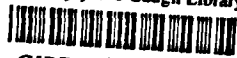


Major Gen Sir G. Balfour K.C.B.
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R E P O R T

ON A

SCHEME FOR GRANTING PENSIONS

TO THE

WIDOWS AND ORPHANS

OF

OFFICERS ENTERING THE STAFF CORPS,

AND OF

CHAPLAINS AND MEDICAL OFFICERS

ON THE

INDIAN ESTABLISHMENT.

BY MAJOR-GENERAL HANNYNGTON, F.S.S.,
ASSOCIATE MEMBER OF THE INSTITUTE OF ACTUARIES.

1870.

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To
 Major General Pears, C.B.,
 Military Secretary.

Sir,

In pursuance of the instructions conveyed in your Letter, No. 1,105, dated 25th February 1869, I have the honour to submit a Report on the probable financial operation of Colonel Norman's proposal to establish a system of pensions for the benefit of widows and children of Officers of the several Staff Corps.

2. The proposal is thus stated by Colonel Norman :—" Looking to the rates of pension formerly given, and striking somewhere about the average of the three Presidencies, I think the following would be a fair scale of pension for widows and orphans—

| | £ |
|---|-------------|
| " Widow of a Colonel - - - - - | 240 a year. |
| " Lieutenant-Colonel - - - - - | 200 " |
| " Major - - - - - | 160 " |
| " Captain - - - - - | 120 " |
| " Lieutenant - - - - - | 70 " |
| " Orphan, male or female, under five years of age - | 24 " |
| " Male orphan from 5 to 19, or any earlier age at which provided for - - - - - | 40 " |
| " Female orphan from 5 until married - - - - - | 40 " |

" As I do not think Government need be put to more expense than a payment equivalent to the scale of pensions given in the British Army to widows and orphans, I would suggest that the donations and subscriptions should be limited to such amount as might fairly meet the cost of the increase of pensions."

3. The scheme, thus briefly but sufficiently indicated, differs from the plan of the several funds now existing for like purposes in India, to an extent that requires the preparation of a new set of tables, and to this is owing the seeming delay in the submission of this Report.

4. As a basis for calculation the following elements are necessary :—

I. The rates of mortality for,—

| | |
|---------------------|-----|
| Officers - - - - - | (a) |
| Wives - - - - - | (b) |
| Widows - - - - - | (c) |
| Sons - - - - - | (d) |
| Daughters - - - - - | (e) |

II. The rates of marriage for,—

| | |
|---------------------|-----|
| Widows - - - - - | (a) |
| Daughters - - - - - | (b) |

III. The rate of interest.

IV. The rate of exchange.

5. On these heads I have to offer some remarks.

I. (a). *The mortality among Officers.* The most complete analysis hitherto made is that by Mr. Neison from the records of the India Office for the Bengal Army. The Table XI. of his Report (1849) on the Bengal Military Fund,

exhibits a rate of mortality much lower than had previously been assigned. This table I have now used. Mr. Neison's remarks on it, page 18 of the Report, are as follows,—

“In connexion with this table, it may be stated that the rate of mortality resulting from the data given in Table IX., and as set forth in the combined form for quinquennial periods of life in Table X. was adopted as the basis of calculation up to 60; but from that age upwards, the rate of mortality prevailing among the male sex in England and Wales, advanced two years, was taken as the datum for interpolation at every interval of five years. It will be found that the rate of mortality, shown by Mr. Christie's table for retired Officers beyond the age of 60 approximates very closely to that for the male sex in England and Wales so advanced, that is, for age 65, taking the rate of mortality for age 67, and for age 70, the rate for age 72. The mortality of the more recent retirements is more favourable than that of Mr. Christie's table, but those of the earlier retirements, less so. This, then, is sufficient to explain the formation of Table XI., from which it will be seen that one half of the cadets appointed to the service at the age of 17 will be alive between the ages of 46 and 47, while of the general population of England and Wales one half of those entering on their 17th year would live to attain their 63d year, showing a difference of 17 years. Of those Officers of the Bengal Army who live to attain their 30th year, one half would pass their 56th year, while in England and Wales one half would pass their 66th year. Again, of those Officers attaining their 60th year, one half would survive their 64th year, but in England and Wales one half would survive their 68th year of life; and of those Officers living to the age of 50, one half would still live till the age of 69, but in England and Wales one half would live till the age of 73. Thus showing that the deterioration of life among Officers of the Bengal military service is greater at the younger age, when compared with the male sex generally of this country, than at the older ages; and as life advances the difference in the duration of life in the two classes, gradually becomes less and less.”

I have cited this explanation, not only because it is interesting in itself, but also to show that as the table includes the retired Officers, it must be regarded as giving a full value to the subscriptions of Officers serving in India, and is therefore favourable to those Officers.

I. (b). *Mortality of Wives.*—I have used Mr. G. Davies's table as modified by him for the Bengal Military Fund. Another table, based on a larger experience, has been prepared by Mr. S. Brown, and is published in his able Report on the Madras Military Fund. But as the marginal table shows, the expectation of

| Age. | Expectation of Life. | | |
|------|----------------------|-----------------|------------|
| | English. | Officers Wives. | |
| | Dr. Farr. | S. Brown. | G. Davies. |
| 15 | 43·90 | 41·20 | 39·09 |
| 20 | 40·29 | 39·95 | 35·97 |
| 25 | 37·04 | 38·07 | 32·78 |
| 30 | 33·81 | 35·68 | 29·57 |
| 35 | 30·59 | 32·88 | 26·58 |
| 40 | 27·34 | 29·91 | 23·73 |
| 45 | 24·06 | 26·78 | 21·04 |
| 50 | 20·75 | 23·42 | 18·41 |
| 55 | 17·43 | 19·93 | 16·00 |
| 60 | 14·34 | 16·45 | 13·57 |

life deduced from Mr. Brown's table exceeds that of the female population of England as computed by Dr. Farr from his English Life Table No. 3. I have, therefore, hesitated to adopt Mr. Brown's table. Without making question as to the fact, it is yet not easily credible that ladies resident in India are more healthy than the general population of England. Mr. Brown's data include both wives and widows, and in respect of the former, he says (Report 1863, page 57),—“By far the largest proportion of lives exposed to risk was found in the former list, but the mortality as might

“be supposed, was excessive at the earlier ages.” In the same Report, page 19, Mr. Brown says, “the results deduced will greatly modify the conclusions hitherto prevailing, though they must be used with caution till the observations of a few years longer, collected with greater care and accuracy, either confirm or correct them.” I cite these passages, not by way of impugning Mr. Brown’s conclusions, but only to explain the hesitation above expressed.

I. (c). *Mortality of Widows*.—I have used this as determined by Mr. Neison, on the experience of the Bengal Military Fund. It nearly agrees with that of the Madras Fund, as deduced by Mr. S. Brown,* and is for the present purpose quite sufficient.

I. (d). *Mortality of Sons*.—Some years ago it was ascertained, from returns furnished by the Officers of the Bengal Army,

| | Indian (unadjusted). | Farr, No. 3, Males. | Milne Carlisle. |
|----|-------------------------|------------------------|--------------------|
| 0 | 10,000 | 10,000 | 10,000 |
| 5 | 7,359 | 7,237 | 6,797 |
| 10 | 7,136 | 6,899 | 6,460 |
| 15 | 6,921 | 6,728 | 6,300 |
| 20 | — | 6,504 | 6,090 |

that in infancy and early childhood children born and brought up in India are quite as healthy as those born in England. Such children are usually sent home at about the age of five, and are thenceforth subject to the same risks as those born in England. I have, therefore, adopted Dr. Farr’s English

Life Table No. 3, which is even more favourable to life than the well known Carlisle Table, as is shown in the margin.

I. (e). *Mortality of Daughters*.—In like manner, and for the same reasons, I have adopted Dr. Farr’s English Life Table No. 3, Females.

II. (a). *Rate of remarriage of Widows*.—For this I have used the rate deduced by Mr. Neison from the experience of the Bengal Military Fund. The pensions of widows are suspended during remarriage, and it is probable that this rule has a tendency to check remarriage. Mr. Neison, in a report on the Madras Medical Fund (1856), expresses an opinion that “the effect of a regulation permitting widows on remarriage to continue in receipt of one half of the amount of pension payable during widowhood, will be to accelerate remarriage 50 per cent. beyond the ratio entering into the construction” of the Bengal Table. On this view it might seem advisable to adopt the principle of granting half pensions during remarriage, as is now done in the Bombay Fund. But even admitting that under such a rule, the remarriage rate would be increased one half, this would not balance the cost of the half pensions; and, if adopted, the rates of contribution would have to be considerably raised. For this reason, I have thought it right to follow the example of the existing Bengal and Madras Funds, and, consequently, the pensions of widows, as herein set forth, are valued on the supposition that they are not payable during remarriage. There is a risk of second incumbency, perhaps two in a hundred of the widows may be expected to come on again, but they re-enter at more advanced ages, and against this risk there is a compensation, arising from the fact that many widows remarry into the service. For these the usual subscriptions and donations are paid, but they do not on second widowhood receive two pensions from the same fund. One or other of the pensions, the least of course, is forfeited, and in such cases the risk will usually have been more than repaid. I have therefore not attempted to estimate the second widowhood risk, being satisfied that it is not large.

II. (b). *The rate of marriage of Daughters*.—There is no part of the subject that has so anxiously engaged my attention as this. It appears, as above shown,

* Report on the Madras Military Fund, page 26, art. 46.

that the Indian widows' rate of remarriage can be no sufficient index to that of the marriage of spinsters whose fathers are living. The widow forfeits a pension in possession, and is thereby restrained from remarriage; but the daughter forfeits only a reversionary pension of small value. Her position as to marriage is free, and must be nearly the same as that of English spinsters in like circumstances. What is that position? On putting this question to Dr. Farr, he kindly placed in my hands the Fourteenth Annual Report of the Registrar General, wherein, page viii., is given a table (V. c.) showing, for each fifth year of age, the proportion married to 100 living, as deduced from the census of 1851. In this table, it will be observed that the spinsters' marriage rate is very much below the widows' marriage rate. The table is given in full, and the interpolated rate for each year of age is shown in the Appendix. Considering, however, that this general rate includes all classes of the population, and that among special classes there may be special rates, I have, with a view to safety, reduced the rate by one fifth. On this subject a letter to Dr. Farr, and his reply, are entered in the Appendix. The departure from the Indian widows' rate is wide, but the data on which it rests are unquestionable.

III. The rate of interest used is four and a half per cent. per annum; and,

IV. The rate of exchange is one shilling and elevenpence for one rupee.

6. Owing to the various conditions and contingencies that enter into such calculations as those in hand, the formulæ are more intricate than in the ordinary cases of life assurance. But they have been so fully explained by Mr. Griffith Davies, by Mr. S. Brown, by Mr. Neison, and others, that any exposition of them here is unnecessary. A summary of the formulæ is given in the Appendix, as they may be useful for future reference.

7. As to the amount of widows' pensions, the average of the existing funds gives,—

| Colonel. | Lieutenant-Colonel. | Major. | Captain. | Lieutenant. |
|----------|---------------------|----------|----------|-------------|
| £ 241 | £ 203 | £ 165 | £ 123 | £ 96 |

Colonel Norman has proposed,—

| | | | | |
|----------|----------|----------|----------|---------|
| £ 240 | £ 200 | £ 160 | £ 120 | £ 70 |
|----------|----------|----------|----------|---------|

The widows' pensions granted in the British Army are, under ordinary conditions,—

| Colonel. | Lieutenant-Colonel. | Major. | Captain. | Lieutenant. |
|----------|---------------------|---------|----------|-------------|
| £ 100 | £ 80 | £ 70 | £ 50 | £ 40 |

And similar rates, under like conditions, will be granted to the widows of the Staff Corps Officers. It is therefore only necessary to supplement these to something near the extent proposed by Colonel Norman. The following rates, having a common difference of 30*l.*, will be convenient,—

| | | | | |
|----------|----------|----------|---------|---------|
| £ 160 | £ 130 | £ 100 | £ 70 | £ 40 |
|----------|----------|----------|---------|---------|

and to these the contributions have been adapted.

8. The subscriptions of married Officers depend on rank, age, difference of ages of husband and wife, and the amounts of widows' pensions for the several

grades. The combinations of these elements are manifold, and, though it would be possible to fix a special rate for each particular case, such a course would be very inconvenient. Taking the differences of age between husband and wife in

| | | | |
|--------------------|---|----------|--|
| Lieutenant | - | 5 years. | the several ranks as noted in the margin,* it will |
| Captain | - | 6 " | be safe to assume that the differences of age |
| Major | - | 7 " | advance with the rank, and that the subscriptions |
| Lieutenant-Colonel | - | 8 " | necessary to cover the increments of pension are |
| General Officer | - | 10 " | to be adjusted accordingly. |

9. It is, however, to be observed that the rates of subscription payable in India could not possibly be maintained by retired Officers, and provision must therefore be made for unavoidable reduction of rate at the more advanced ages. To this end I have supposed that retirement occurs at the age of 49, and that the subscriptions are then reduced to one half. To compensate for these inadequate rates, donations on promotion and on marriage must be imposed. These have been strictly computed, and, in accordance with the results, a gradually increasing scale has been assigned, sufficient to supply the defect of the subscriptions, and to afford a margin for safety. The details of the calculation are shown in the Appendix, and the scale of subscriptions and donations is as follows, for married Officers only:—

| Rank. | Donations. | | Monthly Subscriptions. | | Widows' Pensions. | |
|-------------------------|--------------|---------------|------------------------|---------|-------------------|-----------------|
| | On Marriage. | On Promotion. | India. | Europe. | India, monthly. | Europe, yearly. |
| | Rs. | Rs. | Rs. | £ s. d. | Rs. | £ |
| General Officers - - | 4,000 | 700 | 50 | 2 10 0 | 140 | 160 |
| Lieutenant-Colonels - - | 2,000 | 400 | 40 | 2 0 0 | 113 | 130 |
| Majors - - - - | 1,000 | 200 | 30 | 1 10 0 | 87 | 100 |
| Captains - - - - | 500 | 100 | 20 | 1 0 0 | 60 | 70 |
| Lieutenants - - - - | 250 | — | 10 | 0 10 0 | 35 | 40 |

N.B.—The Europe rates of subscription are payable after retirement, and during furlough, and whenever full Indian pay is not received.

The pensions do not in any way interfere with the pensions ordinarily granted by the Government to the widows of Officers.

10. As regards the annuities for orphans, there have been some differences of rule in the several Presidencies. In Madras and Bombay, orphans with mothers living receive one-third less than those who have lost both parents. Such a plan introduces questions involving three lives, and specially for this reason is undesirable. In Bengal a similar end, reduction of charge, is effected by the simpler method of giving smaller pensions without distinction of case. In all the Funds the pensions during infancy and childhood are smaller than at more advanced ages. For males they cease at or under the age of 21, and for females they continue till death or marriage. The actual rates may be represented thus:—

Males - 20% till six, 30% till twelve, 45% till twenty-one.

Females - 20% ,, 30% ,, 45% till death or marriage.

11. The compassionate allowances granted by the British Government to the children of deceased Officers are, yearly.—

| | | | | |
|----------|---------------------|--------|----------|-------------|
| Colonel. | Lieutenant-Colonel. | Major. | Captain. | Lieutenant. |
| £ | £ | £ | £ | £ |
| 16 | 16 | 14 | 12 | 10 |

and these ordinarily cease at the age of 21 years.

12. Taking these allowances into consideration, the supplementary rates to be provided by the subscriptions of Officers, without distinction of rank, may be as follows:—

| | | | | | |
|-------------------------------|---|---|---|---|----|
| Age, under 6 | - | - | - | - | £ |
| „ from 6 till 12 | - | - | - | - | 20 |
| „ „ 12 till 21 | - | - | - | - | 30 |
| „ „ 21 till death or marriage | - | - | - | - | 45 |

13. Before assigning the rates of contribution for children, it is needful to consider how far these may be aided by the income to be derived from the subscriptions of unmarried Officers.

14. The Orphan Funds established in the several Presidencies did not originally grant any personal benefits to Officers, but subscription to them was an absolute condition of service. The present scheme supposes the like arrangement. Colonel Norman says, “As no Officer who is not married could benefit by the fund, I would require no donation from a bachelor joining the Staff Corps or from a bachelor on promotion from one rank to another, and his subscription I think should not exceed half that of married Officers without children.”

| | | | |
|--------------------|---------|---|-------------|
| | | | 2 per cent. |
| | | | Rate. |
| | Rs. | | Rs. |
| General Officer | - 1,295 | - | 25 |
| Lieutenant-Colonel | - 827 | - | 16 |
| Major | - 640 | - | 12 |
| Captain | - 374 | - | 7 |
| Lieutenant | - 225 | - | 4 |

15. The marginal table shows the Staff Corps pay of the several grades, and also the amount, omitting fractions, of a two per cent. rate thereon. This (as will be seen) is considerably below the half of the the married rates now imposed. It is not

excessive, and, being on a clearly intelligible principle, I would suggest that it be adopted. The scale of unmarried subscription will then be as follows:—

| | Monthly. | |
|--------------------|-----------|---------------------------|
| | In India. | In Europe, Half Rates. |
| | Rs. | £ s. d. |
| General Officer | - 25 | 1 4 0 |
| Lieutenant-Colonel | - 16 | 0 15 4 |
| Major | - 12 | 0 11 6 |
| Captain | - 7 | 0 6 8 |
| Lieutenant | - 4 | 0 3 10 |

16. The contributions of unmarried Officers, though they do not in the present scheme bring immediate personal advantage, are by no means to be regarded as unproductive, even to them. For, as will be seen, the final probability of marriage is large, and whenever marriage occurs then a substantial repayment follows. The loss, if it can ever be called a loss, affects comparatively few.

17. The proportions of married and unmarried Officers, existing together, as

| Year. | Married. | Single. | Proportion in 100. | |
|-------|----------|---------|--------------------|---------|
| | | | Marned. | Single. |
| 1825 | 513 | 846 | 38 | 62 |
| 1835 | 822 | 1,227 | 40 | 60 |
| 1845 | 1,141 | 1,922 | 37 | 63 |
| 1855 | 1,601 | 1,824 | 47 | 53 |

obtained from the records of the Bengal Fund, are entered in the margin. In the early years of the Fund the unmarried class was about two-thirds of the whole, and, perhaps, at last the proportions would become nearly equal. But when it is

considered, that of the single class, which includes most of the younger Officers, numbers will certainly marry, then it becomes evident that the *final* chance of marriage is large.

18. For the purpose here in view, namely, the distribution of income, as now to be explained, it will suffice to assume that the numbers of married and single are equal. And though it is not intended to make any distinction in the application of income to charge, it will yet be very convenient (as indicated in para. 13) to suppose that the contributions of unmarried Officers go to supply a rate in aid of the payments required to make provision for orphans.

19. The records of the Indian Funds show, as noted in the margin, the proportions of children *living*

| Year. | Presidency. | Fathers. | Sons. | Daughters. |
|-------|-------------|----------|-------|------------|
| 1856 | Bengal - - | 1,664 | 1,430 | 1,590 |
| 1858 | Madras - - | 1,133 | 1,389 | 1,471 |
| | | 2,797 | 2,810 | 3,061 |

with fathers, and it hence appears that each married Officer will have two children for whom subscriptions will be constantly payable. With a view to safety, it will

be prudent to assume an average of two and a half children to each father.

20. The *average* amount of subscription to be derived from each unmarried Officer cannot be exactly computed, for the proportion of Officers in each grade of the Staff Corps is indeterminate. I had occasion to consider this subject in a memorandum on the Staff Corps Pension List, and I then submitted the following remarks:—

“The normal distribution of the Staff Corps, deduced from the Life Table,

| | | |
|---------------------|-----|-----|
| General Officers | - | 403 |
| Lieutenant-Colonels | - | 423 |
| Majors | - - | 284 |
| Captains | - - | 469 |
| Lieutenants | - - | 921 |

2,500

“without regard to retirements is here shown. The effect of retirements would be to reduce the higher and to increase the lower ranks. For the purpose in view this distribution is therefore safe.” Here also this distribution may serve, and it may be noted that, retirements, coupled with increase in the junior grades, would have the effect of *reducing* the amount obtainable

from unmarried members. The full rates of subscription applied to the numbers above exhibited would yield an average of Rs. 10.88, say, Rs. 10, monthly for each unmarried Officer; but looking to the circumstances, it would be unwise to reckon on more than three-fourths of this amount. Accepting this as a fair conclusion, taking the married and single as numerically equal, and assigning $2\frac{1}{2}$ children to each married Officer, the “rate in aid” will be Rs. 3, three rupees for each child, without distinction of sex. Allowing, however, that the claims of daughters will always exceed those of sons, because the latter go off at 21, while the former remain till marriage or death, the distribution may with sufficient caution, be made $3\frac{1}{2}$ rupees for daughters and $2\frac{1}{2}$ rupees for sons. These rates may, accordingly, be applied in relief of the family contributions.

21. In order that the monthly subscriptions for children may be kept within convenient bounds, it is further necessary to impose a small donation on the birth of each child. The amount may be fixed at will, under the sole condition that the donation and monthly subscription together shall be sufficient to provide the benefits promised to the child. As it is not intended that the family contributions shall be lowered during residence in Europe, I have supposed that donations of

Rs. 156 on the birth of a son, and of Rs. 250 on the birth of a daughter, will not be deemed excessive. To make them smaller than this would necessarily increase the monthly subscription, a result which I desire to avoid.

22. The scale of contributions for children may now be stated:—

| | In India. | | | | In Europe. | | | | | |
|-------------------|-----------------|----|-----------------------|----|-----------------|----|-----------------------|---|----|----|
| | Birth Donation. | | Monthly Subscription. | | Birth Donation. | | Monthly Subscription. | | | |
| | R. | A. | R. | A. | £ | s. | d. | £ | s. | d. |
| For Sons - - - | 156 | 0 | 1 | 0 | 15 | 0 | 0 | 0 | 2 | 0 |
| For Daughters - - | 250 | 0 | 2 | 8 | 24 | 0 | 0 | 0 | 5 | 0 |

The details of the calculation are shown in the Appendix. There is a small risk for posthumous children, which I have not overlooked, but it cannot be strictly estimated, and it does not seem to require any special provision.

23. Having thus far considered the adaptation of means to ends, with much fuller information than was available when the old Indian Service Funds were instituted; guided, indeed, by the experience of those Funds, and warned by their errors,—having also had careful regard to the important condition* that, by the system of pensions herein set forth, the Government of India should not be put to any expense beyond that of the scale of pensions given in the British Army, I am enabled to express a reasonably confident opinion that the scheme proposed by Colonel Norman, from which I have not essentially deviated, may safely be carried out. I observe that it is very strongly recommended by the Government of India.

* See para. 2.

24. There are many matters of detail with which I am unwilling to burden this Report. They will be found in the Draft of Rules hereto appended.

25. The scheme includes the Medical and Clerical branches of the service. I have not found it needful to insist on any special scale of contributions for members of these classes, the scale being so graduated that it will meet all ordinary cases. Provision for exceptional cases should be made by requiring extra donations, rather than by special rates of subscription, whereby the accounts of Paymasters or other disbursing officers might be embarrassed.

26. It must here be noticed that the scheme, as proposed, does not include a grant of passage money to widows and orphans coming from India to England. In some cases it is probable that aid of this kind may be required, and I may mention two methods by which it could be provided. One way is, that an Officer might be permitted to effect a life assurance, the payment for which to be made at once or in a few instalments, the sum to be assured not exceeding Rs. 1,500, and the amount to be payable to his widow or his children on his decease. The other way is, that the Government should make the requisite advance, to be repaid by deductions from the pensions. The former is, I think, the preferable mode, and I have therefore supplied a Table, by which the value of an assurance may be calculated. The sum being small, the payment should be made in full within two years from the date of the policy; the instalments in arrear bearing interest at $4\frac{1}{2}$ per cent. As an instance, suppose an Officer, aged 35, wishes to secure Rs. 1,200, payable at his decease, he could effect this by an immediate payment of Rs. 486, or by instalments of about Rs. 21 monthly for

two years. It is obvious that this provision can be most economically made at the earliest period, and it is further to be remarked that the values in the Table are not dependent on survivorship; the sum assured will, therefore, belong to the Officer's estate, under all circumstances.

27. I have, in para. 6, noticed the peculiar complexity of the calculations required in this case, and here, as due to the late Mr. Griffith Davies, I beg leave to offer some extracts from his last, and hitherto unpublished, letter on the Indian Funds.

"All of them were originally founded without much regard to calculations as to the sufficiency of the contributions to provide for the claims that would ultimately come upon them. * * *

"I have had to investigate and report on the state of nearly all of them. * * *

"In making such investigations, I had but loose, indirect, and imperfect data, and was obliged to devise modes of calculation that, to the best of my knowledge and belief, had not been previously introduced into the calculation of contingencies, such as to embody the fraternal principle into the value of the future contributions; to consider the members, their wives and children, subject to different rates of mortality, and the females as subject to one rate of mortality while residing in India, and to another rate after retirement to this country as pensioners, and as subject to leave the Funds by marriage as well as by death, and I had therefore to introduce all these elements into my calculations."

28. The way thus cleared by Mr. Davies has been comparatively easy to his successors, and the data, though still incomplete, are greatly improved. I have been very anxious to establish the present scheme on a safe pecuniary basis, and to this end I have introduced a principle of some importance. The reduction of subscriptions paid in Europe is necessary, and the financial effect is considerable. Hitherto it has been assumed that the improvement of life by a change from tropical residence affords a sufficient compensation. I would, however, observe that the life table includes the home residents, and that consequently the apparent value of subscriptions payable in India is enhanced by this circumstance. I deem it very needful to provide against the foreseen reduction of subscriptions, and accordingly I have adjusted the payments to the supposition that from the age of 50 Officers will reside in Europe and contribute half rates only. The effect of this on the payments at the earlier ages is, as regards the individual Officer, inconsiderable, and to marriages at advanced ages it sets no real bar, for the required donations do not go beyond the probable means of the Officer. The pensions are on a moderate scale, and being only intended as safeguards from poverty, they should not, in extreme cases, become profitable investments, affording a cheap provision for young widows.

29. The stability of the scheme will depend on the adequacy of its resources. If it be self-supporting it will flourish, and will, to coming generations, prove a blessing. But how shall its condition at any time be known, for under a fair appearance there may be a worm at the root? I answer, by valuations to be made from time to time, and although it will not be at all needful that any special reserve or investment of money, as for the purposes of the institution, should be maintained, it will nevertheless be convenient and proper to have a

book account that will show the state of affairs. I do not, in fact, see how this could be omitted, for without it there could never be shown indisputable grounds for action in relation to the contributions on the one hand or to the benefits granted on the other, while it is desirable that the Government should exercise an absolute and clear-sighted control, having power to modify the scheme from time to time in accordance with the results of experience.

30. To effect a valuation certain data must be had. To procure and preserve such data, attention must be given, constant attention, not costly, not burdensome, the result useful always, and when for years patiently gathered, then of extreme value. Believing that if the scheme be carried out, so small a part of it as the keeping of necessary records will not be neglected, or rather that it will be, as I most earnestly recommend it may be, insisted on, I have given in the Appendix a Form of Register to be kept in some central office, either in India or in London. Similar subordinate registers should be kept in each Presidency, and a certified copy be sent periodically to the central office. To preserve uniformity, and as a material saving of time and labour, registers with printed headings might be prepared and supplied.

31. The extensive series of Tables hereto annexed will afford the solution of all technical questions that may arise, and I have only to express a hope that the calculations on which I have bestowed all the care in my power are such as may be trusted.

I have the honour to be,
 Sir,
 Your most obedient Servant,
 J. C. HANNYNGTON,
 Major General.

London, 7th June 1870.

APPENDIX.

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APPENDIX.

No. 479 of 1868.

Separate.

Military Department.

To the Right Honourable the Secretary of State for India.

SIR,

WE have the honour to forward Minutes by the Right Honourable the Governor General and the Honourable Colonel Norman on the subject of pensions to widows and orphans of officers entering the staff corps from the British Army, as well as of chaplains and medical officers under the new conditions of service.

2. We consider the necessity to secure a provision for the widows and orphans of the above officers to be most urgent, and we very earnestly recommend the proposals contained in the Minute of Colonel Norman to the favourable consideration of Her Majesty's Government.

We have, &c.,
(Signed) JOHN LAWRENCE.
W. R. MANSFIELD.
HENRY S. MAINE.
J. STRACHEY.
R. TEMPLE.
H. W. NORMAN.

Fort William,
The 14th December 1868.

Exd. M. Joseph.

MINUTE by the Honourable Colonel H. W. NORMAN, C.B., on the subject of Pensions to Widows and Orphans of Officers entering the Staff Corps from the British Army, as well as of Chaplains and Medical Officers under the new conditions of service.

ONE of the measures resolved on in connexion with the abolition of a local army for India was the transfer of the several Military and Orphan Funds in the three presidencies to the Government, and their gradual winding up.

By these funds, which were maintained by donations and subscriptions from the officers of the army, aided by not very large subscriptions from Government, pensions were provided for widows and for orphans, and some other advantages given, such as passage money on certain occasions, an income allowance of £50 a year to subalterns on furlough, and an outfit allowance to a sick officer going home.

The advantages, and the rates of subscription, and the rules, differed in all the presidencies, but in all a fair provision was secured for widows and orphans, mainly from the proceeds of the subscription of the officers themselves.

When the Government took over the funds, all advantages were guaranteed to the existing subscribers, who continued, subject to the previous rules as to rates of subscription and donation; but as no new subscribers were to be admitted, the funds would gradually expire.

The Staff Corps is now recruited from the British army, and it has been laid down that in the case of all officers so appointed, their widows and families will be granted a pension "not less than that to which they would be entitled under the provisions of the Royal Warrant of June 15th, 1855."

In communicating this decision, the Secretary of State remarked that it remained "to be decided from what funds those pensions will be provided."

It seems pretty clear, however, that this new pension list will be a charge on the State, while the pensions to widows and orphans formerly given, though far more adequate than the new scale, cost the State only a comparatively small sum in the shape of an annual subscription to each fund.

Annexed are the statements showing the amount of donations and subscriptions paid by officers, under the old system, to the funds of the three presidencies, and of the pensions given to widows and orphans.

There is also attached a copy of the pension scale of the British army, which now will be applicable to the families of officers entering the Staff Corps.

These pensions are manifestly inadequate to the support of the widows and children of gentlemen, and in the case of the Royal army, to avoid the scandal of widows having to be privately aided, to enable them to return home, a Queen's Widows' Fund has been in existence for many years, formed from subscriptions of officers, from which fund grants of money are given to widows to enable them to defray all their expenses till they leave India, and to pay their passage home.

It seems most desirable that some fund should be re-constituted by which the widows and legitimate orphans of officers now entering the Staff Corps should be secured from poverty, as is now the case with the families of officers who belonged to the late Indian army, and of the Civil Service; and in any scheme of the kind medical officers and chaplains might be appropriately included, as they were under the former system, subscribing and receiving advantages, according to their relative rank, with combatant officers.

But, as an improvement on the old system, I think the fund should be entirely a Government institution, with a uniform scale of donations, subscriptions, and pensions for the three presidencies. No advantages beyond pensions to widows and orphans are now needed, as the present system of Furlough Regulations should render it unnecessary for officers to require the aid previously given by funds when they proceeded home.

Looking to the rates of pensions formerly given, and striking somewhere about the average of the three presidencies, I think the following would be a fair scale of pension for widows and orphans :—

| | £ |
|---|-------------|
| Widow of a colonel - - - - | 240 a year. |
| ” ” lieutenant-colonel - - - - | 200 ” |
| ” ” major - - - - | 160 ” |
| ” ” captain - - - - | 120 ” |
| ” ” lieutenant - - - - | 70 ” |
| Orphan (male or female) under 5 years of age - | 24 ” |
| Male orphan from 5 to 19 or any earlier age at which provided for - - - - | 40 ” |
| Female orphan from 5 until married - - - - | 40 ” |

Under the old system a small marriage dower for girls, or apprentice fee for boys, was authorized, but this I think need not form a part of the new system.

I think if some such scale of pensions could be secured to the families of officers of the Staff Corps the respectability of the service would be increased, and the advantage of belonging to it more highly prized.

As I do not think Government need be put to more expense than a payment equivalent to the scale of pensions given in the British army to widows and orphans, I would suggest that the donations and subscriptions should be limited to such amount as might fairly meet the cost of the increase of pensions.

For those officers now in the Staff Corps who came from British regiments I would allow subscription or not to be optional, but I think it should be compulsory on all hereafter joining, as it used to be in the Indian army, and is now in the Civil Service.

As no officer who is not married could benefit by the fund I would require no donation from a bachelor joining the Staff Corps, or from a bachelor on promotion from one rank to another, and his subscription I think should not exceed half that of a married officer without children. From the married officer on joining the Staff Corps, or from a Staff Corps officer marrying, or a married officer on promotion, a donation might be exacted; and besides double the subscription of the bachelor in each grade, I think a monthly subscription for each child eligible to the benefits of pension might be exacted, as is now the case with subscribers to the late Bengal Orphan Fund.

What should be the scale of pensions and donations is a matter for an actuary, and probably could only be soundly reported on at home, and anything I could devise on the subject would probably be incorrect; but I think there would be no difficulty in doing this on the principles above proposed.

I would solicit the support of the Viceroy and of his Excellency's Council to the scheme I propose, or to some modification of it. The case of a chaplain's widow has already excited public attention, and necessitated a subscription on her behalf, and in a few years such cases will become numerous, and constant appeals come for charitable aid for widows and orphans left in a strange land with means utterly inadequate to support them. It was greatly to remedy this state of things that the old funds were established; and as I do not ask for an expenditure of public money, but merely for an organized system under government control, by which officers shall subscribe the equivalent between the government rate of pensions and those on a higher, but still moderate scale, I should hope that Her Majesty's Government would view the proposal with favour.

Calcutta,
The 4th December 1868.

H. W. NORMAN.

I.

STATEMENT of Donations paid by Subscribers to the Military Funds of the Three Presidencies.

| | BENGAL. | | | | | MADRAS. | | | | | BOMBAY. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------|-------------|---------------|-------------|---------------|--------------|-------------|---------------|-------------|---------------|--------------|-------------|---------------|------------------------|---------------|-------------|---------------|--------------|------|-----------|-------|------|-----------|-------|------|---------|-------|------|------------|-------|------|-----------|-------|------|-----------|-------|------|-----------|-------|------|---------|-------|------|-----------|-------|------|---------|-------|------|-----------|-------|------|
| | Married. | | Unmarried. | | | Married. | | Unmarried. | | | Married. | | Widows with Offspring. | | Unmarried. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | On joining. | On promotion. | On joining. | On promotion. | On marriage. | On joining. | On promotion. | On joining. | On promotion. | On marriage. | On joining. | On promotion. | On joining. | On promotion. | On joining. | On promotion. | On marriage. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Colonels - | Rs. 4,350 | As. 0 | P. 0 | Rs. 723 | As. 12 | P. 0 | Rs. 787 | As. 8 | P. 0 | Rs. 157 | As. 8 | P. 0 | Rs. 3,912 | As. 8 | P. 0 | Rs. 3,700 | As. 0 | P. 0 | Rs. 1,100 | As. 0 | P. 0 | Rs. 2,000 | As. 0 | P. 0 | Rs. 550 | As. 0 | P. 0 | Rs. *4,000 | As. 0 | P. 0 | Rs. 6,000 | As. 0 | P. 0 | Rs. 2,400 | As. 0 | P. 0 | Rs. 2,250 | As. 0 | P. 0 | Rs. 900 | As. 0 | P. 0 | Rs. 1,500 | As. 0 | P. 0 | Rs. 600 | As. 0 | P. 0 | Rs. 4,500 | As. 0 | P. 0 |
| Lieut.-Cols. - | 2,501 | 0 | 0 | 642 | 8 | 0 | 630 | 0 | 0 | 157 | 8 | 0 | 2,151 | 4 | 0 | 2,600 | 0 | 0 | 800 | 0 | 0 | 1,450 | 0 | 0 | 400 | 0 | 0 | 2,900 | 0 | 0 | 3,600 | 0 | 0 | 800 | 0 | 0 | 1,350 | 0 | 0 | 300 | 0 | 0 | 900 | 0 | 0 | 200 | 0 | 0 | 2,700 | 0 | 0 |
| Majors - | 1,452 | 0 | 0 | 517 | 8 | 0 | 472 | 8 | 0 | 135 | 0 | 0 | 1,190 | 0 | 0 | 1,800 | 0 | 0 | 600 | 0 | 0 | 1,050 | 0 | 0 | 300 | 0 | 0 | 2,100 | 0 | 0 | 2,800 | 0 | 0 | 1,000 | 0 | 0 | 1,050 | 0 | 0 | 380 | 0 | 0 | 700 | 0 | 0 | 250 | 0 | 0 | 2,100 | 0 | 0 |
| Captains - | 695 | 0 | 0 | 455 | 0 | 0 | 337 | 8 | 0 | 135 | 0 | 0 | 507 | 9 | 0 | 1,200 | 0 | 0 | 500 | 0 | 0 | 750 | 0 | 0 | 250 | 0 | 0 | 1,500 | 0 | 0 | 1,800 | 0 | 0 | 600 | 0 | 0 | 670 | 0 | 0 | 320 | 0 | 0 | 450 | 0 | 0 | 130 | 0 | 0 | 1,350 | 0 | 0 |
| Lieutenants - | 450 | 0 | 0 | 150 | 0 | 0 | 202 | 8 | 0 | 67 | 8 | 0 | 225 | 0 | 0 | 700 | 0 | 0 | 400 | 0 | 0 | 500 | 0 | 0 | 200 | 0 | 0 | 1,000 | 0 | 0 | 1,200 | 0 | 0 | 400 | 0 | 0 | 450 | 0 | 0 | 150 | 0 | 0 | 300 | 0 | 0 | 100 | 0 | 0 | 900 | 0 | 0 |
| Ensigns - | 300 | 0 | 0 | — | | | 135 | 8 | 0 | — | | | 150 | 0 | 0 | 800 | 0 | 0 | — | | | 800 | 0 | 0 | — | | | 600 | 0 | 0 | 800 | 0 | 0 | — | | | 300 | 0 | 0 | — | | | 200 | 0 | 0 | — | | | 600 | 0 | 0 |

* Marriage donations when the husband's age exceeds that of his wife by more than 8 years will be regulated by a disparity scale which became a rule in 1844.

II.

