0748	0.0665	0.0588	50	90	0.0005	0.0006	0.0006	0.0005	0.0003	0.0001	95
46	0.0817	0.0817	0.0759	0.0683	0.0607	0.0536	51	91	0.0005	0.0005	0.0005	0.0004	0.0003	0.0001	96
47	0.0746	0.0747	0.0694	0.0624	0.0554	0.0488	52	92	0.0004	0.0005	0.0005	0.0004	0.0002	0.0001	97
48	0.0681	0.0682	0.0633	0.0569	0.0505	0.0444	53	93	0.0004	0.0004	0.0004	0.0003	0.0002	0.0001	98
49	0.0621	0.0622	0.0578	0.0519	0.0459	0.0403	54	94	0.0003	0.0004	0.0004	0.0003	0.0002	0.0001	99
50	0.0566	0.0567	0.0526	0.0472	0.0417	0.0365	55	95	0.0003	0.0003	0.0003	0.0003	0.0002	0.0000	100
51	0.0515	0.0516	0.0479	0.0430	0.0379	0.0331	56	96	0.0002	0.0003	0.0003	0.0003	0.0002	0.0000	101
52	0.0468	0.0470	0.0436	0.0390	0.0344	0.0299	57	97	0.0002	0.0003	0.0003	0.0002	0.0001	0.0000	102
53	0.0426	0.0427	0.0396	0.0354	0.0311	0.0270	58	98	0.0002	0.0002	0.0002	0.0002	0.0001	0.0000	103
54	0.0386	0.0388	0.0359	0.0321	0.0282	0.0244	59	99	0.0002	0.0002	0.0002	0.0002	0.0001	0.0000	104
55	0.0350	0.0352	0.0326	0.0291	0.0254	0.0219	60	100	0.0002	0.0002	0.0002	0.0002	0.0001	0.0000	105
56	0.0317	0.0318	0.0295	0.0263	0.0229	0.0197	61	101	0.0001	0.0002	0.0002	0.0002	0.0001	0.0000	106
57	0.0287	0.0288	0.0267	0.0237	0.0206	0.0176	62	102	0.0001	0.0002	0.0002	0.0001	0.0001	0.0000	107
58	0.0259	0.0260	0.0241	0.0214	0.0185	0.0157	63	103	0.0001	0.0001	0.0001	0.0001	0.0001	0.0000	108
59	0.0234	0.0235	0.0217	0.0192	0.0166	0.0140	64	104	0.0001	0.0001	0.0001	0.0001	0.0001	0.0000	109
60	0.0210	0.0212	0.0195	0.0172	0.0148	0.0125	65	105	0.0001	0.0001	0.0001	0.0001	0.0001	0.0	110

EXHIBIT IV-F (cont'd)