STATEMENT of Monthly Subscriptions to the Military Fund at the Three Presidencies for Widows.

| | BENGAL. | | | | MADRAS. | | | | BOMBAY. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------|-----------|------------|------------|------------|-----------|------------|------------|------------|-----------|------------|------------|------------|--------|--------|------|-----|-------|------|--------|-------|-------|-----|------|------|--------|-------|------|-----|-------|------|--------|-------|------|-----|------|------|
| | Married. | | Unmarried. | | Married. | | Unmarried. | | Married. | | Unmarried. | | | | | | | | | | | | | | | | | | | | | | | | | |
| | In India. | In Europe. | In India. | In Europe. | In India. | In Europe. | In India. | In Europe. | In India. | In Europe. | In India. | In Europe. | | | | | | | | | | | | | | | | | | | | | | | | |
| Colonels - | Rs. 62 | As. 8 | P. 0 | £ 3 | s. 15 | d. 0 | Rs. 28 | As. 2 | P. 0 | £ 1 | s. 13 | d. 9 | Rs. 63 | As. 13 | P. 3 | £ 1 | s. 17 | d. 6 | Rs. 42 | As. 8 | P. 10 | £ 1 | s. 5 | d. 0 | Rs. 64 | As. 8 | P. 0 | £ 1 | s. 17 | d. 6 | Rs. 43 | As. 0 | P. 0 | £ 1 | s. 5 | d. 0 |
| Lieut.-Colonels - | 45 | 0 | 0 | 2 | 10 | 0 | 20 | 4 | 0 | 1 | 2 | 6 | 40 | 12 | 9 | 1 | 10 | 0 | 27 | 3 | 2 | 1 | 0 | 0 | 34 | 8 | 0 | 1 | 10 | 0 | 23 | 0 | 0 | 1 | 0 | 0 |
| Majors - | 35 | 0 | 0 | 2 | 0 | 0 | 15 | 12 | 0 | 0 | 18 | 0 | 31 | 9 | 3 | 1 | 4 | 0 | 21 | 0 | 10 | 0 | 16 | 0 | 27 | 12 | 0 | 1 | 4 | 0 | 18 | 8 | 0 | 0 | 16 | 0 |
| Captains - | 20 | 0 | 0 | 1 | 6 | 3 | 9 | 0 | 0 | 0 | 11 | 10 | 18 | 6 | 11 | 0 | 15 | 9 | 12 | 4 | 7 | 0 | 10 | 6 | 17 | 0 | 0 | 0 | 15 | 9 | 11 | 4 | 0 | 0 | 10 | 6 |
| Lieutenants - | 12 | 8 | 0 | 0 | 16 | 3 | 5 | 10 | 0 | 0 | 7 | 4 | 11 | 2 | 0 | 0 | 9 | 9 | 7 | 6 | 8 | 0 | 6 | 6 | 9 | 12 | 0 | 0 | 9 | 9 | 6 | 8 | 0 | 0 | 6 | 6 |
| Ensigns - | 10 | 0 | 0 | 0 | 13 | 2 | 4 | 8 | 0 | 0 | 5 | 11 | 8 | 14 | 11 | 0 | 7 | 11 | 5 | 15 | 3 | 0 | 5 | 3 | 7 | 8 | 0 | 0 | 7 | 10½ | 5 | 0 | 0 | 0 | 5 | 3 |

III

STATEMENT of Monthly Subscriptions to the Bengal Military Orphan Fund.

| | Rs. As. P. | | In addition. | | Monthly. |
|--------------------|------------|--------|--|--------|------------|
| | Rs. | As. P. | Rs. | As. P. | Rs. As. P. |
| Colonel | 25 | 0 0 | For each male child until he attains the | | 1 0 0 |
| Lieutenant-Colonel | 20 | 0 0 | age of 19 years | | |
| Major | 15 | 0 0 | | | 3 0 0 |
| Captain | 10 | 0 0 | For each female child until marriage or | | |
| Lieutenant | 6 | 4 0 | death | | |
| Ensign | 5 | 0 0 | | | |

MADRAS.—There is no separate subscription in Madras, but one rupee is payable for each child, whether son or daughter until 21 years, with a donation of rupees 282 for each daughter, if a claim to pension after 21 years of age be desired, to be secured.

BOMBAY.—No monthly subscription nor any payment for children, but a donation of rupees 200 for daughters, 100 for sons.

IV.

STATEMENT of the Annuities to widows of deceased Subscribers of the Military Fund of the three Presidencies.

| | BENGAL. | | MADRAS. | | BOMBAY. | |
|------------------------|------------|-------------|------------|-------------|------------|-------------|
| | In India. | In England. | In India. | In England. | In India. | In England. |
| | Rs. As. P. | £ s. d. | Rs. As. P. | £ s. d. | Rs. As. P. | £ s. d. |
| Colonel's widow | 2,574 12 0 | 281 12 3 | 2,064 7 3 | 235 18 9 | 1,822 3 6 | 203 0 0 |
| Lieutenant-Colonel's " | 2,059 13 0 | 225 5 9 | 1,826 9 0 | 208 15 0 | 1,555 8 10 | 175 0 0 |
| Major's " | 1,546 13 0 | 168 19 3 | 1,588 10 9 | 181 11 3 | 1,288 14 2 | 145 0 0 |
| Captain's " | 1,029 15 0 | 112 12 11 | 1,197 10 6 | 136 17 6 | 1,066 10 8 | 120 0 0 |
| Lieutenant's " | 768 15 0 | 84 1 11 | 894 2 3 | 102 3 9 | 908 5 4 | 102 3 9 |
| Ensign's " | 611 5 0 | 66 17 3 | 715 5 0 | 81 15 0 | 726 10 8 | 81 15 0 |

V.

STATEMENT of Annuities to children of Subscribers of the Military Orphan Fund of the Bengal Presidency.

| | MALE. | | | | FEMALE. | | | | |
|------------|-----------------------|---|-----------------------|----------------------------|-----------------------|--------------------------------|-----------------------|----------------------------|------------------------|
| | Under 5 years of Age. | From 5 to 19 years of age, or in a position to gain his own livelihood before them. | Under 6 years of age. | From 6 to 19 years of age. | Under 5 years of age. | From 5 till marriage or death. | Under 6 years of age. | From 6 to 18 years of age. | After 18 years of age. |
| | Rs. As. P. | Rs. As. P. | £ s. d. | £ s. d. | Rs. As. P. | Rs. As. P. | £ s. d. | £ s. d. | £ s. d. |
| In India | 20 0 0 | 35 0 0 | — | — | 20 0 0 | 35 0 0 | — | — | — |
| In England | — | — | 30 0 0 | 40 0 0 | — | — | 30 0 0 | 45 0 0 | 35 0 0 |

MALE.—Apprentice fee or final grant in India rupees 500, if sanctioned by the general management.

FEMALE.—Marriage portion 150*l.* if in England, and rupees 1,500 if in India, if sanctioned by the general management.

VI.

STATEMENT of Annuities to children of deceased Subscribers of the Military Funds of the Madras and Bombay Presidencies.

| | MADRAS. | | | | BOMBAY. | | | |
|--------------------------------------|------------------------|-------------|-------------------------|-------------|------------------------|-------------|-------------------------|-------------|
| | Bereft of Father only. | | Bereft of both Parents. | | Bereft of Father only. | | Bereft of both Parents. | |
| | In India. | In England. | In India. | In England. | In India. | In England. | In India. | In England. |
| | Rs. As. P. | £ s. d. | Rs. As. P. | £ s. d. | Rs. As. P. | £ s. d. | Rs. As. P. | £ s. d. |
| Under { (Madras) 6 years of age | 175 0 0 | 20 0 0 | 262 8 0 | 30 0 0 | 200 0 0 | 22 10 0 | 266 10 8 | 30 0 0 |
| (Bombay) 7 " | | | | | | | | |
| From { (Madras) 6 to 12 years of age | 262 8 0 | 30 0 0 | 393 12 0 | 45 0 0 | 266 10 8 | 30 0 0 | 400 0 0 | 45 0 0 |
| (Bombay) 7 to 10 " | | | | | | | | |
| From { (Madras) 12 to 21 " | 350 0 0 | 40 0 0 | 525 0 0 | 60 0 0 | 333 5 4 | 37 10 0 | 533 5 4 | 60 0 0 |
| (Bombay) 10 to 18 " | | | | | | | | |

SCALE referred to in the preceding Regulation.

| RANK OF THE OFFICERS. | Widows ordinary pension. | Special pension in lieu of ordinary pension. | | Allowance to the mother or sister of an officer killed in action. | Compassionate allowance to legitimate children. | | | Aggregate amount of allowances to the family of any one officer not to exceed. | | |
|--|--|---|---|---|---|---|---|--|--|----|
| | | To widows of officers dying from illness contracted in the field. | To widows of officers killed in action. | | If the officer was killed in action. | If the officer died from illness contracted in the field. | If the officer was not killed in action, or did not die from illness contracted in the field. | If killed in action. | If not killed in action. | |
| General Officer | £ 120 | According to circumstances. | | £ 120 | £ 25 to 40 | £ 20 to 30 | £ 16 to 20 | £ 500 | £ 300 | |
| REGIMENTAL OFFICERS. | | | | | | | | | | |
| Colonels not being also General Officers | 100 | £ 150 | £ 200 | 100 | 18 to 25 | 16 to 20 | 14 to 16 | } 350 | } Not exceeding the annual amount of the half-pay attached to the rank of the officer. | |
| Lieutenant-Colonels } of the Foot Guards | 90 | 145 | 200 | 90 | 18 to 25 | 16 to 20 | 14 to 16 | | | |
| Majors | 80 | 140 | 200 | 80 | 18 to 25 | 16 to 20 | 14 to 16 | | | |
| Lieutenant-Colonels | 70 | 100 | 130 | 70 | 16 to 20 | 14 to 17 | 13 to 14 | 250 | | |
| Majors | } 50 | 65 | 80 | 50 | 12 to 16 | 10 to 14 | 9 to 12 | 150 | | |
| Captains | | 50 | 60 | 40 | 8 to 14 | 6 to 12 | 5 to 10 | 100 | | |
| Paymasters | } 40 | 50 | 60 | 40 | 8 to 14 | 6 to 12 | 5 to 10 | 100 | | |
| Lieutenants | | 40 | 50 | 36 | 8 to 14 | 6 to 12 | 5 to 10 | 80 | | |
| Adjutants | } 36 | 40 | 46 | 36 | 8 to 14 | 6 to 12 | 5 to 10 | 80 | | |
| Second Lieutenants | | 36 | 40 | 46 | 36 | 8 to 14 | 6 to 12 | 5 to 10 | | 80 |
| Cornets | } 36 | 40 | 46 | 36 | 8 to 14 | 6 to 12 | 5 to 10 | 80 | | |
| Ensigns | | 36 | 40 | 46 | 36 | 8 to 14 | 6 to 12 | 5 to 10 | 80 | |
| Quarter Masters { under 10 years' service | 40 | 50 | 60 | 40 | 8 to 14 | 6 to 12 | 5 to 10 | 100 | | |
| { after 10 " " | 50 | 65 | 80 | 50 | 12 to 16 | 10 to 14 | 9 to 12 | 150 | | |
| { after 20 " " | 40 | 50 | 60 | 40 | 8 to 14 | 6 to 12 | 5 to 10 | 80 | | |
| Veterinary Surgeons { under 10 years' service | 45 | 55 | 70 | 45 | 8 to 14 | 6 to 12 | 5 to 10 | 100 | | |
| { after 10 " " | 55 | 70 | 80 | 55 | 12 to 16 | 10 to 14 | 9 to 12 | 150 | | |
| MEDICAL OFFICERS.* | | | | | | | | | | |
| Inspectors General of Hospitals | 100 | 150 | 200 | 100 | 18 to 25 | 16 to 20 | 14 to 16 | 350 | } Not exceeding the annual amount of the half-pay attached to the rank of the officer. | |
| Deputy | 80 | 140 | 200 | 80 | 18 to 25 | 16 to 20 | 14 to 16 | 350 | | |
| Staff Surgeons, 1st class | } 70 | 100 | 130 | 70 | 16 to 20 | 14 to 17 | 12 to 14 | 250 | | |
| Surgeon Majors of the Regiments of Foot Guards | | 70 | 100 | 130 | 70 | 16 to 20 | 14 to 17 | 12 to 14 | | |
| Ditto, 2nd class, and Regimental Surgeon | 50 | 65 | 80 | 50 | 12 to 16 | 10 to 14 | 9 to 12 | 150 | | |
| Purveyors, under 10 years | 36 | 40 | 46 | 36 | 8 to 14 | 6 to 12 | 5 to 10 | 80 | | |
| Ditto after 10 " | 40 | 50 | 60 | 40 | 8 to 14 | 6 to 12 | 5 to 10 | 100 | | |
| Ditto after 15 " | 50 | 65 | 80 | 50 | 12 to 16 | 10 to 14 | 9 to 12 | 150 | | |
| Assistant Surgeons | 40 | 50 | 60 | 40 | 8 to 14 | 6 to 12 | 5 to 10 | 100 | | |
| Chaplains to the Forces | } 50 | 65 | 80 | 50 | 12 to 16 | 10 to 14 | 9 to 12 | 150 | | |
| District Paymasters | | 50 | 65 | 80 | 50 | 12 to 16 | 10 to 14 | 9 to 12 | | |
| Provost Marshals, commissioned as such | | 50 | 65 | 80 | 50 | 12 to 16 | 10 to 14 | 9 to 12 | | |
| Other Staff or Garrison Officers | According to the Regimental Commissions which they held when placed on half-pay. | | | | | | | | | |

* The widows of half-pay Medical Officers holding any commission giving a rank not included in the above scale may, if eligible, have the rates of pension specified in the scale annexed to the warrant of 13th June 1826.

20

21

MINUTE by His Excellency the Right Honourable the Governor General

I AM most strongly in favour of this proposal, and would urge it very strongly on the Secretary of State for India. It appears to me to be the duty of the Government to establish such funds, and insist on officers subscribing to them on entering the local service. Unless officers are compelled to subscribe for the future maintenance of their widows and children, this sacred duty will in many cases be neglected, and we shall constantly have instances of these relatives of officers, who have held honourable positions under the Government of India, seeking, and seeking even in vain, for assistance from the public. Such a state of things would, I submit, be derogatory to the service at large, and a grave scandal in the eyes of the natives of the country. On public grounds, therefore, as well as to prevent much misery and degradation hereafter to many helpless ladies and children, tenderly brought up, I strongly recommend the proposal for the support of my colleagues and the Secretary of State.

The 5th December 1868.

JOHN LAWRENCE.

I quite agree.

The 6th December 1868.

J. STRACHEY.

And I.

The 7th December 1868.

H. S. MAINE.

And I.

The 7th December 1868.

G. N. TAYLOR.

MINUTE by the Honourable Sir R. TEMPLE, K.C.S.I.

I UNDERSTAND that a limited amount of widows' pension, according to the analogy of the British Service, is to be paid by the State; and that the remainder required to make up the amount to the old Indian scale is to be obtained by enforced subscriptions from the officers themselves. In the general principle, I cordially concur, as being essential to the efficiency and character of the future Staff Corps.

The 5th December 1868.

R. TEMPLE.

Exd. M. Joseph.

Sir,

India Office, S.W.,
25th February 1869.

I AM directed by the Secretary of State for India in Council to forward for your information, copy of a despatch from the Government of India, relating to a proposal to establish a system of Pensions for the benefit of Widows and Children of Officers of the several Staff Corps, and I am to request that, as soon as the work upon which you are now engaged shall have been completed, you will prepare and submit a full report upon the probable financial operation of Colonel Norman's proposal.

I have, &c.

T. T. PEARS,

Major-General, Military Secretary.

Major-General Hannington.

Sir,

London, 5th April 1869.

BEFORE entering on the money calculations respecting a system of Pensions for the benefit of Widows and Orphans of Officers in the Staff Corps, it is necessary to define the rates of interest and exchange that may be used without disadvantage to the Government or its officers.

I would respectfully suggest four and a half per cent. interest per annum, and one shilling and elevenpence for the rupee, as equitable rates, and I will adopt these if not otherwise instructed.

I have, &c.

J. HANNINGTON.

To Major-General Pears, C.B.,
Military Secretary.

Sir,

India Office, S.W.,
23d April 1869.

I AM directed by the Secretary of State for India in Council to acknowledge the receipt of your letter of the 5th instant, and to acquaint you in reply that you are authorised to adopt the rates therein proposed for interest and exchange in your calculations on the subject of the scheme for Pensions to Widows and Orphans of Officers entering the Staff Corps from the British Army, and of Chaplains and Medical Officers under the new conditions of service.

I have, &c.,

T. T. PEARS,

Major-General, Military Secretary.

Major-General Hannington.

Symbols and Formulæ.

| Person. | Age. | Number living at that Age. |
|---------------------|------|-------------------------------|
| Officer | x | l_x |
| Wife | y | l_y |
| Widow | w | l_w |
| Son | s | l_s |
| Daughter, unmarried | u | l_u |

1. $l_x - l_{x+1} = d_x$; the number of officers now aged x , who die in the next, or $(x + 1)^{\text{th}}$ year.
2. $\frac{l_y + l_{y+1}}{2} = l_{y+\frac{1}{2}}$; the number of wives now aged y , who live till the middle of the next, or $(y + 1)^{\text{th}}$ year.
3. r = the rate of interest per cent. per annum.
(In the calculations, $r = .045$.)
4. $v^x = \frac{1}{(1+r)^x}$; the present value of a monetary unit to be received at the end of x years hence.
5. $l_x v^x = D_x$
6. $\sum (D_{x+1}) = N_x$; the sum of $D_{x+1} + D_{x+2}$, &c. to the end of life.
7. $\frac{N_x}{D_x} = a_x$; the present value of a monetary unit, to be received at the end of each year of age during the existence of a life now aged x . This is called a life annuity.
8. $l_x l_y v^y = D_{x,y}$. Note. In the joint life formulæ, v^y is used for convenience in the arithmetical operations.
9. $\sum (D_{x,y+1}) = N_{x,y}$; the sum of $D_{x,y+1} + D_{x,y+2} + \&c.$, to the end of coexistent life.
10. $\frac{N_{x,y}}{D_{x,y}} = a_{x,y}$; the present value of a monetary unit to be received at the end of each year during the coexistence of the lives now aged x and y . This is called a joint life annuity. It ceases on the failure of either life.
11. $d_x l_{y+\frac{1}{2}} v^{y+\frac{1}{2}} a_{w+\frac{1}{2}} = D_{x,y}^{\frac{2}{2}}$. Note. $l_{y+\frac{1}{2}} v^{y+\frac{1}{2}} a_{w+\frac{1}{2}} = B_y$
12. $\sum (D_{x,y}^{\frac{2}{2}}) = N_{x,y}^{\frac{2}{2}}$; the sum of $D_{x,y}^{\frac{2}{2}} + D_{x,y+1}^{\frac{2}{2}} + \&c.$, to the end of life.
13. $\frac{N_{x,y}^{\frac{2}{2}}}{D_{x,y}^{\frac{2}{2}}} = a_{x,y}^{\frac{2}{2}}$; the present value of a monetary unit, to be received in the middle of each year, after the decease of a male, now aged x , and to continue during the *widowhood* of his wife now aged y . Payment ceases on re-marriage or death.
14. $ma_{x,y}^{\frac{2}{2}}$ = the present value of a reversionary widowhood annuity of m units of money.
15. $S(a_{x,y} + .458)$ = the present value of an annuity of S units of money payable in 12 equal portions during the year.
16. Equating the expressions 14 and 15, we have—

$$m = \frac{S(a_{x,y} + .458)}{a_{x,y}^{\frac{2}{2}}}, \text{ and } S = \frac{ma_{x,y}^{\frac{2}{2}}}{a_{x,y} + .458}$$

17. If a donation or fine f be paid in reduction of S , then—

$$S = \frac{ma_{x:y}^2 - f}{a_{x:y} + .458}$$

18. When m and S are fixed, the fine f for disparity of age is,—

$$ma_{x:y}^2 - S(a_{x:y} + .458) = f.$$

19. $a_u - a_{x'u}$ = the present value of an annuity, payable so long as a daughter now aged u , may live *unmarried* after the decease of her father now aged x .

20. $S = \frac{m(a_u - a_{x'u})}{a_{x'u}}$; the amount of yearly subscription to be paid during the co-existence of the lives now aged x and u to provide a reversionary annuity m , payable to u while *unmarried* after the death of x .

21. $S = \frac{m(a_u - a_{x'u}) - f}{a_{x'u}}$ = the same, supposing a fine f , to be paid at the beginning.

22. In the case of sons, let it be understood that the annuities are temporary, D_{21} being the limit of D_s , and $D_{55:21}$ the limit of $D_{x:s}$; then, putting s for u , the formulæ 20 and 21 will serve to determine the subscriptions to be paid for sons.

23. The addition to be made to a joint life annuity for monthly payments is in all cases 0.458.

24. The present value at age x of an annuity to begin at a future age $x + n$ is $\frac{D_{x+n}}{D_x} a_{x+n} = {}^n a_x$, and the form holds when $x \cdot y$ or $\frac{2}{x \cdot y}$ is put for x .

25. The present value at age x , of an annuity which will be reduced to one half at the age $x + n$, is $a_x - \frac{{}^n a_x}{2}$.

26. The present value of an annuity to begin at age x and continue till age $x + n$ is $\frac{N_x - N_{x+n}}{D_x} = {}^n | a_x$. This holds when $x \cdot y$ or $\frac{2}{x \cdot y}$ is put for x .

27. The present value of a monetary unit to be received on the death of a person now aged x is, $v - (1 - v) a_x = A_x$.

Note on the Construction of the Tables.

1. Nearly all of the calculations in this report have been effected on the "arithmetre" or calculating machine invented by M. Thomas de Colmar. As this machine is not yet known and appreciated as it deserves to be, and as it is necessary to explain some of the processes that I have used, the following details will not be deemed out of place.

2. Let it be understood that the machine will add or subtract numbers up to 1,000 millions; that it will multiply eight figures by eight figures, giving products up to sixteen figures; that it will divide sixteen figures by eight figures, giving the quotient to any extent; and all this without risk of error.

3. I had first occasion to compute a table of v^x from v^0 to v^{100} at $4\frac{1}{2}$ per cent. To effect this I had to compute by hand v^{10} , v^{20} , v^{30} , &c., each tenth value, to a large number of decimal places.

4. The machine gives $v = \frac{1}{1.045} = 0.9569377990430622$, and by tabulating the first nine multiples of this, it becomes easy to form v^2 . Again tabulating we can form v^4 ; from v^4 we get v^8 , and then $v^8 \times v^2$ gives v^{10} . In precisely the same way we can obtain successively v^{20} , v^{30} , v^{40} , and so on. The values are in fact as follows:—

$$v^2 = 0.91572995124$$

$$v^4 = 0.83856134359$$

$$v^8 = 0.70318512697$$

$$v^{10} = 0.64392768203$$

$$v^{20} = 0.41464285968$$

$$v^{30} = 0.26700001551$$

$$v^{40} = 0.17192870109$$

$$v^{50} = 0.11070964997$$

$$v^{60} = 0.07128900828$$

$$v^{70} = 0.04590496586$$

$$v^{80} = 0.02955947826$$

$$v^{90} = 0.01903416316$$

$$v^{100} = 0.01225662660$$

5. The required table may now be completed in reverse order on the machine, by the formula—

$$v^{n-1} = v^n (1 \times r)$$

an extremely simple process.

6. This done, the next step is to form $D_x = l_x v^x$, to which end v^x is put on the machine, and is multiplied by l_x . The details pass off on the machine, and the values of D_x have only to be transcribed as they arise. The summation on the machine gives N_x , and then $\frac{N_x}{D_x}$ gives a_x , the present value of an annuity on the life x .

7. It is here to be remarked that the last step is one of division, an operation that even on the machine is not nearly so facile as multiplication. I have therefore found it convenient to record D_x^{-1} from the table published by Lieut.-Col. W. H. Oakes, a work of great value, and to which, as will be seen, I am much indebted. Thus we have $N_x D_x^{-1} = a_x$, the product of two factors.

8. By a similar method any of the single life annuity tables may be formed.

9. The joint life tables might be formed in the same way, but although the machine does not err, the computer might in a multitude of *detached* operations commit errors that would elude notice. To prevent this it is always proper to devise continuous processes in which a single error induces a series of errors that cannot escape detection. For, at fixed points, independent values may be interposed, and when the continuous values agree with these, the work must be right, or a disagreement will disclose error to be then corrected.

10. It would be tedious further to explain the various arithmetical details. Suffice it to say that the values of $D_{x,y}$ and $D_{x,y}^{-2}$ for each 10th difference of age from -10 to $+40$ were independently computed on the machine to many places of figures. The intermediate values were constructed by continuous operations, and are certainly free from any material errors. However, to afford a means of verifying them by ordinary methods the logarithms of l_x , D_y , d_x and B_y are given.

11. I may observe that the symbol $D_{x,y}$ is the product of three factors, and that commonly $l_x v^x = D_x$ and $l_y D_x = D_{x,y}$. I have, however, used the form $l_y v^y = D_y$ and $l_x D_y = D_{x,y}$. The reason of this departure from the usual practice is that the symbol $D_{x,y}^{-2}$ is the product of four factors, $d_x l_{y+\frac{1}{2}} v^{y+\frac{1}{2}} a_{w+\frac{1}{2}}$, of which three, namely $l_{y+\frac{1}{2}} v^{y+\frac{1}{2}} a_{w+\frac{1}{2}} = B_y$ can be formed once for all (since $w = y$), thus affording the form $d_x B_y = D_{x,y}^{-2}$, in which only B_y is partly fractional, d_x being an integer. By this arrangement the formula is better suited to the machine. Then in the form $\frac{N_{x,y}^{-2}}{D_{x,y}} = a_{w,y}^{-2}$, because v^y is symmetrically involved, the final result is correct. Here also $D_{x,y}^{-1}$ taken from Colonel Oakes's table of reciprocals has been of much use.

12. In the tables of $D_{x,y}$ and $D_{x,y}^{-2}$ the decimal point is noted, the quantities being, however, divided by 100, but in the summation $N_{x,y}$ and $N_{x,y}^{-2}$ the decimal point has been omitted, five figures being given without regard to their local value. In like manner the reciprocals are given as integers. This will not cause any real difficulty, and it saves much room. Suppose that in the table of equal ages it were desired to verify the annuity value for $x = 40$, then $15392 \times 61436 = 94562$, or supplying the decimal point 9.4562 . No other value could well be supposed. A glance at the *progression* of the quantities would resolve any doubt that might arise in other cases.

13. On the table for converting annuities into reversions I may remark that such tables were first published by the late Mr. Orchard. To compute them by help of the machine is very easy.

14. From the formula, No. 27., it appears that when $a_x = 0$, then $A_x = v$; and when $a_x = 1$ then $A_x = v - (1 - v)$. Hence by continually subtracting $(1 - v) \times .001$ from v , the required table may be formed to any extent, each turn of the machine giving a new value. A record of these would occupy many pages, and abbreviation is therefore desirable.

15. When $a_x = r$, then $A_x = 1 - r$. In the present case $r = .045$ and $1 - r = .955$. Thus we have a point at which there are no decimals beyond the third place. Again, when $a_x = .254$ then $A_x = .946$ exactly. We may now perceive that the fourth and following decimals are recurrent, and disappear at regular intervals. These intervals correspond with a difference of $.254 - .045 = .209$ in a_x , and of $.955 - .946 = .009$ in A_x , and we may notice that $.209$ is derived from $2(1 + r)$, and $.009$ from $2r$. Consequently the first part of the table may be formed by the continual addition of $.209$ in column a , and subtraction of $.009$ in column A_x . The second part of the table contains the 208 successive multiples of $1 - v$ to a sufficient number of places.

16. I have explained the construction of this table at some length because the process may be useful in other cases.

17. The arrangement of the table is a good example of *packing*. Here in one page are 315 values, from which, in pairs only, we can readily form 22470 values.

18. The table for finding the addition to be made to an annuity when made payable half-yearly, and to the date of death, is constructed on similar principles, with differences of detail that need not here be shown.

19. The tables for exchanging pounds and rupees at 1s. 11d. the rupee, are peculiar in form, and they contain much in small compass.

DATA AND ELEMENTARY TABLES.

LIFE TABLES. INDIAN MILITARY.

| Age. | Officers. | | Wives. | | Till Death or Marriage. | | | | Age. | Sons. | | Age. | | |
|------|------------------|----------------------|------------------|----------------------|-------------------------|----------------------|------------------|----------------------|--------|------------------|----------------------|--------|---------|----|
| | l _x . | Σ (l _x). | l _y . | Σ (l _y). | Widows. | | Daughters. | | | l _r . | Σ (l _r). | | | |
| | | | | | l _w . | Σ (l _w). | l _d . | Σ (l _d). | | | | | | |
| 0 | | | | | | | | | 100000 | 2222142 | 0 | 100000 | 1569466 | 0 |
| 1 | | | | | | | | | 66529 | 2122142 | 1 | 83640 | 1494446 | 1 |
| 2 | | | | | | | | | 81171 | 2035613 | 2 | 78263 | 1344456 | 2 |
| 3 | | | | | | | | | 78299 | 1954442 | 3 | 75445 | 1266693 | 3 |
| 4 | | | | | | | | | 76406 | 1876143 | 4 | 73645 | 1211108 | 4 |
| 5 | | | | | | | | | 75055 | 1799737 | 5 | 72371 | 1157423 | 5 |
| 6 | | | | | | | | | 74059 | 1724683 | 6 | 71348 | 1095052 | 6 |
| 7 | | | | | | | | | 73277 | 1650625 | 7 | 70616 | 1019664 | 7 |
| 8 | | | | | | | | | 72612 | 1577346 | 8 | 69979 | 943046 | 8 |
| 9 | | | | | | | | | 72054 | 1504734 | 9 | 69434 | 873079 | 9 |
| 10 | | | | | | | | | 71577 | 1432680 | 10 | 68988 | 803645 | 10 |
| 11 | | | | | | | | | 71158 | 1361103 | 11 | 68598 | 734459 | 11 |
| 12 | | | | | | | | | 70777 | 1290046 | 12 | 68251 | 666061 | 12 |
| 13 | 100000 | 3584021 | 2293 | 95597 | 68894 | 1593599 | 70415 | 1219168 | 69692 | 1078695 | 13 | 67926 | 597810 | 13 |
| 14 | 99833 | 3484921 | 2271 | 91304 | 69459 | 1524705 | 70058 | 1148758 | 69088 | 1009003 | 14 | 67606 | 529944 | 14 |
| 15 | 99411 | 3385088 | 2240 | 87033 | 67344 | 1456242 | 69692 | 1078695 | 68088 | 940615 | 15 | 67278 | 462278 | 15 |
| 16 | 98737 | 3285677 | 2227 | 82784 | 65590 | 1388909 | 69088 | 1009003 | 67187 | 876728 | 16 | 66930 | 395000 | 16 |
| 17 | 97815 | 3186940 | 2205 | 78657 | 62807 | 1323342 | 68187 | 940615 | 66340 | 813769 | 17 | 66553 | 327070 | 17 |
| 18 | 96670 | 3089125 | 2183 | 74653 | 59199 | 1260535 | 66959 | 876728 | 65540 | 752279 | 18 | 66140 | 261517 | 18 |
| 19 | 95326 | 2992455 | 2161 | 70769 | 54680 | 1201336 | 65325 | 813769 | 64789 | 694769 | 19 | 65697 | 195377 | 19 |
| 20 | 93809 | 2897129 | 2139 | 67008 | 50642 | 1146656 | 63769 | 754544 | 64088 | 640280 | 20 | 65240 | 129900 | 20 |
| 21 | 92140 | 2803320 | 2117 | 63489 | 47065 | 1096610 | 62339 | 716975 | 63436 | 592820 | 21 | 64650 | 64650 | 21 |
| 22 | 90353 | 2711180 | 2095 | 59999 | 43885 | 1049440 | 61036 | 68088 | 62836 | 550000 | 22 | | | |
| 23 | 88477 | 2620827 | 2073 | 56657 | 40877 | 1005064 | 59859 | 64900 | 62280 | 510000 | 23 | | | |
| 24 | 86544 | 2532350 | 2051 | 53454 | 38023 | 963977 | 58789 | 60900 | 61740 | 470000 | 24 | | | |
| 25 | 84584 | 2445806 | 2029 | 50389 | 35311 | 925355 | 57845 | 57131 | 61140 | 430000 | 25 | | | |
| 26 | 82626 | 2361222 | 2007 | 47464 | 32770 | 888444 | 56977 | 53426 | 61280 | 390000 | 26 | | | |
| 27 | 80695 | 2278596 | 1985 | 44689 | 30331 | 854174 | 56240 | 518740 | 61420 | 350000 | 27 | | | |
| 28 | 78788 | 2197901 | 1963 | 42054 | 28011 | 821143 | 55616 | 495279 | 61560 | 310000 | 28 | | | |
| 29 | 76903 | 2119113 | 1940 | 39569 | 25813 | 789596 | 55045 | 473639 | 61700 | 270000 | 29 | | | |
| 30 | 75039 | 2042210 | 1916 | 37224 | 23866 | 759413 | 54516 | 453296 | 61840 | 230000 | 30 | | | |
| 31 | 73193 | 1967171 | 1891 | 34999 | 22066 | 730547 | 54026 | 434314 | 61970 | 190000 | 31 | | | |
| 32 | 71365 | 1893978 | 1865 | 32884 | 20443 | 702931 | 53571 | 416438 | 62100 | 150000 | 32 | | | |
| 33 | 69559 | 1822615 | 1838 | 30879 | 19037 | 676468 | 53146 | 399671 | 62230 | 110000 | 33 | | | |
| 34 | 67780 | 1753054 | 1811 | 28984 | 17849 | 651114 | 52746 | 383534 | 62360 | 70000 | 34 | | | |
| 35 | 66031 | 1685274 | 1783 | 27209 | 16877 | 626761 | 52366 | 367997 | 62490 | 30000 | 35 | | | |
| 36 | 64317 | 1619243 | 1755 | 25554 | 15999 | 603314 | 52006 | 352840 | 62620 | 0 | 36 | | | |
| 37 | 62640 | 1554926 | 1726 | 24029 | 15249 | 580896 | 51666 | 338194 | 62750 | 0 | 37 | | | |
| 38 | 61001 | 1492296 | 1697 | 22624 | 14614 | 559477 | 51346 | 324047 | 62880 | 0 | 38 | | | |
| 39 | 59399 | 1431285 | 1667 | 21329 | 14099 | 539060 | 51046 | 310300 | 63010 | 0 | 39 | | | |
| 40 | 57854 | 1371866 | 1637 | 19994 | 13666 | 519646 | 50766 | 296954 | 63140 | 0 | 40 | | | |
| 41 | 56306 | 1314052 | 1606 | 18719 | 13299 | 501229 | 50496 | 284007 | 63270 | 0 | 41 | | | |
| 42 | 54815 | 1257746 | 1574 | 17494 | 12984 | 483812 | 50236 | 271460 | 63400 | 0 | 42 | | | |
| 43 | 53359 | 1202931 | 1542 | 16319 | 12719 | 467495 | 49986 | 259213 | 63530 | 0 | 43 | | | |
| 44 | 51936 | 1149572 | 1509 | 15194 | 12494 | 452178 | 49746 | 247266 | 63660 | 0 | 44 | | | |
| 45 | 50545 | 1097636 | 1476 | 14119 | 12319 | 437861 | 49506 | 235519 | 63790 | 0 | 45 | | | |
| 46 | 49184 | 1047091 | 1442 | 13094 | 12144 | 424544 | 49266 | 224072 | 63920 | 0 | 46 | | | |
| 47 | 47852 | 997970 | 1408 | 12119 | 11999 | 412227 | 49026 | 212925 | 64050 | 0 | 47 | | | |
| 48 | 46556 | 950055 | 1374 | 11194 | 11874 | 400910 | 48786 | 202078 | 64180 | 0 | 48 | | | |
| 49 | 45305 | 903409 | 1340 | 10319 | 11759 | 390593 | 48546 | 191531 | 64310 | 0 | 49 | | | |
| 50 | 44099 | 858196 | 1305 | 9494 | 11654 | 381276 | 48306 | 181284 | 64440 | 0 | 50 | | | |
| 51 | 42940 | 814407 | 1270 | 8719 | 11559 | 372959 | 48066 | 171237 | 64570 | 0 | 51 | | | |
| 52 | 41857 | 771148 | 1234 | 7994 | 11474 | 365642 | 47826 | 161390 | 64700 | 0 | 52 | | | |
| 53 | 40809 | 729291 | 1198 | 7319 | 11389 | 359325 | 47586 | 151743 | 64830 | 0 | 53 | | | |
| 54 | 39791 | 688832 | 1162 | 6694 | 11314 | 353908 | 47346 | 142296 | 64960 | 0 | 54 | | | |
| 55 | 38792 | 648691 | 1126 | 6119 | 11239 | 349391 | 47106 | 133049 | 65090 | 0 | 55 | | | |
| 56 | 37800 | 609899 | 1090 | 5594 | 11174 | 345874 | 46866 | 124002 | 65220 | 0 | 56 | | | |
| 57 | 36806 | 572099 | 1054 | 5119 | 11109 | 343357 | 46626 | 115155 | 65350 | 0 | 57 | | | |
| 58 | 35799 | 535293 | 1018 | 4694 | 11044 | 340840 | 46386 | 106508 | 65480 | 0 | 58 | | | |
| 59 | 34769 | 499494 | 982 | 4319 | 10979 | 338323 | 46146 | 98061 | 65610 | 0 | 59 | | | |
| 60 | 33708 | 464725 | 946 | 3944 | 10914 | 335806 | 45906 | 90714 | 65740 | 0 | 60 | | | |
| 61 | 32608 | 431017 | 910 | 3619 | 10849 | 333289 | 45666 | 83467 | 65870 | 0 | 61 | | | |
| 62 | 31464 | 398409 | 874 | 3244 | 10784 | 330772 | 45426 | 76320 | 66000 | 0 | 62 | | | |
| 63 | 30277 | 366946 | 838 | 2919 | 10719 | 328255 | 45186 | 69273 | 66130 | 0 | 63 | | | |
| 64 | 29046 | 336668 | 802 | 2544 | 10654 | 325738 | 44946 | 62326 | 66260 | 0 | 64 | | | |
| 65 | 27730 | 307529 | 766 | 2219 | 10589 | 323221 | 44706 | 55479 | 66390 | 0 | 65 | | | |
| 66 | 26427 | 279540 | 730 | 1844 | 10524 | 320704 | 44466 | 48632 | 66520 | 0 | 66 | | | |
| 67 | 25143 | 252691 | 694 | 1519 | 10459 | 318187 | 44226 | 41785 | 66650 | 0 | 67 | | | |
| 68 | 23778 | 226992 | 658 | 1144 | 10394 | 315670 | 43986 | 34938 | 66780 | 0 | 68 | | | |
| 69 | 22385 | 202443 | 622 | 769 | 10329 | 313153 | 43746 | 28091 | 66910 | 0 | 69 | | | |
| 70 | 20968 | 182057 | 585 | 544 | 10264 | 310636 | 43506 | 21244 | 67040 | 0 | 70 | | | |
| 71 | 19533 | 161089 | 548 | 369 | 10199 | 308119 | 43266 | 14397 | 67170 | 0 | 71 | | | |
| 72 | 18088 | 141556 | 511 | 204 | 10134 | 305602 | 43026 | 7550 | 67300 | 0 | 72 | | | |
| 73 | 16638 | 123488 | 474 | 49 | 10069 | 303085 | 42786 | 0 | 67430 | 0 | 73 | | | |
| 74 | 15191 | 106830 | 437 | 0 | 10004 | 300568 | 42546 | 0 | 67560 | 0 | 74 | | | |
| 75 | 13756 | 91639 | 401 | 0 | 9939 | 298051 | 42306 | 0 | 67690 | 0 | 75 | | | |
| 76 | 12346 | 77883 | 365 | 0 | 9874 | 295534 | 42066 | 0 | 67820 | 0 | 76 | | | |
| 77 | 10970 | 65538 | 330 | 0 | 9809 | 293017 | 41826 | 0 | 67950 | 0 | 77 | | | |
| 78 | 9646 | 54608 | 296 | 0 | 9744 | 290500 | 41586 | 0 | 68080 | 0 | 78 | | | |
| 79 | 8386 | 44922 | 263 | 0 | 9679 | 288083 | 41346 | 0 | 68210 | 0 | 79 | | | |
| 80 | 7203 | 36536 | 231 | 0 | 9614 | 285666 | 41106 | 0 | 68340 | 0 | 80 | | | |
| 81 | 6167 | 29333 | 201 | 0 | 9549 | 283249 | 40866 | 0 | 68470 | 0 | 81 | | | |
| 82 | 5106 | 23226 | 172 | 0 | 9484 | 280832 | 40626 | 0 | 68600 | 0 | 82 | | | |
| 83 | 4206 | 18120 | 145 | 0 | 9419 | 278415 | 40386 | 0 | 68730 | 0 | 83 | | | |
| 84 | 3410 | 13914 | 120 | 0 | 9354 | 276000 | 40146 | 0 | 68860 | 0 | 84 | | | |
| 85 | 2718 | 10504 | 97 | 0 | 9289 | 273583 | 39906 | 0 | 68990 | 0 | 85 | | | |
| 86 | 2127 | 7786 | 77 | 0 | 9224 | 271166 | 39666 | 0 | 69120 | 0 | 86 | | | |
| 87 | 1632 | 5659 | 60 | 0 | 9159 | 268749 | 39426 | 0 | 69250 | 0 | 87 | | | |
| 88 | 1228 | 4027 | 46 | 0 | 9094 | 266332 | 39186 | 0 | 69380 | 0 | 88 | | | |
| 89 | 905 | 2799 | 35 | 0 | 9029 | 263915 | 38946 | 0 | 69510 | 0 | 89 | | | |
| 90 | 653 | 1894 | 26 | 0 | 8964 | 261498 | 38706 | 0 | 69640 | 0 | 90 | | | |
| 91 | 460 | 1241 | 19 | 0 | 8899 | 259081 | 38466 | 0 | 69770 | 0 | 91 | | | |
| 92 | 317 | 733 | 14 | 0 | 8834 | 256664 | 38226 | 0 | 69900 | 0 | 92 | | | |
| 93 | 209 | 464 | 10 | 0 | 8769 | 254247 | 37986 | 0 | 69990 | 0 | 93 | | | |
| 94 | 129 | 255 | 6 | 0 | 8704 | 251830 | 37746 | 0 | 70080 | 0 | 94 | | | |
| 95 | 72 | 126 | 3 | 0 | 8639 | 249413 | 37506 | 0 | 70170 | 0 | 95 | | | |
| 96 | 35 | 64 | 1 | 0 | 8574 | 247000 | | | | | | | | |

The following hitherto unpublished Abstract of Data obtained from the officers of the Bengal Army in the year 1850 was prepared by the late Mr. Peter Hardy, F.R.S., Actuary to the London Assurance Corporation. It is worth preserving as an authentic contribution to the Statistics of Infant Life in India. The returns furnished by the officers included *all* their children, living and dead, with the dates of birth and death.

The number of lives of each sex which passed through each age from birth, and the number of deaths which happened at each age, embraced in the register transmitted with Major Hannington's letter, dated 29th July 1852.

| Age. | Males. | | Females. | | Total. | | Double of Total. | |
|------|---------|--------|----------|--------|---------|--------|------------------|--------|
| | Living. | Dying. | Living. | Dying. | Living. | Dying. | Living | Dying. |
| 0 | 1440 | 122 | 1420.5 | 110 | 2860.5 | 232 | 5721 | 464 |
| 1 | 1224 | 144 | 1213.5 | 129 | 2437.5 | 273 | 4875 | 546 |
| 2 | 991.5 | 58 | 990 | 62 | 1981.5 | 120 | 3963 | 240 |
| 3 | 867 | 21 | 844 | 30 | 1711 | 51 | 3422 | 102 |
| 4 | 779 | 9 | 740 | 7 | 1519 | 16 | 3038 | 32 |
| 5 | 709.5 | 6 | 668.5 | 7 | 1378 | 13 | 2756 | 26 |
| 6 | 650.5 | 2 | 601 | 3 | 1251.5 | 5 | 2503 | 10 |
| 7 | 591.5 | 5 | 543.5 | 4 | 1135 | 9 | 2270 | 18 |
| 8 | 531.5 | 2 | 492 | 2 | 1023.5 | 4 | 2047 | 8 |
| 9 | 478. | 3 | 446 | 2 | 924 | 5 | 1848 | 10 |
| 10 | 431.5 | 2 | 399 | 1 | 830.5 | 3 | 1661 | 6 |
| 11 | 388 | 2 | 357 | 3 | 745 | 5 | 1490 | 10 |
| 12 | 345 | 3 | 318.5 | 1 | 663.5 | 4 | 1327 | 8 |
| 13 | 306 | 2 | 282 | 4 | 588 | 6 | 1176 | 12 |
| 14 | 269.5 | 1 | 244.5 | 1 | 514 | 2 | 1028 | 4 |
| 15 | 233.5 | 2 | 213 | 1 | 446.5 | 3 | 893 | 6 |
| 16 | 198.5 | 1 | 180.5 | 1 | 379 | 2 | 758 | 4 |
| 17 | 174 | 6 | 148.5 | 2 | 322.5 | 8 | 645 | 16 |
| 18 | 149.5 | 0 | 121.5 | 0 | 271 | 0 | 542 | 0 |
| 19 | 129 | 2 | .97 | 0 | 226 | 2 | 452 | 4 |
| 20 | 109 | 1 | 74 | 0 | 183 | 1 | 366 | 2 |
| 21 | 92.5 | 0 | 56 | 0 | 148.5 | 0 | 297 | 0 |
| 22 | 81.5 | 0 | 44 | 0 | 125.5 | 0 | 251 | 0 |
| 23 | 71.5 | 0 | 37.5 | 1 | 109 | 1 | 218 | 2 |
| 24 | 59.5 | 0 | 26.5 | 0 | 86 | 0 | 172 | 0 |
| 25 | 49.5 | 2 | 20. | 0 | 69.5 | 2 | 139 | 4 |
| 26 | 40.5 | 0 | 15.5 | 0 | 56 | 0 | 112 | 0 |
| 27 | 35.5 | 1 | 11.5 | 0 | 47 | 1 | 94 | 2 |
| 28 | 28 | 0 | 9 | 0 | 37 | 0 | 74 | 0 |
| 29 | 21.5 | 0 | 6.5 | 0 | 28 | 0 | 56 | 0 |
| 30 | 18.5 | 0 | 5 | 0 | 23.5 | 0 | 47 | 0 |
| 31 | 16 | 0 | 4.5 | 0 | 20.5 | 0 | 41 | 0 |
| 32 | 12.5 | 1 | 3.5 | 0 | 16 | 1 | 32 | 2 |
| | 11523 | 398 | 10634 | 371 | 22157 | 769 | 44314 | 1538 |

Unadjusted Life Table, deduced from the record of children born in India.

| | Numbers that | | | Log e | Log s | Log p_x | Log l_x | l_x | d_x |
|----|--------------|------|----------|-----------|-----------|-----------|-----------|--------|-------|
| | Enter. | Die. | Survive. | | | | | | |
| 0 | 5721 | 464 | 5257 | 3.7574719 | 3.7207380 | 1.9632661 | 5.0000000 | 100000 | 8110 |
| 1 | 4875 | 546 | 4329 | 6879746 | 6363876 | 9484130 | 4.9632661 | 91890 | 10292 |
| 2 | 3963 | 240 | 3723 | 5980241 | 5708930 | 9728689 | 9116791 | 81598 | 4942 |
| 3 | 3422 | 102 | 3320 | 5342800 | 5211381 | 9868581 | 8845480 | 76656 | 2285 |
| 4 | 3038 | 32 | 3006 | 4825878 | 4779890 | 9954012 | 8714061 | 74371 | 783 |
| 5 | 2756 | 26 | 2730 | 4402792 | 4361626 | 9958834 | 8668073 | 73588 | 694 |
| 6 | 2503 | 10 | 2493 | 3984608 | 3967223 | 9982615 | 8626907 | 72894 | 291 |
| 7 | 2270 | 18 | 2252 | 3560259 | 3525684 | 9965425 | 8609522 | 72603 | 576 |
| 8 | 2047 | 8 | 2039 | 3111178 | 3094172 | 9982994 | 8574947 | 72027 | 282 |
| 9 | 1848 | 10 | 1838 | 2667020 | 2643455 | 9976435 | 8557941 | 71745 | 388 |
| 10 | 1661 | 6 | 1655 | 2203696 | 2187980 | 9984284 | 8534376 | 71357 | 258 |
| 11 | 1490 | 10 | 1480 | 1731863 | 1702617 | 9970754 | 8518660 | 71099 | 477 |
| 12 | 1327 | 8 | 1319 | 1228709 | 1202448 | 9973739 | 8489414 | 70622 | 426 |
| 13 | 1176 | 12 | 1164 | 0704073 | 0659530 | 9955457 | 8463153 | 70196 | 716 |
| 14 | 1028 | 4 | 1024 | 3.0119931 | 0103000 | 9983069 | 8418610 | 69480 | 270 |
| 15 | 893 | 6 | 887 | 2.9508515 | 9479236 | 9970721 | 8401679 | 69210 | 465 |
| 16 | 758 | 4 | 754 | 8796692 | 8773713 | 9977021 | 8372400 | 68745 | 363 |
| 17 | 645 | 16 | 629 | 8095597 | 7986506 | 9890909 | 8349421 | 68382 | 1696 |
| 18 | | | | | | | 8240330 | 66686 | |

Note.—The large number of deaths in the second year of age seems to indicate that some births have not been recorded. But from the completion of the first year of age, the table represents facts.

INTEREST, FOUR AND A HALF PER CENT.

Present Value of £1 to be received any Number of Years hence.

| Numbers. | | | Logarithms. | | Numbers. | | | Logarithms. | |
|----------|------------|------------|-------------|----------------|----------|------------|------------|-------------|----------------|
| x | v^x | v^{x+1} | Log. v^x | Log. v^{x+1} | x | v^x | v^{x+1} | Log. v^x | Log. v^{x+1} |
| 0 | 1.0000000 | 0.97799511 | 0.0000000 | T.9903367 | 50 | 0.11070965 | 0.10827350 | T.0441855 | T.0345222 |
| 1 | 0.95693780 | *93588049 | T.9808837 | 9712204 | 1 | *10594225 | *10361100 | 0250692 | T.0154059 |
| 2 | *91572995 | *89557941 | -9617674 | 9521041 | 2 | *10138014 | *09914928 | T.0059529 | T.9962896 |
| 3 | *87629660 | *85701979 | 9426511 | 9329878 | 3 | *09701449 | *09487969 | T.9868366 | 9771733 |
| 4 | *83856184 | *82010890 | 9235348 | 9138715 | 4 | *09283683 | *09079396 | 9677203 | 9580570 |
| 5 | *80245105 | *78479320 | 9044185 | 8947552 | 5 | *08883907 | *08688418 | 9486040 | 9389407 |
| 6 | *76789574 | *75099828 | 8853023 | 8756389 | 6 | *08501347 | *08314276 | 9294877 | 9198244 |
| 7 | *73482846 | *71865864 | 8661860 | 8565226 | 7 | *08135260 | *07956245 | 9103714 | 9007082 |
| 8 | *70318513 | *68771162 | 8470697 | 8374064 | 8 | *07764938 | *07613631 | 8912551 | 8815919 |
| 9 | *67290443 | *65809724 | 8279534 | 8182901 | 9 | *07449701 | *07285772 | 8721388 | 8624756 |
| 10 | *64392768 | *62975813 | 8088371 | 7991738 | 60 | *07128901 | *06972030 | 8530226 | 8433593 |
| 1 | *61619874 | *60263935 | 7897208 | 7800575 | 1 | *06821915 | *06671799 | 8339063 | 8242430 |
| 2 | *58966386 | *57668838 | 7706045 | 7609412 | 2 | *06528148 | *06384497 | 8147900 | 8051267 |
| 3 | *56427164 | *55185491 | 7514882 | 7418249 | 3 | *06247032 | *06109567 | 7956737 | 7860104 |
| 4 | *53997287 | *52809082 | 7323719 | 7227086 | 4 | *05978021 | *05846475 | 7765574 | 7668941 |
| 5 | *51672044 | *50535006 | 7132556 | 7035923 | 5 | *05720594 | *05594713 | 7574411 | 7477778 |
| 6 | *49446932 | *48358858 | 6941393 | 6844760 | 6 | *05474253 | *05353792 | 7383248 | 7386615 |
| 7 | *47317639 | *46276419 | 6750230 | 6653598 | 7 | *05238519 | *05123246 | 7192085 | 7095453 |
| 8 | *45280037 | *44288655 | 6559067 | 6462435 | 8 | *05012937 | *04902628 | 7000922 | 6904290 |
| 9 | *43330179 | *42376703 | 6367904 | 6271272 | 9 | *04797069 | *04691510 | 6809759 | 6713127 |
| 20 | *41464286 | *40551869 | 6176742 | 6080109 | 70 | *04591497 | *04489484 | 6618596 | 6521964 |
| 1 | *39678743 | *38805617 | 5985579 | 5888946 | 1 | *04392820 | *04296156 | 6427433 | 6330801 |
| 2 | *37970089 | *37134561 | 5794416 | 5697783 | 2 | *04203655 | *04111155 | 6236271 | 6139638 |
| 3 | *36335013 | *35535465 | 5603253 | 5506620 | 3 | *04022637 | *03934119 | 6045108 | 5948475 |
| 4 | *34770347 | *34005230 | 5412090 | 5315457 | 4 | *03849413 | *03764707 | 5853945 | 5757312 |
| 5 | *33273060 | *32540890 | 5220927 | 5124294 | 5 | *03683649 | *03602591 | 5662782 | 5566149 |
| 6 | *31840249 | *31139607 | 5029764 | 4933131 | 6 | *03525023 | *03447456 | 5471619 | 5374986 |
| 7 | *30469137 | *29798667 | 4838601 | 4741968 | 7 | *03373228 | *03299000 | 5280456 | 5183824 |
| 8 | *29157069 | *28515471 | 4647438 | 4550806 | 8 | *03227969 | *03156937 | 5089293 | 4992661 |
| 9 | *27901502 | *27287532 | 4456275 | 4359643 | 9 | *03088965 | *03020992 | 4898130 | 4801498 |
| 30 | *26700001 | *26112471 | 4265113 | 4168480 | 80 | *02955947 | *02890902 | 4706968 | 4610335 |
| 1 | *25550241 | *24988010 | 4073950 | 3977317 | 1 | *02828658 | *02766414 | 4515805 | 4419172 |
| 2 | *24449991 | *23911972 | 3882787 | 3786154 | 2 | *02706850 | *02647286 | 4324642 | 4228009 |
| 3 | *23397121 | *22882280 | 3691624 | 3594991 | 3 | *02590287 | *02533288 | 4133479 | 4036846 |
| 4 | *22389589 | *21896909 | 3500461 | 3403828 | 4 | *02478744 | *02424199 | 3942316 | 3845683 |
| 5 | *21425444 | *20953979 | 3309298 | 3212665 | 5 | *02372003 | *02319808 | 3751153 | 3654520 |
| 6 | *20502817 | *20051655 | 3118135 | 3021502 | 6 | *02269860 | *02219912 | 3559990 | 3463357 |
| 7 | *19619921 | *19188187 | 2926972 | 2830340 | 7 | *02172115 | *02124318 | 3368827 | 3272195 |
| 8 | *18775044 | *18361901 | 2735809 | 2639177 | 8 | *02078579 | *02032839 | 3177664 | 3081032 |
| 9 | *17966549 | *17571197 | 2544646 | 2448014 | 9 | *01989070 | *01945301 | 2986501 | 2889869 |
| 40 | *17192870 | *16814543 | 2353484 | 2256851 | 90 | *01903417 | *01861532 | 2795339 | 2698706 |
| 1 | *16452507 | *16090472 | 2162321 | 2065688 | 1 | *01821451 | *01781371 | 2604176 | 2507543 |
| 2 | *15744026 | *15397581 | 1971158 | 1874525 | 2 | *01743016 | *01704661 | 2413013 | 2316380 |
| 3 | *15066054 | *14734527 | 1779995 | 1683362 | 3 | *01667958 | *01631255 | 2221850 | 2125217 |
| 4 | *14417276 | *14100026 | 1588832 | 1492199 | 4 | *01596132 | *01561009 | 2030687 | 1934054 |
| 5 | *13796437 | *13492848 | 1397669 | 1301036 | 5 | *01527399 | *01493789 | 1839524 | 1742891 |
| 6 | *13202332 | *12911816 | 1206506 | 1109873 | 6 | *01461626 | *01429463 | 1648361 | 1551728 |
| 7 | *12633810 | *12355805 | 1015343 | 0918711 | 7 | *01398685 | *01367907 | 1457198 | 1360566 |
| 8 | *12089771 | *11823736 | 0824180 | 0727548 | 8 | *01338454 | *01309001 | 1266035 | 1169403 |
| 9 | *11569158 | *11314580 | 0633017 | 0536385 | 9 | *01280817 | *01252634 | 1074872 | 0978240 |
| | | | | | 100 | *01225663 | | T.0883710 | T.0787077 |

NOTE.— v^{x+1} is $v^x \times \frac{1}{1.0225}$

TABLE for converting ANNUITIES into REVERSIONS, *i.e.*, sums payable on decease.
Interest Four and a Half per Cent.

| a_x | A_x | a_x | A_x | a_x | A_x | a_x | A_x |
|-------|-------|--------|-------|--------|-------|--------|-------|
| 0·045 | ·955 | 5·688 | ·712 | 11·331 | ·469 | 16·974 | ·226 |
| 0·254 | ·946 | 5·897 | ·703 | 11·540 | ·460 | 17·183 | ·217 |
| 0·463 | ·937 | 6·106 | ·694 | 11·749 | ·451 | 17·392 | ·208 |
| 0·672 | ·928 | 6·315 | ·685 | 11·958 | ·442 | 17·601 | ·199 |
| 0·881 | ·919 | 6·524 | ·676 | 12·167 | ·433 | 17·810 | ·190 |
| 1·090 | ·910 | 6·733 | ·667 | 12·376 | ·424 | 18·019 | ·181 |
| 1·299 | ·901 | 6·942 | ·658 | 12·585 | ·415 | 18·238 | ·172 |
| 1·508 | ·892 | 7·151 | ·649 | 12·794 | ·406 | 18·457 | ·163 |
| 1·717 | ·883 | 7·360 | ·640 | 13·003 | ·397 | 18·646 | ·154 |
| 1·926 | ·874 | 7·569 | ·631 | 12·212 | ·388 | 18·855 | ·145 |
| 2·135 | ·865 | 7·778 | ·622 | 13·421 | ·379 | 19·064 | ·136 |
| 2·344 | ·856 | 7·987 | ·613 | 13·630 | ·370 | 19·273 | ·127 |
| 2·553 | ·847 | 8·196 | ·604 | 13·839 | ·361 | 19·482 | ·118 |
| 2·762 | ·838 | 8·405 | ·595 | 14·048 | ·352 | 19·691 | ·109 |
| 2·971 | ·829 | 8·614 | ·586 | 14·257 | ·343 | 19·900 | ·100 |
| 3·180 | ·820 | 8·823 | ·577 | 14·466 | ·334 | 20·109 | ·091 |
| 3·389 | ·811 | 9·032 | ·568 | 14·675 | ·325 | 20·318 | ·082 |
| 3·598 | ·802 | 9·241 | ·558 | 14·884 | ·316 | 20·527 | ·073 |
| 3·807 | ·793 | 9·450 | ·550 | 15·093 | ·307 | 20·736 | ·064 |
| 4·016 | ·784 | 9·659 | ·541 | 15·302 | ·298 | 20·945 | ·055 |
| 4·225 | ·775 | 9·868 | ·532 | 15·511 | ·289 | 21·154 | ·046 |
| 4·434 | ·766 | 10·077 | ·523 | 15·720 | ·280 | 21·363 | ·037 |
| 4·643 | ·757 | 10·286 | ·514 | 15·929 | ·271 | 21·572 | ·028 |
| 4·852 | ·748 | 10·495 | ·505 | 16·138 | ·262 | 21·781 | ·019 |
| 5·061 | ·739 | 10·704 | ·496 | 16·347 | ·253 | 21·990 | ·010 |
| 5·270 | ·730 | 10·913 | ·487 | 16·556 | ·244 | 22·199 | ·001 |
| 5·479 | ·721 | 11·122 | ·478 | 16·765 | ·235 | | |

THIRD AND FOLLOWING FIGURES OF A_x .

| A_x | 0. | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. |
|-------|--------|------|------|-------|-------|-------|-------|-------|-------|-------|
| ·00 | 0 0000 | 0431 | 0861 | 1292 | 1722 | 2153 | 2584 | 3014 | 3445 | 8876 |
| ·01 | 0 4306 | 4737 | 5167 | 5598 | 6029 | 6459 | 6890 | 7330 | 7751 | 8182 |
| ·02 | 0 8612 | 9043 | 9474 | 9904 | *0335 | *0766 | *1196 | *1627 | *2057 | *2488 |
| ·03 | 1 2919 | 3349 | 3780 | 4211 | 4641 | 5072 | 5502 | 5933 | 6364 | 6794 |
| ·04 | 1 7225 | 7656 | 8086 | 8517 | 8947 | 9378 | 9809 | *0239 | *0670 | *1100 |
| ·05 | 2 1531 | 1962 | 2392 | 2823 | 3254 | 3684 | 3116 | 4545 | 4976 | 5407 |
| ·06 | 2 5837 | 6268 | 6699 | 7129 | 7560 | 7990 | 8421 | 8852 | 9282 | 9713 |
| ·07 | 3 0144 | 0574 | 1005 | 1435 | 1866 | 2297 | 2727 | 3158 | 3589 | 4019 |
| ·08 | 3 4450 | 4880 | 5311 | 5742 | 6172 | 6603 | 7033 | 7464 | 7895 | 8325 |
| ·09 | 3 8756 | 9187 | 9617 | *0048 | *0478 | *0909 | *1340 | *1770 | *2201 | *2632 |
| ·10 | 4 3062 | 3493 | 3923 | 4354 | 4785 | 5215 | 5646 | 6077 | 6507 | 6938 |
| ·11 | 4 7368 | 7799 | 8230 | 8660 | 9091 | 9521 | 9952 | 0382 | 0813 | 1244 |
| ·12 | 5 1675 | 2105 | 2536 | 2967 | 3397 | 3828 | 4258 | 4689 | 5120 | 5550 |
| ·13 | 5 5981 | 6411 | 6842 | 7272 | 7703 | 8134 | 8565 | 8995 | 9426 | 8856 |
| ·14 | 6 0287 | 0718 | 1148 | 1579 | 2010 | 2440 | 2871 | 3301 | 3732 | 4163 |
| ·15 | 6 4593 | 5024 | 5455 | 5885 | 6316 | 6746 | 7177 | 7608 | 8038 | 8469 |
| ·16 | 6 8900 | 9330 | 9761 | *0191 | *0622 | *1053 | *1483 | *1914 | *2344 | *2775 |
| ·17 | 7 3206 | 3636 | 4067 | 4498 | 4928 | 5359 | 5789 | 6220 | 6651 | 7081 |
| ·18 | 7 7512 | 7943 | 8373 | 8804 | 9234 | 9665 | *0096 | *0526 | *0957 | *1388 |
| ·19 | 8 1818 | 2249 | 2679 | 3110 | 3541 | 3971 | 4402 | 4833 | 5263 | 5694 |
| ·20 | 8 6124 | 6555 | 6986 | 7416 | 7847 | 8277 | 8708 | 9139 | 9569 | |

Note.—The first figure in Column 0 is common to all the columns, and the asterisk shows that this leading figure is to be taken from the line next below. Thus, for example, the value for ·024 is 1 0335.

Find in Column a_x the value next above that of the given annuity, and note the difference. Then, to the value of A_x so found in the upper part of the Table, add the value for the difference, as found in the lower part of the Table. For example,—

Given annuity $a_x = 13·475$
 Next above - - 13·630 ·370
 Difference - - ·155 66746
 Corresponding value of $A_x =$ - ·3766746

INTEREST BEING $4\frac{1}{2}$ PER CENT.

Table showing the Addition to Annuities when made payable half yearly and to the day of Decease.

| Annuities. | Addition. | Annuities. | Addition. | Annuities. | Addition. | Annuities. | Addition. | Annuities. | Addition. |
|------------|-----------|------------|-----------|------------|-----------|------------|-----------|------------|-----------|
| 0·045 | ·494 | 4·045 | ·450 | 8·044 | ·406 | 12·043 | ·362 | 16·042 | ·318 |
| ·136 | ·493 | 135 | ·449 | 135 | ·405 | 134 | ·361 | 133 | ·317 |
| ·227 | ·492 | 226 | ·448 | 225 | ·404 | 225 | ·360 | 224 | ·316 |
| ·318 | ·491 | 317 | ·447 | 316 | ·403 | 315 | ·359 | 315 | ·315 |
| ·409 | ·490 | 408 | ·446 | 407 | ·402 | 406 | ·358 | 405 | ·314 |
| ·500 | ·489 | 499 | ·445 | 498 | ·401 | 497 | ·357 | 496 | ·313 |
| ·591 | ·488 | 590 | ·444 | 589 | ·400 | 588 | ·356 | 587 | ·312 |
| ·682 | ·487 | 681 | ·443 | 680 | ·399 | 679 | ·355 | 678 | ·311 |
| ·773 | ·486 | 772 | ·442 | 771 | ·398 | 770 | ·354 | 769 | ·310 |
| ·863 | ·485 | 863 | ·441 | 862 | ·397 | 861 | ·353 | 860 | ·309 |
| ·954 | ·484 | 953 | ·440 | 953 | ·396 | 952 | ·352 | 951 | ·308 |
| 1·045 | ·483 | 5·044 | ·439 | 9·043 | ·395 | 13·043 | ·351 | 17·042 | ·307 |
| ·136 | ·482 | 135 | ·438 | 134 | ·394 | 133 | ·350 | 133 | ·306 |
| ·227 | ·481 | 226 | ·437 | 225 | ·393 | 224 | ·349 | 223 | ·305 |
| ·318 | ·480 | 317 | ·436 | 316 | ·392 | 315 | ·348 | 314 | ·304 |
| ·409 | ·479 | 408 | ·435 | 407 | ·391 | 406 | ·347 | 405 | ·303 |
| ·500 | ·478 | 499 | ·434 | 498 | ·390 | 497 | ·346 | 496 | ·302 |
| ·591 | ·477 | 590 | ·433 | 589 | ·389 | 588 | ·345 | 587 | ·301 |
| ·681 | ·476 | 681 | ·432 | 680 | ·388 | 679 | ·344 | 678 | ·300 |
| ·772 | ·475 | 771 | ·431 | 771 | ·387 | 770 | ·343 | 769 | ·299 |
| ·863 | ·474 | 862 | ·430 | 861 | ·386 | 861 | ·342 | 860 | ·298 |
| ·954 | ·473 | 953 | ·429 | 952 | ·385 | 951 | ·341 | 951 | ·297 |
| 2·045 | ·472 | 6·044 | ·428 | 10·043 | ·384 | 14·042 | ·340 | 18·041 | ·296 |
| ·136 | ·471 | 135 | ·427 | 134 | ·383 | 133 | ·339 | 132 | ·295 |
| ·227 | ·470 | 226 | ·426 | 225 | ·382 | 224 | ·338 | 223 | ·294 |
| ·318 | ·469 | 317 | ·425 | 316 | ·381 | 315 | ·337 | 314 | ·293 |
| ·409 | ·468 | 408 | ·424 | 407 | ·380 | 406 | ·336 | 405 | ·292 |
| ·499 | ·467 | 499 | ·423 | 498 | ·379 | 497 | ·335 | 496 | ·291 |
| ·590 | ·466 | 589 | ·422 | 589 | ·378 | 588 | ·334 | 587 | ·290 |
| ·681 | ·465 | 680 | ·421 | 679 | ·377 | 679 | ·333 | 678 | ·289 |
| ·772 | ·464 | 771 | ·420 | 770 | ·376 | 769 | ·332 | 769 | ·288 |
| ·863 | ·463 | 862 | ·419 | 861 | ·375 | 860 | ·331 | 859 | ·287 |
| ·954 | ·462 | 953 | ·418 | 952 | ·374 | 951 | ·330 | 950 | ·286 |
| 3·045 | ·461 | 7·044 | ·417 | 11·043 | ·373 | 15·042 | ·329 | 19·041 | ·285 |
| ·136 | ·460 | 135 | ·416 | 134 | ·372 | 133 | ·328 | 132 | ·284 |
| ·227 | ·459 | 226 | ·415 | 225 | ·371 | 224 | ·327 | 223 | ·283 |
| ·317 | ·458 | 317 | ·414 | 316 | ·370 | 315 | ·326 | 314 | ·282 |
| ·408 | ·457 | 407 | ·413 | 407 | ·369 | 406 | ·325 | 405 | ·281 |
| ·499 | ·456 | 498 | ·412 | 497 | ·368 | 497 | ·324 | 496 | ·280 |
| ·590 | ·455 | 589 | ·411 | 588 | ·367 | 587 | ·323 | 587 | ·279 |
| ·681 | ·454 | 680 | ·410 | 679 | ·366 | 678 | ·322 | 677 | ·278 |
| ·772 | ·453 | 771 | ·409 | 770 | ·365 | 769 | ·321 | 768 | ·277 |
| ·863 | ·452 | 862 | ·408 | 861 | ·364 | 860 | ·320 | 859 | ·276 |
| ·954 | ·451 | 953 | ·407 | 952 | ·363 | 951 | ·319 | 950 | ·275 |

To use the Table.—Find in the table the annuity nearest in value to the proposed annuity, and take out the quantity opposite thereto. Add this to the proposed annuity.

Example.—Suppose the given annuity to be worth 10·325 years' purchase. Then in the table the nearest value is 10·316, opposite to which is the addition ·381, therefore $10·325 + ·381 = 10·706$ is the augmented value, as required.

EXCHANGE TABLE.—Pounds into Rupees, at 1s. 11d.

| | | | | | For Pounds + Rupees. | — | For Shillings. + Rupees. | — | For Pence. + Rupees. | Fractional Equivalents. | |
|-----|-----|-----|-----|-----|----------------------------|-----------|--------------------------------|--------|----------------------------|-------------------------|--------------|
| Ra. | Ra. | Ra. | Ra. | Ra. | | | | | | | |
| 0 | 240 | 480 | 720 | 960 | | | | | | | |
| £ | £ | £ | £ | £ | | Shillings | | Pence. | | Decimals. | Annas. Pies. |
| 0 | 23 | 46 | 69 | 92 | 0·00000 | 0 | 0·0000 | 0 | 0·0000 | ·000 | 0 0 |
| 1 | 24 | 47 | 70 | 93 | 10·43478 | 1 | 0·5217 | 1 | 0·0434 | ·043 | 0 8 |
| 2 | 25 | 48 | 71 | 94 | 20·86956 | 2 | 1·0434 | 2 | 0·0869 | ·086 | 1 5 |
| 3 | 26 | 49 | 72 | 95 | 31·30434 | 3 | 1·5652 | 3 | 0·1304 | ·130 | 2 1 |
| 4 | 27 | 50 | 73 | 96 | 41·73913 | 4 | 2·0869 | 4 | 0·1739 | ·173 | 2 9 |
| 5 | 28 | 51 | 74 | 97 | 52·17391 | 5 | 2·6086 | 5 | 0·2173 | ·217 | 3 6 |
| 6 | 29 | 52 | 75 | 98 | 62·60869 | 6 | 3·1304 | 6 | 0·2608 | ·260 | 4 2 |
| 7 | 30 | 53 | 76 | 99 | 73·04347 | 7 | 3·6521 | 7 | 0·3043 | ·304 | 4 10 |
| 8 | 31 | 54 | 77 | | 83·47826 | 8 | 4·1739 | 8 | 0·3478 | ·347 | 5 7 |
| 9 | 32 | 55 | 78 | | 93·91304 | 9 | 4·6956 | 9 | 0·3913 | ·391 | 6 3 |
| 10 | 33 | 56 | 79 | | 104·34782 | 10 | 5·2175 | 10 | 0·4347 | ·434 | 6 11 |
| 11 | 34 | 57 | 80 | | 114·78260 | 11 | 5·7391 | 11 | 0·4782 | ·478 | 7 8 |
| 12 | 35 | 58 | 81 | | 125·21739 | 12 | 6·2608 | | | ·521 | 8 4 |
| 13 | 36 | 59 | 82 | | 135·65217 | 13 | 6·7826 | | | ·565 | 9 1 |
| 14 | 37 | 60 | 83 | | 146·08695 | 14 | 7·3043 | | | ·608 | 9 9 |
| 15 | 38 | 61 | 84 | | 156·52173 | 15 | 7·8260 | | | ·652 | 10 5 |
| 16 | 39 | 62 | 85 | | 166·95652 | 16 | 8·3478 | | | ·695 | 11 2 |
| 17 | 40 | 63 | 86 | | 177·39130 | 17 | 8·8695 | | | ·739 | 11 10 |
| 18 | 41 | 64 | 87 | | 187·82608 | 18 | 9·3913 | | | ·782 | 12 6 |
| 19 | 42 | 65 | 88 | | 198·26086 | 19 | 9·9130 | | | ·826 | 13 3 |
| 20 | 43 | 66 | 89 | | 208·69565 | | | | | ·869 | 13 11 |
| 21 | 44 | 67 | 90 | | 219·13043 | | | | | ·913 | 14 7 |
| 22 | 45 | 68 | 91 | | 229·56521 | | | | | ·956 | 15 4 |

To use the Table.—Find the Pounds in one of the columns headed Pounds, then will the sum of the numbers at the top and in the margin express the value in Rupees.

Example :—

Required the equivalent of 73l.—Here, 720 + 41·739 = Rs. 761. 11. 10.

Required the equivalent of 730l.—Here, 7200 + 417·391 = Rs. 7,617. 6. 3.

Required the equivalent of 15l. 11s. 7d.—Here, 15l. = 156·522

11s. = 5·739

10d. = 0·304

161·565 = Rs. 161. 9. 1.

Note.—The value of the decimals in annas and pies will always be found in the small table of fractional equivalents

EXCHANGE.—Rupees into Pounds, at 1s. 11d.

| £ | £ | £ | £ | £ | £ | £ | £ | £ | £ | £ | | |
|-----|-----|-----|-----|-----|------|------|------|------|------|---------|--------|-------|
| 0·0 | 2·3 | 4·6 | 6·9 | 9·2 | 11·5 | 13·8 | 16·1 | 18·4 | 20·7 | | | |
| Ra. | Ra. | Ra. | Ra. | Ra. | Ra. | Ra. | Ra. | Ra. | Ra. | | | |
| 0 | 24 | 48 | 72 | 96 | 120 | 144 | 168 | 192 | 216 | 0·00000 | | |
| 1 | 25 | 49 | 73 | 97 | 121 | 145 | 169 | 193 | 217 | 0·09583 | | |
| 2 | 26 | 50 | 74 | 98 | 122 | 146 | 170 | 194 | 218 | 0·19166 | | |
| 3 | 27 | 51 | 75 | 99 | 123 | 147 | 171 | 195 | 219 | 0·28750 | Annas. | £ |
| 4 | 28 | 52 | 76 | 100 | 124 | 148 | 172 | 196 | 220 | 0·38333 | 1 | ·0060 |
| 5 | 29 | 53 | 77 | 101 | 125 | 149 | 173 | 197 | 221 | 0·47916 | 2 | ·0120 |
| 6 | 30 | 54 | 78 | 102 | 126 | 150 | 174 | 198 | 222 | 0·57500 | 3 | ·0180 |
| 7 | 31 | 55 | 79 | 103 | 127 | 151 | 175 | 199 | 223 | 0·67083 | 4 | ·0240 |
| 8 | 32 | 56 | 80 | 104 | 128 | 152 | 176 | 200 | 224 | 0·76666 | 5 | ·0299 |
| 9 | 33 | 57 | 81 | 105 | 129 | 153 | 177 | 201 | 225 | 0·86250 | 6 | ·0359 |
| 10 | 34 | 58 | 82 | 106 | 130 | 154 | 178 | 202 | 226 | 0·95833 | 7 | ·0419 |
| 11 | 35 | 59 | 83 | 107 | 131 | 155 | 179 | 203 | 227 | 1·05416 | 8 | ·0479 |
| 12 | 36 | 60 | 84 | 108 | 132 | 156 | 180 | 204 | 228 | 1·15000 | 9 | ·0539 |
| 13 | 37 | 61 | 85 | 109 | 133 | 157 | 181 | 205 | 229 | 1·24583 | 10 | ·0599 |
| 14 | 38 | 62 | 86 | 110 | 134 | 158 | 182 | 206 | 230 | 1·34166 | 11 | ·0659 |
| 15 | 39 | 63 | 87 | 111 | 135 | 159 | 183 | 207 | 231 | 1·43750 | 12 | ·0719 |
| 16 | 40 | 64 | 88 | 112 | 136 | 160 | 184 | 208 | 232 | 1·53333 | 13 | ·0779 |
| 17 | 41 | 65 | 89 | 113 | 137 | 161 | 185 | 209 | 233 | 1·62916 | 14 | ·0839 |
| 18 | 42 | 66 | 90 | 114 | 138 | 162 | 186 | 210 | 234 | 1·72500 | 15 | ·0898 |
| 19 | 43 | 67 | 91 | 115 | 139 | 163 | 187 | 211 | 335 | 1·82083 | | |
| 20 | 44 | 68 | 92 | 116 | 140 | 164 | 188 | 212 | 736 | 1·91666 | | |
| 21 | 45 | 69 | 93 | 117 | 141 | 165 | 189 | 213 | 237 | 2·01250 | | |
| 22 | 46 | 70 | 94 | 118 | 142 | 166 | 190 | 214 | 238 | 2·10833 | | |
| 23 | 47 | 71 | 95 | 119 | 143 | 167 | 191 | 215 | 239 | 2·20416 | | |

To use the Table.—Find the Rupees in one of the columns headed Rupees, then will the sum of the numbers at the top and in the margin express the value in Pounds.

Example :—

Required the equivalent of Rs. 761. 11. 10,—

Rs. 760 = 69

+ 3·8333

„ 1 = 0·0958

As. 11 = 0·0659

Pies 10 = 0·005

£73·0000

Note.—The value of one pie is ·0005 very nearly.

TABLE SHOWING THE RATE OF MARRIAGE. From the Fourteenth Annual Report of the Registrar General, page viii.