SELECT DOWRIES PAYABLE ON REMARRIAGE @ 3.5%/6.0%

AGE	0	1	2	3	4	ULT	AGE	AGE	0	1	2	3	4	ULT	AGE
16	1.0159	0.9928	0.9666	0.9358	0.9018	0.8659	21	61	0.0281	0.0270	0.0244	0.0213	0.0182	0.0153	66
17	0.9916	0.9676	0.9383	0.9042	0.8672	0.8292	22	62	0.0250	0.0240	0.0217	0.0189	0.0160	0.0134	67
18	0.9641	0.9393	0.9073	0.8703	0.8310	0.7913	23	63	0.0222	0.0213	0.0192	0.0167	0.0141	0.0117	68
19	0.9337	0.9083	0.8740	0.8346	0.7935	0.7526	24	64	0.0197	0.0189	0.0170	0.0147	0.0124	0.0102	69
20	0.9006	0.8749	0.8388	0.7976	0.7552	0.7135	25	65	0.0174	0.0168	0.0151	0.0130	0.0108	0.0088	70
21	0.8654	0.8396	0.8021	0.7596	0.7164	0.6743	26	66	0.0154	0.0149	0.0133	0.0114	0.0095	0.0076	71
22	0.8284	0.8027	0.7642	0.7209	0.6774	0.6354	27	67	0.0136	0.0131	0.0117	0.0100	0.0082	0.0066	72
23	0.7901	0.7646	0.7256	0.6820	0.6385	0.5969	28	68	0.0120	0.0116	0.0103	0.0088	0.0072	0.0056	73
24	0.7508	0.7258	0.6868	0.6432	0.6001	0.5592	29	69	0.0106	0.0102	0.0091	0.0077	0.0062	0.0048	74
25	0.7111	0.6867	0.6479	0.6048	0.5625	0.5225	30	70	0.0093	0.0090	0.0080	0.0067	0.0054	0.0041	75
26	0.6714	0.6477	0.6095	0.5672	0.5258	0.4870	31	71	0.0082	0.0079	0.0070	0.0059	0.0047	0.0035	76
27	0.6319	0.6090	0.5717	0.5305	0.4904	0.4529	32	72	0.0072	0.0070	0.0062	0.0051	0.0040	0.0030	77
28	0.5931	0.5711	0.5349	0.4950	0.4563	0.4203	33	73	0.0063	0.0061	0.0054	0.0045	0.0035	0.0025	78
29	0.5551	0.5342	0.4993	0.4608	0.4237	0.3893	34	74	0.0055	0.0054	0.0048	0.0039	0.0030	0.0021	79
30	0.5182	0.4984	0.4649	0.4281	0.3926	0.3598	35	75	0.0048	0.0047	0.0042	0.0034	0.0026	0.0018	80
31	0.4827	0.4639	0.4319	0.3968	0.3631	0.3320	36	76	0.0042	0.0042	0.0037	0.0030	0.0023	0.0015	81
32	0.4485	0.4309	0.4005	0.3672	0.3352	0.3058	37	77	0.0037	0.0037	0.0032	0.0026	0.0019	0.0013	82
33	0.4159	0.3994	0.3707	0.3392	0.3090	0.2812	38	78	0.0033	0.0032	0.0028	0.0023	0.0017	0.0011	83
34	0.3850	0.3695	0.3425	0.3127	0.2844	0.2583	39	79	0.0028	0.0028	0.0025	0.0020	0.0015	0.0009	84
35	0.3557	0.3413	0.3159	0.2880	0.2613	0.2368	40	80	0.0025	0.0025	0.0022	0.0018	0.0013	0.0007	85
36	0.3281	0.3147	0.2909	0.2648	0.2398	0.2169	41	81	0.0022	0.0022	0.0019	0.0015	0.0011	0.0006	86
37	0.3021	0.2897	0.2675	0.2431	0.2198	0.1984	42	82	0.0019	0.0019	0.0017	0.0013	0.0009	0.0005	87
38	0.2778	0.2664	0.2457	0.2229	0.2012	0.1813	43	83	0.0017	0.0017	0.0015	0.0012	0.0008	0.0004	88
39	0.2551	0.2445	0.2253	0.2042	0.1840	0.1654	44	84	0.0014	0.0015	0.0013	0.0010	0.0007	0.0003	89
40	0.2339	0.2242	0.2064	0.1868	0.1680	0.1508	45	85	0.0013	0.0013	0.0012	0.0009	0.0006	0.0003	90
41	0.2142	0.2053	0.1888	0.1707	0.1533	0.1373	46	86	0.0011	0.0012	0.0010	0.0008	0.0005	0.0002	91
42	0.1959	0.1878	0.1726	0.1557	0.1397	0.1249	47	87	0.0010	0.0010	0.0009	0.0007	0.0005	0.0002	92
43	0.1789	0.1715	0.1575	0.1420	0.1271	0.1134	48	88	0.0008	0.0009	0.0008	0.0006	0.0004	0.0002	93
44	0.1632	0.1564	0.1436	0.1293	0.1155	0.1029	49	89	0.0007	0.0008	0.0007	0.0006	0.0004	0.0001	94
45	0.1487	0.1426	0.1307	0.1176	0.1049	0.0933	50	90	0.0006	0.0007	0.0006	0.0005	0.0003	0.0001	95
46	0.1353	0.1298	0.1189	0.1068	0.0951	0.0844	51	91	0.0005	0.0006	0.0006	0.0004	0.0003	0.0001	96
47	0.1230	0.1180	0.1080	0.0969	0.0862	0.0763	52	92	0.0005	0.0005	0.0005	0.0004	0.0003	0.0001	97
48	0.1117	0.1071	0.0980	0.0878	0.0780	0.0688	53	93	0.0004	0.0005	0.0004	0.0004	0.0002	0.0001	98
49	0.1013	0.0971	0.0888	0.0795	0.0704	0.0620	54	94	0.0004	0.0004	0.0004	0.0003	0.0002	0.0001	99
50	0.0917	0.0880	0.0804	0.0718	0.0635	0.0558	55	95	0.0003	0.0004	0.0004	0.0003	0.0002	0.0000	100
51	0.0830	0.0796	0.0727	0.0648	0.0572	0.0502	56	96	0.0003	0.0003	0.0003	0.0003	0.0002	0.0000	101
52	0.0749	0.0719	0.0656	0.0584	0.0515	0.0450	57	97	0.0002	0.0003	0.0003	0.0002	0.0002	0.0000	102
53	0.0676	0.0649	0.0591	0.0526	0.0462	0.0403	58	98	0.0002	0.0003	0.0003	0.0002	0.0001	0.0000	103
54	0.0609	0.0585	0.0533	0.0473	0.0414	0.0360	59	99	0.0002	0.0002	0.0002	0.0002	0.0001	0.0000	104
55	0.0548	0.0526	0.0479	0.0424	0.0371	0.0321	60	100	0.0002	0.0002	0.0002	0.0002	0.0001	0.0000	105
56	0.0492	0.0473	0.0430	0.0380	0.0331	0.0285	61	101	0.0002	0.0002	0.0002	0.0002	0.0001	0.0000	106
57	0.0441	0.0424	0.0385	0.0340	0.0295	0.0253	62	102	0.0001	0.0002	0.0002	0.0001	0.0001	0.0000	107
58	0.0395	0.0380	0.0345	0.0303	0.0262	0.0224	63	103	0.0001	0.0002	0.0002	0.0001	0.0001	0.0000	108
59	0.0353	0.0340	0.0308	0.0270	0.0233	0.0198	64	104	0.0001	0.0002	0.0001	0.0001	0.0001	0.0000	109
60	0.0315	0.0303	0.0274	0.0240	0.0206	0.0174	65	105	0.0001	0.0001	0.0001	0.0001	0.0001	0.0	110

EXHIBIT IV-G

AUTOMATIC SURVIVORSHIP BENEFIT @ 3.5%/0.0%, 0.0% BY AGE OF CLAIMANT & AGE DIFFERENCE (SPOUSE-CLAIMANT)