ENGLAND.—Number of Bachelors, Spinsters, Widowers, and Widows, at different Ages, who were enumerated; also the Proportions who were married in the Year 1851.

| Age. | Numbers enumerated in 1851. | | | | Estimated Numbers married in 1851. (<i>See note.</i>) | | | | Proportion married to 100 living. | | | |
|--------------------|-----------------------------|------------|-----------|---------|---|--------------|-----------|---------|-----------------------------------|------------|-----------|---------|
| | Bachelors. | Spinsters. | Widowers. | Widows. | Bachelors. | Spinsters. • | Widowers. | Widows. | Bachelors. | Spinsters. | Widowers. | Widows. |
| Total - | 2297759 | 2306009 | 333926 | 661894 | 132643 | 140331 | 21563 | 13875 | 5·773 | 6·085 | 6·457 | 2·096 |
| 15 | 869325 | 861453 | 76 | 260 | 4035 | 18807 | — | 13 | ·464 | 2·183 | — | — |
| 20 | 633842 | 598732 | 2168 | 4326 | 71049 | 75872 | 667 | 850 | 11·209 | 12·672 | 30·766 | 5·000 |
| 25 | 308363 | 306607 | 8290 | 14303 | 37647 | 29136 | 2967 | 2132 | 12·209 | 9·503 | 35·790 | 19·649 |
| 30 | 159956 | 163604 | 14249 | 26328 | 12558 | 9857 | 4079 | 3057 | 7·851 | 6·025 | 28·627 | 14·906 |
| 35 | 95889 | 99443 | 18584 | 34839 | 4371 | 3759 | 3775 | 2527 | 4·558 | 3·780 | 20·313 | 11·611 |
| 40 | 67380 | 71520 | 24576 | 49207 | 1885 | 1789 | 3459 | 2132 | 2·798 | 2·501 | 14·075 | 7·253 |
| 45 | 47522 | 51044 | 27172 | 54868 | 688 | 724 | 2407 | 1466 | 1·448 | 1·418 | 8·858 | 4·333 |
| 50 | 37155 | 43102 | 34057 | 70033 | 262 | 258 | 1945 | 909 | ·705 | ·599 | 5·711 | 2·672 |
| 55 | 25815 | 30823 | 32586 | 67181 | 90 | 96 | 1043 | 491 | ·349 | ·311 | 3·201 | 1·298 |
| 60 | 21649 | 29550 | 41725 | 88283 | 33 | 25 | 728 | 213 | ·152 | ·085 | 1·745 | ·731. |
| 65 | 13055 | 19319 | 37567 | 77698 | 19 | 5 | 324 | 53 | ·146 | ·026 | ·862 | ·241 |
| 70 | 9629 | 15217 | 39284 | 74625 | 3 | — | 124 | 19 | ·031 | — | ·316 | ·068 |
| 75 | 5068 | 8837 | 28139 | 52527 | 3 | — | 28 | 8 | ·059 | — | ·100 | ·025 |
| 80 and upwards. | 3111 | 6758 | 25453 | 47416 | — | 3 | 17 | 5 | — | ·044 | ·067 | ·011 |

The Table may be read thus :—Of the persons enumerated in 1851, of the age of 20 and under 25, there were 633,842 Bachelors, 598,732 Spinsters, 2,168 Widowers, and 4,326 Widows, while the numbers who were married during the same year and of the same ages were respectively 71,049, 75,872, 667, and 850, being in the proportion of 11·209 Bachelors, 12·672 Spinsters, 30·766 Widowers, and 19·649 Widows married to every 100 living, and so on at other ages. By disregarding the decimal point, the proportions to 10,000 will be represented.

Note.—Of the total number of marriages solemnized in 1851, the ages of the Males and Females were stated only of the following numbers, viz., 48,555 Bachelors, 51,141 Spinsters, 7,792 Widowers, and 5,206 Widows. In this Table these numbers have been proportionally raised to the total numbers married under these respective headings.

My dear Dr. Farr,

London,
26th February 1870.

Having occasion to make a practical application of the rate of marriage among spinsters, I some time since mentioned the matter to you, and you have kindly placed in my hands the Fourteenth Report of the Registrar-General, where, in p. viii, a table (V. c.) is given to show approximately the rate of marriage at different ages for bachelors, spinsters, widowers, and widows.

Of these rates that for spinsters is considerably the lowest. For this class I have supplied the intermediate years by interpolation with differences to the fourth order, and the result is a well graduated scale, which I send herewith.

The benefits derived from the several Funds established in India terminate on remarriage. It has, therefore, been necessary to ascertain the rate of marriage for this class. Investigations on scant data were made by the late Mr. Griffith Davies, by Mr. Neison, and by Mr. Samuel Brown. I have entered some of the results in the table, and you will observe that they are much below the British spinsters' rate. One reason for this may be that the loss of pension restricts marriage.

Comparing the British spinsters and the Indian widows' marriage rates, it seems reasonable to ask whether the widows' rate could fairly be applied to the class for whom I am at present concerned, namely, the daughters of Indian Officers, and if not, how far could the British spinsters' rate be held applicable?

The forfeiture of pensions on marriage has not the same restrictive effect on spinsters as on widows. The pensions are small, and besides this, many daughters marry in their father's lifetime, when their interest in the pension is only reversionary.

It is noticeable that in the Table V. c., the rate of marriage of widows greatly exceeds that of first marriages, but if the British spinsters' rate be compared with the Indian widows' rate, the reverse of this obtains.

Perhaps a safe rate, following the same law of progression as the spinsters' rate, may be deduced by taking an uniform percentage from the British table. Thus, at the age of 20, deducting one-fifth, the marriage rate would become 10.118 per cent. as a maximum, instead of 12.672, and so throughout. Even thus, I find that there would be a wide departure from the Indian widows' rate.

The question is important, and its determination will affect large pecuniary interests. Safety is on either hand advantageous, but the exaction of an over-high premium, when only safety and not profit is sought, would be unjust.

In a conflict of data, the leaning must ever be to the largest and most authentic body of facts. That the census of 1851, with its 2,306,009 spinsters and 140,331 marriages, is more to be relied on, than an experience drawn from 635 widows and 119 remarriages, is not open to dispute. But the smaller experience, as applicable to a class, has much weight. I am therefore disposed to reduce the British rate for the purpose in hand.

How far such a reduction should be carried must partly rest on opinion. I submit the subject to you because I have your permission to do so, and because I rely on your judgment.

With sincere apologies for this trespass on your time and attention,

I am, &c.,
(Signed) J. HANNYNGTON.

W. Farr, Esq., M.D.

General Register Office, Somerset House,
7th March 1870.

My dear General Hannyngton,

I have read your paper and the table interpolated, which you have had the goodness to send me. The subject is most difficult, as you are dealing with a class in peculiar conditions, and the observations at your disposal are limited.

Your view appears to be judicious. You take into account all the data relating to the class, and the estimate of the best authorities, and then, after reasoning on probable results, you turn to account the experience of the whole nation in fixing the quota of marriage at the several ages. You must, I imagine, assume that your widows will marry at a slower rate than our spinsters, although in England widows marry more frequently than spinsters. But widows have often fortunes or perquisites, which tempt, while your widows, losing income, may be deterred from marriage, or deter future husbands.

It is a special case. But I know you have given the subject so much thought that I should be quite willing myself to act on your decision.

At the end of every five years you will naturally investigate the progress, and should take power to alter the scheme in accordance with the results of experience.

I am, &c.,
(Signed) WILLIAM FARR.

DIFFERENCES FOR INTERPOLATION. MARRIAGES PER CENT., SPINSTERS. DATA FROM
14TH REPORT OF THE REGISTRAR GENERAL.

| | | | | | | | | |
|-------|---|------------|---|------------|---|------------|---|------------|
| | + | Δ_1 | - | Δ_2 | + | Δ_3 | - | Δ_4 |
| 2183 | + | 10489 | - | 13658 | + | 13349 | - | 11807 |
| 12672 | - | 3169 | - | 309 | + | 1542 | - | 1809 |
| 9503 | - | 3478 | + | 1233 | - | 267 | - | 503 |
| 6025 | - | 2245 | + | 966 | - | 770 | + | 838 |
| 3780 | - | 1279 | + | 196 | + | 68 | + | 199 |
| 2501 | - | 1083 | + | 264 | + | 267 | - | 736 |
| 1418 | - | 819 | + | 531 | - | 469 | | |
| 599 | - | 288 | + | 62 | | | | |
| 311 | - | 226 | | | | | | |
| 85 | | | | | | | | |

| | + | Δ_1 | - | Δ_2 | + | Δ_3 | - | Δ_4 | |
|----|---|------------|---|------------|---|------------|---|------------|----------------------------|
| | | .2 | | .08 | | .048 | | .0336 | |
| | | .4 | | .12 | | .064 | | .0416 | |
| | | .6 | | .12 | | .056 | | .0336 | |
| | | .8 | | .08 | | .032 | | .0176 | |
| | | | | | | | | | Military Officers' Widows. |
| | | | | | | | | | S. Brown: |
| | | | | | | | | | Bengal, |
| | | | | | | | | | Madras, |
| | | | | | | | | | Bombay. |
| | | | | | | | | | Neison: |
| | | | | | | | | | Bengal. |
| 15 | | | | | | | | 2.183 | 10.69 |
| | + | 10489 | + | 4228 | | | | 6.411 | |
| | + | 13658 | | 7180 | | | | 9.363 | |
| | + | 13349 | | 9077 | | | | 11.260 | 6.849 |
| | + | 11807 | | 10119 | | | | 12.302 | |
| 20 | | | | | | | | 12.672 | 7.10 |
| | - | 3169 | - | 474 | | | | 12.198 | |
| | + | 309 | | 1059 | | | | 11.615 | |
| | + | 1542 | | 1717 | | | | 10.955 | 5.102 |
| | + | 1809 | | 2429 | | | | 10.243 | |
| 25 | | | | | | | | 9.503 | 4.88 |
| | - | 3478 | - | 790 | | | | 8.713 | |
| | - | 1233 | | 1535 | | | | 7.968 | |
| | - | 267 | | 2233 | | | | 7.270 | 3.329 |
| | + | 503 | | 2881 | | | | 6.622 | |
| 30 | | | | | | | | 6.025 | 3.20 |
| | - | 2245 | - | 591 | | | | 5.434 | |
| | - | 966 | | 1098 | | | | 4.927 | |
| | - | 770 | | 1534 | | | | 4.491 | 2.857 |
| | - | 838 | | 1913 | | | | 4.112 | |
| 35 | | | | | | | | 3.780 | 1.68 |
| | - | 1279 | - | 275 | | | | 3.505 | |
| | - | 196 | | 539 | | | | 3.241 | |
| | + | 68 | | 794 | | | | 2.986 | 1.653 |
| | - | 199 | | 1040 | | | | 2.740 | |
| 40 | | | | | | | | 2.501 | 0.90 |
| | - | 1083 | - | 200 | | | | 2.301 | |
| | - | 214 | | 417 | | | | 2.084 | |
| | + | 267 | | 642 | | | | 1.859 | 0.802 |
| | + | 736 | | 866 | | | | 1.635 | |
| 45 | | | | | | | | 1.418 | 0.91 |
| | + | 819 | + | 617 | | | | 1.216 | |
| | - | 264 | | 441 | | | | 1.040 | |
| | - | 68 | | 257 | | | | .856 | 0.877 |
| | - | 838 | + | 111 | | | | .710 | |
| 50 | | | | | | | | .599 | .67 |

ELEMENTS FOR COMPUTING THE DURATION OF UNMARRIED LIFE. FEMALES.

| Age. | Proportions | | | (3) + (4) 1 - P _u | P _u | Log P _u |
|------|-------------|--------|-----------|---------------------------------|----------------|--------------------|
| | Living. | Dying. | Marrying. | | | |
| 15 | .99445 | .00555 | .01746 | .02301 | .97699 | 9898901 |
| 6 | 400 | .00600 | .05129 | .05729 | .94271 | 9743781 |
| 7 | 345 | .00655 | .07490 | .08145 | .91855 | 9631028 |
| 8 | 282 | .00718 | .09008 | .09726 | .90274 | 9555627 |
| 9 | 214 | .00786 | .09842 | .10628 | .89372 | 9512015 |
| 20 | 144 | .00856 | .00137 | .10993 | .89007 | 9494242 |
| 1 | 121 | .00879 | .09758 | .10637 | .89363 | 9511577 |
| 2 | 100 | .00900 | .09292 | .10192 | .89808 | 9533150 |
| 3 | 079 | .00921 | .08764 | .09685 | .90315 | 9557599 |
| 4 | 059 | .00941 | .08194 | .09135 | .90865 | 9583966 |
| 5 | 039 | .00961 | .07602 | .08563 | .91437 | 9611220 |
| 6 | 019 | .00981 | .06970 | .07951 | .92049 | 9640191 |
| 7 | 000 | .01000 | .06374 | .07374 | .92626 | 9667329 |
| 8 | .98981 | .01019 | .05816 | .06835 | .93165 | 9692528 |
| 9 | 962 | .01038 | .05297 | .06335 | .93665 | 9715773 |
| 30 | 943 | .01057 | .04820 | .05877 | .94123 | 9736958 |
| 1 | 924 | .01076 | .04347 | .05423 | .94577 | 9757855 |
| 2 | 904 | .01096 | .03942 | .05038 | .94962 | 9775499 |
| 3 | 884 | .01116 | .03593 | .04709 | .95291 | 9790519 |
| 4 | 863 | .01137 | .03290 | .04427 | .95573 | 9803352 |
| 5 | 842 | .01158 | .03024 | .04182 | .95818 | 9814471 |
| 6 | 820 | .01180 | .02804 | .03984 | .96016 | 9823436 |
| 7 | 797 | .01203 | .02593 | .03796 | .96204 | 9831931 |
| 8 | 774 | .01226 | .02389 | .03615 | .96385 | 9840095 |
| 9 | 749 | .01251 | .02192 | .03443 | .96557 | 9847838 |
| 40 | 723 | .01277 | .02001 | .03278 | .96722 | 9855253 |
| 1 | 696 | .01304 | .01841 | .03145 | .96855 | 9861220 |
| 2 | 668 | .01332 | .01667 | .02999 | .97001 | 9867762 |
| 3 | 638 | .01362 | .01487 | .02849 | .97151 | 9874473 |
| 4 | 606 | .01394 | .01308 | .02702 | .97298 | 9881039 |
| 5 | 573 | .01427 | .01134 | .02561 | .97439 | 9887328 |
| 6 | 538 | .01462 | .00973 | .02435 | .97565 | 9892940 |
| 7 | 502 | .01498 | .00832 | .02330 | .97670 | 9897612 |
| 8 | 463 | .01537 | .00685 | .02222 | .97778 | 9902411 |
| 9 | 422 | .01578 | .00568 | .02146 | .97854 | 9905786 |

DERIVED FROM ENGLISH LIFE TABLE. NO. 3. FEMALES.

With the Rate of Marriage reduced by one fifth, from 14th Report of Registrar General.

| | Log P _u | Log l _u | | Log P _u | Log l _u | | Log P _u | Log l _u |
|----|--------------------|--------------------|----|--------------------|--------------------|-----|--------------------|--------------------|
| 0 | 1.9371604 | 6.0000000 | 40 | 1.9855258 | 5.0802771 | 80 | 1.9394234 | 4.2894835 |
| 1 | 9722410 | 5.9371604 | 1 | 9861320 | 0658024 | 1 | 9346135 | 2289069 |
| 2 | 9843554 | 9094014 | 2 | 9867762 | 0519244 | 2 | 9294933 | 1635204 |
| 3 | 9893710 | 8937568 | 3 | 9874473 | 0387006 | 3 | 9240517 | 0930137 |
| 4 | 9922523 | 8831278 | 4 | 9881039 | 0261479 | 4 | 9182778 | 4.0170654 |
| 5 | 9941950 | 8753801 | 5 | 9887328 | 0142518 | 5 | 9121607 | 3.9353432 |
| 6 | 9953928 | 8695751 | 6 | 9892940 | 5.0029846 | 6 | 9056896 | 9475039 |
| 7 | 9960392 | 8649679 | 7 | 9897612 | 4.9922786 | 7 | 8988532 | 7531935 |
| 8 | 9966496 | 8610071 | 8 | 9902411 | 9820398 | 8 | 8916408 | 6520467 |
| 9 | 9971161 | 8576567 | 9 | 9905786 | 9722809 | 9 | 8840415 | 5436875 |
| 10 | 9974514 | 8547728 | 50 | 9929018 | 9628595 | 90 | 8760443 | 4277290 |
| 1 | 9976674 | 8522242 | 1 | 9927015 | 9557613 | 1 | 8676383 | 3037733 |
| 2 | 9977764 | 8498916 | 2 | 9924906 | 9484628 | 2 | 8588123 | 1714113 |
| 3 | 9977906 | 8476680 | 3 | 9922685 | 9409534 | 3 | 8495557 | 3.0302239 |
| 4 | 9977924 | 8454586 | 4 | 9913715 | 9332219 | 4 | 8398575 | 2.8797796 |
| 5 | 9898901 | 8431810 | 5 | 9907919 | 9245934 | 5 | 8297066 | 7196371 |
| 6 | 9743781 | 8330711 | 6 | 9901864 | 9153853 | 6 | 8190921 | 5493437 |
| 7 | 9631028 | 8074492 | 7 | 9895440 | 9055717 | 7 | 8080033 | 3684358 |
| 8 | 9555627 | 7705520 | 8 | 9888536 | 8951157 | 8 | 7964288 | 2.1764391 |
| 9 | 9512015 | 7261197 | 9 | 9881047 | 8839693 | 9 | 7843582 | 1.9728679 |
| 20 | 9494242 | 6773212 | 60 | 9872859 | 8720740 | 100 | 7717801 | 7572261 |
| 1 | 9511577 | 6267454 | 1 | 9863865 | 8593599 | 1 | 7586838 | 5290062 |
| 2 | 9533150 | 5779031 | 2 | 9853955 | 8457464 | 2 | 7450583 | 3876900 |
| 3 | 9557599 | 5312181 | 3 | 9843019 | 8311419 | 3 | 7308927 | 0327483 |
| 4 | 9583996 | 4869780 | 4 | 9830950 | 8154438 | 4 | 7161761 | 0.7636410 |
| 5 | 9611220 | 4453776 | 5 | 9817635 | 7985388 | 5 | 7008974 | 4798171 |
| 6 | 9640191 | 4064996 | 6 | 9802967 | 7803023 | 6 | 6850457 | 1807145 |
| 7 | 9667329 | 3705187 | 7 | 9786837 | 7605990 | 7 | 6686102 | 1.8657602 |
| 8 | 9692528 | 3372516 | 8 | 9769134 | 7392827 | 8 | 6515799 | 5343704 |
| 9 | 9715773 | 3065044 | 9 | 9749749 | 7161961 | | | 1859503 |
| 30 | 9736958 | 2780817 | 70 | 9728573 | 6911710 | | | |
| 1 | 9757855 | 2517775 | 1 | 9705496 | 6640283 | | | |
| 2 | 9775499 | 2275630 | 2 | 9680410 | 6345779 | | | |
| 3 | 9790519 | 2051129 | 3 | 9653205 | 6026189 | | | |
| 4 | 9803352 | 1841648 | 4 | 9623770 | 5679394 | | | |
| 5 | 9814471 | 1645000 | 5 | 9591998 | 5303164 | | | |
| 6 | 9823436 | 1459471 | 6 | 9557777 | 4895162 | | | |
| 7 | 9831931 | 1282907 | 7 | 9521001 | 4452939 | | | |
| 8 | 9840095 | 1114838 | 8 | 9481557 | 3973940 | | | |
| 9 | 9847838 | 5.0954933 | 9 | 9439338 | 4.3455497 | | | |

LOGARITHMS FOR COMPUTING $D_{x,y}$, AND $D_{x^2,y}$

| x or y | Log. l_x | Log. D_y | Log. d_x | Log. B_y | Numbers. | |
|------------|------------|------------|------------|------------|----------|-----------|
| | | | | | d_x | B_y |
| 15 | | 3.0652451 | | 4.0681829 | | 11699.920 |
| 6 | | 0418595 | | 0371105 | | 10892.071 |
| 7 | | 3.0184316 | | 4.0125905 | | 10294.173 |
| 8 | 4.9852917 | 2.9949604 | 3.1283993 | 3.9962777 | 1344 | 9914.657 |
| 9 | 9792114 | 9714452 | 1809856 | 9845847 | 1517 | 9651.2728 |
| 20 | 4.9722445 | 2.9478850 | 3.2224563 | 3.9725715 | 1669 | 9387.9656 |
| 1 | 9644482 | 9242788 | 2521246 | 9600950 | 1787 | 9122.1032 |
| 2 | 9559426 | 9006256 | 2732328 | 9469881 | 1876 | 8850.9147 |
| 3 | 9468304 | 8769246 | 2862319 | 9329509 | 1933 | 8569.4095 |
| 4 | 9372370 | 8531747 | 2922561 | 9174886 | 1960 | 8269.6776 |
| 5 | 9272882 | 8293747 | 2918127 | 9004230 | 1958 | 7951.0233 |
| 6 | 9171167 | 8055238 | 2857823 | 8821412 | 1931 | 7623.2690 |
| 7 | 9068466 | 7816206 | 2803507 | 8631058 | 1907 | 7296.3516 |
| 8 | 8964601 | 7576641 | 2753114 | 8433381 | 1885 | 6971.6905 |
| 9 | 8859433 | 7334292 | 2704459 | 8243275 | 1864 | 6673.0981 |
| 30 | 4.8752870 | 2.7089063 | 3.2662317 | 3.8041409 | 1846 | 6370.0213 |
| 1 | 8644695 | 6840865 | 2619762 | 7825890 | 1828 | 6061.6226 |
| 2 | 8534853 | 6596556 | 2567177 | 7619667 | 1806 | 5780.5171 |
| 3 | 8423533 | 6335079 | 2501759 | 7404723 | 1779 | 5501.3909 |
| 4 | 8311016 | 6079646 | 2427898 | 7185212 | 1749 | 5230.2359 |
| 5 | 8197479 | 5820811 | 2340108 | 6954180 | 1714 | 4959.2729 |
| 6 | 8083258 | 5560906 | 2245331 | 6713483 | 1677 | 4691.8946 |
| 7 | 7968517 | 5297380 | 2145790 | 6457805 | 1639 | 4423.6476 |
| 8 | 7853370 | 5032627 | 2046625 | 6193692 | 1602 | 4162.6426 |
| 9 | 7737791 | 4764002 | 1945143 | 5915014 | 1565 | 3903.9246 |
| 40 | 4.7621832 | 2.4493971 | 3.1841234 | 3.5623218 | 1528 | 3650.2437 |
| 1 | 7505547 | 4219776 | 1734776 | 5314582 | 1491 | 3399.8378 |
| 2 | 7388994 | 3941205 | 1631614 | 4996387 | 1456 | 3159.6478 |
| 3 | 7272077 | 3660839 | 1532049 | 4666837 | 1423 | 2928.7594 |
| 4 | 7154685 | 3375724 | 1433271 | 4332293 | 1391 | 2711.6231 |
| 5 | 7036782 | 3088533 | 1338581 | 3984411 | 1361 | 2502.8669 |
| 6 | 6918238 | 2796159 | 1245042 | 3631690 | 1332 | 2307.6452 |
| 7 | 6799001 | 2501370 | 1126050 | 3273923 | 1296 | 2125.1627 |
| 8 | 6679757 | 2204047 | 0979511 | 2914096 | 1253 | 1956.1832 |
| 9 | 6561270 | 1904065 | 0806265 | 2552800 | 1204 | 1800.0301 |
| 50 | 4.644287 | 2.1597960 | 3.0606978 | 3.2198756 | 1150 | 1659.1116 |
| 1 | 6329531 | 1288729 | 0382226 | 1837129 | 1092 | 1526.5567 |
| 2 | 6217681 | 0972681 | 0203613 | 1470642 | 1048 | 1403.0207 |
| 3 | 6107560 | 0652934 | 3.0077478 | 1096021 | 1018 | 1287.0692 |
| 4 | 5997849 | 0329264 | 2.9995655 | 0714789 | 999 | 1178.9052 |
| 5 | 5887422 | 2.0001424 | 9965117 | 3.0328148 | 992 | 1078.4867 |
| 6 | 5774918 | 1.9669142 | 2.9973864 | 2.9993156 | 994 | 984.34112 |
| 7 | 5659186 | 9332120 | 3.0030295 | 9520578 | 1007 | 895.48367 |
| 8 | 5538709 | 8990029 | 0128372 | 9091046 | 1030 | 811.15625 |
| 9 | 5411822 | 8642503 | 0257154 | 8641285 | 1061 | 731.35539 |
| 60 | 4.5277330 | 1.8289137 | 3.0413927 | 2.8174589 | 1100 | 656.83887 |
| 1 | 5133242 | 7929477 | 0584260 | 7691010 | 1144 | 587.62593 |
| 2 | 4978139 | 7563014 | 0744507 | 7190617 | 1187 | 523.66866 |
| 3 | 4811128 | 7189177 | 0895519 | 6676530 | 1229 | 465.21421 |
| 4 | 4631162 | 6807318 | 1031193 | 6148733 | 1268 | 411.97720 |
| 5 | 4437322 | 6416699 | 1149444 | 5606992 | 1303 | 363.66303 |
| 6 | 4228688 | 6016477 | 1251558 | 5050070 | 1334 | 319.89465 |
| 7 | 4004171 | 5605680 | 1351327 | 4476552 | 1365 | 280.32064 |
| 8 | 3761753 | 5183181 | 1439511 | 3885365 | 1393 | 244.64507 |
| 9 | 3499571 | 4747663 | 1513699 | 3267492 | 1417 | 212.20186 |
| 70 | 4.3215570 | 1.4290155 | 3.1568519 | 2.2635340 | 1435 | 183.45606 |
| 1 | 2907690 | 3815239 | 1598678 | 1963908 | 1445 | 157.17765 |
| 2 | 2573905 | 3320480 | 1613680 | 1281932 | 1450 | 134.33624 |
| 3 | 2211011 | 2802891 | 1604685 | 2.0552905 | 1447 | 113.57702 |
| 4 | 1815864 | 2258750 | 1568519 | 1.9808476 | 1435 | 95.68581 |
| 5 | 1384922 | 1694226 | 1495270 | 9026423 | 1411 | 79.91755 |
| 6 | 0914911 | 1094548 | 1383027 | 8213315 | 1375 | 66.27226 |
| 7 | 4.0402066 | 1.0465595 | 1218880 | 7353251 | 1324 | 54.36571 |
| 8 | 3.9843473 | 0.9802210 | 1003705 | 6449680 | 1260 | 44.15377 |
| 9 | 9235549 | 9097687 | 0729847 | 5512741 | 1183 | 35.58556 |
| 80 | 3.8575134 | 0.8343088 | 3.0398106 | 1.4518730 | 1096 | 28.30563 |
| 1 | 7858279 | 7547766 | 3.0004341 | 3479337 | 1001 | 22.28095 |
| 2 | 7080808 | 6679926 | 2.9542425 | 2329689 | 900 | 17.09893 |
| 3 | 6238693 | 5747159 | 9009131 | 1.1161440 | 796 | 13.06604 |
| 4 | 5327544 | 4734128 | 8401061 | 0.9834857 | 692 | 9.62688 |
| 5 | 4342495 | 3618870 | 7715871 | 8470494 | 591 | 7.03152 |
| 6 | 3277675 | 2424897 | 6946052 | 7034355 | 495 | 5.05167 |
| 7 | 2127202 | 0.1150340 | 6063814 | 5459283 | 404 | 3.51502 |
| 8 | 3.0891984 | 1.9805242 | 5092025 | 3808676 | 323 | 2.40363 |
| 9 | 2.9566486 | 8427181 | 4014005 | 2271963 | 252 | 1.68731 |
| 90 | 2.8149132 | 1.6945072 | 2.2855573 | 0.0360305 | 193 | 1.086502 |
| 1 | 6627578 | 5391712 | 1553360 | 1.8819138 | 143 | 761928 |
| 2 | 5010593 | 3874293 | 2.0334238 | 6873962 | 108 | 486851 |
| 3 | 3201463 | 1.2221850 | 1.9030900 | 4674080 | 80 | 293365 |
| 4 | 2.1105897 | 1.9814200 | 7558749 | 1.1211863 | 57 | 132186 |
| 5 | 1.8573325 | 6610737 | 5682017 | 1.7702260 | 37 | 058915 |
| 6 | 5440680 | 1.1648361 | 3222193 | 1.1101385 | 21 | 025773 |
| 7 | 1.1461280 | | 1.0000000 | | 10 | |
| 8 | 0.6020600 | | 0.4771213 | | 3 | |
| 9 | 0.0000000 | | 0.0000000 | | 1 | |

NOTE.—Log. l_x + Log. D_y = Log. $D_{x,y}$; and Log. d_x + Log. B_y = Log. $D_{x^2,y}$; the logarithms of the whole series, for every value of x and y may be derived from these, they are given here to afford a ready means of verifying the values that have been

ANNUITIES,
SINGLE LIFE, JOINT LIVES, REVERSIONARY ;
WITH SUBSIDIARY CALCULATIONS.

INDIAN ARMY OFFICERS.—ANNUITIES AND ASSURANCES, 4½ PER CENT.

| x | D_x | N_x | D_x^{-1} | a_x | A_x |
|-----|---------|-----------|------------|--------|---------|
| 18 | 4377.22 | 61989.67 | 22845 | 14.162 | .347091 |
| 19 | 4130.67 | 57859.00 | 24209 | 14.007 | .353766 |
| 20 | 3889.76 | 53969.24 | 25709 | 13.875 | .359450 |
| 21 | 3659.00 | 50310.24 | 27337 | 13.753 | .364703 |
| 22 | 3430.60 | 46879.64 | 29149 | 13.665 | .369493 |
| 23 | 3214.92 | 43664.72 | 31105 | 13.582 | .372067 |
| 24 | 3009.03 | 40655.69 | 33233 | 13.511 | .375124 |
| 25 | 2814.23 | 37841.46 | 35534 | 13.447 | .377880 |
| 26 | 2630.96 | 35210.50 | 38009 | 13.383 | .380636 |
| 27 | 2458.86 | 32751.64 | 40669 | 13.319 | .383392 |
| 28 | 2297.29 | 30454.35 | 43529 | 13.256 | .386105 |
| 29 | 2145.62 | 28308.73 | 46607 | 13.194 | .388775 |
| 30 | 2003.57 | 26305.16 | 49911 | 13.129 | .391574 |
| 31 | 1870.02 | 24435.14 | 53475 | 13.067 | .394244 |
| 32 | 1745.00 | 22690.14 | 57307 | 13.003 | .397000 |
| 33 | 1627.50 | 21062.64 | 61444 | 12.942 | .399627 |
| 34 | 1517.57 | 19545.07 | 65895 | 12.879 | .402340 |
| 35 | 1414.72 | 18130.35 | 70685 | 12.815 | .405096 |
| 36 | 1318.74 | 16811.61 | 75830 | 12.748 | .407981 |
| 37 | 1228.99 | 15582.62 | 81368 | 12.679 | .410952 |
| 38 | 1145.28 | 14437.34 | 87315 | 12.606 | .414098 |
| 39 | 1067.21 | 13370.128 | 93702 | 12.528 | .417455 |
| 40 | 994.264 | 12375.864 | 10058 | 12.448 | .420900 |
| 41 | 926.441 | 11449.423 | 10794 | 12.359 | .424732 |
| 42 | 863.088 | 10586.335 | 11586 | 12.265 | .428780 |
| 43 | 803.924 | 9782.411 | 12439 | 12.168 | .432957 |
| 44 | 748.833 | 9033.578 | 13354 | 12.063 | .437478 |
| 45 | 697.410 | 8336.168 | 14339 | 11.953 | .442215 |
| 46 | 649.291 | 7686.877 | 15401 | 11.839 | .447124 |
| 47 | 604.628 | 7082.349 | 16542 | 11.716 | .452421 |
| 48 | 562.900 | 6519.449 | 17765 | 11.582 | .458191 |
| 49 | 524.083 | 5995.366 | 19081 | 11.440 | .464306 |
| 50 | 488.229 | 5507.137 | 20482 | 11.280 | .471196 |
| 51 | 455.022 | 5052.115 | 21077 | 11.103 | .478818 |
| 52 | 424.377 | 4627.738 | 23564 | 10.905 | .487344 |
| 53 | 395.916 | 4231.822 | 25258 | 10.689 | .496646 |
| 54 | 369.398 | 3862.424 | 27071 | 10.456 | .506679 |
| 55 | 344.607 | 3517.817 | 29018 | 10.208 | .517359 |
| 56 | 321.351 | 3196.466 | 31119 | 9.947 | .528598 |
| 57 | 299.459 | 2897.007 | 33393 | 9.674 | .540354 |
| 58 | 278.701 | 2618.306 | 35881 | 9.395 | .552368 |
| 59 | 259.026 | 2359.280 | 38606 | 9.108 | .564727 |
| 60 | 240.315 | 2118.965 | 41612 | 8.817 | .577258 |
| 61 | 222.463 | 1896.502 | 44951 | 8.525 | .589833 |
| 62 | 205.376 | 1691.126 | 48691 | 8.234 | .602364 |
| 63 | 189.160 | 1501.966 | 52865 | 7.940 | .615024 |
| 64 | 173.661 | 1328.305 | 57583 | 7.649 | .627555 |
| 65 | 158.918 | 1169.387 | 62926 | 7.358 | .640086 |
| 66 | 144.958 | 1024.429 | 68985 | 7.067 | |
| 67 | 131.696 | 892.733 | 75932 | 6.779 | |
| 68 | 119.208 | 773.525 | 83887 | 6.489 | |
| 69 | 107.406 | 666.119 | 93105 | 6.202 | |
| 70 | 96.263 | 569.856 | 10388 | 5.920 | |
| 71 | 85.792 | 484.064 | 11656 | 5.642 | |
| 72 | 76.044 | 408.020 | 13150 | 5.365 | |
| 73 | 66.937 | 341.083 | 14939 | 5.095 | |
| 74 | 58.472 | 282.611 | 17102 | 4.833 | |
| 75 | 50.687 | 231.924 | 19729 | 4.576 | |
| 76 | 43.534 | 188.390 | 22971 | 4.328 | |
| 77 | 37.004 | 151.386 | 27024 | 4.091 | |
| 78 | 31.150 | 120.236 | 32103 | 3.860 | |
| 79 | 25.916 | 94.320 | 38586 | 3.639 | |
| 80 | 21.283 | 73.037 | 46986 | 3.432 | |
| 81 | 17.283 | 55.754 | 57860 | 3.226 | |
| 82 | 13.832 | 41.922 | 72296 | 3.031 | |
| 83 | 10.905 | 31.017 | 91701 | 2.844 | |
| 84 | 8.452 | 22.565 | 11832 | 2.670 | |
| 85 | 6.452 | 16.113 | 15499 | 2.497 | |
| 86 | 4.835 | 11.278 | 20683 | 2.333 | |
| 87 | 3.541 | 7.737 | 28241 | 2.185 | |
| 88 | 2.557 | 5.180 | 39108 | 2.026 | |
| 89 | 1.810 | 3.370 | 55249 | 1.862 | |
| 90 | 1.237 | 2.133 | 80841 | 1.724 | |
| 91 | 0.8379 | 1.2950 | 11935 | 1.546 | |
| 92 | .5578 | 0.7372 | 17928 | 1.322 | |
| 93 | .3503 | 0.3869 | 28547 | 1.104 | |
| 94 | .2075 | 0.1794 | 48193 | 0.865 | |
| 95 | .1069 | 0.0725 | 93545 | 0.678 | |
| 96 | .0585 | 0.0140 | 17094 | 0.239 | |
| 97 | .0140 | 0.0000 | | | |

ANNUITIES—SINGLE LIVES, WIDOWS, 4½ PER CENT.

| w | l_w | D_w | N_w | a_w | $\frac{1+R}{4}$ | Pensions. |
|-----|-------|----------|------------|--------|-----------------|-----------|
| 15 | 67344 | 34798.02 | 351090.86 | 10.089 | 384 | 10.473 |
| 6 | 65560 | 32417.41 | 318673.45 | 9.830 | 386 | 10.216 |
| 7 | 62807 | 29718.79 | 288954.66 | 9.723 | 388 | 10.111 |
| 8 | 59199 | 26805.33 | 262149.33 | 9.780 | 387 | 10.167 |
| 9 | 54680 | 23692.94 | 238456.39 | 10.064 | 384 | 10.448 |
| 20 | 50642 | 20998.34 | 217458.05 | 10.356 | 381 | 10.737 |
| 1 | 47065 | 18674.80 | 198783.25 | 10.644 | 377 | 11.021 |
| 2 | 43885 | 16663.17 | 182120.08 | 10.929 | 374 | 11.303 |
| 3 | 41087 | 14928.97 | 167191.11 | 11.199 | 371 | 11.570 |
| 4 | 38622 | 13429.00 | 153762.11 | 11.450 | 369 | 11.819 |
| 5 | 36511 | 12148.32 | 141613.78 | 11.657 | 366 | 12.023 |
| 6 | 34670 | 11039.01 | 130574.77 | 11.828 | 364 | 12.192 |
| 7 | 33031 | 10064.26 | 120510.511 | 11.974 | 363 | 12.337 |
| 8 | 31547 | 9198.181 | 111312.330 | 12.110 | 361 | 12.471 |
| 9 | 30183 | 8421.510 | 102890.820 | 12.218 | 360 | 12.578 |
| 30 | 28866 | 7707.222 | 95183.598 | 12.432 | 358 | 12.790 |
| 1 | 27616 | 7055.955 | 88127.643 | 12.490 | 357 | 12.847 |
| 2 | 26443 | 6465.311 | 81662.332 | 12.631 | 355 | 12.986 |
| 3 | 25324 | 5932.106 | 75730.226 | 12.766 | 354 | 13.120 |
| 4 | 24353 | 5452.537 | 70277.689 | 12.889 | 353 | 13.242 |
| 5 | 23447 | 5023.624 | 65254.065 | 12.989 | 352 | 13.341 |
| 6 | 22628 | 4639.377 | 60614.688 | 13.065 | 351 | 13.416 |
| 7 | 21889 | 4294.605 | 56320.083 | 13.114 | 350 | 13.464 |
| 8 | 21225 | 3985.003 | 52335.080 | 13.133 | 350 | 13.483 |
| 9 | 20626 | 3705.780 | 48629.300 | 13.123 | 350 | 13.473 |
| 40 | 20098 | 3455.423 | 45173.877 | 13.073 | 351 | 13.424 |
| 1 | 19625 | 3228.804 | 41945.073 | 12.991 | 352 | 13.343 |
| 2 | 19191 | 3021.436 | 38923.637 | 12.882 | 353 | 13.235 |
| 3 | 18786 | 2830.309 | 36093.328 | 12.752 | 354 | 13.106 |
| 4 | 18400 | 2652.779 | 33440.549 | 12.606 | 356 | 12.962 |
| 5 | 18032 | 2487.774 | 30952.775 | 12.442 | 357 | 12.799 |
| 6 | 17670 | 2332.852 | 28619.923 | 12.268 | 360 | 12.628 |
| 7 | 17305 | 2186.281 | 26433.642 | 12.091 | 362 | 12.453 |
| 8 | 16931 | 2046.919 | 24386.723 | 11.914 | 363 | 12.277 |
| 9 | 16543 | 1913.886 | 22472.837 | 11.742 | 365 | 12.107 |
| 50 | 16118 | 1784.418 | 20688.419 | 11.594 | 367 | 11.961 |
| 1 | 15672 | 1660.327 | 19028.092 | 11.464 | 368 | 11.832 |
| 2 | 15219 | 1542.904 | 17485.188 | 11.333 | 370 | 11.703 |
| 3 | 14772 | 1433.098 | 16052.090 | 11.200 | 371 | 11.571 |
| 4 | 14351 | 1332.301 | 14719.789 | 11.048 | 373 | 11.421 |
| 5 | 13919 | 1236.551 | 13483.238 | 10.904 | 374 | 11.278 |
| 6 | 13497 | 1147.427 | 12335.811 | 10.751 | 376 | 11.127 |
| 7 | 13092 | 1065.068 | 11270.743 | 10.582 | 378 | 10.960 |
| 8 | 12713 | 989.6992 | 10281.0442 | 10.388 | 380 | 10.768 |
| 9 | 12371 | 921.6025 | 9359.4417 | 10.156 | 383 | 10.539 |
| 60 | 12043 | 858.5335 | 8500.9082 | 9.902 | 385 | 10.287 |
| 1 | 11725 | 799.8695 | 7701.0387 | 9.628 | 389 | 10.017 |
| 2 | 11411 | 744.9270 | 6956.1117 | 9.338 | 392 | 9.730 |
| 3 | 11092 | 692.9208 | 6263.1909 | 9.039 | 395 | 9.434 |
| 4 | 10758 | 643.1155 | 5620.0754 | 8.739 | 398 | 9.137 |
| 5 | 10410 | 595.5138 | 5024.5616 | 8.437 | 402 | 8.839 |
| 6 | 10047 | 549.9982 | 4474.6634 | 8.136 | 405 | 8.541 |
| 7 | 9669 | 506.5124 | 3968.0510 | 7.834 | 408 | 8.242 |
| 8 | 9276 | 465.0000 | 3503.0510 | 7.533 | 412 | 7.945 |
| 9 | 8869 | 425.4520 | 3077.5990 | 7.234 | 415 | 7.649 |
| 70 | 8449 | 387.8511 | 2689.7479 | 6.935 | 418 | 7.353 |
| 1 | 8015 | 352.0845 | 2337.6634 | 6.639 | 422 | 7.061 |
| 2 | 7570 | 318.2167 | 2019.4467 | 6.346 | 425 | 6.771 |
| 3 | 7114 | 286.1704 | 1733.2763 | 6.057 | 428 | 6.485 |
| 4 | 6648 | 255.9090 | 1477.3673 | 5.773 | 431 | 6.204 |
| 5 | 6177 | 227.5390 | 1249.8283 | 5.493 | 434 | 5.927 |
| 6 | 5701 | 200.9616 | 1048.8667 | 5.219 | 437 | 5.656 |
| 7 | 5224 | 176.2174 | 872.6493 | 4.952 | 440 | 5.392 |
| 8 | 4748 | 153.2640 | 719.3853 | 4.694 | 443 | 5.137 |
| 9 | 4279 | 132.1768 | 587.2085 | 4.443 | 446 | 4.889 |
| 80 | 3820 | 112.9172 | 474.29131 | 4.200 | 448 | 4.648 |
| 1 | 3376 | 95.49549 | 378.79582 | 3.967 | 451 | 4.418 |
| 2 | 2951 | 79.87914 | 298.91668 | 3.742 | 453 | 4.195 |
| 3 | 2550 | 66.05232 | 232.86436 | 3.525 | 456 | 3.981 |
| 4 | 2176 | 53.93747 | 178.92689 | 3.317 | 458 | 3.775 |
| 5 | 1832 | 43.45509 | 135.47180 | 3.118 | 460 | 3.578 |
| 6 | 1520 | 34.50187 | 100.96993 | 2.927 | 462 | 3.389 |
| 7 | 1242 | 26.97767 | 73.99226 | 2.743 | 464 | 3.207 |
| 8 | 997 | 20.72343 | 53.26883 | 2.570 | 466 | 3.036 |
| 9 | 786 | 15.63409 | 37.63474 | 2.407 | 468 | 2.875 |
| 90 | 608 | 11.57278 | 26.06196 | 2.252 | 470 | 2.722 |
| 1 | 460 | 8.37867 | 17.68329 | 2.111 | 472 | 2.583 |
| 2 | 341 | 5.94368 | 11.73961 | 1.975 | 473 | 2.448 |
| 3 | 248 | 4.13654 | 7.60307 | 1.838 | 474 | 2.312 |
| 4 | 176 | 2.80919 | 4.79388 | 1.707 | 476 | 2.183 |
| 5 | 122 | 1.86343 | 2.93045 | 1.573 | 477 | 2.050 |
| 6 | 83 | 1.21315 | 1.71730 | 1.415 | 479 | 1.894 |
| 7 | 55 | 0.76928 | .94802 | 1.232 | 481 | 1.713 |
| 8 | 36 | .48184 | .46618 | 0.967 | 484 | 1.451 |
| 9 | 23 | .29459 | .17159 | 0.582 | 488 | 1.070 |
| 100 | 14 | .17159 | .00000 | 0.000 | 495 | 0.495 |

WIDOWS TILL REMARRIAGE OR DECEASE. MEAN VALUES.

| Age. W. | Pension. $a_{w+\frac{1}{2}}$ | Logarithms. | Age. W. | Pension. $a_{w+\frac{1}{2}}$ | Logarithms. |
|------------|---------------------------------|-------------|------------|---------------------------------|-------------|
| 15 to 16 | 10.345 | 1.0147305 | 58 to 59 | 10.654 | 1.0275127 |
| 16 " 17 | 10.164 | 1.0070647 | 59 " 60 | 10.413 | 1.0175759 |
| 17 " 18 | 10.139 | 1.0059951 | 60 " 61 | 10.152 | 1.0065516 |
| 18 " 19 | 10.308 | 1.0131744 | 61 " 62 | 9.874 | 0.9944931 |
| 19 " 20 | 10.593 | 1.0250190 | 62 " 63 | 9.582 | 0.9814562 |
| 20 " 21 | 10.879 | 1.0365890 | 63 " 64 | 9.286 | 0.9678287 |
| 21 " 22 | 11.162 | 1.0477420 | 64 " 65 | 8.988 | 0.9536631 |
| 22 " 23 | 11.437 | 1.0583121 | 65 " 66 | 8.690 | 0.9390198 |
| 23 " 24 | 11.695 | 1.0680002 | 66 " 67 | 8.392 | 0.9238655 |
| 24 " 25 | 11.921 | 1.0763127 | 67 " 68 | 8.094 | 0.9081632 |
| 25 " 26 | 12.108 | 1.0830724 | 68 " 69 | 7.797 | 0.8919275 |
| 26 " 27 | 12.265 | 1.0886676 | 69 " 70 | 7.501 | 0.8751192 |
| 27 " 28 | 12.404 | 1.0933518 | 70 " 71 | 7.207 | 0.8577545 |
| 28 " 29 | 12.525 | 1.0977777 | 71 " 72 | 6.916 | 0.8398550 |
| 29 " 30 | 12.684 | 1.1032562 | 72 " 73 | 6.628 | 0.8213825 |
| 30 " 31 | 12.819 | 1.1078541 | 73 " 74 | 6.345 | 0.8024316 |
| 31 " 32 | 12.917 | 1.1111617 | 74 " 75 | 6.066 | 0.7829024 |
| 32 " 33 | 13.053 | 1.1157103 | 75 " 76 | 5.792 | 0.7628286 |
| 33 " 34 | 13.181 | 1.1199484 | 76 " 77 | 5.524 | 0.7422537 |
| 34 " 35 | 13.292 | 1.1235903 | 77 " 78 | 5.265 | 0.7213984 |
| 35 " 36 | 13.379 | 1.1264237 | 78 " 79 | 5.013 | 0.7000977 |
| 36 " 37 | 13.440 | 1.1283993 | 79 " 80 | 4.769 | 0.6784273 |
| 37 " 38 | 13.474 | 1.1294965 | 80 " 81 | 4.533 | 0.6563857 |
| 38 " 39 | 13.478 | 1.1296255 | 81 " 82 | 4.307 | 0.6341749 |
| 39 " 40 | 13.449 | 1.1286900 | 82 " 83 | 4.088 | 0.6115109 |
| 40 " 41 | 13.384 | 1.1265859 | 83 " 84 | 3.878 | 0.5886078 |
| 41 " 42 | 13.289 | 1.1234923 | 84 " 85 | 3.677 | 0.5654936 |
| 42 " 43 | 13.171 | 1.1196187 | 85 " 86 | 3.484 | 0.5420781 |
| 43 " 44 | 13.034 | 1.1150777 | 86 " 87 | 3.298 | 0.5182507 |
| 44 " 45 | 12.881 | 1.1099496 | 87 " 88 | 3.122 | 0.4944329 |
| 45 " 46 | 12.714 | 1.1042822 | 88 " 89 | 2.956 | 0.4707044 |
| 46 " 47 | 12.542 | 1.0983668 | 89 " 90 | 2.798 | 0.4468477 |
| 47 " 48 | 12.365 | 1.0921941 | 90 " 91 | 2.653 | 0.4237372 |
| 48 " 49 | 12.192 | 1.0860750 | 91 " 92 | 2.516 | 0.4007106 |
| 49 " 50 | 12.034 | 1.0804100 | 92 " 93 | 2.380 | 0.3765770 |
| 50 " 51 | 11.897 | 1.0754375 | 93 " 94 | 2.248 | 0.3517963 |
| 51 " 52 | 11.768 | 1.0707027 | 94 " 95 | 2.117 | 0.3257209 |
| 52 " 53 | 11.637 | 1.0658410 | 95 " 96 | 1.972 | 0.2994909 |
| 53 " 54 | 11.496 | 1.0605468 | 96 " 97 | 1.803 | 0.2559957 |
| 54 " 55 | 11.350 | 1.0549959 | 97 " 98 | 1.582 | 0.1992065 |
| 55 " 56 | 11.203 | 1.0493343 | 98 " 99 | 1.260 | 0.1003705 |
| 56 " 57 | 11.044 | 1.0431264 | 99 " 100 | 0.782 | 9.8932068 |
| 57 " 58 | 10.864 | 1.0359898 | 100 " 101 | 0.247 | 9.3926970 |

N.B.—This table is to be used for the valuation of the pensions of incumbent widows.

EXTENDED VALUES OF $D_{x,y}$ FORMED BY ACTUAL MULTIPLICATION OF THE FACTORS I_x AND D_y ON THE ARITHMOMETER. From these the intermediate values for each difference of age were computed on the machine by a continuous process, and verified at each tenth interval.

(INTEREST $4\frac{1}{2}$ PER CENT.)

| x | $y = x + 10$ | $y = x$ | $y = x - 10$ | $y = x - 20$ | $y = x - 30$ | Diff. | The initial values of $D_{x,y}$ for each difference of Age. |
|-----|--------------|-----------|--------------|--------------|--------------|-------|---|
| 18 | 553293935 | 955547375 | | | | | |
| 9 | 515989247 | 892599491 | | | | | |
| 20 | 479900577 | 832011815 | | | | -10 | 553293935 |
| 1 | 445179109 | 773975079 | | | | 9 | 584672147 |
| 2 | 412665462 | 718734081 | | | | 8 | 617753974 |
| 3 | 380485695 | 666430706 | | | | 7 | 652629224 |
| 4 | 350914717 | 617179709 | | | | 6 | 689392245 |
| 5 | 323124160 | 571035381 | 982954301 | | | 5 | 728142414 |
| 6 | 297308509 | 528008068 | 909863631 | | | 4 | 768984136 |
| 7 | 273265387 | 489053366 | 841934430 | | | 3 | 812027033 |
| 8 | 251028417 | 450945718 | 778790386 | | | 2 | 857386627 |
| 9 | 230326331 | 416267557 | 720092930 | | | 1 | 905184239 |
| 30 | 211195239 | 383878513 | 665536724 | | | +0 | 955547375 |
| 1 | 193395888 | 353635712 | 614820468 | | | 1 | 1008610215 |
| 2 | 176850320 | 325942367 | 567689592 | | | 2 | 1064513799 |
| 3 | 161598495 | 299130897 | 523935639 | | | 3 | 1123406227 |
| 4 | 147459931 | 274831294 | 483366156 | | | 4 | 1107787545 |
| 5 | 134462491 | 252248787 | 445782148 | 767349090 | | 5 | 1090158423 |
| 6 | 122445161 | 231428259 | 411007369 | 708247999 | | 6 | 1070762902 |
| 7 | 111426538 | 212123971 | 378854487 | 653556883 | | 7 | 1049996098 |
| 8 | 101330896 | 194356811 | 349141937 | 602972437 | | 8 | 1028195022 |
| 9 | 920843095 | 177901431 | 321520313 | 556191565 | | 9 | 1005731545 |
| 40 | 835563077 | 162772231 | 295862550 | 512941949 | | 10 | 982954301 |
| 1 | 757578649 | 148775824 | 272045311 | 472969837 | | 1 | 960200299 |
| 2 | 695752643 | 135837600 | 250354247 | 436038744 | | 2 | 937760065 |
| 3 | 620156440 | 123962882 | 229464563 | 401913221 | | 3 | 915598736 |
| 4 | 560266871 | 112990248 | 210587756 | 370376287 | | 4 | 893693070 |
| 5 | 505615788 | 102927513 | 193089836 | 341234552 | 587385618 | 5 | 872031446 |
| 6 | 453761962 | 936353188 | 176976033 | 314302384 | 541605945 | 6 | 850579000 |
| 7 | 410310037 | 851210517 | 162045917 | 289414830 | 499265708 | 7 | 829335734 |
| 8 | 368959419 | 773358011 | 148333236 | 266464802 | 460188927 | 8 | 808348130 |
| 9 | 331418899 | 702317459 | 135683572 | 245220201 | 424201527 | 9 | 787674295 |
| 50 | 297401010 | 637125153 | 124115445 | 225598136 | 391123336 | | |
| 1 | 266624944 | 577864622 | 118482983 | 207510284 | 360771171 | 20 | 767849090 |
| 2 | 238819341 | 523644046 | 108726250 | 191171718 | 332961301 | 1 | 747430623 |
| 3 | 213685646 | 474296073 | 948068975 | 175494656 | 307383509 | 2 | 727942134 |
| 4 | 190772896 | 429250983 | 865679865 | 161342756 | 283765458 | 3 | 708895244 |
| 5 | 169985574 | 388047238 | 789942444 | 148191530 | 261388826 | 4 | 690278333 |
| 6 | 151056549 | 350272490 | 719627327 | 136013623 | 241554776 | 5 | 672091401 |
| 7 | 133899391 | 315895403 | 654719850 | 124639765 | 222607252 | 6 | 654334447 |
| 8 | 118083467 | 283709474 | 594669719 | 114060089 | 204896758 | 7 | 637007472 |
| 9 | 103742943 | 254356305 | 539012333 | 104133989 | 188200807 | 8 | 620087233 |
| 60 | 905208452 | 227324730 | 487000038 | 948702559 | 172440690 | | |
| 1 | 784960971 | 202428605 | 438729879 | 861592380 | 157547215 | 30 | 587385618 |
| 2 | 675868116 | 179521030 | 393624394 | 779712530 | 143704206 | 1 | 571569379 |
| 3 | 577300642 | 158500489 | 351889588 | 703391025 | 130202938 | 2 | 556090150 |
| 4 | 488643423 | 139266947 | 313859367 | 631958702 | 117782523 | 3 | 541029278 |
| 5 | 410350325 | 121731265 | 277891118 | 565699141 | 106123961 | 4 | 526468111 |
| 6 | 340661819 | 105807520 | 245348273 | 504062771 | 952707064 | 5 | 512476375 |
| 7 | 279883076 | 914081811 | 215590263 | 447253741 | 851442049 | 6 | 499112176 |
| 8 | 227193749 | 784320421 | 188442243 | 394984680 | 757596803 | 7 | 486421997 |
| 9 | 181855248 | 667918481 | 163759840 | 347027268 | 670436122 | 8 | 472443144 |
| 70 | 143174494 | 563083269 | 141406934 | 302937486 | 590138699 | 9 | 462412922 |
| 1 | 111056883 | 470211073 | 121259751 | 262810069 | 516115185 | 40 | 450803500 |
| 2 | 842137848 | 388542540 | 103202911 | 226286487 | 448240537 | | |
| 3 | 624909304 | 317241737 | 871001463 | 193372493 | 386531687 | | |
| 4 | 451855232 | 255541939 | 728313202 | 163875039 | 330490383 | | |
| 5 | 316503963 | 203195791 | 602784481 | 137605120 | 280120856 | | |
| 6 | 215764922 | 158834844 | 493331507 | 114394547 | 235021147 | | |
| 7 | 142968609 | 122114200 | 398817860 | 940629671 | 195138748 | | |
| 8 | 922298721 | 921654850 | 318174564 | 764451963 | 160233082 | | |
| 9 | 583811936 | 681276795 | 250219539 | 613486719 | 130005391 | | |
| 80 | 356468115 | 491837983 | 193432315 | 485765998 | 104066135 | | |
| 1 | 211348430 | 347219775 | 147011674 | 379119079 | 821676697 | | |
| 2 | 124597735 | 237724229 | 109690352 | 291327987 | 638776429 | | |
| 3 | 701543136 | 157973827 | 801970638 | 220184647 | 488835620 | | |
| 4 | 326568539 | 101430211 | 573627813 | 163488119 | 367858524 | | |
| 5 | 124544196 | 625369127 | 401487467 | 119102081 | 271889150 | | |
| 6 | 3108877 | 371755358 | 273666839 | 849992803 | 197097774 | | |
| 7 | | 212693501 | 181668528 | 593318822 | 139936884 | | |
| 8 | | 117414766 | 117332797 | 405057396 | 973198229 | | |
| 9 | | 630037922 | 735220009 | 270031818 | 662062343 | | |
| 90 | | 323162125 | 445883941 | 175359297 | 440379283 | | |
| 1 | | 159194822 | 261537738 | 110734190 | 285565378 | | |
| 2 | | 77355037 | 147588289 | 680937556 | 180867552 | | |
| 3 | | 34860322 | 78498644 | 398506570 | 109411772 | | |
| 4 | | 12354059 | 38370960 | 217002897 | 618474117 | | |
| 5 | | 3299184 | 16566070 | 106354296 | 315502200 | | |
| 6 | | 511569 | 6117272 | 45032155 | 139867175 | | |
| 7 | | | 1824577 | 15584310 | 50897448 | | |
| 8 | | | 382459 | 3821915 | 13194052 | | |
| 9 | | | 69617 | 812398 | 2983777 | | |

NOTE.—The local value of the figures is not assigned in these columns.

$D_x \cdot y$ x BEING THE OLDER AGE. $4\frac{1}{2}$ PER CENT.

$y = x - n$

| x | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | x |
|-----|--------|---------|---------|---------|---------|---------|---------|---------|--------|---------|-----|
| 18 | 955547 | 1008610 | 1064514 | 1123406 | | | | | | | 18 |
| 9 | 892569 | 942263 | 994588 | 1049714 | 1107788 | | | | | | 9 |
| 20 | 832012 | 878985 | 927267 | 978760 | 1033009 | 1090159 | | | | | 20 |
| 1 | 773975 | 817209 | 862767 | 919770 | 981346 | 104430 | | | | | 1 |
| 2 | 718734 | 758964 | 801360 | 846934 | 895106 | 94702 | 1070763 | | | | 2 |
| 3 | 666431 | 703811 | 743206 | 784721 | 828468 | 874563 | 923128 | 1049996 | | | 3 |
| 4 | 617180 | 651871 | 688444 | 726969 | 767577 | 810363 | 855456 | 902960 | 953008 | 1008732 | 4 |
| 5 | 571035 | 603902 | 637108 | 672643 | 710505 | 750719 | 79215 | 83682 | 882510 | 931425 | 5 |
| 6 | 529008 | 557817 | 589239 | 622360 | 657298 | 694058 | 732827 | 77361 | 816728 | 862083 | 6 |
| 7 | 488053 | 515668 | 544780 | 575468 | 607815 | 641907 | 677837 | 715601 | 755200 | 797643 | 7 |
| 8 | 460946 | 479820 | 500492 | 521906 | 545199 | 570451 | 626733 | 661818 | 698787 | 737743 | 8 |
| 9 | 416268 | 440157 | 465119 | 491266 | 518618 | 548286 | 579252 | 611743 | 645984 | 682069 | 9 |
| 30 | 883979 | 408178 | 429498 | 452845 | 479225 | 508696 | 535133 | 565212 | 598915 | 639327 | 30 |
| 1 | 853936 | 874435 | 896198 | 918923 | 942800 | 967728 | 99434 | 102198 | 521968 | 551308 | 1 |
| 2 | 825042 | 844804 | 865803 | 888201 | 911840 | 936764 | 962904 | 990282 | 431793 | 508933 | 2 |
| 3 | 299131 | 317694 | 338078 | 359844 | 383515 | 398123 | 421701 | 445506 | 469600 | 495033 | 3 |
| 4 | 274631 | 291481 | 309569 | 327483 | 347444 | 369886 | 387941 | 409642 | 431877 | 457590 | 4 |
| 5 | 252249 | 267740 | 283959 | 301581 | 319932 | 337798 | 357419 | 377931 | 399364 | 421980 | 5 |
| 6 | 231128 | 245701 | 260790 | 276588 | 293752 | 310751 | 329028 | 348141 | 368120 | 389977 | 6 |
| 7 | 212124 | 225394 | 239295 | 253990 | 269376 | 285469 | 292648 | 320448 | 339063 | 358522 | 7 |
| 8 | 194857 | 206874 | 219496 | 233033 | 247344 | 262328 | 27807 | 294729 | 312664 | 330192 | 8 |
| 9 | 177901 | 189253 | 201149 | 213732 | 226914 | 240848 | 255439 | 271291 | 28869 | 303869 | 9 |
| 40 | 162772 | 173214 | 184266 | 195849 | 208101 | 220935 | 234503 | 248709 | 264143 | 279423 | 40 |
| 1 | 144773 | 156472 | 168638 | 179399 | 190675 | 202693 | 215998 | 228307 | 242138 | 257164 | 1 |
| 2 | 136838 | 148496 | 154275 | 164172 | 174697 | 185825 | 197235 | 209402 | 222261 | 235726 | 2 |
| 3 | 129093 | 139229 | 149099 | 159177 | 169811 | 179998 | 189655 | 199899 | 209840 | 219578 | 3 |
| 4 | 112900 | 120857 | 128703 | 137299 | 146172 | 155559 | 165475 | 175878 | 186873 | 198454 | 4 |
| 5 | 109227 | 109964 | 117425 | 125256 | 133564 | 142258 | 151343 | 161043 | 171165 | 181832 | 5 |
| 6 | 93635 | 100156 | 107003 | 114264 | 121983 | 129598 | 138427 | 147307 | 156706 | 166557 | 6 |
| 7 | 85121 | 91099 | 97443 | 104105 | 111169 | 118593 | 126438 | 134678 | 143318 | 152463 | 7 |
| 8 | 77335 | 82815 | 88632 | 94804 | 101296 | 108158 | 115371 | 123014 | 131103 | 139436 | 8 |
| 9 | 70231 | 75254 | 80686 | 86528 | 92262 | 98559 | 105247 | 112206 | 119531 | 127504 | 9 |
| 50 | 63712 | 68985 | 73254 | 78445 | 83956 | 89901 | 95940 | 102450 | 109292 | 116522 | 50 |
| 1 | 57786 | 62051 | 66582 | 71344 | 76399 | 81765 | 87459 | 93484 | 99778 | 106432 | 1 |
| 2 | 52864 | 56817 | 60473 | 64889 | 69630 | 74569 | 79664 | 85035 | 90702 | 96717 | 2 |
| 3 | 47429 | 51058 | 54907 | 58959 | 63264 | 67789 | 72592 | 77691 | 83101 | 88742 | 3 |
| 4 | 42925 | 46246 | 49779 | 53537 | 57498 | 61686 | 66099 | 70781 | 75753 | 81028 | 4 |
| 5 | 38404 | 41847 | 45465 | 49290 | 53293 | 57466 | 61808 | 66437 | 71390 | 76584 | 5 |
| 6 | 35027 | 37813 | 40775 | 43932 | 47289 | 50857 | 54612 | 58590 | 62790 | 67242 | 6 |
| 7 | 31579 | 34106 | 36818 | 39705 | 42777 | 46043 | 49521 | 53173 | 57059 | 61199 | 7 |
| 8 | 28379 | 30896 | 33173 | 35710 | 38518 | 41608 | 44983 | 48647 | 52510 | 56594 | 8 |
| 9 | 25435 | 27554 | 29812 | 32218 | 34790 | 37507 | 40409 | 43407 | 46500 | 50732 | 9 |
| 60 | 22733 | 24659 | 26713 | 28903 | 31235 | 33719 | 36363 | 39176 | 42169 | 45353 | 60 |
| 1 | 20242 | 21990 | 23854 | 25842 | 27959 | 30216 | 32618 | 35176 | 37899 | 40798 | 1 |
| 2 | 17953 | 19539 | 21129 | 22917 | 24935 | 27190 | 29592 | 31473 | 33942 | 36508 | 2 |
| 3 | 16850 | 17274 | 18795 | 20416 | 22149 | 23994 | 25961 | 28056 | 30269 | 32691 | 3 |
| 4 | 13928 | 15326 | 16573 | 18032 | 19599 | 21250 | 23027 | 24974 | 27172 | 29557 | 4 |
| 5 | 12173 | 13318 | 14542 | 15850 | 17245 | 18734 | 20322 | 22015 | 23820 | 25712 | 5 |
| 6 | 10580 | 11692 | 12941 | 13860 | 15007 | 16398 | 17859 | 19399 | 20933 | 22502 | 6 |
| 7 | 9140 | 10047 | 11017 | 12054 | 13162 | 14346 | 15606 | 16956 | 18391 | 19926 | 7 |
| 8 | 7843 | 8644 | 9502 | 10419 | 11400 | 12457 | 13568 | 14761 | 16035 | 17395 | 8 |
| 9 | 6679 | 7383 | 8138 | 8945 | 9809 | 10732 | 11718 | 12772 | 13898 | 15066 | 9 |
| 70 | 6690 | 6258 | 6916 | 7622 | 8379 | 9188 | 10052 | 10976 | 11963 | 13016 | 70 |
| 1 | 4703 | 5245 | 5828 | 6443 | 7101 | 7805 | 8559 | 9364 | 10223 | 11144 | 1 |
| 2 | 3883 | 4354 | 4857 | 5397 | 5976 | 6596 | 7258 | 7962 | 8712 | 9509 | 2 |
| 3 | 3172 | 3573 | 4005 | 4468 | 4964 | 5493 | 6056 | 6654 | 7297 | 7976 | 3 |
| 4 | 2555 | 2968 | 3403 | 3868 | 4374 | 4922 | 5513 | 6148 | 6828 | 7554 | 4 |
| 5 | 2031 | 2314 | 2622 | 2954 | 3311 | 3694 | 4104 | 4543 | 5014 | 5497 | 5 |
| 6 | 1589 | 1833 | 2078 | 2333 | 2611 | 2917 | 3251 | 3613 | 4011 | 4444 | 6 |
| 7 | 1211 | 1411 | 1620 | 1845 | 2096 | 2364 | 2640 | 2943 | 3273 | 3639 | 7 |
| 8 | 921 | 1073 | 1241 | 1424 | 1623 | 1839 | 2072 | 2322 | 2590 | 2878 | 8 |
| 9 | 681 | 801 | 933 | 1078 | 1238 | 1410 | 1598 | 1801 | 2018 | 2258 | 9 |
| 80 | 401 | 585 | 688 | 801 | 926 | 1063 | 1211 | 1378 | 1547 | 1733 | 80 |
| 1 | 347 | 417 | 498 | 583 | 679 | 785 | 902 | 1027 | 1164 | 1311 | 1 |
| 2 | 237 | 290 | 348 | 414 | 487 | 568 | 656 | 754 | 859 | 972 | 2 |
| 3 | 157 | 195 | 239 | 287 | 341 | 401 | 468 | 541 | 621 | 707 | 3 |
| 4 | 101 | 128 | 158 | 193 | 232 | 277 | 325 | 379 | 439 | 503 | 4 |
| 5 | 62 | 80 | 103 | 128 | 154 | 185 | 220 | 259 | 302 | 349 | 5 |
| 6 | 37 | 48 | 63 | 79 | 98 | 120 | 145 | 173 | 203 | 236 | 6 |
| 7 | 21 | 28 | 37 | 48 | 61 | 76 | 92 | 111 | 132 | 155 | 7 |
| 8 | 11 | 14 | 18 | 21 | 26 | 32 | 39 | 47 | 56 | 66 | 8 |
| 9 | 6 | 8 | 11 | 15 | 19 | 24 | 30 | 37 | 45 | 54 | 9 |
| 90 | 3 | 4 | 6 | 8 | 11 | 15 | 19 | 24 | 30 | 37 | 90 |
| 1 | 1 | 2 | 3 | 4 | 6 | 8 | 10 | 13 | 17 | 21 | 1 |
| 2 | | 1 | 2 | 3 | 4 | 6 | 8 | 10 | 13 | 17 | 2 |
| 3 | | | 1 | 2 | 3 | 4 | 6 | 8 | 10 | 13 | 3 |
| 4 | | | | 1 | 2 | 3 | 4 | 6 | 8 | 10 | 4 |
| 5 | | | | | 1 | 2 | 3 | 4 | 6 | 8 | 5 |
| 6 | | | | | | 1 | 2 | 3 | 4 | 6 | 6 |
| 7 | | | | | | | 1 | 2 | 3 | 4 | 7 |
| 8 | | | | | | | | 1 | 2 | 3 | 8 |
| 9 | | | | | | | | | 1 | 2 | 9 |

$D_x \cdot y$ x BEING THE OLDER AGE, $4\frac{1}{2}$ PER CENT.

$y = x - n$

| x | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | x |
|-----|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-----|
| 25 | 982954 | | | | | | | | | | 25 |
| 6 | 909884 | 960200 | | | | | | | | | 6 |
| 7 | 841934 | 888600 | 937760 | | | | | | | | 7 |
| 8 | 778790 | 822038 | 867600 | 915599 | | | | | | | 8 |
| 9 | 720093 | 760158 | 802370 | 846843 | 893693 | | | | | | 9 |
| 30 | 665537 | 702639 | 741738 | 782922 | 826317 | 872031 | | | | | 30 |
| 1 | 614820 | 649164 | 685854 | 723466 | 762662 | 803089 | 850579 | | | | 1 |
| 2 | 567690 | 599485 | 632951 | 668237 | 705417 | 744690 | 785859 | 829356 | | | 2 |
| 3 | 523936 | 553323 | 584295 | 616993 | 651326 | 687568 | 725747 | 765973 | 808348 | | 3 |
| 4 | 483566 | 510534 | 539172 | 569851 | 601155 | 634068 | 668680 | 707185 | 748383 | 797674 | 4 |
| 5 | 447782 | 470893 | 497892 | 528299 | 561460 | 596843 | 634021 | 672693 | 712637 | 754837 | 5 |
| 6 | 411007 | 434211 | 459679 | 487452 | 517125 | 549285 | 583421 | 619243 | 656567 | 695399 | 6 |
| 7 | 378854 | 400391 | 422880 | 447111 | 473820 | 502723 | 533527 | 565940 | 599763 | 634805 | 7 |
| 8 | 349141 | 368942 | 389817 | 411894 | 435023 | 459776 | 485748 | 512448 | 540381 | 569457 | 8 |
| 9 | 321520 | 339972 | 359253 | 379580 | 400099 | 421009 | 442408 | 464285 | 486631 | 509446 | 9 |
| 40 | 295863 | 313049 | 331015 | 349787 | 369479 | 390448 | 412837 | 435690 | 460054 | 485985 | 40 |
| 1 | 272045 | 289046 | 304778 | 322269 | 340748 | 359814 | 380129 | 401441 | 424111 | 448099 | 1 |
| 2 | 250354 | 264841 | 280418 | 296708 | 313735 | 331628 | 350286 | 370003 | 390908 | 412880 | 2 |
| 3 | 229465 | 241704 | 257970 | 272970 | 288826 | 305402 | 322723 | 340983 | 360293 | 380654 | 3 |
| 4 | 210588 | 223345 | 237205 | 250931 | 265690 | 281124 | 297267 | 314115 | 331869 | 350625 | 4 |
| 5 | 193060 | 204048 | 217363 | 230852 | 244211 | 258374 | 273395 | 289296 | 305703 | 323000 | 5 |
| 6 | 176976 | 187891 | 199429 | 211510 | 224636 | 238365 | 251613 | 266228 | 291500 | 297471 | 6 |
| 7 | 162046 | 172183 | 182902 | 194028 | 205783 | 218552 | 231199 | 244707 | 259017 | 273889 | 7 |
| 8 | 148353 | 157657 | 167520 | 177861 | 188773 | 199735 | 200209 | 212633 | 224938 | 238167 | 8 |
| 9 | 135684 | 144341 | 153414 | 163011 | 173055 | 183693 | 194921 | 206910 | 218884 | 231707 | 9 |
| 50 | 124115 | 132078 | 140505 | 149387 | 158679 | 168465 | 178811 | 189643 | 201413 | 213067 | 50 |
| 1 | 113483 | 120879 | 128838 | 136941 | 145442 | 154441 | 164047 | 174411 | 184407 | 194107 | 1 |
| 2 | 103728 | 110598 | 117805 | 125383 | 133362 | 141744 | 150513 | 159690 | 169290 | 179001 | 2 |
| 3 | 94806 9 | 101129 | 107829 | 114866 | 122224 | 130023 | 138198 | 146841 | 155968 | 165470 | 3 |
| 4 | 86568 0 | 92441 9 | 98606 5 | 105139 | 111991 | 119175 | 126779 | 134748 | 143178 | 152098 | 4 |
| 5 | 78994 2 | 84394 6 | 90121 0 | 96130 8 | 102499 | 109179 | 116183 | 123596 | 131346 | 139493 | 5 |
| 6 | 71962 7 | 76974 2 | 82236 4 | 87816 4 | 93672 6 | 99877 9 | 106387 | 113213 | 120368 | 127866 | 6 |
| 7 | 65472 0 | 70070 4 | 74950 0 | 80073 9 | 85507 2 | 91209 8 | 97251 5 | 103549 | 110235 | 117269 | 7 |
| 8 | 59467 0 | 63680 7 | 68153 3 | 72899 4 | 77883 1 | 83167 7 | 88713 9 | 94590 7 | 100755 | 107219 | 8 |
| 9 | 53901 2 | 57758 0 | 61848 5 | 66192 4 | 70802 0 | 75648 3 | 80774 9 | 86161 4 | 91869 2 | 97856 4 | 9 |
| 60 | 48700 0 | 52258 4 | 55993 5 | 59881 1 | 64172 5 | 68641 4 | 73334 0 | 78310 0 | 83532 1 | 89065 7 | 60 |
| 1 | 43873 0 | 47110 8 | 50551 1 | 54168 3 | 58004 4 | 62078 3 | 66401 4 | 70940 9 | 75754 4 | 80806 3 | 1 |
| 2 | 39362 4 | 42333 8 | 45458 0 | 48777 6 | 52266 0 | 55999 4 | 59900 4 | 64071 8 | 68462 0 | 73096 7 | 2 |
| 3 | 35189 0 | 37877 5 | 40736 7 | 43743 0 | 46937 4 | 50294 2 | 53857 9 | 57640 6 | 61654 7 | 65906 6 | 3 |
| 4 | 31336 9 | 33700 6 | 36339 9 | 39083 1 | 41967 4 | 45028 2 | 48252 6 | 51671 7 | 55300 9 | 59152 0 | 4 |
| 5 | 27789 1 | 29868 1 | 32236 9 | 34753 6 | 37577 1 | 40613 5 | 43908 4 | 47463 8 | 51291 9 | 55409 3 | 5 |
| 6 | 24534 3 | 26385 8 | 28533 4 | 30973 5 | 33713 5 | 36723 0 | 39952 9 | 43454 7 | 47291 9 | 51499 3 | 6 |
| 7 | 21559 0 | 23209 7 | 25151 2 | 27123 4 | 29222 0 | 31454 7 | 33829 1 | 36325 6 | 39048 4 | 41768 9 | 7 |
| 8 | 18844 2 | 20388 6 | 22033 3 | 23785 8 | 25650 9 | 27635 6 | 29747 0 | 31992 3 | 34353 5 | 36846 3 | 8 |
| 9 | 16376 0 | 17740 3 | 19194 2 | 20743 0 | 22392 3 | 24148 1 | 26016 0 | 28004 3 | 30118 3 | 32341 0 | 9 |
| 70 | 14140 7 | 15339 4 | 16617 3 | 17979 1 | 19429 9 | 20974 9 | 22619 5 | 24369 7 | 26231 6 | 28211 8 | 70 |
| 1 | 13126 0 | 13172 9 | 14289 6 | 15480 0 | 16748 9 | 18100 2 | 19539 4 | 21071 5 | 22701 9 | 24439 4 | 1 |
| 2 | 10320 3 | 11228 0 | 12198 4 | 13232 5 | 14334 9 | 15507 7 | 16761 3 | 18093 9 | 19512 7 | 21022 5 | 2 |
| 3 | 8710 01 | 9492 98 | 10328 8 | 11220 6 | 12171 7 | 13186 7 | 14266 4 | 15417 5 | 16643 5 | 17948 5 | 3 |
| 4 | 7283 13 | 7952 51 | 8667 38 | 9430 49 | 10244 7 | 11113 1 | 12039 0 | 13025 6 | 14076 7 | 15196 0 | 4 |
| 5 | 6027 84 | 6695 14 | 7201 28 | 7848 62 | 8539 65 | 9276 96 | 10063 3 | 10901 7 | 11795 2 | 12747 0 | 5 |
| 6 | 4933 32 | 5409 55 | 5918 65 | 6462 62 | 7043 66 | 7663 71 | 8325 39 | 9031 12 | 9783 60 | 10565 3 | 6 |
| 7 | 3988 18 | 4383 84 | 4807 03 | 5259 43 | 5742 81 | 6259 04 | 6810 11 | 7398 10 | 8025 23 | 8693 80 | 7 |
| 8 | 3181 75 | 3504 83 | 3854 74 | 4228 85 | 4624 65 | 5049 39 | 5503 62 | 5998 18 | 6505 20 | 7056 63 | 8 |
| 9 | 2502 20 | 2766 13 | 3048 76 | 3351 23 | 3674 73 | 4020 66 | 4390 08 | 4784 73 | 5205 98 | 5655 47 | 9 |
| 80 | 1934 33 | 2149 21 | 2375 92 | 2618 67 | 2878 47 | 3158 34 | 3453 39 | 3770 73 | 4109 74 | 4471 58 | 80 |
| 1 | 1470 13 | 1640 40 | 1822 19 | 2014 40 | 2220 23 | 2440 48 | 2676 07 | 2927 92 | 3197 02 | 3484 41 | 1 |
| 2 | 1096 80 | 1229 15 | 1371 19 | 1523 62 | 1684 22 | 1854 22 | 1940 46 | 2237 44 | 2449 01 | 2683 00 | 2 |
| 3 | 801 971 | 903 477 | 1013 50 | 1129 50 | 1254 98 | 1387 35 | 1529 10 | 1690 80 | 1845 06 | 2011 51 | 3 |
| 4 | 573 628 | 650 195 | 732 491 | 820 877 | 915 735 | 1017 47 | 1124 79 | 1239 72 | 1362 71 | 1494 25 | 4 |
| 5 | 401 487 | 457 220 | 518 249 | 583 845 | 654 295 | 729 903 | 810 991 | 898 536 | 994 138 | 1094 17 | 5 |
| 6 | 273 667 | 314 188 | 357 802 | 405 561 | 456 894 | 512 025 | 571 193 | 634 649 | 701 694 | 771 278 | 6 |
| 7 | 181 689 | 209 979 | 241 070 | 274 534 | 311 178 | 350 665 | 392 866 | 439 264 | 490 562 | 548 317 | 7 |
| 8 | 117 383 | 136 697 | 157 999 | 181 393 | 206 673 | 234 146 | 263 763 | 295 612 | 329 772 | 366 408 | 8 |
| 9 | 73 5220 | 86 4708 | 100 741 | 116 440 | 133 681 | 152 238 | 172 559 | 194 400 | 217 657 | 243 033 | 9 |
| 90 | 44 5884 | 53 0406 | 62 8928 | 72 6897 | 84 0171 | 96 4574 | 109 847 | 124 509 | 140 269 | 157 194 | 90 |
| 1 | 26 1539 | 31 4099 | 37 3708 | 43 9520 | 51 2056 | 59 1851 | 67 9486 | 77 3809 | 87 7096 | 98 6111 | 1 |
| 2 | 14 7598 | 18 0234 | 21 6455 | 25 7530 | 30 2887 | 35 2973 | 40 7863 | 46 3254 | 53 3255 | 60 4433 | 2 |
| 3 | 7 3498 | 9 7305 | 11 8828 | 14 2710 | 16 9791 | 19 9695 | 23 2651 | 26 8906 | 30 8723 | 35 1578 | 3 |
| 4 | 3 8371 | 4 8451 | 6 0059 | 7 3344 | 8 8084 | 10 4799 | 12 3257 | 14 3598 | 16 5976 | 19 0561 | 4 |
| 5 | 1 8566 | 2 1416 | 2 7042 | 3 3521 | 4 0936 | 4 9163 | 5 8402 | 6 8794 | 8 0147 | 9 2697 | 5 |
| 6 | 8117 | 8052 | 1 0410 | 1 3145 | 1 6295 | 1 9899 | 2 3894 | 2 8433 | 3 3441 | 3 8960 | 6 |
| 7 | 1824 | 2446 | 3221 | 4184 | 5258 | 6518 | 7959 | 9569 | 11373 | 13376 | 7 |
| 8 | 0382 | 0521 | 0699 | 0920 | 1189 | 1502 | 1863 | 2274 | 2731 | 3240 | 8 |
| 9 | 0069 | 0095 | 0130 | 0174 | 0230 | 0297 | 0375 | 0465 | 0568 | 0682 | 9 |