AGE	-5	-4	-3	-2	-1	0	AGE	AGE	-5	-4	-3	-2	-1	0	AGE
16	1.730	1.690	1.650	1.609	1.569	1.529	16	61	4.585	4.363	4.143	3.925	3.711	3.500	61
17	1.784	1.742	1.701	1.659	1.618	1.577	17	62	4.591	4.364	4.139	3.917	3.698	3.483	62
18	1.839	1.796	1.753	1.710	1.667	1.624	18	63	4.592	4.359	4.129	3.902	3.679	3.460	63
19	1.895	1.851	1.806	1.762	1.717	1.671	19	64	4.586	4.348	4.113	3.882	3.654	3.432	64
20	1.953	1.907	1.861	1.815	1.767	1.719	20	65	4.573	4.331	4.091	3.855	3.624	3.398	65
21	2.013	1.966	1.918	1.869	1.818	1.767	21	66	4.554	4.306	4.062	3.822	3.588	3.359	66
22	2.075	2.025	1.975	1.923	1.870	1.816	22	67	4.527	4.275	4.027	3.784	3.546	3.315	67
23	2.138	2.086	2.032	1.977	1.921	1.864	23	68	4.493	4.237	3.985	3.739	3.499	3.265	68
24	2.203	2.147	2.091	2.033	1.974	1.914	24	69	4.453	4.193	3.936	3.689	3.447	3.211	69
25	2.269	2.211	2.151	2.089	2.027	1.964	25	70	4.407	4.144	3.886	3.634	3.390	3.153	70
26	2.337	2.275	2.212	2.148	2.083	2.017	26	71	4.355	4.089	3.829	3.576	3.330	3.092	71
27	2.407	2.342	2.276	2.208	2.140	2.071	27	72	4.300	4.031	3.769	3.514	3.267	3.028	72
28	2.479	2.411	2.341	2.270	2.199	2.126	28	73	4.238	3.967	3.704	3.447	3.199	2.961	73
29	2.552	2.481	2.408	2.334	2.259	2.183	29	74	4.170	3.897	3.632	3.375	3.127	2.890	74
30	2.627	2.552	2.476	2.398	2.320	2.241	30	75	4.093	3.819	3.553	3.297	3.050	2.815	75
31	2.703	2.624	2.545	2.464	2.382	2.299	31	76	4.007	3.733	3.467	3.212	2.968	2.736	76
32	2.780	2.698	2.614	2.530	2.444	2.359	32	77	3.914	3.639	3.376	3.123	2.883	2.654	77
33	2.858	2.772	2.685	2.597	2.508	2.419	33	78	3.813	3.541	3.280	3.031	2.794	2.570	78
34	2.937	2.848	2.757	2.665	2.572	2.479	34	79	3.708	3.439	3.182	2.937	2.704	2.484	79
35	3.017	2.924	2.829	2.733	2.637	2.540	35	80	3.601	3.336	3.083	2.842	2.614	2.398	80
36	3.098	3.000	2.902	2.802	2.702	2.601	36	81	3.492	3.231	2.982	2.746	2.522	2.312	81
37	3.179	3.077	2.975	2.871	2.767	2.663	37	82	3.380	3.124	2.880	2.648	2.430	2.226	82
38	3.260	3.154	3.047	2.940	2.832	2.723	38	83	3.266	3.015	2.776	2.551	2.339	2.141	83
39	3.341	3.231	3.120	3.008	2.896	2.784	39	84	3.152	2.906	2.674	2.455	2.250	2.058	84
40	3.422	3.307	3.192	3.076	2.959	2.843	40	85	3.039	2.800	2.574	2.363	2.164	1.977	85
41	3.502	3.383	3.263	3.143	3.022	2.902	41	86	2.925	2.693	2.475	2.270	2.077	1.899	86
42	3.582	3.458	3.334	3.209	3.084	2.960	42	87	2.807	2.583	2.371	2.173	1.989	1.822	87
43	3.661	3.533	3.404	3.274	3.145	3.016	43	88	2.685	2.468	2.264	2.075	1.902	1.746	88
44	3.739	3.606	3.472	3.338	3.204	3.071	44	89	2.562	2.353	2.158	1.981	1.820	1.673	89
45	3.815	3.677	3.538	3.400	3.261	3.124	45	90	2.442	2.243	2.061	1.896	1.744	1.603	90
46	3.889	3.746	3.602	3.459	3.316	3.174	46	91	2.327	2.141	1.972	1.815	1.670	1.538	91
47	3.960	3.813	3.664	3.516	3.369	3.223	47	92	2.219	2.045	1.885	1.736	1.600	1.479	92
48	4.030	3.877	3.724	3.571	3.419	3.268	48	93	2.114	1.950	1.798	1.658	1.534	1.426	93
49	4.097	3.939	3.781	3.624	3.467	3.311	49	94	2.009	1.854	1.711	1.585	1.474	1.378	94
50	4.162	3.999	3.836	3.673	3.512	3.351	50	95	1.904	1.759	1.630	1.517	1.418	1.333	95
51	4.224	4.055	3.887	3.720	3.553	3.388	51	96	1.799	1.668	1.553	1.453	1.367	1.292	96
52	4.282	4.108	3.935	3.762	3.591	3.421	52	97	1.701	1.585	1.484	1.396	1.320	1.254	97
53	4.336	4.157	3.978	3.801	3.625	3.450	53	98	1.613	1.511	1.422	1.345	1.278	1.218	98
54	4.385	4.201	4.017	3.835	3.654	3.475	54	99	1.535	1.445	1.368	1.300	1.239	1.183	99
55	4.430	4.240	4.051	3.864	3.678	3.494	55	100	1.466	1.389	1.320	1.259	1.202	1.148	100
56	4.469	4.274	4.080	3.887	3.697	3.508	56	101	1.406	1.338	1.277	1.219	1.165	1.109	101
57	4.503	4.303	4.103	3.906	3.710	3.517	57	102	1.353	1.293	1.235	1.180	1.125	1.062	102
58	4.532	4.326	4.121	3.919	3.718	3.521	58	103	1.303	1.249	1.194	1.138	1.076	0.997	103
59	4.555	4.344	4.134	3.926	3.721	3.519	59	104	1.253	1.207	1.151	1.089	1.009	0.890	104
60	4.573	4.356	4.141	3.929	3.719	3.512	60	105	1.198	1.162	1.100	1.021	0.902	0.695	105