$D_x y$ x BEING THE OLDER AGE. $4\frac{1}{2}$ PER CENT.

$$y = x - n$$

| x | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | x |
|-----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-----|
| 35 | 767340 | | | | | | | | | | 35 |
| 6 | 708248 | 747431 | | | | | | | | | 6 |
| 7 | 653557 | 689781 | 727942 | | | | | | | | 7 |
| 8 | 602972 | 639458 | 671733 | 708895 | | | | | | | 8 |
| 9 | 556192 | 587137 | 615742 | 654092 | 690278 | | | | | | 9 |
| 40 | 512942 | 541537 | 571688 | 603413 | 636858 | 672091 | | | | | 40 |
| 1 | 472970 | 499390 | 527230 | 556564 | 587471 | 620032 | 654334 | | | | 1 |
| 2 | 436939 | 460445 | 486106 | 513269 | 541826 | 571914 | 603614 | 637007 | | | 2 |
| 3 | 401913 | 424457 | 448215 | 473252 | 499635 | 527434 | 556723 | 587580 | 620087 | | 3 |
| 4 | 370376 | 391195 | 413137 | 436262 | 460631 | 486311 | 513368 | 541876 | 571911 | 603650 | 4 |
| 5 | 341235 | 360457 | 380717 | 402078 | 424577 | 448294 | 473296 | 499619 | 527363 | 556593 | 5 |
| 6 | 314302 | 332046 | 350751 | 370496 | 391246 | 413145 | 436225 | 460542 | 486166 | 513163 | 6 |
| 7 | 289415 | 305790 | 323054 | 341253 | 360433 | 380650 | 401956 | 424409 | 449069 | 472999 | 7 |
| 8 | 266465 | 281576 | 297569 | 314394 | 332099 | 350671 | 370341 | 391070 | 412915 | 435934 | 8 |
| 9 | 245220 | 259293 | 273998 | 289501 | 305845 | 323074 | 341235 | 360373 | 380545 | 401802 | 9 |
| 50 | 225598 | 239703 | 254202 | 269116 | 284398 | 297717 | 314498 | 332165 | 350796 | 370431 | 50 |
| 1 | 207510 | 219715 | 232478 | 245820 | 259767 | 274459 | 289953 | 306286 | 323503 | 341640 | 1 |
| 2 | 191173 | 202234 | 214129 | 226867 | 239570 | 253156 | 267480 | 282581 | 298499 | 315277 | 2 |
| 3 | 176465 | 186385 | 197171 | 207877 | 219565 | 232295 | 246118 | 260783 | 276506 | 293225 | 3 |
| 4 | 163345 | 171117 | 181796 | 192252 | 203560 | 215834 | 229174 | 243601 | 259227 | 266833 | 4 |
| 5 | 149192 | 157129 | 166891 | 177173 | 187426 | 198649 | 210849 | 224037 | 238319 | 247894 | 5 |
| 6 | 136114 | 144462 | 153270 | 162545 | 172342 | 182633 | 193374 | 204607 | 216350 | 228619 | 6 |
| 7 | 124460 | 133437 | 142805 | 152599 | 162860 | 173630 | 184969 | 196929 | 209556 | 216660 | 7 |
| 8 | 114060 | 121230 | 128814 | 136758 | 145115 | 153950 | 163303 | 173205 | 183698 | 189776 | 8 |
| 9 | 104134 | 110778 | 117742 | 125107 | 132823 | 140930 | 149520 | 158799 | 168768 | 177868 | 9 |
| 60 | 948703 | 100950 | 107398 | 114140 | 121390 | 129170 | 136678 | 144958 | 153953 | 162862 | 60 |
| 1 | 861593 | 917743 | 976917 | 103983 | 110424 | 117332 | 124668 | 132217 | 140227 | 148928 | 1 |
| 2 | 779713 | 831385 | 885546 | 942354 | 100248 | 106550 | 113215 | 120197 | 127579 | 135308 | 2 |
| 3 | 703891 | 750297 | 800001 | 852138 | 906803 | 964063 | 102350 | 108544 | 115063 | 122796 | 3 |
| 4 | 631959 | 674439 | 719841 | 767527 | 817548 | 869995 | 925506 | 984081 | 104522 | 110968 | 4 |
| 5 | 565899 | 604373 | 645381 | 688849 | 734820 | 783405 | 832018 | 881068 | 940741 | 999593 | 5 |
| 6 | 504063 | 539165 | 576902 | 615110 | 654819 | 695955 | 745188 | 792993 | 845500 | 896117 | 6 |
| 7 | 447254 | 478668 | 513000 | 549003 | 586411 | 623077 | 664347 | 707643 | 753039 | 801087 | 7 |
| 8 | 394095 | 422973 | 452080 | 484204 | 517306 | 552407 | 589245 | 628290 | 669225 | 712157 | 8 |
| 9 | 347087 | 371845 | 398193 | 428180 | 458538 | 487001 | 520045 | 554725 | 591473 | 630020 | 9 |
| 70 | 302037 | 325060 | 349307 | 372998 | 399194 | 426993 | 456173 | 487126 | 519610 | 554082 | 70 |
| 1 | 282810 | 292205 | 302814 | 324469 | 347461 | 371884 | 397761 | 424054 | 453789 | 484049 | 1 |
| 2 | 268296 | 274368 | 281328 | 290132 | 299486 | 321757 | 344355 | 368336 | 393517 | 420218 | 2 |
| 3 | 253373 | 261477 | 270385 | 280087 | 290490 | 297393 | 327630 | 349593 | 371875 | 398901 | 3 |
| 4 | 243875 | 249555 | 256004 | 264390 | 274944 | 285474 | 335501 | 352343 | 370224 | 390203 | 4 |
| 5 | 237605 | 243395 | 249877 | 258092 | 268503 | 279871 | 313255 | 328506 | 344897 | 361888 | 5 |
| 6 | 234305 | 239400 | 245173 | 253173 | 263448 | 275448 | 291386 | 308138 | 325907 | 344898 | 6 |
| 7 | 230480 | 235165 | 240973 | 249340 | 260088 | 272608 | 287598 | 304649 | 322864 | 342227 | 7 |
| 8 | 226452 | 231103 | 236844 | 245490 | 256616 | 269578 | 284804 | 301674 | 319362 | 338929 | 8 |
| 9 | 218487 | 223198 | 229063 | 237708 | 248888 | 261975 | 276440 | 292401 | 309811 | 328618 | 9 |
| 80 | 489766 | 528943 | 570842 | 617628 | 667464 | 720536 | 777034 | 837157 | 901118 | 969140 | 80 |
| 1 | 379119 | 411852 | 446764 | 483984 | 523640 | 565903 | 610900 | 658801 | 709776 | 764005 | 1 |
| 2 | 291328 | 318978 | 344366 | 373535 | 404654 | 437817 | 473145 | 510747 | 550617 | 593728 | 2 |
| 3 | 220185 | 239978 | 261106 | 283850 | 307634 | 333328 | 360646 | 389748 | 420738 | 453728 | 3 |
| 4 | 163488 | 178514 | 194561 | 211691 | 229968 | 249403 | 270245 | 292393 | 316987 | 341112 | 4 |
| 5 | 119102 | 130911 | 143288 | 156278 | 169732 | 183700 | 198238 | 214403 | 232267 | 251863 | 5 |
| 6 | 849998 | 932040 | 101976 | 111340 | 121358 | 132043 | 143444 | 155603 | 168566 | 182381 | 6 |
| 7 | 609319 | 652181 | 718138 | 782442 | 854354 | 931154 | 101314 | 110061 | 119391 | 129337 | 7 |
| 8 | 405057 | 440443 | 480734 | 528107 | 583749 | 642860 | 700640 | 762335 | 828156 | 898356 | 8 |
| 9 | 270039 | 298515 | 329016 | 361658 | 398569 | 433891 | 473769 | 516367 | 561819 | 610327 | 9 |
| 90 | 175359 | 194841 | 215393 | 237400 | 260953 | 286143 | 313073 | 341846 | 372576 | 405379 | 90 |
| 1 | 110794 | 128530 | 137254 | 151733 | 167234 | 183625 | 201671 | 220541 | 240811 | 262458 | 1 |
| 2 | 640939 | 783103 | 851285 | 945957 | 104563 | 115240 | 126680 | 138909 | 151983 | 165960 | 2 |
| 3 | 398307 | 418946 | 503118 | 581257 | 633609 | 693939 | 752626 | 835207 | 915833 | 100202 | 3 |
| 4 | 217003 | 246968 | 277101 | 310537 | 346423 | 384907 | 425308 | 468984 | 515510 | 565275 | 4 |
| 5 | 106394 | 121118 | 137326 | 154661 | 173323 | 193352 | 214833 | 237468 | 261759 | 287227 | 5 |
| 6 | 45033 | 51700 | 58876 | 66735 | 75382 | 84854 | 93990 | 104452 | 115448 | 127244 | 6 |
| 7 | 15594 | 18019 | 20830 | 23530 | 26934 | 30073 | 33791 | 37590 | 41772 | 46179 | 7 |
| 8 | 3821 | 4452 | 5148 | 5908 | 6738 | 7638 | 8598 | 9629 | 10741 | 11855 | 8 |
| 9 | 0812 | 0955 | 1113 | 1286 | 1477 | 1633 | 1906 | 2148 | 2407 | 2685 | 9 |

$D_{x \cdot y}$ x BEING THE OLDER AGE. $\frac{4}{3}$ PER CENT.

$$y = x - n$$

| x | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | x |
|-----|---------|---------|---------|---------|---------|---------|----------|---------|---------|---------|-----|
| 45 | 587386 | | | | | | | | | | 45 |
| 6 | 541006 | 571569 | | | | | | | | | 6 |
| 7 | 499266 | 526938 | 556090 | | | | | | | | 7 |
| 8 | 460189 | 485744 | 512667 | 541029 | | | | | | | 8 |
| 9 | 424202 | 447803 | 472671 | 498869 | 526468 | | | | | | 9 |
| 50 | 391123 | 412928 | 435903 | 460109 | 485611 | 512476 | | | | | 50 |
| 1 | 360771 | 380924 | 402159 | 424535 | 448110 | 472947 | | | | | 1 |
| 2 | 332961 | 351599 | 371239 | 391934 | 413741 | 436717 | 460923 | | | | 2 |
| 3 | 307384 | 324625 | 342795 | 361944 | 382121 | 403383 | 425783 | 449382 | | | 3 |
| 4 | 283765 | 299716 | 316527 | 334244 | 352915 | 372569 | 393199 | 414810 | 437423 | | 4 |
| 5 | 261890 | 276641 | 292191 | 308590 | 325865 | 344054 | 363235 | 383445 | 404738 | 427171 | 5 |
| 6 | 241555 | 255192 | 269567 | 284719 | 300669 | 317520 | 335258 | 353946 | 373639 | 394386 | 6 |
| 7 | 222607 | 235203 | 248481 | 262478 | 277232 | 292782 | 309170 | 326440 | 344639 | 363814 | 7 |
| 8 | 204957 | 216517 | 228768 | 241683 | 255297 | 269647 | 284782 | 300711 | 317609 | 335299 | 8 |
| 9 | 188201 | 199002 | 210287 | 222186 | 234729 | 247952 | 261889 | 276578 | 292059 | 308374 | 9 |
| 60 | 172441 | 182458 | 192929 | 203870 | 215406 | 227566 | 240385 | 253897 | 268139 | 283147 | 60 |
| 1 | 157547 | 166813 | 176504 | 186653 | 197217 | 208376 | 220140 | 232541 | 245612 | 259399 | 1 |
| 2 | 144704 | 152020 | 160061 | 170811 | 180085 | 190298 | 201068 | 212417 | 224368 | 236995 | 2 |
| 3 | 132023 | 138283 | 146235 | 154889 | 163986 | 173291 | 183119 | 193440 | 204403 | 215917 | 3 |
| 4 | 117782 | 124918 | 132670 | 140947 | 149601 | 157234 | 166257 | 175686 | 185427 | 195496 | 4 |
| 5 | 106124 | 112641 | 119455 | 126678 | 134220 | 142115 | 150370 | 159000 | 168017 | 177424 | 5 |
| 6 | 95270.7 | 101146 | 107358 | 113961 | 120927 | 128295 | 135440 | 143317 | 151642 | 160196 | 6 |
| 7 | 85144.2 | 90470.6 | 96050.2 | 101949 | 108125 | 114635 | 121480 | 128625 | 136096 | 143907 | 7 |
| 8 | 76759.7 | 80521.8 | 85559.0 | 90885.7 | 96414.0 | 102255 | 108600 | 114445 | 121042 | 127508 | 8 |
| 9 | 67043.6 | 71321.4 | 75904.5 | 80546.7 | 85141.2 | 90765.7 | 96264.3 | 102238 | 108154 | 114515 | 9 |
| 70 | 59013.9 | 62799.7 | 66806.7 | 71006.0 | 75448.0 | 80101.1 | 85020.1 | 90170.6 | 95766.3 | 101509 | 70 |
| 1 | 51611.5 | 54975.1 | 58501.8 | 62234.6 | 66146.5 | 70284.5 | 74619.1 | 79201.5 | 83999.5 | 89212.3 | 1 |
| 2 | 44824.1 | 47793.4 | 50908.2 | 54174.0 | 57630.6 | 61253.2 | 65085.0 | 69099.0 | 73342.4 | 77785.5 | 2 |
| 3 | 38653.2 | 41230.8 | 43963.1 | 46827.2 | 49831.2 | 53010.7 | 56342.9 | 59867.6 | 63599.8 | 67493.0 | 3 |
| 4 | 33049.0 | 35291.5 | 37645.0 | 40138.8 | 42754.7 | 45497.4 | 48400.4 | 51442.8 | 54660.9 | 58032.0 | 4 |
| 5 | 28012.1 | 29927.1 | 31957.7 | 34088.9 | 36347.1 | 38715.9 | 41199.6 | 43823.3 | 46543.3 | 49397.4 | 5 |
| 6 | 23502.1 | 25135.8 | 26857.4 | 28679.7 | 30592.3 | 32618.9 | 34744.7 | 36973.6 | 39332.7 | 41805.1 | 6 |
| 7 | 19513.9 | 20834.4 | 22333.8 | 23966.0 | 25495.4 | 27164.9 | 28945.7 | 30874.8 | 32955.4 | 34951.8 | 7 |
| 8 | 16023.8 | 17152.7 | 18363.8 | 19642.7 | 20985.5 | 22409.5 | 23909.8 | 25487.4 | 27148.4 | 28690.0 | 8 |
| 9 | 13000.5 | 13930.3 | 14917.8 | 15965.1 | 17076.9 | 18244.8 | 19462.2 | 20781.4 | 22158.1 | 23602.2 | 9 |
| 80 | 10406.6 | 11166.6 | 11965.2 | 12813.0 | 13712.9 | 14667.9 | 15670.6 | 16733.9 | 17848.8 | 19032.3 | 80 |
| 1 | 8216.77 | 8823.16 | 9467.48 | 10144.6 | 10863.4 | 11628.4 | 12436.0 | 13289.2 | 14187.7 | 15133.6 | 1 |
| 2 | 6987.76 | 7369.95 | 7796.95 | 8263.6 | 8761.76 | 9292.76 | 9857.68 | 10457.6 | 11097.6 | 11782.2 | 2 |
| 3 | 4893.96 | 5261.84 | 5659.03 | 6076.66 | 6520.42 | 6996.73 | 7491.80 | 8007.23 | 8544.90 | 9105.43 | 3 |
| 4 | 3678.59 | 3983.22 | 4298.01 | 4588.04 | 4928.63 | 5296.41 | 5684.47 | 6095.84 | 6491.89 | 6933.97 | 4 |
| 5 | 2718.89 | 2932.08 | 3153.95 | 3400.30 | 3556.98 | 3726.86 | 3909.01 | 4104.66 | 4314.89 | 4544.46 | 5 |
| 6 | 1970.98 | 2127.70 | 2294.53 | 2472.07 | 2660.94 | 2861.61 | 3073.01 | 3297.42 | 3533.23 | 3783.69 | 6 |
| 7 | 1399.37 | 1512.29 | 1632.54 | 1760.54 | 1896.77 | 2041.68 | 2195.80 | 2357.85 | 2530.04 | 2710.87 | 7 |
| 8 | 974.193 | 1052.98 | 1137.92 | 1228.40 | 1324.73 | 1427.22 | 1536.27 | 1653.23 | 1774.17 | 1903.78 | 8 |
| 9 | 662.062 | 717.219 | 775.998 | 838.615 | 905.297 | 976.281 | 1051.82 | 1132.18 | 1217.65 | 1307.61 | 9 |
| 90 | 440.379 | 477.709 | 517.507 | 559.919 | 605.100 | 653.214 | 704.432 | 759.939 | 816.923 | 878.690 | 90 |
| 1 | 285.585 | 310.221 | 336.513 | 364.553 | 394.430 | 426.253 | 460.151 | 496.211 | 534.623 | 575.474 | 1 |
| 2 | 180.863 | 198.792 | 218.783 | 241.905 | 251.225 | 271.614 | 293.747 | 317.104 | 341.969 | 368.423 | 2 |
| 3 | 109.412 | 119.247 | 129.746 | 140.943 | 152.868 | 165.434 | 178.208 | 191.609 | 209.069 | 225.402 | 3 |
| 4 | 61.8474 | 67.5317 | 73.6023 | 80.0325 | 86.9968 | 94.3718 | 102.2333 | 110.612 | 119.537 | 129.042 | 4 |
| 5 | 31.5502 | 34.5195 | 37.6921 | 41.0803 | 44.6973 | 48.5564 | 52.6724 | 57.0495 | 61.7369 | 66.7146 | 5 |
| 6 | 13.9967 | 15.3369 | 16.7803 | 18.3325 | 19.9998 | 21.7278 | 23.6039 | 25.6048 | 27.7377 | 30.0110 | 6 |
| 7 | 5.0897 | 5.5946 | 6.1347 | 6.7121 | 7.3290 | 7.9878 | 8.6911 | 9.4415 | 10.2416 | 11.0951 | 7 |
| 8 | 1.3194 | 1.4542 | 1.5984 | 1.7527 | 1.9177 | 2.0940 | 2.2822 | 2.4831 | 2.6975 | 2.9262 | 8 |
| 9 | .2938 | .3298 | .3635 | .3996 | .4331 | .4734 | .5235 | .5765 | .6347 | .6973 | 9 |

NOTE.—The summation of the values on this page is not given, but may easily be made if required in any extreme case.

EXTENDED VALUES OF $D_{\frac{x}{y}}$, FORMED BY ACTUAL MULTIPLICATION OF THE FACTORS d_x AND B_y ON THE ARITHMOMETER. From these the intermediate values for each difference of age were computed on the machine by a continuous process, and verified at each tenth interval.

$$B_y = l_y + \frac{1}{2} v y + \frac{1}{2} a_w + \frac{1}{2}$$

(INTEREST $4\frac{1}{2}$ PER CENT.)

| x | $y = x + 10$ | $y = x$ | $y = x - 10$ | $y = x - 20$ | $y = x - 30$ | Dif. | The initial values of $D_{\frac{x}{y}}$ for each difference of Age. |
|-----|--------------|-----------|--------------|--------------|--------------|------|---|
| 18 | 936995203 | 133252990 | | | | | |
| 9 | 101230898 | 146409808 | | | | -10 | 936995203 |
| 20 | 106315655 | 156685146 | | | | 9 | 980629655 |
| 1 | 108321196 | 163011984 | | | | 8 | 1024567353 |
| 2 | 108442501 | 166043160 | | | | 7 | 1068617531 |
| 3 | 106341896 | 165646686 | | | | 6 | 1111444669 |
| 4 | 102512624 | 162085681 | | | | 5 | 1151728636 |
| 5 | 971025634 | 155681036 | 229084434 | | | 4 | 1189562935 |
| 6 | 906004847 | 147205324 | 210325891 | | | 3 | 1226010670 |
| 7 | 843589597 | 139141425 | 196309879 | | | 2 | 1261742576 |
| 8 | 784658130 | 131416366 | 186891284 | | | 1 | 1297131064 |
| 9 | 727691545 | 124386549 | 179899725 | | | +0 | 1332529900 |
| 30 | 673834987 | 117590593 | 173301845 | | | 1 | 1383536851 |
| 1 | 621490350 | 110806461 | 166752046 | | | 2 | 1463894342 |
| 2 | 570632393 | 104396139 | 159847519 | | | 3 | 1572469248 |
| 3 | 521026297 | 978697441 | 152449795 | | | 4 | 1774877864 |
| 4 | 474262880 | 914768259 | 144636661 | | | 5 | 1952716648 |
| 5 | 428994815 | 850019375 | 136280539 | 200536629 | | 6 | 2090775704 |
| 6 | 386992100 | 786830724 | 127842221 | 182660031 | | 7 | 2194904992 |
| 7 | 848314167 | 725035842 | 119587203 | 168721495 | | 8 | 2261594536 |
| 8 | 313380549 | 666855345 | 111686482 | 158832805 | | 9 | 2293184320 |
| 9 | 281704711 | 610964200 | 104433985 | 151042419 | | | |
| 40 | 253512252 | 557757237 | 973339255 | 143448114 | | 10 | 2290844336 |
| 1 | 227609604 | 506915816 | 903787930 | 136010559 | | 1 | 2259254552 |
| 2 | 204279314 | 460044720 | 841643290 | 128869318 | | 2 | 2231174744 |
| 3 | 183149947 | 416762463 | 782847925 | 121942697 | | 3 | 2205434920 |
| 4 | 163985713 | 377186773 | 727525814 | 115031215 | | 4 | 2180865088 |
| 5 | 146782040 | 340642907 | 674957042 | 108213427 | 159235911 | 5 | 2159805232 |
| 6 | 131114237 | 307378341 | 624960361 | 101541943 | 145082386 | 6 | 2138745376 |
| 7 | 116054684 | 275421086 | 573304729 | 945607167 | 133412482 | 7 | 2113005552 |
| 8 | 101637878 | 245109755 | 521579118 | 873552820 | 124230653 | 8 | 2081415768 |
| 9 | 860551890 | 216723524 | 470032522 | 803441011 | 116201324 | 9 | 2046316008 |
| 50 | 755364700 | 190797834 | 419778025 | 732552449 | 107961604 | 20 | 2005366288 |
| 1 | 641687516 | 166699992 | 371262289 | 661929188 | 996133669 | 1 | 1962076584 |
| 2 | 548804756 | 147036569 | 331191089 | 605798192 | 927575861 | 2 | 1917616888 |
| 3 | 473588066 | 131023645 | 298147707 | 560041594 | 872365887 | 3 | 1874327184 |
| 4 | 411565228 | 117726229 | 270891148 | 522500566 | 826140792 | 4 | 1831037480 |
| 5 | 360753726 | 106985881 | 248286380 | 491959872 | 788741511 | 5 | 1787747776 |
| 6 | 317975282 | 978435073 | 229379933 | 466374323 | 757752939 | 6 | 1744458072 |
| 7 | 282232884 | 901752056 | 214003884 | 445461313 | 734742606 | 7 | 1703508352 |
| 8 | 251984422 | 835490937 | 201496870 | 428752188 | 718084121 | 8 | 1664898616 |
| 9 | 225146173 | 775968069 | 190983194 | 414206400 | 708015708 | 9 | 1627458872 |
| 60 | 201891666 | 722522757 | 182502276 | 401526807 | 700702343 | | |
| 1 | 179811232 | 672244064 | 174638086 | 388941444 | 693449625 | 30 | 1592359112 |
| 2 | 159457117 | 621594699 | 166538557 | 375050194 | 686147380 | 1 | 1558429344 |
| 3 | 139586158 | 571748264 | 158180805 | 359944530 | 676120942 | 2 | 1516309632 |
| 4 | 121329607 | 522387090 | 149485179 | 343833809 | 663193972 | 3 | 1465999976 |
| 5 | 104132568 | 473852928 | 140526817 | 326126163 | 646193259 | 4 | 1408670368 |
| 6 | 884071948 | 426739463 | 131311105 | 307839870 | 625898740 | 5 | 1345490800 |
| 7 | 742091942 | 382637674 | 122233521 | 290084708 | 603827897 | 6 | 1277631264 |
| 8 | 615062016 | 340790583 | 112924066 | 272496320 | 579856114 | 7 | 1226151616 |
| 9 | 504247385 | 300690036 | 103633059 | 255064265 | 553186116 | 8 | 1191051856 |
| 70 | 406183790 | 263259446 | 942563778 | 238082515 | 523809971 | 40 | 1160632064 |
| 1 | 321959727 | 227121704 | 849119469 | 220587443 | 491276562 | | |
| 2 | 247934485 | 194787543 | 759319557 | 203438001 | 458148931 | | |
| 3 | 189065599 | 164345948 | 673164962 | 186238913 | 423791485 | | |
| 4 | 138145757 | 137309137 | 591187282 | 169172896 | 389117915 | | |
| 5 | 992149036 | 112763663 | 513128535 | 152174473 | 358157342 | | |
| 6 | 694605312 | 911243575 | 439855144 | 135346904 | 317301215 | | |
| 7 | 465389310 | 719802000 | 371144527 | 118562038 | 281371541 | | |
| 8 | 302857254 | 556337502 | 308252788 | 102205687 | 246479083 | | |
| 9 | 199609364 | 420977175 | 251034800 | 865193427 | 212943561 | | |
| 80 | 119080619 | 310229705 | 201067842 | 719895402 | 181838631 | | |
| 1 | 762690028 | 223032309 | 157334828 | 588213556 | 152808326 | | |
| 2 | 438165990 | 153890370 | 120902616 | 471301794 | 126271863 | | |
| 3 | 233518460 | 104005678 | 904073079 | 370310511 | 102450708 | | |
| 4 | 914729196 | 666180234 | 662145805 | 285088222 | 815802398 | | |
| 5 | 348188241 | 415563068 | 472312720 | 214924851 | 637385640 | | |
| 6 | 63788670 | 250057912 | 328047687 | 158347852 | 487248854 | | |
| 7 | | 142007010 | 219637468 | 113249539 | 361775403 | | |
| 8 | | 776372167 | 142616677 | 790203576 | 262003469 | | |
| 9 | | 425203380 | 896756112 | 534748687 | 184301558 | | |
| 90 | | 209694886 | 546298659 | 354070196 | 126769902 | | |
| 1 | | 108955718 | 318617585 | 224764039 | 840305080 | | |
| 2 | | 525799188 | 184668444 | 145083139 | 565562153 | | |
| 3 | | 234691920 | 104528320 | 908616160 | 372171368 | | |
| 4 | | 753461910 | 548732274 | 545409117 | 234827004 | | |
| 5 | | 217985870 | 260166388 | 295694935 | 134555321 | | |
| 6 | | 27061860 | 106085175 | 139171746 | 671778765 | | |
| 7 | | | 35150250 | 54365710 | 280320640 | | |

NOTE.—The local value of the figures is not assigned in these columns.

D_x x BEING THE YOUNGER AGE. (4 1/2 PER CENT.)

Table with columns labeled x, -10, -9, -8, -7, -6, -5, -4, -3, -2, -1, x. It contains numerical data for ages 18 through 90, representing mortality rates at different ages.

D.2. x BEING THE OLDER AGE. (4 1/2 PER CENT.)

| x | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | x |
|----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----|
| 18 | 133253 | 138354 | 146380 | 157247 | | | | | | | |
| 9 | 146410 | 150405 | 156163 | 162233 | 177488 | | | | | | |
| 20 | 158685 | 161090 | 165478 | 171910 | 181780 | 195273 | | | | | |
| 1 | 168012 | 177763 | 172468 | 177175 | 183957 | 194641 | 209078 | | | | |
| 2 | 168043 | 171131 | 176118 | 181058 | 185999 | 193119 | 204335 | 219400 | | | |
| 3 | 165447 | 171099 | 176350 | 181499 | 186559 | 191650 | 198986 | 210544 | 226159 | | |
| 4 | 162096 | 167960 | 173478 | 178793 | 184004 | 189185 | 194327 | 201766 | 213495 | 229318 | 24 |
| 5 | 155991 | 161920 | 167980 | 173301 | 178911 | 184816 | 188973 | 194129 | 201560 | 213267 | 5 |
| 6 | 147205 | 153534 | 159987 | 165475 | 170911 | 176149 | 181282 | 186366 | 191452 | 199780 | 6 |
| 7 | 139141 | 145376 | 151628 | 157703 | 163419 | 168787 | 173959 | 179029 | 184050 | 189073 | 7 |
| 8 | 131416 | 137536 | 143669 | 149877 | 155888 | 161593 | 166940 | 171952 | 176963 | 181926 | 8 |
| 9 | 124387 | 129932 | 136004 | 142098 | 148207 | 154157 | 159734 | 164981 | 170096 | 174992 | 9 |
| 30 | 117591 | 123185 | 129897 | 134991 | 140728 | 147776 | 152658 | 158191 | 163388 | 168394 | 30 |
| 1 | 110908 | 116444 | 121984 | 127433 | 133777 | 139353 | 145345 | 151170 | 156949 | 161795 | 1 |
| 2 | 104396 | 109473 | 115043 | 120516 | 125990 | 131772 | 137678 | 143595 | 149350 | 154764 | 2 |
| 3 | 97870 | 102935 | 107836 | 113323 | 118714 | 124202 | 129802 | 135618 | 141449 | 147118 | 3 |
| 4 | 91477 | 96219 | 101101 | 106018 | 111412 | 117172 | 122935 | 128713 | 133331 | 138063 | 4 |
| 5 | 85002 | 89644 | 94294 | 99078 | 103896 | 109182 | 114377 | 119485 | 125059 | 130663 | 5 |
| 6 | 78683 | 83187 | 87711 | 92258 | 96939 | 101653 | 106225 | 110915 | 116915 | 122360 | 6 |
| 7 | 72504 | 76900 | 81282 | 85724 | 90168 | 94743 | 99350 | 104485 | 106373 | 112466 | 7 |
| 8 | 66686 | 70887 | 75184 | 79448 | 83788 | 88132 | 92604 | 97107 | 102049 | 106903 | 8 |
| 9 | 61090 | 65146 | 69230 | 73428 | 77613 | 81853 | 86097 | 90465 | 94864 | 99691 | 9 |
| 40 | 55778 | 59652 | 63905 | 67598 | 71892 | 75778 | 79918 | 84061 | 88326 | 92622 | 40 |
| 1 | 50982 | 54425 | 58208 | 62065 | 65937 | 69956 | 73943 | 77983 | 82026 | 86188 | 1 |
| 2 | 46004 | 49592 | 53448 | 56941 | 60608 | 64498 | 68314 | 72207 | 76132 | 80100 | 2 |
| 3 | 41878 | 44682 | 48380 | 51943 | 55558 | 59234 | 62946 | 66765 | 70570 | 74426 | 3 |
| 4 | 37719 | 40739 | 43951 | 47292 | 50755 | 54304 | 57992 | 61533 | 65264 | 68983 | 4 |
| 5 | 34064 | 36905 | 39860 | 43003 | 46272 | 49690 | 53132 | 56554 | 60208 | 63853 | 5 |
| 6 | 30738 | 33398 | 36119 | 39011 | 42087 | 45286 | 48482 | 52000 | 55446 | 59233 | 6 |
| 7 | 27543 | 29907 | 32487 | 35143 | 37957 | 40949 | 44062 | 47307 | 50595 | 53948 | 7 |
| 8 | 24611 | 26628 | 28915 | 31361 | 33977 | 36697 | 39590 | 42600 | 45738 | 48916 | 8 |
| 9 | 21673 | 23552 | 25587 | 27784 | 30135 | 32648 | 35262 | 38043 | 40934 | 43940 | 9 |
| 50 | 19090 | 20700 | 22406 | 24430 | 26538 | 28783 | 31184 | 33691 | 36336 | 39098 | 50 |
| 1 | 16670 | 18117 | 19656 | 21302 | 23077 | 25092 | 27332 | 29811 | 31982 | 34603 | 1 |
| 2 | 14704 | 15998 | 17397 | 18804 | 20601 | 22732 | 24184 | 26230 | 28418 | 30693 | 2 |
| 3 | 13102 | 14283 | 15540 | 16890 | 18324 | 19914 | 21634 | 23492 | 25479 | 27604 | 3 |
| 4 | 11777 | 12855 | 14016 | 15258 | 16575 | 17982 | 19542 | 21230 | 23033 | 25004 | 4 |
| 5 | 10680 | 11695 | 12798 | 13918 | 15143 | 16458 | 17856 | 19402 | 21082 | 22892 | 5 |
| 6 | 9784.4 | 10720 | 11718 | 12793 | 13946 | 15174 | 16492 | 17907 | 19444 | 21122 | 6 |
| 7 | 9017.6 | 9912.3 | 10860 | 11873 | 12961 | 14123 | 15372 | 16707 | 18126 | 19699 | 7 |
| 8 | 8354.9 | 9223.5 | 10139 | 11108 | 12143 | 13257 | 14451 | 15724 | 17089 | 18540 | 8 |
| 9 | 7759.7 | 8606.4 | 9501.1 | 10444 | 11443 | 12508 | 13656 | 14888 | 16197 | 17603 | 9 |
| 60 | 7225.2 | 8044.9 | 8922.7 | 9850.3 | 10828 | 11863 | 12963 | 14158 | 15433 | 16792 | 60 |
| 1 | 6722.4 | 7514.2 | 8368.7 | 9279.6 | 10244 | 11261 | 12338 | 13487 | 14724 | 16051 | 1 |
| 2 | 6215.9 | 6975.1 | 7798.7 | 8681.2 | 9628.4 | 10629 | 11684 | 12802 | 13994 | 15278 | 2 |
| 3 | 5717.5 | 6435.9 | 7221.9 | 8072.5 | 8988.4 | 9969.1 | 11005 | 12098 | 13255 | 14499 | 3 |
| 4 | 5232.9 | 5998.9 | 6840.1 | 7745.1 | 8729.7 | 9793.6 | 10828 | 11955 | 12481 | 13675 | 4 |
| 5 | 4798.5 | 5598.3 | 6461.7 | 7423.4 | 8468.8 | 9595.6 | 10796 | 11989 | 12663 | 13926 | 5 |
| 6 | 4267.4 | 4951.3 | 5749.8 | 6706.0 | 7838.9 | 9052.2 | 10349 | 11736 | 12821 | 14496 | 6 |
| 7 | 3820.4 | 4506.6 | 5294.0 | 6250.5 | 7395.2 | 8748.1 | 10211 | 11685 | 12983 | 14972 | 7 |
| 8 | 3407.9 | 4094.9 | 4880.1 | 5838.3 | 6998.8 | 8360.4 | 9840.4 | 11451 | 13199 | 15089 | 8 |
| 9 | 3006.9 | 3696.6 | 4482.1 | 5432.9 | 6513.1 | 7837.7 | 9392.1 | 11124 | 12927 | 14907 | 9 |
| 70 | 2632.6 | 3045.1 | 3510.7 | 4022.6 | 4590.5 | 5218.6 | 5911.9 | 6675.8 | 7514.6 | 8432.4 | 70 |
| 1 | 2271.3 | 2650.9 | 3066.3 | 3535.1 | 4056.6 | 4623.5 | 5254.9 | 5953.1 | 6722.3 | 7587.0 | 1 |
| 2 | 1947.9 | 2279.1 | 2660.1 | 3076.9 | 3547.4 | 4064.6 | 4638.5 | 5273.1 | 5973.7 | 6745.6 | 2 |
| 3 | 1648.5 | 1943.8 | 2274.4 | 2654.6 | 3070.6 | 3540.0 | 4056.2 | 4628.9 | 5262.2 | 5961.3 | 3 |
| 4 | 1373.1 | 1629.8 | 1927.7 | 2255.6 | 2632.6 | 3045.1 | 3510.7 | 4022.6 | 4590.5 | 5218.6 | 4 |
| 5 | 1127.6 | 1350.1 | 1602.5 | 1895.5 | 2217.8 | 2598.6 | 2994.2 | 3451.9 | 3955.3 | 4513.7 | 5 |
| 6 | 911.24 | 1098.9 | 1315.6 | 1561.7 | 1847.1 | 2161.3 | 2522.5 | 2917.8 | 3363.9 | 3854.4 | 6 |
| 7 | 719.20 | 877.44 | 1058.1 | 1298.9 | 1593.8 | 1778.6 | 2081.0 | 2429.0 | 2809.6 | 3239.1 | 7 |
| 8 | 556.34 | 685.01 | 835.03 | 1007.0 | 1205.6 | 1431.1 | 1692.6 | 1990.4 | 2311.5 | 2673.7 | 8 |
| 9 | 420.98 | 523.34 | 643.15 | 784.00 | 946.42 | 1132.0 | 1348.6 | 1599.2 | 1859.4 | 2170.3 | 9 |
| 80 | 310.23 | 390.02 | 489.08 | 595.85 | 720.34 | 875.90 | 1048.7 | 1244.8 | 1473.3 | 1722.7 | 80 |
| 1 | 231.03 | 283.34 | 359.31 | 441.98 | 544.20 | 663.39 | 799.97 | 957.81 | 1136.9 | 1344.7 | 1 |
| 2 | 158.89 | 200.53 | 254.75 | 320.27 | 397.38 | 489.29 | 598.45 | 719.26 | 861.17 | 1022.2 | 2 |
| 3 | 104.01 | 136.11 | 177.86 | 225.31 | 283.26 | 351.46 | 432.75 | 527.53 | 634.14 | 761.68 | 3 |
| 4 | 66.618 | 90.417 | 118.38 | 154.18 | 195.87 | 246.25 | 305.64 | 378.21 | 458.60 | 553.08 | 4 |
| 5 | 41.558 | 56.895 | 77.220 | 101.05 | 131.68 | 171.29 | 210.31 | 260.95 | 321.30 | 391.67 | 5 |
| 6 | 25.008 | 34.806 | 47.653 | 64.677 | 84.640 | 110.29 | 140.11 | 176.14 | 218.56 | 269.11 | 6 |
| 7 | 14.201 | 20.409 | 28.407 | 38.893 | 52.787 | 69.080 | 90.015 | 114.35 | 148.77 | 187.38 | 7 |
| 8 | 7.7637 | 11.364 | 16.317 | 22.713 | 31.095 | 42.203 | 55.230 | 71.967 | 91.427 | 114.94 | 8 |
| 9 | 4.2620 | 6.0571 | 8.8579 | 12.730 | 17.719 | 24.260 | 32.926 | 43.689 | 56.146 | 71.330 | 9 |
| 90 | 3.0069 | 3.2565 | 4.6390 | 6.7840 | 9.7497 | 13.571 | 18.590 | 25.217 | 33.001 | 43.002 | 90 |
| 1 | 1.0896 | 1.5537 | 2.4129 | 3.4373 | 5.0265 | 7.2239 | 10.065 | 13.766 | 18.684 | 24.461 | 1 |
| 2 | .6258 | .8238 | 1.1734 | 1.8223 | 2.5959 | 3.7963 | 5.4558 | 7.6940 | 10.397 | 14.111 | 2 |
| 3 | .2546 | .3894 | .6093 | .8693 | 1.3499 | 1.9229 | 2.8120 | 4.0413 | 5.6252 | 7.7015 | 3 |
| 4 | .0753 | .1073 | .1675 | .2483 | .3693 | .5417 | .7970 | 1.1306 | 1.5995 | 2.2381 | 4 |
| 5 | .0217 | .0329 | .0506 | .0753 | .1109 | .1620 | .2351 | .3443 | .5047 | .7381 | 5 |
| 6 | .0027 | .0039 | .0058 | .0087 | .0133 | .0193 | .0283 | .0416 | .0607 | .0868 | 6 |
| 7 | | .0013 | .0019 | .0028 | .0041 | .0059 | .0084 | .0116 | .0166 | .0236 | 7 |
| 8 | | | .0003 | .0005 | .0007 | .0011 | .0016 | .0022 | .0032 | .0046 | 8 |
| 9 | | | | .0001 | .0002 | .0003 | .0005 | .0007 | .0010 | .0014 | 9 |

D. $\frac{x}{x-y}$ x BEING THE OLDER AGE. ($\frac{1}{2}$ PER CENT.)

| x | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | x |
|----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----|
| 25 | 229084 | | | | | | | | | | |
| 6 | 210328 | 225825 | | | | | | | | | |
| 7 | 196310 | 207718 | 225117 | | | | | | | | |
| 8 | 186891 | 194045 | 205316 | 220543 | | | | | | | |
| 9 | 179900 | 184809 | 191883 | 203023 | 218087 | | | | | | |
| 30 | 173502 | 178162 | 185025 | 190930 | 201068 | 215981 | | | | | |
| 1 | 166752 | 171612 | 176425 | 181240 | 188177 | 199107 | 213875 | | | | |
| 2 | 159948 | 164745 | 169547 | 174302 | 179059 | 185013 | 196711 | 211901 | | | |
| 3 | 152450 | 157458 | 162282 | 167012 | 171898 | 176342 | 183133 | 193770 | 209148 | | |
| 4 | 144837 | 149879 | 154803 | 159546 | 164198 | 168801 | 173407 | 180045 | 190278 | 204659 | 34 |
| 5 | 136281 | 141743 | 146890 | 151705 | 156353 | 160910 | 165423 | 169937 | 176442 | 176442 | 35 |
| 6 | 127842 | 133339 | 138932 | 143709 | 148430 | 152978 | 157498 | 161953 | 166289 | 172643 | 36 |
| 7 | 119587 | 124945 | 130317 | 135540 | 140633 | 145606 | 149511 | 153369 | 158184 | 162501 | 37 |
| 8 | 111686 | 116888 | 122125 | 127375 | 132480 | 137242 | 141792 | 146198 | 150395 | 154613 | 38 |
| 9 | 104434 | 109107 | 114188 | 119304 | 124434 | 129420 | 134111 | 138517 | 142761 | 146923 | 39 |
| 40 | 97334 | 101965 | 106827 | 111488 | 116444 | 121402 | 126361 | 130941 | 135248 | 139396 | 40 |
| 1 | 90379 | 94977 | 99496 | 103948 | 108789 | 113649 | 118550 | 123301 | 127770 | 131967 | 1 |
| 2 | 84164 | 88257 | 92748 | 97160 | 101509 | 105825 | 109995 | 115767 | 120407 | 124771 | 2 |
| 3 | 78285 | 82257 | 86257 | 90646 | 94853 | 99207 | 103827 | 108479 | 113143 | 117679 | 3 |
| 4 | 72753 | 76524 | 80407 | 84317 | 88067 | 92223 | 96376 | 101463 | 106440 | 110990 | 4 |
| 5 | 67408 | 71184 | 74874 | 78375 | 82499 | 86896 | 90921 | 94885 | 99303 | 103753 | 5 |
| 6 | 62496 | 66058 | 69597 | 73279 | 76998 | 80741 | 84469 | 88263 | 92463 | 97147 | 6 |
| 7 | 57930 | 60807 | 64272 | 67784 | 71298 | 74915 | 78559 | 82555 | 86843 | 90853 | 7 |
| 8 | 52158 | 55428 | 58789 | 62140 | 65535 | 69032 | 72430 | 75953 | 79810 | 83814 | 8 |
| 9 | 47008 | 50118 | 53261 | 56490 | 59710 | 62972 | 66237 | 69597 | 72982 | 76885 | 9 |
| 50 | 41978 | 44895 | 47870 | 50872 | 53957 | 57032 | 60146 | 63266 | 66478 | 69790 | 50 |
| 1 | 37126 | 39861 | 42631 | 45466 | 48306 | 51235 | 54155 | 57114 | 60075 | 63123 | 1 |
| 2 | 33113 | 35630 | 38255 | 40918 | 43624 | 46360 | 49171 | 51973 | 54813 | 57655 | 2 |
| 3 | 29815 | 32165 | 34610 | 37159 | 39742 | 42360 | 45033 | 47763 | 50465 | 53244 | 3 |
| 4 | 27089 | 29258 | 31565 | 33964 | 36466 | 39000 | 41545 | 44192 | 46872 | 49544 | 4 |
| 5 | 24829 | 26899 | 29053 | 31344 | 33726 | 36210 | 38727 | 41283 | 43883 | 46544 | 5 |
| 6 | 22938 | 24879 | 26954 | 29112 | 31407 | 33794 | 36283 | 38805 | 41377 | 43971 | 6 |
| 7 | 21400 | 23238 | 25204 | 27306 | 29493 | 31818 | 34236 | 36759 | 39313 | 41918 | 7 |
| 8 | 20149 | 21889 | 23769 | 25780 | 27930 | 30166 | 32544 | 35018 | 37598 | 40210 | 8 |
| 9 | 19098 | 20755 | 22648 | 24484 | 26566 | 28770 | 31074 | 33524 | 36072 | 38729 | 9 |
| 60 | 18250 | 19800 | 21518 | 23377 | 25384 | 27532 | 29829 | 32216 | 34756 | 37399 | 60 |
| 1 | 17494 | 18990 | 20692 | 22379 | 24312 | 26399 | 28633 | 31021 | 33505 | 36146 | 1 |
| 2 | 16654 | 18120 | 19894 | 21366 | 23220 | 25228 | 27398 | 29709 | 32147 | 34704 | 2 |
| 3 | 15818 | 17243 | 18761 | 20390 | 22122 | 24041 | 26118 | 28361 | 30760 | 33326 | 3 |
| 4 | 14949 | 16320 | 17790 | 19357 | 21038 | 22824 | 24804 | 26947 | 29261 | 31737 | 4 |
| 5 | 14053 | 15361 | 16771 | 18281 | 19991 | 21818 | 23864 | 26049 | 28469 | 30999 | 5 |
| 6 | 13131 | 14387 | 15727 | 17170 | 18716 | 20364 | 22133 | 24013 | 26005 | 28230 | 6 |
| 7 | 12223 | 13436 | 14721 | 16092 | 17568 | 19151 | 20847 | 22647 | 24570 | 26702 | 7 |
| 8 | 11299 | 12474 | 13712 | 15023 | 16422 | 17929 | 19544 | 21295 | 23111 | 25074 | 8 |
| 9 | 10363 | 11494 | 12689 | 13943 | 15282 | 16706 | 18228 | 19981 | 21861 | 23810 | 9 |
| 70 | 9425.6 | 10495 | 11640 | 12850 | 14125 | 15476 | 16917 | 18469 | 20133 | 21906 | 70 |
| 1 | 8491.2 | 9491.3 | 10569 | 11721 | 12940 | 14424 | 15984 | 17635 | 19388 | 20274 | 1 |
| 2 | 7693.2 | 8520.6 | 9524.2 | 10605 | 11768 | 12985 | 14273 | 15638 | 17064 | 18453 | 2 |
| 3 | 6781.6 | 7577.5 | 8502.9 | 9504.5 | 10588 | 11737 | 12958 | 14243 | 15606 | 17059 | 3 |
| 4 | 5911.9 | 6675.8 | 7514.6 | 8432.4 | 9425.6 | 10405 | 11465 | 12510 | 13645 | 14878 | 4 |
| 5 | 5131.3 | 5813.0 | 6584.2 | 7389.0 | 8291.4 | 9268.0 | 10310 | 11445 | 12685 | 13949 | 5 |
| 6 | 4398.6 | 5000.4 | 5664.2 | 6396.7 | 7200.4 | 8079.9 | 9031.5 | 10056 | 11153 | 12313 | 6 |
| 7 | 3711.4 | 4235.4 | 4814.9 | 5454.6 | 6159.4 | 6933.4 | 7780.2 | 8698.5 | 9693.1 | 10760 | 7 |
| 8 | 3082.5 | 3532.0 | 4030.7 | 4582.2 | 5190.9 | 5961.7 | 6598.2 | 7404.1 | 8276.2 | 9215.1 | 8 |
| 9 | 2510.3 | 2894.2 | 3316.2 | 3784.4 | 4302.1 | 4973.7 | 5503.5 | 6195.0 | 6951.6 | 7770.4 | 9 |
| 80 | 2010.7 | 2325.7 | 2681.3 | 3072.3 | 3506.0 | 3985.7 | 4515.3 | 5098.7 | 5739.4 | 6440.4 | 80 |
| 1 | 1573.3 | 1836.4 | 2124.1 | 2448.9 | 2806.0 | 3202.1 | 3640.3 | 4123.9 | 4656.8 | 5241.9 | 1 |
| 2 | 1209.0 | 1414.6 | 1651.1 | 1909.8 | 2201.8 | 2522.9 | 2879.1 | 3273.6 | 3707.8 | 4198.9 | 2 |
| 3 | 904.07 | 1069.3 | 1251.1 | 1460.3 | 1689.1 | 1947.4 | 2231.4 | 2546.4 | 2894.8 | 3289.3 | 3 |
| 4 | 662.15 | 785.95 | 929.61 | 1087.7 | 1269.6 | 1468.4 | 1692.9 | 1930.8 | 2213.7 | 2516.5 | 4 |
| 5 | 473.81 | 565.50 | 671.24 | 793.93 | 929.89 | 1084.2 | 1254.1 | 1445.9 | 1656.7 | 1890.6 | 5 |
| 6 | 328.05 | 395.59 | 473.64 | 562.21 | 664.96 | 778.03 | 903.11 | 1050.4 | 1210.0 | 1387.6 | 6 |
| 7 | 219.64 | 267.74 | 322.87 | 386.67 | 465.85 | 542.72 | 635.00 | 741.16 | 857.30 | 999.37 | 7 |
| 8 | 142.62 | 175.60 | 214.06 | 258.18 | 309.07 | 366.85 | 433.91 | 507.68 | 591.56 | 695.41 | 8 |
| 9 | 89.676 | 111.27 | 137.00 | 167.01 | 201.39 | 241.13 | 286.21 | 338.58 | 398.09 | 462.81 | 9 |
| 90 | 54.630 | 68.680 | 85.217 | 104.98 | 127.91 | 154.24 | 184.67 | 219.20 | 259.27 | 303.35 | 90 |
| 1 | 31.822 | 40.477 | 50.887 | 63.140 | 77.743 | 94.769 | 114.29 | 136.83 | 162.42 | 192.10 | 1 |
| 2 | 18.487 | 24.063 | 30.670 | 38.432 | 47.686 | 59.715 | 71.574 | 86.311 | 103.34 | 123.66 | 2 |
| 3 | 10.453 | 13.679 | 17.825 | 22.645 | 28.468 | 35.323 | 43.463 | 53.018 | 63.954 | 78.540 | 3 |
| 4 | 5.4873 | 7.4476 | 9.7464 | 12.700 | 16.134 | 20.244 | 25.198 | 30.948 | 37.775 | 46.555 | 4 |
| 5 | 2.6017 | 3.5619 | 4.8344 | 6.3268 | 8.2440 | 10.473 | 13.167 | 16.337 | 20.115 | 24.521 | 5 |
| 6 | 1.0609 | 1.4766 | 2.0216 | 2.7439 | 3.6908 | 4.6790 | 5.9442 | 7.4730 | 9.2723 | 11.417 | 6 |
| 7 | .3515 | .5051 | .7031 | .9626 | 1.3066 | 1.7099 | 2.2241 | 2.8306 | 3.5546 | 4.4154 | 7 |
| 8 | .0721 | .1054 | .1515 | .2109 | .2888 | .3919 | .5129 | .6644 | .8491 | 1.0676 | 8 |
| 9 | .0168 | .0240 | .0351 | .0505 | .0703 | .0962 | .1306 | .1709 | .2228 | .2830 | 9 |

$D_{\frac{x}{s.y}}$ x BEING THE OLDER AGE. ($\frac{4}{3}$ PER CENT.)

| x | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | x |
|-----|--------|--------|--------|--------|--------|--------|--------|---------|--------|--------|-----|
| 35 | 200537 | | | | | | | | | | |
| 6 | 182990 | 196208 | | | | | | | | | |
| 7 | 169721 | 178521 | 191762 | | | | | | | | |
| 8 | 158833 | 164013 | 174461 | 187433 | | | | | | | |
| 9 | 151042 | 155194 | 161104 | 170461 | 183104 | | | | | | |
| 40 | 143448 | 147471 | 151496 | 157295 | 166481 | 173775 | | | | | |
| 1 | 136011 | 139975 | 143900 | 147828 | 153496 | 162401 | 174446 | | | | |
| 2 | 128469 | 132518 | 136609 | 140623 | 146357 | 149683 | 158589 | | | | |
| 3 | 121943 | 126040 | 129908 | 133591 | 137338 | 141096 | 146496 | 170351 | | | |
| 4 | 115081 | 119200 | 123116 | 126888 | 130597 | 134240 | 137913 | 1431994 | 166490 | | |
| 5 | 108213 | 112550 | 116630 | 120461 | 124152 | 127770 | 131354 | 134938 | 140104 | 162746 | 44 |
| 6 | 101542 | 105908 | 110152 | 114145 | 117894 | 121506 | 125048 | 128555 | 132063 | 137118 | 5 |
| 7 | 94561 | 98798 | 103045 | 107175 | 111060 | 114708 | 118223 | 121668 | 125080 | 128494 | 6 |
| 8 | 87355 | 91425 | 95520 | 99626 | 103819 | 107375 | 110902 | 114300 | 117631 | 120930 | 7 |
| 9 | 80344 | 83939 | 87848 | 91786 | 95730 | 99667 | 103176 | 106666 | 109830 | 113031 | 8 |
| | | | | | | | | | | | 9 |
| 50 | 73255 | 76741 | 80174 | 83908 | 87668 | 91437 | 95101 | 98548 | 101786 | 104904 | 50 |
| 1 | 68198 | 69591 | 72370 | 76131 | 79976 | 83246 | 86325 | 89305 | 93378 | 96652 | 1 |
| 2 | 60580 | 63326 | 66753 | 69934 | 73083 | 76468 | 79592 | 83327 | 86996 | 89807 | 2 |
| 3 | 58004 | 59846 | 61707 | 64947 | 67932 | 70972 | 74277 | 77605 | 80941 | 84185 | 3 |
| 4 | 52250 | 54059 | 57747 | 60556 | 63637 | 66684 | 69447 | 72891 | 76156 | 79431 | 4 |
| 5 | 49198 | 51884 | 54374 | 57343 | 60131 | 63191 | 66197 | 69159 | 72380 | 75623 | 5 |
| 6 | 46037 | 49295 | 51969 | 54684 | 57463 | 60253 | 63318 | 66331 | 69299 | 72526 | 6 |
| 7 | 44546 | 47247 | 49940 | 52668 | 55399 | 58210 | 61041 | 64146 | 67198 | 70205 | 7 |
| 8 | 42975 | 45594 | 48327 | 51081 | 53871 | 56664 | 59539 | 62485 | 65611 | 68733 | 8 |
| 9 | 41421 | 44166 | 46936 | 49781 | 52618 | 55463 | 58370 | 61331 | 64314 | 67586 | 9 |
| 60 | 40153 | 42943 | 45789 | 48660 | 51611 | 54552 | 57533 | 60515 | 63596 | 66678 | 60 |
| 1 | 39494 | 41759 | 44661 | 47621 | 50607 | 53675 | 56734 | 59834 | 62936 | 66129 | 1 |
| 2 | 37905 | 40356 | 43328 | 46340 | 49411 | 52509 | 55698 | 58987 | 62085 | 65302 | 2 |
| 3 | 35994 | 38832 | 41784 | 44861 | 47979 | 51159 | 54397 | 57663 | 60949 | 64280 | 3 |
| 4 | 34933 | 37137 | 40094 | 43110 | 46285 | 49502 | 52782 | 56092 | 59493 | 62984 | 4 |
| 5 | 32413 | 35332 | 38162 | 41170 | 44300 | 47543 | 50863 | 54239 | 57640 | 61135 | 5 |
| 6 | 30784 | 33359 | 36173 | 39070 | 42150 | 45354 | 48694 | 52078 | 55530 | 59011 | 6 |
| 7 | 29008 | 31499 | 34145 | 37014 | 39973 | 43129 | 46408 | 49826 | 53289 | 56820 | 7 |
| 8 | 27250 | 29904 | 32145 | 34865 | 37773 | 40798 | 44014 | 47360 | 50848 | 54382 | 8 |
| 9 | 25506 | 27719 | 30114 | 32699 | 35466 | 38424 | 41501 | 44772 | 48176 | 51724 | 9 |
| 70 | 23608 | 25830 | 28071 | 30466 | 33115 | 35916 | 38912 | 42028 | 45341 | 48788 | 70 |
| 1 | 22059 | 23974 | 26010 | 28267 | 30700 | 33345 | 36167 | 39183 | 42321 | 45657 | 1 |
| 2 | 20344 | 22135 | 24057 | 26100 | 28365 | 30815 | 33461 | 36292 | 39319 | 42467 | 2 |
| 3 | 18624 | 20302 | 22089 | 24007 | 26046 | 28306 | 30751 | 33392 | 36217 | 39237 | 3 |
| 4 | 16917 | 18469 | 20133 | 21906 | 23808 | 25830 | 28071 | 30496 | 33115 | 35916 | 4 |
| 5 | 15217 | 16634 | 18161 | 19797 | 21540 | 23410 | 25398 | 27602 | 29996 | 32561 | 5 |
| 6 | 13535 | 14829 | 16210 | 17697 | 19292 | 20990 | 22813 | 24750 | 26898 | 29221 | 6 |
| 7 | 11859 | 13033 | 14279 | 15609 | 17041 | 18576 | 20212 | 21967 | 23832 | 25900 | 7 |
| 8 | 10221 | 11283 | 12403 | 13589 | 14854 | 16217 | 17679 | 19235 | 20905 | 22800 | 8 |
| 9 | 8651'9 | 9596'0 | 10594 | 11645 | 12758 | 13943 | 15226 | 16598 | 18059 | 19627 | 9 |
| 80 | 7199'0 | 8015'7 | 8890'3 | 9814'5 | 10788 | 11820 | 12921 | 14106 | 15377 | 16731 | 80 |
| 1 | 6882'1 | 6575'0 | 7320'9 | 8119'7 | 8963'8 | 9853'3 | 10796 | 11801 | 12884 | 14044 | 1 |
| 2 | 4713'0 | 5288'6 | 5911'5 | 6582'3 | 7300'4 | 8059'4 | 8859'1 | 9708'4 | 10610 | 11584 | 2 |
| 3 | 3703'1 | 4168'4 | 4677'5 | 5238'4 | 5821'6 | 6456'8 | 7128'0 | 7835'4 | 8584'7 | 9384'1 | 3 |
| 4 | 2850'9 | 3219'3 | 3623'8 | 4066'3 | 4545'3 | 5061'0 | 5613'3 | 6196'7 | 6811'6 | 7463'1 | 4 |
| 5 | 2149'2 | 2434'8 | 2749'4 | 3094'9 | 3472'9 | 3881'9 | 4322'3 | 4793'9 | 5292'3 | 5817'5 | 5 |
| 6 | 1583'5 | 1800'1 | 2039'3 | 2302'8 | 2592'2 | 2908'7 | 3251'4 | 3620'2 | 4015'2 | 4432'6 | 6 |
| 7 | 1132'5 | 1292'4 | 1469'9 | 1664'4 | 1879'5 | 2115'6 | 2374'0 | 2653'6 | 2954'7 | 3277'1 | 7 |
| 8 | 790'20 | 905'44 | 1033'3 | 1174'6 | 1330'7 | 1502'6 | 1691'4 | 1898'0 | 2121'6 | 2362'3 | 8 |
| 9 | 534'75 | 616'51 | 706'41 | 806'13 | 916'43 | 1038'3 | 1172'3 | 1319'6 | 1480'8 | 1655'2 | 9 |
| 90 | 354'07 | 409'55 | 472'16 | 541'02 | 617'40 | 701'87 | 795'12 | 897'86 | 1010'7 | 1134'1 | 90 |
| 1 | 224'76 | 263'34 | 303'45 | 349'54 | 400'85 | 457'45 | 520'04 | 589'13 | 665'26 | 748'55 | 1 |
| 2 | 145'03 | 169'75 | 199'13 | 229'13 | 264'23 | 302'75 | 345'49 | 392'76 | 444'94 | 502'43 | 2 |
| 3 | 90'869 | 107'47 | 125'74 | 146'78 | 169'78 | 195'73 | 224'26 | 255'92 | 290'93 | 329'58 | 3 |
| 4 | 54'541 | 64'739 | 76'673 | 89'601 | 104'56 | 120'96 | 139'45 | 160'78 | 182'34 | 207'29 | 4 |
| 5 | 29'569 | 35'404 | 42'033 | 49'704 | 58'156 | 67'879 | 78'615 | 90'519 | 103'72 | 118'36 | 5 |
| 6 | 13'917 | 16'783 | 20'094 | 23'851 | 28'211 | 33'007 | 38'626 | 44'562 | 51'375 | 58'867 | 6 |
| 7 | 5'4306 | 6'6373 | 7'9918 | 9'5886 | 11'350 | 13'494 | 15'718 | 18'346 | 21'220 | 24'465 | 7 |
| 8 | 1'3246 | 1'6310 | 1'9882 | 2'3975 | 2'8701 | 3'4073 | 4'0301 | 4'7153 | 5'5038 | 6'3661 | 8 |
| 9 | 3558 | 4415 | 5436 | 6627 | 7991 | 9568 | 11358 | 13434 | 15718 | 18346 | 9 |

D_{xy} x BEING THE OLDER AGE. (4½ PER CENT.)

| x | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | x |
|----|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|----|
| 45 | 159236 | | | | | | | | | | |
| 6 | 145082 | 155843 | | | | | | | | | |
| 7 | 139412 | 141161 | 151631 | | | | | | | | |
| 8 | 124231 | 128986 | 136478 | 146600 | | | | | | | |
| 9 | 116201 | 119372 | 123942 | 131141 | 140867 | | | | | | |
| 50 | 107968 | 110990 | 114019 | 118883 | 125259 | 134549 | | | | | |
| 1 | 99613 | 102517 | 105892 | 109268 | 112413 | 118941 | 127763 | | | | |
| 2 | 92758 | 95600 | 98386 | 101145 | 103908 | 107883 | 114149 | 122615 | | | |
| 3 | 87237 | 90102 | 92863 | 95569 | 98250 | 100931 | 104795 | 110881 | 119105 | | |
| 4 | 82614 | 85608 | 88421 | 91130 | 93786 | 96416 | 99047 | 102839 | 108813 | 116892 | 54 |
| 5 | 78874 | 82035 | 85009 | 87901 | 90491 | 93129 | 95741 | 98353 | 102118 | 108040 | 5 |
| 6 | 75775 | 79033 | 82201 | 85180 | 87978 | 90674 | 93316 | 95954 | 98584 | 102324 | 6 |
| 7 | 73474 | 76766 | 80067 | 83276 | 86294 | 89129 | 91860 | 94537 | 97198 | 100841 | 7 |
| 8 | 71808 | 75162 | 78520 | 81896 | 85178 | 88285 | 91164 | 93958 | 96696 | 100408 | 8 |
| 9 | 70802 | 73970 | 77414 | 80883 | 84360 | 87741 | 90921 | 93908 | 96786 | 100006 | 9 |
| 60 | 70070 | 73404 | 76889 | 80260 | 83556 | 87461 | 90966 | 94263 | 97300 | 100843 | 60 |
| 1 | 69345 | 72873 | 76340 | 79756 | 83470 | 87210 | 90960 | 94605 | 98034 | 101254 | 1 |
| 2 | 68616 | 71961 | 75612 | 79210 | 82754 | 86603 | 90498 | 94379 | 98181 | 101719 | 2 |
| 3 | 67812 | 71043 | 74407 | 78289 | 82012 | 85682 | 89673 | 93690 | 97718 | 101634 | 3 |
| 4 | 68319 | 69758 | 73297 | 76861 | 80772 | 84615 | 88401 | 92516 | 96033 | 100019 | 4 |
| 5 | 64619 | 65150 | 71683 | 75320 | 78963 | 83001 | 86950 | 90841 | 94671 | 98331 | 5 |
| 6 | 62590 | 63167 | 69771 | 73389 | 77112 | 80963 | 84676 | 89019 | 93002 | 97333 | 6 |
| 7 | 60393 | 64044 | 67694 | 71393 | 75094 | 78904 | 82741 | 86951 | 91098 | 95184 | 7 |
| 8 | 57986 | 61821 | 65358 | 69083 | 72877 | 76634 | 80523 | 84438 | 88734 | 92956 | 8 |
| 9 | 55319 | 58995 | 62683 | 66464 | 70273 | 74112 | 77955 | 81910 | 85893 | 90203 | 9 |
| 70 | 52381 | 56021 | 59734 | 63479 | 67329 | 71166 | 75054 | 78945 | 82950 | 86994 | 70 |
| 1 | 49128 | 52746 | 56412 | 60150 | 63922 | 67798 | 71661 | 75577 | 79405 | 83268 | 1 |
| 2 | 45815 | 49298 | 52929 | 56607 | 60358 | 64143 | 68032 | 71909 | 75838 | 79770 | 2 |
| 3 | 42379 | 45720 | 49196 | 52819 | 56490 | 60233 | 64010 | 67893 | 71761 | 75692 | 3 |
| 4 | 38912 | 42028 | 45341 | 48788 | 52381 | 56021 | 59734 | 63479 | 67329 | 71166 | 4 |
| 5 | 36316 | 38261 | 41325 | 44583 | 47972 | 51505 | 55084 | 58735 | 62418 | 66203 | 5 |
| 6 | 31730 | 34415 | 37285 | 40270 | 43446 | 46743 | 50191 | 53679 | 57238 | 60826 | 6 |
| 7 | 28137 | 30553 | 33183 | 35902 | 38777 | 41834 | 45018 | 48329 | 51688 | 55118 | 7 |
| 8 | 24648 | 26777 | 29076 | 31536 | 34186 | 36902 | 39812 | 42838 | 45963 | 49199 | 8 |
| 9 | 21294 | 23142 | 25141 | 27299 | 29609 | 32079 | 34647 | 37379 | 40220 | 43188 | 9 |
| 80 | 18184 | 19738 | 21440 | 23292 | 25292 | 27432 | 29719 | 32099 | 34630 | 37292 | 80 |
| 1 | 15281 | 16608 | 18018 | 19581 | 21273 | 23100 | 25054 | 27143 | 29317 | 31629 | 1 |
| 2 | 12627 | 13739 | 14932 | 16200 | 17608 | 19126 | 20769 | 22526 | 24405 | 26359 | 2 |
| 3 | 10245 | 11168 | 12151 | 13207 | 14328 | 15571 | 16916 | 18369 | 19928 | 21595 | 3 |
| 4 | 8168*0 | 8906*5 | 9708*9 | 10564 | 11482 | 12456 | 13537 | 14706 | 15999 | 17320 | 4 |
| 5 | 6373*9 | 6967*3 | 7606*6 | 8291*9 | 9021*9 | 9805*3 | 10638 | 11561 | 12560 | 13639 | 5 |
| 6 | 4872*5 | 5338*5 | 5835*6 | 6371*0 | 6945*0 | 7556*4 | 8212*8 | 8910*1 | 9643*1 | 10420 | 6 |
| 7 | 3617*8 | 3976*7 | 4357*1 | 4762*8 | 5199*8 | 5663*2 | 6167*3 | 6702*8 | 7272*1 | 7903*0 | 7 |
| 8 | 2620*0 | 2892*4 | 3179*4 | 3483*5 | 3807*9 | 4157*2 | 4531*7 | 4930*8 | 5358*9 | 5814*1 | 8 |
| 9 | 1848*0 | 2044*1 | 2256*6 | 2480*5 | 2717*8 | 2970*8 | 3243*4 | 3535*6 | 3846*9 | 4181*0 | 9 |
| 90 | 1267*7 | 1411*5 | 1565*5 | 1728*3 | 1899*8 | 2081*4 | 2275*3 | 2484*0 | 2707*8 | 2946*2 | 90 |
| 1 | 840*31 | 939*29 | 1045*8 | 1169*0 | 1300*5 | 1447*6 | 1542*2 | 1685*8 | 1840*5 | 2006*3 | 1 |
| 2 | 595*56 | 634*64 | 709*89 | 789*86 | 876*05 | 967*12 | 1063*1 | 1164*8 | 1279*2 | 1390*0 | 2 |
| 3 | 372*17 | 418*93 | 470*10 | 525*47 | 585*08 | 648*93 | 716*39 | 787*47 | 862*79 | 943*13 | 3 |
| 4 | 234*83 | 265*17 | 298*40 | 334*95 | 374*39 | 416*87 | 462*36 | 510*43 | 561*07 | 614*74 | 4 |
| 5 | 134*56 | 152*43 | 172*13 | 193*76 | 217*42 | 243*03 | 270*60 | 300*13 | 331*33 | 364*21 | 5 |
| 6 | 67*178 | 76*369 | 86*515 | 97*695 | 109*97 | 123*40 | 137*93 | 153*59 | 170*34 | 188*05 | 6 |
| 7 | 23*032 | 31*989 | 36*366 | 41*198 | 46*521 | 53*367 | 58*763 | 65*694 | 73*198 | 81*116 | 7 |
| 8 | 7*3394 | 8*4098 | 9*5968 | 10*910 | 12*359 | 13*956 | 15*710 | 17*629 | 19*705 | 21*941 | 8 |
| 9 | 2*1220 | 2*4465 | 2*8032 | 3*1989 | 3*6366 | 4*1198 | 4*6521 | 5*2367 | 5*8763 | 6*5684 | 9 |

NOTE.—The summation of the values on this page is not given, but may easily be made if required in any extreme case.

DIFFERENCE OF AGE Ten YEARS.
(Female the elder).

| x | N _{x·y} | N _{x·y} ⁻² | D _{x·y} ⁻¹ | Annuities. | |
|----|------------------|--------------------------------|--------------------------------|----------------------------------|---|
| | | | | Joint Lives. a _{x·y} | Rever- sionary. a _{x·y} ² |
| 18 | 62081 | 18299 | 18074 | 11·221 | 3·307 |
| 9 | 56921 | 17362 | 19380 | 11·031 | 3·365 |
| 20 | 52122 | 16350 | 20838 | 10·861 | 3·407 |
| 1 | 47670 | 15287 | 22463 | 10·708 | 3·434 |
| 2 | 43543 | 14204 | 24233 | 10·552 | 3·442 |
| 3 | 39738 | 13119 | 26282 | 10·444 | 3·448 |
| 4 | 36229 | 12056 | 28497 | 10·324 | 3·436 |
| 5 | 32998 | 11031 | 30948 | 10·212 | 3·414 |
| 6 | 30025 | 10060 | 33635 | 10·099 | 3·384 |
| 7 | 27292 | 91537 | 36595 | 9·988 | 3·350 |
| 8 | 24782 | 83101 | 39820 | 9·868 | 3·309 |
| 9 | 22479 | 75254 | 43417 | 9·760 | 3·267 |
| 80 | 20367 | 67977 | 47350 | 9·644 | 3·219 |
| 1 | 18433 | 61239 | 51706 | 9·531 | 3·166 |
| 2 | 16664 | 55024 | 56545 | 9·423 | 3·111 |
| 3 | 15048 | 49318 | 61881 | 9·312 | 3·052 |
| 4 | 13574 | 44107 | 67815 | 9·205 | 2·991 |
| 5 | 12229 | 39365 | 74937 | 9·164 | 2·950 |
| 6 | 11005 | 35075 | 81967 | 9·020 | 2·875 |
| 7 | 98903 | 31205 | 89748 | 8·876 | 2·801 |
| 8 | 88770 | 27722 | 98686 | 8·760 | 2·736 |
| 9 | 79562 | 24588 | 10860 | 8·640 | 2·670 |
| 40 | 71206 | 21771 | 11968 | 8·522 | 2·606 |
| 1 | 63631 | 19236 | 13200 | 8·399 | 2·539 |
| 2 | 56773 | 16960 | 14583 | 8·279 | 2·473 |
| 3 | 50571 | 14917 | 16125 | 8·155 | 2·405 |
| 4 | 44969 | 13086 | 17849 | 8·027 | 2·336 |
| 5 | 39913 | 11446 | 19778 | 7·894 | 2·264 |
| 6 | 35355 | 99780 | 21941 | 7·757 | 2·189 |
| 7 | 31252 | 86669 | 24372 | 7·617 | 2·112 |
| 8 | 27562 | 75064 | 27103 | 7·470 | 2·034 |
| 9 | 24248 | 64900 | 30173 | 7·317 | 1·958 |
| 50 | 21274 | 56094 | 33625 | 7·153 | 1·886 |
| 1 | 18608 | 48541 | 37506 | 6·979 | 1·821 |
| 2 | 16220 | 42124 | 41872 | 6·792 | 1·764 |
| 3 | 14083 | 36636 | 46809 | 6·592 | 1·715 |
| 4 | 12175 | 31900 | 52418 | 6·382 | 1·672 |
| 5 | 10476 | 27784 | 58828 | 6·163 | 1·634 |
| 6 | 89651 | 24177 | 66200 | 5·935 | 1·601 |
| 7 | 76270 | 20997 | 74733 | 5·700 | 1·569 |
| 8 | 64462 | 18174 | 84686 | 5·459 | 1·539 |
| 9 | 54087 | 15654 | 96391 | 5·214 | 1·509 |
| 60 | 45035 | 13403 | 11047 | 4·975 | 1·481 |
| 1 | 37186 | 11385 | 12739 | 4·737 | 1·450 |
| 2 | 30427 | 95868 | 14796 | 4·502 | 1·418 |
| 3 | 24654 | 79922 | 17322 | 4·271 | 1·384 |
| 4 | 19767 | 65964 | 20465 | 4·045 | 1·350 |
| 5 | 15664 | 53831 | 24369 | 3·817 | 1·312 |
| 6 | 12257 | 43418 | 29355 | 3·598 | 1·275 |
| 7 | 94586 | 34577 | 35729 | 3·379 | 1·235 |
| 8 | 71866 | 27156 | 44015 | 3·163 | 1·195 |
| 9 | 53681 | 21006 | 54988 | 2·952 | 1·155 |
| 70 | 39384 | 15963 | 69846 | 2·749 | 1·115 |
| 1 | 28258 | 11901 | 90048 | 2·545 | 1·072 |
| 2 | 19837 | 86819 | 11874 | 2·356 | 1·031 |
| 3 | 13588 | 62026 | 16002 | 2·174 | 0·993 |
| 4 | 90693 | 43119 | 22131 | 2·007 | 0·954 |
| 5 | 59042 | 29304 | 31596 | 1·865 | 0·926 |
| 6 | 37466 | 19382 | 46346 | 1·736 | 0·898 |
| 7 | 23169 | 12436 | 69945 | 1·621 | 0·870 |
| 8 | 13946 | 77925 | 10842 | 1·512 | 0·844 |
| 9 | 81079 | 47539 | 17129 | 1·389 | 0·814 |
| 80 | 45432 | 27578 | 28053 | 1·275 | 0·774 |
| 1 | 24297 | 15670 | 47315 | | |
| 2 | 11837 | 80436 | 80257 | | |
| 3 | 48220 | 86619 | 14254 | | |
| 4 | 15563 | 13267 | 30621 | | |
| 5 | 31089 | 41198 | 80293 | | |
| 6 | 00000 | 63788 | 32166 | | |

DIFFERENCE OF AGE Nine YEARS.
(Female the elder.)