EXHIBIT IV-G (cont'd)

AUTOMATIC SURVIVORSHIP BENEFIT @ 3.5%/0.0%, 6.0% BY AGE OF CLAIMANT & AGE DIFFERENCE (SPOUSE-CLAIMANT)

AGE	-5	-4	-3	-2	-1	0	AGE	AGE	-5	-4	-3	-2	-1	0	AGE
16	4.330	4.208	4.088	3.972	3.858	3.746	16	61	8.254	7.726	7.218	6.730	6.262	5.815	61
17	4.458	4.332	4.208	4.087	3.969	3.854	17	62	8.159	7.629	7.118	6.629	6.160	5.712	62
18	4.587	4.456	4.328	4.202	4.080	3.958	18	63	8.055	7.522	7.010	6.519	6.050	5.602	63
19	4.718	4.582	4.449	4.320	4.189	4.058	19	64	7.940	7.405	6.892	6.401	5.932	5.485	64
20	4.852	4.712	4.574	4.436	4.296	4.156	20	65	7.814	7.279	6.766	6.275	5.807	5.362	65
21	4.990	4.845	4.698	4.550	4.401	4.251	21	66	7.678	7.143	6.630	6.141	5.675	5.233	66
22	5.132	4.977	4.820	4.662	4.503	4.343	22	67	7.532	6.997	6.486	5.999	5.537	5.097	67
23	5.274	5.108	4.940	4.771	4.602	4.432	23	68	7.377	6.844	6.336	5.852	5.392	4.957	68
24	5.415	5.238	5.059	4.880	4.700	4.520	24	69	7.214	6.684	6.179	5.699	5.244	4.814	69
25	5.558	5.369	5.180	4.989	4.799	4.609	25	70	7.045	6.519	6.018	5.542	5.092	4.667	70
26	5.702	5.503	5.302	5.101	4.901	4.701	26	71	6.872	6.350	5.854	5.383	4.939	4.520	71
27	5.850	5.639	5.427	5.216	5.005	4.796	27	72	6.696	6.178	5.688	5.224	4.785	4.372	72
28	5.999	5.777	5.555	5.333	5.112	4.893	28	73	6.515	6.004	5.519	5.061	4.629	4.223	73
29	6.150	5.917	5.682	5.451	5.220	4.991	29	74	6.327	5.823	5.345	4.894	4.470	4.073	74
30	6.301	6.056	5.812	5.568	5.327	5.089	30	75	6.131	5.634	5.164	4.722	4.307	3.921	75
31	6.452	6.195	5.940	5.686	5.435	5.187	31	76	5.926	5.437	4.976	4.544	4.142	3.767	76
32	6.602	6.334	6.067	5.803	5.541	5.284	32	77	5.713	5.234	4.785	4.365	3.974	3.611	77
33	6.751	6.471	6.193	5.918	5.647	5.380	33	78	5.495	5.028	4.592	4.186	3.807	3.456	78
34	6.899	6.607	6.318	6.032	5.751	5.475	34	79	5.276	4.824	4.401	4.008	3.642	3.303	79
35	7.044	6.741	6.440	6.144	5.853	5.567	35	80	5.060	4.622	4.214	3.833	3.480	3.154	80
36	7.187	6.872	6.560	6.254	5.953	5.658	36	81	4.847	4.423	4.029	3.662	3.322	3.008	81
37	7.327	7.000	6.677	6.360	6.049	5.745	37	82	4.635	4.226	3.845	3.492	3.166	2.867	82
38	7.462	7.123	6.790	6.462	6.141	5.828	38	83	4.425	4.031	3.665	3.327	3.016	2.730	83
39	7.592	7.242	6.897	6.559	6.229	5.907	39	84	4.221	3.842	3.492	3.169	2.872	2.598	84
40	7.716	7.354	6.999	6.651	6.311	5.980	40	85	4.023	3.661	3.326	3.018	2.734	2.473	85
41	7.835	7.461	7.095	6.737	6.388	6.048	41	86	3.830	3.484	3.165	2.871	2.600	2.354	86
42	7.947	7.563	7.186	6.819	6.460	6.112	42	87	3.636	3.307	3.003	2.722	2.467	2.239	87
43	8.054	7.658	7.271	6.894	6.527	6.170	43	88	3.441	3.128	2.839	2.576	2.340	2.129	88
44	8.152	7.746	7.349	6.962	6.586	6.221	44	89	3.250	2.952	2.681	2.438	2.220	2.023	89
45	8.242	7.825	7.418	7.022	6.637	6.265	45	90	3.067	2.788	2.538	2.313	2.110	1.924	90
46	8.322	7.895	7.478	7.074	6.681	6.301	46	91	2.895	2.638	2.407	2.198	2.006	1.834	91
47	8.393	7.956	7.530	7.117	6.717	6.329	47	92	2.735	2.498	2.283	2.086	1.908	1.752	92
48	8.455	8.008	7.574	7.153	6.745	6.350	48	93	2.584	2.363	2.161	1.979	1.818	1.679	93
49	8.507	8.052	7.609	7.180	6.765	6.364	49	94	2.436	2.230	2.043	1.879	1.737	1.614	94
50	8.551	8.086	7.636	7.199	6.777	6.369	50	95	2.291	2.100	1.933	1.787	1.662	1.554	95
51	8.584	8.111	7.653	7.209	6.780	6.367	51	96	2.149	1.979	1.831	1.703	1.593	1.498	96
52	8.606	8.125	7.660	7.209	6.774	6.355	52	97	2.019	1.869	1.739	1.627	1.531	1.447	97
53	8.617	8.129	7.656	7.199	6.759	6.334	53	98	1.902	1.771	1.658	1.560	1.475	1.399	98
54	8.614	8.119	7.640	7.178	6.732	6.303	54	99	1.800	1.685	1.587	1.501	1.423	1.352	99
55	8.599	8.098	7.613	7.145	6.695	6.262	55	100	1.710	1.611	1.524	1.446	1.374	1.305	100
56	8.572	8.064	7.574	7.102	6.647	6.211	56	101	1.632	1.545	1.466	1.394	1.324	1.254	101
57	8.531	8.018	7.524	7.047	6.589	6.149	57	102	1.562	1.485	1.412	1.342	1.271	1.193	102
58	8.478	7.961	7.462	6.982	6.521	6.079	58	103	1.497	1.428	1.357	1.287	1.209	1.112	103
59	8.414	7.893	7.390	6.907	6.443	5.999	59	104	1.433	1.372	1.301	1.223	1.126	0.987	104
60	8.340	7.814	7.309	6.823	6.357	5.911	60	105	1.363	1.314	1.235	1.139	1.000	0.768	105

EXHIBIT IV-G (cont'd)

AUTOMATIC SURVIVORSHIP BENEFIT @ 3.5%/6.0%, 6.0% BY AGE OF CLAIMANT & AGE DIFFERENCE (SPOUSE-CLAIMANT)

AGE	-5	-4	-3	-2	-1	0	AGE	AGE	-5	-4	-3	-2	-1	0	AGE
16	51.031	47.818	44.741	41.802	39.000	36.334	16	61	15.388	14.235	13.139	12.101	11.118	10.192	61
17	49.851	46.710	43.703	40.830	38.091	35.505	17	62	14.835	13.713	12.647	11.636	10.681	9.781	62
18	48.701	45.630	42.691	39.882	37.224	34.694	18	63	14.291	13.199	12.162	11.179	10.251	9.378	63
19	47.578	44.577	41.703	38.977	36.376	33.897	19	64	13.755	12.692	11.683	10.729	9.828	8.981	64
20	46.483	43.548	40.759	38.091	35.543	33.114	20	65	13.226	12.193	11.213	10.286	9.413	8.593	65
21	45.412	42.565	39.835	37.222	34.725	32.344	21	66	12.705	11.701	10.749	9.851	9.006	8.212	66
22	44.390	41.603	38.928	36.367	33.919	31.586	22	67	12.192	11.217	10.294	9.424	8.606	7.839	67
23	43.389	40.658	38.037	35.526	33.127	30.840	23	68	11.687	10.741	9.848	9.006	8.216	7.475	68
24	42.406	39.729	37.160	34.699	32.348	30.107	24	69	11.192	10.276	9.412	8.598	7.835	7.120	69
25	41.440	38.817	36.298	33.887	31.583	29.387	25	70	10.709	9.822	8.986	8.200	7.464	6.776	70
26	40.491	37.920	35.452	33.089	30.832	28.681	26	71	10.237	9.380	8.573	7.814	7.105	6.442	71
27	39.558	37.039	34.622	32.307	30.096	27.990	27	72	9.778	8.950	8.171	7.441	6.757	6.119	72
28	38.643	36.175	33.807	31.540	29.375	27.312	28	73	9.331	8.532	7.781	7.078	6.419	5.807	73
29	37.744	35.327	33.008	30.787	28.667	26.648	29	74	8.894	8.124	7.400	6.723	6.091	5.505	74
30	36.862	34.494	32.222	30.048	27.973	25.997	30	75	8.464	7.722	7.026	6.376	5.772	5.214	75
31	35.995	33.676	31.451	29.323	27.292	25.358	31	76	8.041	7.328	6.660	6.038	5.462	4.931	76
32	35.143	32.872	30.694	28.611	26.623	24.731	32	77	7.627	6.942	6.303	5.711	5.163	4.658	77
33	34.306	32.082	29.950	27.912	25.967	24.117	33	78	7.222	6.568	5.960	5.396	4.876	4.396	78
34	33.484	31.307	29.220	27.225	25.323	23.514	34	79	6.832	6.209	5.630	5.095	4.600	4.146	79
35	32.676	30.545	28.503	26.552	24.691	22.922	35	80	6.458	5.865	5.316	4.807	4.338	3.907	80
36	31.882	29.796	27.799	25.890	24.070	22.340	36	81	6.100	5.537	5.015	4.532	4.088	3.681	81
37	31.102	29.061	27.106	25.239	23.460	21.769	37	82	5.756	5.221	4.726	4.269	3.850	3.467	82
38	30.334	28.337	26.426	24.600	22.860	21.207	38	83	5.427	4.919	4.450	4.019	3.625	3.265	83
39	29.579	27.625	25.755	23.970	22.269	20.654	39	84	5.113	4.633	4.190	3.785	3.413	3.074	84
40	28.835	26.924	25.095	23.350	21.688	20.109	40	85	4.816	4.362	3.946	3.565	3.215	2.895	85
41	28.104	26.234	24.446	22.740	21.116	19.573	41	86	4.532	4.106	3.714	3.355	3.026	2.728	86
42	27.383	25.555	23.807	22.140	20.552	19.045	42	87	4.257	3.857	3.489	3.151	2.844	2.572	87
43	26.674	24.887	23.178	21.548	19.997	18.525	43	88	3.991	3.615	3.269	2.955	2.675	2.425	88
44	25.976	24.228	22.558	20.965	19.450	18.012	44	89	3.737	3.383	3.062	2.775	2.519	2.288	89
45	25.286	23.578	21.945	20.389	18.909	17.506	45	90	3.497	3.169	2.875	2.613	2.376	2.160	90
46	24.606	22.936	21.341	19.821	18.376	17.006	46	91	3.275	2.975	2.707	2.464	2.243	2.045	91
47	23.935	22.303	20.744	19.260	17.850	16.513	47	92	3.071	2.797	2.549	2.323	2.120	1.942	92
48	23.272	21.678	20.156	18.708	17.331	16.026	48	93	2.881	2.628	2.398	2.190	2.008	1.850	93
49	22.619	21.062	19.577	18.163	16.819	15.546	49	94	2.699	2.465	2.253	2.068	1.907	1.769	94
50	21.976	20.455	19.005	17.625	16.314	15.072	50	95	2.524	2.310	2.121	1.958	1.817	1.696	95
51	21.341	19.856	18.441	17.094	15.815	14.603	51	96	2.357	2.166	2.001	1.858	1.735	1.629	96
52	20.714	19.265	17.883	16.569	15.321	14.140	52	97	2.205	2.038	1.893	1.769	1.661	1.568	97
53	20.094	18.680	17.332	16.049	14.833	13.682	53	98	2.071	1.925	1.799	1.691	1.596	1.511	98
54	19.481	18.101	16.786	15.536	14.350	13.228	54	99	1.953	1.827	1.717	1.621	1.535	1.456	99
55	18.875	17.528	16.246	15.027	13.872	12.780	55	100	1.851	1.741	1.645	1.558	1.478	1.400	100
56	18.275	16.962	15.712	14.524	13.399	12.335	56	101	1.761	1.666	1.578	1.497	1.420	1.340	101
57	17.682	16.402	15.184	14.027	12.931	11.895	57	102	1.681	1.597	1.515	1.437	1.358	1.269	102
58	17.097	15.849	14.662	13.535	12.469	11.461	58	103	1.607	1.532	1.453	1.374	1.285	1.175	103
59	16.519	15.303	14.147	13.050	12.012	11.032	59	104	1.532	1.468	1.388	1.299	1.189	1.032	104
60	15.949	14.765	13.639	12.572	11.562	10.609	60	105	1.451	1.401	1.312	1.202	1.046	0.790	105

EXHIBIT IV-H

CLAIMANT ANNUITIES & COMMUTATION FUNCTIONS @ 3.5%/0.0%

AGE	ANNUITY	DX	NX	AGE	ANNUITY	DX	NX
16	24.193	100000.0	2469328.	61	12.424	17108.2	221110.
17	24.047	96520.8	2369328.	62	12.071	16227.4	204002.
18	23.900	93147.7	2272807.	63	11.718	15369.1	187775.
19	23.750	89882.6	2179660.	64	11.363	14532.7	172406.
20	23.596	86726.7	2089777.	65	11.009	13717.4	157873.
21	23.438	83676.6	2003050.	66	10.655	12922.9	144155.
22	23.276	80728.1	1919374.	67	10.302	12148.9	131233.
23	23.109	77879.6	1838646.	68	9.950	11395.5	119084.
24	22.936	75130.9	1760766.	69	9.599	10663.1	107688.
25	22.756	72480.6	1685635.	70	9.249	9952.3	97025.
26	22.569	69926.6	1613155.	71	8.899	9263.7	87073.
27	22.374	67465.3	1543228.	72	8.550	8597.5	77809.
28	22.172	65091.3	1475763.	73	8.203	7952.4	69212.
29	21.963	62799.6	1410671.	74	7.861	7326.7	61259.
30	21.747	60585.6	1347872.	75	7.526	6719.6	53933.
31	21.525	58446.0	1287286.	76	7.200	6131.9	47213.
32	21.297	56377.6	1228840.	77	6.881	5565.6	41081.
33	21.062	54377.4	1172463.	78	6.571	5022.7	35515.
34	20.820	52442.4	1118085.	79	6.268	4505.7	30493.
35	20.573	50570.2	1065643.	80	5.970	4016.3	25987.
36	20.319	48757.9	1015073.	81	5.681	3554.8	21971.
37	20.059	47003.1	966315.	82	5.400	3121.3	18416.
38	19.793	45302.8	919312.	83	5.128	2717.4	15295.
39	19.521	43654.4	874009.	84	4.864	2344.7	12577.
40	19.244	42055.9	830354.	85	4.607	2003.8	10233.
41	18.961	40506.1	788298.	86	4.361	1692.9	8229.
42	18.673	39002.9	747792.	87	4.133	1410.8	6536.
43	18.379	37544.5	708789.	88	3.923	1158.9	5125.
44	18.079	36128.3	671245.	89	3.725	938.8	3966.
45	17.776	34752.0	635117.	90	3.536	750.2	3028.
46	17.467	33414.3	600365.	91	3.355	590.7	2277.
47	17.154	32113.9	566950.	92	3.189	457.2	1687.
48	16.837	30849.8	534836.	93	3.039	347.4	1229.
49	16.515	29620.6	503987.	94	2.907	258.9	882.
50	16.188	28424.9	474366.	95	2.793	189.3	623.
51	15.858	27261.0	445941.	96	2.696	135.8	434.
52	15.525	26127.3	418680.	97	2.611	95.8	298.
53	15.188	25022.7	392553.	98	2.536	66.6	202.
54	14.849	23945.1	367530.	99	2.466	45.7	136.
55	14.508	22894.1	343585.	100	2.402	31.0	90.
56	14.164	21868.6	320691.	101	2.341	20.7	59.
57	13.820	20867.9	298823.	102	2.280	13.7	38.
58	13.473	19891.9	277955.	103	2.215	9.0	24.
59	13.125	18940.1	258063.	104	2.143	5.8	15.
60	12.775	18012.3	239123.	105	2.054	3.8	10.

EXHIBIT IV-H (cont'd)

CLAIMANT ANNUITIES & COMMUTATION FUNCTIONS @ 3.5%/6.0%

AGE	ANNUITY	DX	NX	AGE	ANNUITY	DX	NX
16	130.513	100000.0	13101253.	61	23.532	235488.3	5659216.
17	126.575	102312.0	13001253.	62	22.408	236765.3	5423728.
18	122.745	104660.7	12898941.	63	21.322	237697.6	5186963.
19	119.015	107051.6	12794280.	64	20.274	238246.5	4949265.
20	115.375	109490.4	12687229.	65	19.263	238374.6	4711019.
21	111.823	111978.1	12577738.	66	18.289	238041.4	4472644.
22	108.358	114514.3	12465760.	67	17.352	237211.2	4234603.
23	104.974	117102.1	12351246.	68	16.449	235852.0	3997392.
24	101.666	119747.2	12234144.	69	15.579	233935.2	3761540.
25	98.430	122454.4	12114397.	70	14.742	231439.9	3527604.
26	95.261	125227.9	11991942.	71	13.935	228352.6	3296164.
27	92.159	128069.4	11866714.	72	13.156	224646.9	3067812.
28	89.124	130976.6	11738645.	73	12.408	220258.3	2843165.
29	86.159	133947.1	11607668.	74	11.694	215102.6	2622907.
30	83.263	136978.1	11473721.	75	11.014	209118.2	2407804.
31	80.437	140069.3	11336743.	76	10.370	202278.7	2198686.
32	77.679	143218.8	11196674.	77	9.758	194610.5	1996407.
33	74.988	146425.9	11053455.	78	9.179	186164.6	1801797.
34	72.365	149688.3	10907029.	79	8.627	177023.4	1615632.
35	69.807	153005.1	10757341.	80	8.101	167264.9	1438609.
36	67.314	156373.3	10604336.	81	7.602	156925.8	1271344.
37	64.886	159790.1	10447962.	82	7.130	146055.7	1114418.
38	62.521	163250.5	10288172.	83	6.684	134786.8	968362.
39	60.220	166749.0	10124922.	84	6.262	123278.9	833575.
40	57.981	170281.5	9958173.	85	5.860	111676.5	710297.
41	55.802	173847.0	9787891.	86	5.486	100007.5	598620.
42	53.682	177439.1	9614044.	87	5.144	88342.0	498613.
43	51.621	181052.6	9436605.	88	4.833	76923.5	410271.
44	49.618	184676.8	9255553.	89	4.547	66052.0	333347.
45	47.673	188299.7	9070876.	90	4.277	55949.9	267295.
46	45.784	191914.6	8882576.	91	4.026	46699.4	211345.
47	43.951	195512.4	8690661.	92	3.797	38315.5	164646.
48	42.171	199085.6	8495149.	93	3.594	30858.0	126330.
49	40.444	202622.1	8296063.	94	3.417	24375.6	95472.
50	38.768	206109.4	8093441.	95	3.264	18889.1	71097.
51	37.143	209530.1	7887332.	96	3.134	14364.9	52207.
52	35.569	212865.9	7677802.	97	3.022	10745.7	37843.
53	34.044	216097.8	7464936.	98	2.921	7921.1	27097.
54	32.570	219199.6	7248838.	99	2.828	5761.7	19176.
55	31.143	222152.8	7029638.	100	2.741	4138.4	13414.
56	29.764	224934.2	6807486.	101	2.658	2937.3	9276.
57	28.432	227520.0	6582552.	102	2.574	2061.8	6338.
58	27.144	229890.9	6355032.	103	2.486	1432.4	4277.
59	25.899	232025.2	6125141.	104	2.386	985.6	2844.
60	24.695	233898.9	5893115.	105	2.265	672.1	1859.

EXHIBIT V

COMPARISON OF PROPOSED AND CURRENT ANNUITY VALUES

Age	Spouse's Age Dist.	Spouse's Annuity		Claimant's Age Dist.	Claimant's Annuity		Spouse's Age Dist.	Spouse's Dowry
		Proposed	Current		Proposed	Current		
16	.000000	8.488	0.0	.000041	24.193	24.203	.000068	0.5778
17	.000000	8.898	0.0	.000134	24.047	24.053	.000199	0.5863
18	.000000	9.442	0.0	.000259	23.900	23.900	.000368	0.5922
19	.000000	10.085	0.0	.000416	23.750	23.744	.000580	0.5853
20	.000937	10.751	7.715	.000610	23.596	23.583	.000936	0.5694
21	.001189	11.427	8.360	.000848	23.438	23.419	.001188	0.5459
22	.001631	12.064	9.031	.001136	23.276	23.250	.001629	0.5212
23	.002099	12.664	9.717	.001464	23.109	23.076	.002087	0.4986
24	.002577	13.250	10.404	.001827	22.936	22.896	.002574	0.4755
25	.003055	13.814	11.071	.002220	22.756	22.710	.003051	0.4511
26	.003494	14.348	11.726	.002628	22.569	22.516	.003489	0.4263
27	.003899	14.851	12.365	.003051	22.374	22.315	.003894	0.4011
28	.004302	15.319	12.973	.003494	22.172	22.107	.004297	0.3754
29	.004694	15.744	13.564	.003959	21.963	21.892	.004688	0.3502
30	.005079	16.126	14.129	.004443	21.747	21.671	.005073	0.3260
31	.005442	16.465	14.655	.004943	21.525	21.444	.005436	0.3029
32	.005786	16.764	15.135	.005460	21.297	21.209	.005779	0.2800
33	.006136	17.024	15.573	.005994	21.062	20.968	.006129	0.2598
34	.006496	17.243	15.964	.006544	20.820	20.721	.006488	0.2399
35	.006972	17.423	16.300	.007112	20.573	20.467	.006864	0.2211
36	.007279	17.565	16.592	.007689	20.319	20.206	.007270	0.2036
37	.007718	17.669	16.836	.008277	20.059	19.938	.007709	0.1873
38	.008185	17.740	17.009	.008884	19.793	19.644	.008175	0.1723
39	.008684	17.778	17.141	.009510	19.521	19.384	.008674	0.1583
40	.009217	17.785	17.228	.010157	19.244	19.099	.009206	0.1454
41	.009796	17.763	17.270	.010836	18.961	18.808	.009784	0.1335
42	.010418	17.714	17.291	.011548	18.673	18.511	.010406	0.1225
43	.011075	17.639	17.258	.012278	18.379	18.209	.011062	0.1124
44	.011766	17.541	17.220	.013025	18.079	17.902	.011752	0.1031
45	.012486	17.421	17.145	.013784	17.776	17.590	.012471	0.0945
46	.013237	17.281	17.035	.014551	17.467	17.273	.013221	0.0866
47	.014020	17.122	16.907	.015326	17.154	16.951	.014003	0.0794
48	.014822	16.945	16.743	.016103	16.837	16.625	.014804	0.0727
49	.015640	16.750	16.559	.016880	16.515	16.295	.015621	0.0665
50	.016471	16.540	16.373	.017653	16.188	15.963	.016452	0.0608
51	.017319	16.314	16.148	.018411	15.858	15.629	.017298	0.0556
52	.018172	16.074	15.903	.019155	15.525	15.294	.018150	0.0508
53	.019017	15.821	15.654	.019886	15.188	14.955	.018994	0.0464
54	.019847	15.555	15.365	.020602	14.849	14.613	.019823	0.0423
55	.020653	15.277	15.084	.021299	14.508	14.266	.020628	0.0385

EXHIBIT V (cont'd)

Age	Spouse's Age Dist.	Spouse's Annuity		Claimant's Age Dist.	Claimant's Annuity		Spouse's Age Dist.	Spouse's Dowry
		Proposed	Current		Proposed	Current		
56	.021437	14.988	14.780	.021997	14.164	13.916	.021411	0.0351
57	.022190	14.688	14.470	.022688	13.820	13.561	.022163	0.0319
58	.022883	14.378	14.141	.023339	13.473	13.203	.022855	0.0289
59	.023500	14.058	13.788	.023937	13.125	12.844	.023471	0.0262
60	.024029	13.729	13.448	.024473	12.775	12.486	.024000	0.0237
61	.024415	13.390	13.078	.024933	12.424	12.128	.024385	0.0214
62	.024652	13.043	12.693	.025307	12.071	11.770	.024622	0.0193
63	.024788	12.688	12.340	.025582	11.718	11.412	.024758	0.0173
64	.024827	12.327	11.950	.025744	11.363	11.054	.024797	0.0155
65	.024773	11.960	11.555	.025781	11.009	10.696	.024743	0.0138
66	.024626	11.588	11.179	.025628	10.655	10.377	.024596	0.0123
67	.024393	11.212	10.780	.025289	10.302	9.978	.024364	0.0109
68	.024084	10.833	10.380	.024832	9.950	9.618	.024054	0.0096
69	.023702	10.451	9.968	.024275	9.599	9.260	.023674	0.0085
70	.023257	10.068	9.577	.023634	9.249	8.902	.023228	0.0074
71	.022766	9.683	9.170	.022955	8.899	8.546	.022738	0.0065
72	.022238	9.297	8.762	.022248	8.550	8.191	.022211	0.0056
73	.021655	8.912	8.359	.021483	8.203	7.838	.021629	0.0049
74	.021013	8.530	7.958	.020663	7.861	7.487	.020988	0.0042
75	.020311	8.155	7.565	.019785	7.526	7.140	.020286	0.0037
76	.019543	7.787	7.176	.018847	7.200	6.796	.019520	0.0032
77	.018710	7.426	6.791	.017856	6.881	6.454	.018688	0.0027
78	.017819	7.073	6.415	.016817	6.571	6.117	.017798	0.0023
79	.016875	6.729	6.047	.015741	6.268	5.787	.016854	0.0020
80	.015886	6.393	5.694	.014638	5.970	5.467	.015867	0.0017
81	.014865	6.067	5.357	.013518	5.681	5.162	.014847	0.0014
82	.013812	5.754	5.038	.012392	5.400	4.875	.013796	0.0012
83	.012734	5.452	4.733	.011266	5.128	4.602	.012719	0.0010
84	.011640	5.160	4.437	.010155	4.864	4.335	.011626	0.0009
85	.010545	4.876	4.139	.009072	4.607	4.066	.010532	0.0007
86	.009462	4.606	3.859	.008028	4.361	3.810	.009450	0.0006
87	.008394	4.356	3.601	.007023	4.133	3.570	.008384	0.0005
88	.007347	4.124	3.365	.006061	3.923	3.345	.007338	0.0004
89	.006342	3.906	3.149	.005156	3.725	3.136	.006334	0.0004
90	.005400	3.698	2.951	.004326	3.536	2.946	.005393	0.0003
91	.004535	3.501	2.780	.003580	3.355	2.776	.004530	0.0002
92	.003752	3.321	2.620	.002918	3.189	2.624	.003747	0.0002
93	.003050	3.161	2.493	.002337	3.039	2.490	.003046	0.0002
94	.002432	3.020	2.373	.001838	2.907	2.372	.002429	0.0001
95	.001903	2.896	2.268	.001418	2.793	2.266	.001901	0.0001
Average:		12.115	11.577		12.273	11.970		0.0527