| x | N _{x·y} | N _{x·y} ⁻² | D _{x·y} ⁻¹ | Annuities. | |
|----|------------------|--------------------------------|--------------------------------|----------------------------------|---|
| | | | | Joint Lives. a _{x·y} | Rever- sionary. a _{x·y} ² |
| 18 | 66123 | 19502 | 17104 | 11·310 | 3·336 |
| 9 | 60667 | 18521 | 18328 | 11·119 | 3·395 |
| 20 | 55589 | 17464 | 19694 | 10·948 | 3·439 |
| 1 | 50875 | 16350 | 21215 | 10·793 | 3·469 |
| 2 | 46510 | 15212 | 22907 | 10·654 | 3·485 |
| 3 | 42469 | 14074 | 24746 | 10·509 | 3·483 |
| 4 | 38747 | 12957 | 26869 | 10·411 | 3·481 |
| 5 | 35317 | 11879 | 29158 | 10·298 | 3·464 |
| 6 | 32161 | 10855 | 31681 | 10·189 | 3·439 |
| 7 | 29257 | 98971 | 34440 | 10·076 | 3·409 |
| 8 | 26589 | 90023 | 37480 | 9·966 | 3·374 |
| 9 | 24139 | 81685 | 40813 | 9·852 | 3·334 |
| 20 | 21892 | 73926 | 44495 | 9·741 | 3·289 |
| 1 | 19832 | 66719 | 48544 | 9·627 | 3·239 |
| 2 | 17946 | 60046 | 53032 | 9·517 | 3·184 |
| 3 | 16222 | 53906 | 58013 | 9·411 | 3·127 |
| 4 | 14648 | 48285 | 63506 | 9·302 | 3·066 |
| 5 | 13211 | 43163 | 69611 | 9·196 | 3·005 |
| 6 | 11901 | 38515 | 76352 | 9·087 | 2·941 |
| 7 | 10709 | 34318 | 83855 | 8·980 | 2·878 |
| 8 | 96237 | 30536 | 92157 | 8·869 | 2·814 |
| 9 | 86370 | 27131 | 10135 | 8·754 | 2·750 |
| 40 | 77404 | 24069 | 11153 | 8·633 | 2·684 |
| 1 | 69269 | 21319 | 12293 | 8·513 | 2·621 |
| 2 | 61894 | 18846 | 13559 | 8·392 | 2·555 |
| 3 | 55219 | 16623 | 14980 | 8·272 | 2·490 |
| 4 | 49182 | 14627 | 16567 | 8·148 | 2·423 |
| 5 | 43730 | 12836 | 18340 | 8·020 | 2·354 |
| 6 | 38810 | 11232 | 20325 | 7·888 | 2·283 |
| 7 | 34376 | 97953 | 22552 | 7·752 | 2·209 |
| 8 | 30384 | 85196 | 25050 | 7·611 | 2·134 |
| 9 | 26793 | 73976 | 27853 | 7·463 | 2·060 |
| 50 | 23567 | 64209 | 30997 | 7·305 | 1·990 |
| 1 | 20671 | 55799 | 34524 | 7·136 | 1·926 |
| 2 | 18072 | 48626 | 38483 | 6·955 | 1·871 |
| 3 | 15744 | 42468 | 42948 | 6·762 | 1·824 |
| 4 | 13661 | 37137 | 48005 | 6·558 | 1·783 |
| 5 | 11801 | 32489 | 53769 | 6·345 | 1·747 |
| 6 | 10145 | 28402 | 60372 | 6·125 | 1·715 |
| 7 | 86739 | 24788 | 67990 | 5·897 | 1·685 |
| 8 | 73124 | 21566 | 76834 | 5·618 | 1·657 |
| 9 | 61655 | 18679 | 87192 | 5·376 | 1·629 |
| 60 | 51598 | 16083 | 99426 | 5·130 | 1·599 |
| 1 | 42841 | 13749 | 11420 | 4·892 | 1·570 |
| 2 | 35267 | 11650 | 13203 | 4·656 | 1·538 |
| 3 | 28763 | 97847 | 15376 | 4·423 | 1·505 |
| 4 | 23224 | 81337 | 18055 | 4·193 | 1·469 |
| 5 | 18551 | 66935 | 21399 | 3·970 | 1·432 |
| 6 | 14640 | 54467 | 25569 | 3·743 | 1·393 |
| 7 | 11405 | 43806 | 30912 | 3·526 | 1·354 |
| 8 | 87582 | 34760 | 37780 | 3·309 | 1·313 |
| 9 | 66194 | 27187 | 46754 | 3·095 | 1·271 |
| 70 | 49160 | 20930 | 58705 | 2·886 | 1·229 |
| 1 | 35822 | 15824 | 75976 | 2·722 | 1·202 |
| 2 | 25538 | 11734 | 97237 | 2·483 | 1·141 |
| 3 | 17792 | 85031 | 12909 | 2·296 | 1·098 |
| 4 | 12086 | 60289 | 17527 | 2·118 | 1·057 |
| 5 | 79947 | 41539 | 24440 | 1·954 | 1·015 |
| 6 | 51543 | 27955 | 35206 | 1·815 | 0·984 |
| 7 | 32370 | 18286 | 52156 | 1·688 | 0·954 |
| 8 | 19799 | 11598 | 79546 | 1·575 | 0·923 |
| 9 | 11781 | 71692 | 12472 | 1·469 | 0·894 |
| 80 | 67661 | 43257 | 19942 | 1·349 | 0·863 |
| 1 | 37438 | 24764 | 33087 | | |
| 2 | 19767 | 13888 | 56591 | | |
| 3 | 95039 | 70303 | 97432 | | |
| 4 | 38161 | 31550 | 17582 | | |
| 5 | 12132 | 11249 | 38417 | | |
| 6 | 23854 | 34369 | 10260 | | |
| 7 | 00000 | 52062 | 41922 | | |

DIFFERENCE OF AGE Eight YEARS.
(Female the elder.)

| x | N _{x:y} | N _{x:y} ² | D _{x:y} ⁻¹ | Annuities. | |
|----|------------------|-------------------------------|--------------------------------|----------------------------------|---|
| | | | | Joint Lives. a _{x:y} | Rever- sionary. a _{x:y} ² |
| 18 | 70367 | 20753 | 16188 | 11.391 | 3.359 |
| 9 | 64602 | 19728 | 17345 | 11.205 | 3.422 |
| 20 | 59233 | 18621 | 18625 | 11.032 | 3.468 |
| 1 | 54245 | 17458 | 20050 | 10.876 | 3.500 |
| 2 | 49623 | 16265 | 21635 | 10.736 | 3.519 |
| 3 | 45348 | 15070 | 23393 | 10.608 | 3.525 |
| 4 | 41396 | 13899 | 25299 | 10.473 | 3.516 |
| 5 | 37758 | 12766 | 27492 | 10.380 | 3.510 |
| 6 | 34408 | 11688 | 29848 | 10.270 | 3.489 |
| 7 | 31325 | 10679 | 32439 | 10.162 | 3.464 |
| 8 | 28490 | 97330 | 35273 | 10.049 | 3.433 |
| 9 | 25886 | 88486 | 38399 | 9.940 | 3.398 |
| 30 | 23495 | 80240 | 41826 | 9.827 | 3.356 |
| 1 | 21303 | 72556 | 45617 | 9.718 | 3.310 |
| 2 | 19295 | 65420 | 49787 | 9.606 | 3.257 |
| 3 | 17457 | 58828 | 54409 | 9.498 | 3.201 |
| 4 | 15777 | 52779 | 59536 | 9.393 | 3.142 |
| 5 | 14243 | 47253 | 65188 | 9.285 | 3.080 |
| 6 | 12844 | 42233 | 71466 | 9.179 | 3.018 |
| 7 | 11568 | 37686 | 78396 | 9.069 | 2.954 |
| 8 | 10407 | 33584 | 86109 | 8.962 | 2.892 |
| 9 | 93502 | 29887 | 94642 | 8.849 | 2.829 |
| 40 | 83895 | 26561 | 10409 | 8.733 | 2.765 |
| 1 | 75166 | 23572 | 11456 | 8.611 | 2.700 |
| 2 | 67246 | 20888 | 12627 | 8.491 | 2.638 |
| 3 | 60067 | 18472 | 13929 | 8.367 | 2.573 |
| 4 | 53570 | 16300 | 15391 | 8.245 | 2.509 |
| 5 | 47695 | 14348 | 17023 | 8.119 | 2.442 |
| 6 | 42389 | 12597 | 18847 | 7.989 | 2.374 |
| 7 | 37603 | 11026 | 20891 | 7.856 | 2.303 |
| 8 | 33289 | 96287 | 23180 | 7.716 | 2.232 |
| 9 | 29404 | 83953 | 25743 | 7.569 | 2.161 |
| 50 | 25909 | 73171 | 28613 | 7.413 | 2.094 |
| 1 | 22767 | 63843 | 31827 | 7.246 | 2.032 |
| 2 | 19944 | 55857 | 35426 | 7.065 | 1.979 |
| 3 | 17411 | 48973 | 39457 | 6.870 | 1.932 |
| 4 | 15141 | 42991 | 44047 | 6.669 | 1.894 |
| 5 | 13110 | 37760 | 49242 | 6.456 | 1.859 |
| 6 | 11298 | 33145 | 55178 | 6.234 | 1.829 |
| 7 | 96848 | 29050 | 62004 | 6.005 | 1.801 |
| 8 | 82542 | 25387 | 69901 | 5.770 | 1.775 |
| 9 | 69902 | 22093 | 79111 | 5.530 | 1.748 |
| 60 | 58783 | 19118 | 89994 | 5.290 | 1.721 |
| 1 | 49053 | 16427 | 10278 | 5.042 | 1.688 |
| 2 | 40604 | 14000 | 11835 | 4.805 | 1.657 |
| 3 | 33115 | 11882 | 13720 | 4.571 | 1.630 |
| 4 | 27076 | 99503 | 16026 | 4.339 | 1.595 |
| 5 | 21779 | 82469 | 18879 | 4.112 | 1.557 |
| 6 | 17325 | 67670 | 22452 | 3.890 | 1.519 |
| 7 | 13611 | 54906 | 26925 | 3.665 | 1.478 |
| 8 | 10552 | 43997 | 32686 | 3.449 | 1.438 |
| 9 | 80597 | 34766 | 40132 | 3.235 | 1.395 |
| 70 | 60563 | 27062 | 49914 | 3.023 | 1.351 |
| 1 | 44694 | 20726 | 63018 | 2.817 | 1.306 |
| 2 | 32343 | 15584 | 80966 | 2.619 | 1.262 |
| 3 | 22884 | 11480 | 10571 | 2.419 | 1.214 |
| 4 | 15811 | 82555 | 14139 | 2.236 | 1.167 |
| 5 | 10645 | 58017 | 19355 | 2.060 | 1.123 |
| 6 | 69728 | 39581 | 27233 | 1.899 | 1.078 |
| 7 | 44487 | 26345 | 39619 | 1.763 | 1.044 |
| 8 | 27628 | 17035 | 59315 | 1.639 | 1.010 |
| 9 | 16703 | 10670 | 92531 | 1.546 | 0.987 |
| 80 | 98159 | 65114 | 14520 | 1.425 | 0.945 |
| 1 | 55644 | 38770 | 23521 | | |
| 2 | 30375 | 21880 | 39574 | | |
| 3 | 15819 | 12102 | 68700 | | |
| 4 | 74978 | 60368 | 12018 | | |
| 5 | 29643 | 26678 | 22058 | | |
| 6 | 92730 | 93396 | 49092 | | |
| 7 | 17949 | 27964 | 13372 | | |
| 8 | 00000 | 41623 | 55714 | | |

DIFFERENCE OF AGE Seven YEARS.
(Female the elder.)

| x | N _{x:y} | N _{x:y} ² | D _{x:y} ⁻¹ | Annuities. | |
|----|------------------|-------------------------------|--------------------------------|----------------------------------|---|
| | | | | Joint Lives. a _{x:y} | Rever- sionary. a _{x:y} ² |
| 18 | 74844 | 22241 | 15323 | 11.468 | 3.408 |
| 9 | 68753 | 21173 | 16416 | 11.286 | 3.476 |
| 20 | 63079 | 20016 | 17625 | 11.118 | 3.528 |
| 1 | 57806 | 18799 | 18963 | 10.962 | 3.565 |
| 2 | 52915 | 17553 | 20447 | 10.820 | 3.589 |
| 3 | 48389 | 16301 | 22093 | 10.691 | 3.601 |
| 4 | 44207 | 15069 | 23915 | 10.572 | 3.604 |
| 5 | 40344 | 13881 | 25885 | 10.443 | 3.593 |
| 6 | 36791 | 12563 | 28144 | 10.354 | 3.536 |
| 7 | 33519 | 11501 | 30563 | 10.244 | 3.515 |
| 8 | 30509 | 10508 | 33225 | 10.137 | 3.490 |
| 9 | 27742 | 95686 | 36138 | 10.025 | 3.458 |
| 30 | 25201 | 86940 | 39353 | 9.917 | 3.421 |
| 1 | 22869 | 78774 | 42882 | 9.807 | 3.378 |
| 2 | 20731 | 71165 | 46786 | 9.699 | 3.330 |
| 3 | 18774 | 64114 | 51080 | 9.590 | 3.275 |
| 4 | 16983 | 57620 | 55837 | 9.483 | 3.217 |
| 5 | 15346 | 51674 | 61113 | 9.378 | 3.158 |
| 6 | 13852 | 46259 | 66925 | 9.270 | 3.096 |
| 7 | 12489 | 41344 | 73379 | 9.164 | 3.034 |
| 8 | 11247 | 36900 | 80502 | 9.054 | 2.971 |
| 9 | 10116 | 32890 | 88431 | 8.946 | 2.908 |
| 40 | 90875 | 29279 | 97203 | 8.833 | 2.846 |
| 1 | 81522 | 26031 | 10692 | 8.716 | 2.783 |
| 2 | 73024 | 23115 | 11768 | 8.593 | 2.720 |
| 3 | 65315 | 20494 | 12972 | 8.473 | 2.658 |
| 4 | 58327 | 18133 | 14311 | 8.347 | 2.595 |
| 5 | 52004 | 16010 | 15815 | 8.224 | 2.532 |
| 6 | 46288 | 14100 | 17494 | 8.098 | 2.467 |
| 7 | 41126 | 12386 | 19372 | 7.967 | 2.399 |
| 8 | 36468 | 10858 | 21472 | 7.830 | 2.331 |
| 9 | 32270 | 95065 | 23821 | 7.687 | 2.265 |
| 50 | 28489 | 83214 | 26446 | 7.534 | 2.201 |
| 1 | 25085 | 72916 | 29379 | 7.870 | 2.142 |
| 2 | 22023 | 64059 | 32657 | 7.192 | 2.092 |
| 3 | 19271 | 56394 | 36335 | 7.002 | 2.049 |
| 4 | 16801 | 49707 | 40483 | 6.802 | 2.012 |
| 5 | 14588 | 43837 | 45181 | 6.591 | 1.981 |
| 6 | 12609 | 38642 | 50534 | 6.372 | 1.953 |
| 7 | 10844 | 34018 | 56669 | 6.145 | 1.928 |
| 8 | 92756 | 29869 | 63747 | 5.913 | 1.904 |
| 9 | 78861 | 26124 | 71971 | 5.676 | 1.880 |
| 60 | 66607 | 22730 | 81601 | 5.435 | 1.855 |
| 1 | 55851 | 19646 | 93973 | 5.248 | 1.829 |
| 2 | 46463 | 16847 | 10652 | 4.949 | 1.795 |
| 3 | 38332 | 14329 | 12299 | 4.714 | 1.762 |
| 4 | 31339 | 12074 | 14301 | 4.482 | 1.727 |
| 5 | 25372 | 10081 | 16758 | 4.252 | 1.689 |
| 6 | 20323 | 83306 | 19808 | 4.026 | 1.650 |
| 7 | 16094 | 68155 | 23643 | 3.805 | 1.611 |
| 8 | 12582 | 55094 | 28471 | 3.582 | 1.569 |
| 9 | 97014 | 43961 | 34721 | 3.368 | 1.526 |
| 70 | 73674 | 34570 | 42843 | 3.156 | 1.481 |
| 1 | 55010 | 26768 | 53581 | 2.947 | 1.434 |
| 2 | 40316 | 20388 | 68053 | 2.744 | 1.387 |
| 3 | 28955 | 15228 | 88022 | 2.549 | 1.340 |
| 4 | 20318 | 11133 | 11578 | 2.352 | 1.289 |
| 5 | 13913 | 79353 | 15614 | 2.172 | 1.239 |
| 6 | 92768 | 55226 | 21567 | 2.001 | 1.191 |
| 7 | 60138 | 37260 | 30646 | 1.843 | 1.142 |
| 8 | 37944 | 24514 | 45057 | 1.710 | 1.105 |
| 9 | 23287 | 15654 | 68227 | 1.589 | 1.068 |
| 80 | 13899 | 96778 | 10653 | 1.481 | 1.031 |
| 1 | 80601 | 58253 | 17125 | | |
| 2 | 45054 | 34193 | 28132 | | |
| 3 | 24239 | 19007 | 48042 | | |
| 4 | 12438 | 10359 | 84723 | | |
| 5 | 58057 | 50863 | 15077 | | |
| 6 | 22579 | 22090 | 28187 | | |
| 7 | 69497 | 75680 | 63983 | | |
| 8 | 13228 | 22277 | 17772 | | |
| 9 | 00000 | 32474 | 75599 | | |

DIFFERENCE OF AGE SIX YEARS.
(Female the elder.)

Difference of Age Five Years.
(Female the elder.)

| x | N _{x'y} | N _{x²/y} | D ⁻¹ _{x'y} | Annuities. | | x | N _{x'y} | N _{x²/y} | D ⁻¹ _{x'y} | Annuities. | |
|----|------------------|------------------------------|--------------------------------|----------------------------------|--|----|------------------|------------------------------|--------------------------------|----------------------------------|--|
| | | | | Joint Lives. a _{x'y} | Rever- sionary. a _{x²/y} | | | | | Joint Lives. a _{x'y} | Rever- sionary. a _{x²/y} |
| 18 | 79560 | 23403 | 14506 | 11.541 | 3.395 | 18 | 84527 | 24796 | 13734 | 11.609 | 3.405 |
| 9 | 78124 | 22292 | 15538 | 11.362 | 3.464 | 19 | 77729 | 23645 | 14710 | 11.434 | 3.478 |
| 20 | 67130 | 21086 | 16681 | 11.198 | 3.517 | 20 | 71396 | 22390 | 15790 | 11.273 | 3.535 |
| 1 | 61557 | 19813 | 17944 | 11.046 | 3.555 | 1 | 65507 | 21063 | 16983 | 11.125 | 3.577 |
| 2 | 56386 | 18509 | 19337 | 10.903 | 3.579 | 2 | 60043 | 19701 | 18299 | 10.987 | 3.605 |
| 3 | 51596 | 17202 | 20880 | 10.772 | 3.592 | 3 | 54979 | 18332 | 19747 | 10.857 | 3.620 |
| 4 | 47169 | 15912 | 22587 | 10.654 | 3.594 | 4 | 50294 | 16984 | 21347 | 10.736 | 3.626 |
| 5 | 43082 | 14663 | 24470 | 10.542 | 3.588 | 5 | 45967 | 15676 | 23110 | 10.623 | 3.623 |
| 6 | 39309 | 13476 | 26499 | 10.416 | 3.571 | 6 | 41975 | 14429 | 25049 | 10.514 | 3.614 |
| 7 | 35838 | 12360 | 28817 | 10.327 | 3.562 | 7 | 38290 | 13259 | 27133 | 10.389 | 3.598 |
| 8 | 32644 | 11311 | 31301 | 10.218 | 3.540 | 8 | 34901 | 12156 | 29514 | 10.301 | 3.588 |
| 9 | 29706 | 10325 | 34039 | 10.112 | 3.515 | 9 | 31783 | 11119 | 32070 | 10.193 | 3.566 |
| 80 | 27006 | 94006 | 37036 | 10.002 | 3.482 | 30 | 28917 | 10144 | 34884 | 10.087 | 3.539 |
| 1 | 24527 | 85345 | 40345 | 9.895 | 3.443 | 1 | 26283 | 92289 | 37969 | 9.979 | 3.504 |
| 2 | 22254 | 77259 | 43979 | 9.787 | 3.398 | 2 | 23866 | 83713 | 41379 | 9.876 | 3.464 |
| 3 | 20170 | 69741 | 48001 | 9.682 | 3.348 | 3 | 21650 | 75724 | 45121 | 9.769 | 3.417 |
| 4 | 18263 | 62796 | 52421 | 9.574 | 3.292 | 4 | 19629 | 68318 | 49260 | 9.665 | 3.365 |
| 5 | 16518 | 56412 | 57316 | 9.467 | 3.233 | 5 | 17761 | 61490 | 53809 | 9.557 | 3.309 |
| 6 | 14924 | 50584 | 62741 | 9.363 | 3.174 | 6 | 16062 | 55234 | 59021 | 9.480 | 3.260 |
| 7 | 13469 | 45286 | 68717 | 9.255 | 3.112 | 7 | 14510 | 49582 | 64421 | 9.347 | 3.191 |
| 8 | 12142 | 40486 | 75351 | 9.149 | 3.051 | 8 | 13093 | 44354 | 70563 | 9.239 | 3.130 |
| 9 | 10932 | 36142 | 82674 | 9.038 | 2.988 | 9 | 11800 | 39662 | 77383 | 9.131 | 3.069 |
| 40 | 98310 | 32225 | 90824 | 8.929 | 2.927 | 40 | 10628 | 35418 | 84911 | 9.020 | 3.007 |
| 1 | 88294 | 28698 | 99841 | 8.815 | 2.865 | 1 | 95507 | 31594 | 93289 | 8.910 | 2.947 |
| 2 | 79189 | 25530 | 10982 | 8.697 | 2.804 | 2 | 85756 | 28153 | 10256 | 8.795 | 2.887 |
| 3 | 70917 | 22682 | 12089 | 8.573 | 2.742 | 3 | 76892 | 25059 | 11282 | 8.675 | 2.827 |
| 4 | 63413 | 20120 | 13327 | 8.451 | 2.681 | 4 | 68841 | 22275 | 12420 | 8.550 | 2.767 |
| 5 | 56613 | 17812 | 14704 | 8.324 | 2.619 | 5 | 61538 | 19771 | 13694 | 8.427 | 2.707 |
| 6 | 50460 | 15735 | 16252 | 8.201 | 2.557 | 6 | 54921 | 17513 | 15111 | 8.299 | 2.646 |
| 7 | 44898 | 13866 | 17981 | 8.073 | 2.493 | 7 | 48934 | 15480 | 16704 | 8.174 | 2.586 |
| 8 | 39876 | 12198 | 19911 | 7.940 | 2.429 | 8 | 43523 | 13661 | 18481 | 8.043 | 2.525 |
| 9 | 35344 | 10721 | 22066 | 7.799 | 2.366 | 9 | 38636 | 12049 | 20462 | 7.906 | 2.465 |
| 50 | 31258 | 94214 | 24471 | 7.649 | 2.306 | 50 | 34225 | 10629 | 22669 | 7.758 | 2.409 |
| 1 | 27575 | 82894 | 27154 | 7.488 | 2.251 | 1 | 30245 | 93890 | 25127 | 7.600 | 2.359 |
| 2 | 24258 | 73115 | 30146 | 7.313 | 2.204 | 2 | 26656 | 83141 | 27862 | 7.427 | 2.316 |
| 3 | 21272 | 64614 | 33496 | 7.125 | 2.164 | 3 | 23422 | 73757 | 30920 | 7.242 | 2.281 |
| 4 | 18589 | 57169 | 37265 | 6.927 | 2.130 | 4 | 20511 | 65499 | 34353 | 7.046 | 2.250 |
| 5 | 16181 | 50607 | 41525 | 6.719 | 2.101 | 5 | 17895 | 58193 | 38225 | 6.840 | 2.224 |
| 6 | 14024 | 44778 | 46367 | 6.503 | 2.076 | 6 | 15548 | 51677 | 42615 | 6.626 | 2.202 |
| 7 | 12097 | 39573 | 51900 | 6.278 | 2.054 | 7 | 13448 | 45836 | 47619 | 6.404 | 2.183 |
| 8 | 10301 | 34888 | 58263 | 6.002 | 2.033 | 8 | 11574 | 40563 | 53360 | 6.176 | 2.164 |
| 9 | 88571 | 30645 | 65635 | 5.813 | 2.011 | 9 | 99071 | 35771 | 59989 | 5.943 | 2.146 |
| 60 | 75101 | 26786 | 74237 | 5.575 | 1.989 | 60 | 84300 | 31400 | 67701 | 5.707 | 2.126 |
| 1 | 63246 | 23267 | 84355 | 5.335 | 1.963 | 1 | 71270 | 27400 | 76741 | 5.469 | 2.103 |
| 2 | 52868 | 20060 | 96354 | 5.094 | 1.933 | 2 | 59831 | 23740 | 87483 | 5.234 | 2.077 |
| 3 | 43834 | 17157 | 11069 | 4.852 | 1.899 | 3 | 49844 | 20413 | 10013 | 4.991 | 2.044 |
| 4 | 36033 | 14549 | 12819 | 4.619 | 1.865 | 4 | 41177 | 17406 | 11538 | 4.751 | 2.008 |
| 5 | 29346 | 12222 | 14953 | 4.388 | 1.828 | 5 | 33716 | 14715 | 13404 | 4.519 | 1.972 |
| 6 | 23658 | 10174 | 17583 | 4.163 | 1.789 | 6 | 27343 | 12325 | 15689 | 4.290 | 1.934 |
| 7 | 18864 | 83823 | 20859 | 3.935 | 1.748 | 7 | 21952 | 10228 | 18515 | 4.063 | 1.894 |
| 8 | 14864 | 68320 | 25000 | 3.671 | 1.708 | 8 | 17408 | 83944 | 22056 | 3.840 | 1.851 |
| 9 | 11558 | 54991 | 30242 | 3.495 | 1.663 | 9 | 13642 | 68123 | 26556 | 3.623 | 1.809 |
| 70 | 88599 | 43667 | 37067 | 3.284 | 1.619 | 70 | 10545 | 54566 | 32286 | 3.405 | 1.762 |
| 1 | 66855 | 34157 | 45991 | 3.075 | 1.571 | 1 | 80320 | 43098 | 39790 | 3.196 | 1.715 |
| 2 | 49572 | 26301 | 57861 | 2.868 | 1.522 | 2 | 60185 | 33522 | 49665 | 2.989 | 1.665 |
| 3 | 36056 | 19899 | 73982 | 2.667 | 1.472 | 3 | 44288 | 25639 | 62904 | 2.786 | 1.613 |
| 4 | 25683 | 14750 | 96406 | 2.476 | 1.422 | 4 | 31947 | 19250 | 81030 | 2.589 | 1.560 |
| 5 | 17862 | 10688 | 12786 | 2.284 | 1.367 | 5 | 22554 | 14143 | 10646 | 2.401 | 1.506 |
| 6 | 12114 | 75442 | 17399 | 2.108 | 1.313 | 6 | 15535 | 10149 | 14247 | 2.213 | 1.446 |
| 7 | 79934 | 51931 | 23752 | 1.899 | 1.233 | 7 | 10428 | 70856 | 19579 | 2.042 | 1.387 |
| 8 | 51242 | 34632 | 34853 | 1.785 | 1.207 | 8 | 68048 | 48217 | 27609 | 1.879 | 1.331 |
| 9 | 31947 | 22502 | 51827 | 1.656 | 1.166 | 9 | 43104 | 31754 | 40090 | 1.728 | 1.273 |
| 80 | 19357 | 14183 | 79432 | 1.538 | 1.127 | 80 | 26531 | 20365 | 60339 | 1.601 | 1.229 |
| 1 | 11398 | 86466 | 12564 | | | 1 | 15858 | 12658 | 93687 | | |
| 2 | 65162 | 51281 | 20483 | | | 2 | 92031 | 76016 | 15025 | | |
| 3 | 35881 | 29648 | 34152 | | | 3 | 51816 | 44381 | 24866 | | |
| 4 | 19005 | 16217 | 59257 | | | 4 | 28076 | 25248 | 42123 | | |
| 5 | 95986 | 86984 | 10631 | | | 5 | 14625 | 13572 | 74343 | | |
| 6 | 44083 | 41954 | 19270 | | | 6 | 72638 | 71512 | 13585 | | |
| 7 | 16862 | 17855 | 36736 | | | 7 | 32814 | 33797 | 25110 | | |
| 8 | 51013 | 60030 | 85082 | | | 8 | 12332 | 14128 | 48822 | | |
| 9 | 95444 | 17334 | 24114 | | | 9 | 36645 | 46525 | 11538 | | |
| 90 | 00000 | 24871 | 10477 | | | 90 | 67235 | 13214 | 33420 | | |
| 1 | | | | | | 1 | 00000 | 18427 | 14873 | | |

DIFFERENCE OF AGE FOUR YEARS.
(Female the elder.)

| x | N _{x'y} | N _{x'y} ² | D _{x'y} ⁻¹ | Annuities. | |
|----|------------------|-------------------------------|--------------------------------|----------------------------------|---|
| | | | | Joint Lives. a _{x'y} | Rever- sionary. a _{x'y} ² |
| 18 | 89758 | 26230 | 13004 | 11.672 | 3.411 |
| 9 | 82578 | 25040 | 13927 | 11.501 | 3.487 |
| 20 | 75888 | 23740 | 14948 | 11.344 | 3.549 |
| 1 | 69668 | 22360 | 16076 | 11.200 | 3.595 |
| 2 | 63894 | 20939 | 17319 | 11.066 | 3.626 |
| 3 | 58543 | 19509 | 18687 | 10.940 | 3.646 |
| 4 | 53589 | 18098 | 20188 | 10.819 | 3.654 |
| 5 | 49011 | 16732 | 21841 | 10.704 | 3.654 |
| 6 | 44784 | 15425 | 23658 | 10.595 | 3.649 |
| 7 | 40885 | 14195 | 25649 | 10.487 | 3.641 |
| 8 | 37287 | 13039 | 27790 | 10.382 | 3.624 |
| 9 | 33980 | 11950 | 30238 | 10.275 | 3.613 |
| 30 | 30937 | 10924 | 32866 | 10.168 | 3.590 |
| 1 | 28141 | 99589 | 35764 | 10.064 | 3.562 |
| 2 | 25573 | 90523 | 38942 | 9.959 | 3.525 |
| 3 | 23217 | 82049 | 42454 | 9.857 | 3.483 |
| 4 | 21058 | 74180 | 46305 | 9.751 | 3.435 |
| 5 | 19080 | 66899 | 50565 | 9.648 | 3.383 |
| 6 | 17270 | 60208 | 55243 | 9.540 | 3.326 |
| 7 | 15615 | 54086 | 60419 | 9.434 | 3.268 |
| 8 | 14103 | 48514 | 66152 | 9.329 | 3.209 |
| 9 | 12723 | 43452 | 72467 | 9.220 | 3.149 |
| 40 | 11465 | 38869 | 79478 | 9.112 | 3.089 |
| 1 | 10318 | 34725 | 87215 | 8.999 | 3.029 |
| 2 | 92748 | 30994 | 95277 | 8.888 | 2.970 |
| 3 | 83257 | 27634 | 10536 | 8.772 | 2.912 |
| 4 | 74630 | 24610 | 11591 | 8.650 | 2.853 |
| 5 | 66794 | 21888 | 12762 | 8.524 | 2.793 |
| 6 | 59688 | 19439 | 14073 | 8.400 | 2.736 |
| 7 | 53249 | 17229 | 15532 | 8.271 | 2.676 |
| 8 | 47425 | 15250 | 17169 | 8.142 | 2.618 |
| 9 | 42160 | 13492 | 18992 | 8.007 | 2.562 |
| 50 | 37403 | 11943 | 21021 | 7.862 | 2.511 |
| 1 | 33106 | 10587 | 23276 | 7.706 | 2.464 |
| 2 | 29228 | 94094 | 25782 | 7.536 | 2.426 |
| 3 | 25728 | 83778 | 28778 | 7.404 | 2.411 |
| 4 | 22575 | 74662 | 31711 | 7.153 | 2.368 |
| 5 | 19737 | 66558 | 35237 | 6.955 | 2.345 |
| 6 | 17188 | 59303 | 39228 | 6.743 | 2.326 |
| 7 | 14903 | 52774 | 43766 | 6.522 | 2.310 |
| 8 | 12860 | 46857 | 48958 | 6.296 | 2.294 |
| 9 | 11040 | 41463 | 54940 | 6.065 | 2.278 |
| 60 | 94242 | 36527 | 61878 | 5.832 | 2.260 |
| 1 | 79954 | 31996 | 69990 | 5.596 | 2.239 |
| 2 | 67380 | 27835 | 79531 | 5.359 | 2.214 |
| 3 | 56373 | 24038 | 90849 | 5.121 | 2.184 |
| 4 | 46719 | 20593 | 10437 | 4.884 | 2.149 |
| 5 | 38502 | 17591 | 12064 | 4.645 | 2.122 |
| 6 | 31392 | 14826 | 14064 | 4.415 | 2.085 |
| 7 | 25339 | 12379 | 16522 | 4.187 | 2.045 |
| 8 | 20232 | 10233 | 19578 | 3.961 | 2.003 |
| 9 | 15963 | 83619 | 23429 | 3.740 | 1.959 |
| 70 | 12438 | 67525 | 28351 | 3.526 | 1.914 |
| 1 | 95510 | 53794 | 34558 | 3.310 | 1.864 |
| 2 | 72237 | 42246 | 42968 | 3.104 | 1.815 |
| 3 | 53716 | 32637 | 53993 | 2.900 | 1.762 |
| 4 | 39202 | 24770 | 68894 | 2.701 | 1.707 |
| 5 | 28026 | 18434 | 89483 | 2.508 | 1.650 |
| 6 | 19597 | 13413 | 11863 | 2.325 | 1.591 |
| 7 | 13360 | 95209 | 16033 | 2.142 | 1.526 |
| 8 | 88688 | 65709 | 22267 | 1.975 | 1.463 |
| 9 | 57191 | 44164 | 31749 | 1.816 | 1.402 |
| 80 | 35766 | 28707 | 46674 | 1.669 | 1.340 |
| 1 | 21715 | 18156 | 71168 | | |
| 2 | 12790 | 11117 | 11205 | | |
| 3 | 73089 | 65706 | 18243 | | |
| 4 | 40485 | 37726 | 30670 | | |
| 5 | 21563 | 21093 | 52849 | | |
| 6 | 11037 | 11121 | 95003 | | |
| 7 | 53886 | 57433 | 17705 | | |
| 8 | 23920 | 26651 | 33371 | | |
| 9 | 88248 | 10926 | 66247 | | |
| 90 | 25711 | 35329 | 15991 | | |
| 1 | 46334 | 98166 | 47443 | | |
| 2 | 00000 | 13917 | 21583 | | |

DIFFERENCE OF AGE THREE YEARS.
(Female the elder.)

| x | N _{x'y} | N _{x'y} ² | D _{x'y} ⁻¹ | Annuities. | |
|----|------------------|-------------------------------|--------------------------------|----------------------------------|---|
| | | | | Joint Lives. a _{x'y} | Rever- sionary. a _{x'y} ² |
| 18 | 95269 | 27703 | 12315 | 11.732 | 3.412 |
| 9 | 87686 | 26477 | 13182 | 11.559 | 3.490 |
| | 80620 | 25135 | 14152 | 11.409 | 3.557 |
| 20 | | | | | |
| 1 | 74049 | 23704 | 15219 | 11.270 | 3.608 |
| 2 | 67949 | 22227 | 16394 | 11.140 | 3.644 |
| 3 | 62295 | 20735 | 17687 | 11.018 | 3.667 |
| 4 | 57061 | 19261 | 19105 | 10.902 | 3.680 |
| 5 | 52220 | 17831 | 20656 | 10.787 | 3.683 |
| 6 | 47747 | 16466 | 22359 | 10.676 | 3.682 |
| 7 | 43619 | 15178 | 24224 | 10.566 | 3.677 |
| 8 | 39812 | 13963 | 26269 | 10.458 | 3.668 |
| 9 | 36300 | 12820 | 28471 | 10.355 | 3.650 |
| 30 | 33073 | 11743 | 30989 | 10.249 | 3.639 |
| 1 | 30105 | 10727 | 33695 | 10.144 | 3.614 |
| 2 | 27379 | 97712 | 36680 | 10.043 | 3.584 |
| 3 | 24876 | 88755 | 39954 | 9.939 | 3.546 |
| 4 | 22581 | 80408 | 43567 | 9.838 | 3.503 |
| 5 | 20477 | 72671 | 47532 | 9.733 | 3.454 |
| 6 | 18551 | 65537 | 51913 | 9.630 | 3.402 |
| 7 | 16788 | 58990 | 56722 | 9.522 | 3.346 |
| 8 | 15176 | 53007 | 62042 | 9.415 | 3.289 |
| 9 | 13704 | 47560 | 67936 | 9.310 | 3.231 |
| 40 | 12360 | 42616 | 74427 | 9.199 | 3.172 |
| 1 | 11135 | 38141 | 81635 | 9.090 | 3.114 |
| 2 | 10019 | 34098 | 89587 | 8.976 | 3.055 |
| 3 | 90033 | 30453 | 98441 | 8.863 | 2.998 |
| 4 | 80794 | 27170 | 10824 | 8.745 | 2.941 |
| 5 | 72398 | 24213 | 11910 | 8.623 | 2.884 |
| 6 | 64773 | 21551 | 13115 | 8.495 | 2.826 |
| 7 | 57860 | 19153 | 14464 | 8.369 | 2.770 |
| 8 | 51596 | 17003 | 15964 | 8.237 | 2.714 |
| 9 | 45928 | 15090 | 17644 | 8.104 | 2.662 |
| 50 | 40803 | 13401 | 19511 | 7.961 | 2.615 |
| 1 | 36170 | 11921 | 21583 | 7.807 | 2.573 |
| 2 | 31983 | 10634 | 23883 | 7.638 | 2.540 |
| 3 | 28201 | 95034 | 26444 | 7.457 | 2.513 |
| 4 | 24789 | 85013 | 29309 | 7.265 | 2.492 |
| 5 | 21715 | 76067 | 32528 | 7.063 | 2.474 |
| 6 | 18950 | 68021 | 36162 | 6.853 | 2.460 |
| 7 | 16467 | 60751 | 40287 | 6.634 | 2.447 |
| 8 | 14245 | 54137 | 44996 | 6.410 | 2.436 |
| 9 | 12261 | 48084 | 50409 | 6.181 | 2.424 |
| 60 | 10497 | 42528 | 56669 | 5.949 | 2.410 |
| 1 | 89332 | 37411 | 63965 | 5.714 | 2.393 |
| 2 | 75545 | 32698 | 72530 | 5.479 | 2.372 |
| 3 | 63446 | 28381 | 82649 | 5.244 | 2.346 |
| 4 | 52885 | 24449 | 94692 | 5.008 | 2.315 |
| 5 | 43722 | 20895 | 10913 | 4.771 | 2.280 |
| 6 | 35822 | 17707 | 12658 | 4.534 | 2.241 |
| 7 | 29070 | 14877 | 14810 | 4.305 | 2.208 |
| 8 | 23346 | 12372 | 17470 | 4.079 | 2.161 |
| 9 | 18537 | 10183 | 20797 | 3.855 | 2.118 |
| 70 | 14539 | 82794 | 25012 | 3.638 | 2.071 |
| 1 | 11253 | 66496 | 30434 | 3.425 | 2.024 |
| 2 | 85816 | 52669 | 37427 | 3.212 | 1.971 |
| 3 | 64409 | 41081 | 46714 | 3.009 | 1.919 |
| 4 | 47499 | 31491 | 59136 | 2.809 | 1.862 |
| 5 | 34355 | 23689 | 76083 | 2.614 | 1.802 |
| 6 | 24326 | 17459 | 99710 | 2.426 | 1.741 |
| 7 | 16835 | 12566 | 13350 | 2.247 | 1.678 |
| 8 | 11351 | 88187 | 18234 | 2.070 | 1.608 |
| 9 | 74466 | 60113 | 25612 | 1.907 | 1.540 |
| 80 | 47412 | 39885 | 36963 | 1.752 | 1.474 |
| 1 | 29247 | 25565 | 55050 | | |
| 2 | 17499 | 15928 | 85120 | | |
| 3 | 10148 | 95999 | 13603 | | |
| 4 | 57036 | 55788 | 22501 | | |
| 5 | 31048 | 31464 | 38579 | | |
| 6 | 16240 | 17259 | 67533 | | |
| 7 | 81637 | 89066 | 12381 | | |
| 8 | 39132 | 45171 | 23530 | | |
| 9 | 17055 | 20561 | 45282 | | |
| 90 | 61634 | 82916 | 91812 | | |
| 1 | 17580 | 26297 | 22700 | | |
| 2 | 30548 | 73937 | 68844 | | |
| 3 | 00000 | 10309 | 32735 | | |

DIFFERENCE OF AGE TWO YEARS.
(Female the elder.)

| x | N _{x'y} | N _{x²'y} | D ⁻¹ _{x'y} | Annuities. | |
|----|------------------|------------------------------|--------------------------------|----------------------------------|--|
| | | | | Joint Lives. a _{x'y} | Rever- sionary. a _{x²'y} |
| 18 | 10107 | 29217 | 11663 | 11.788 | 3.408 |
| 9 | 93066 | 27956 | 12488 | 11.622 | 3.491 |
| 20 | 85603 | 26572 | 13401 | 11.472 | 3.561 |
| 1 | 78663 | 25095 | 14409 | 11.335 | 3.616 |
| 2 | 72220 | 23558 | 15520 | 11.209 | 3.656 |
| 3 | 66247 | 22007 | 16741 | 11.090 | 3.684 |
| 4 | 60716 | 20470 | 18082 | 10.979 | 3.701 |
| 5 | 55600 | 18976 | 19547 | 10.868 | 3.709 |
| 6 | 50871 | 17547 | 21146 | 10.757 | 3.710 |
| 7 | 46503 | 16201 | 22894 | 10.646 | 3.709 |
| 8 | 42473 | 14928 | 24810 | 10.538 | 3.704 |
| 9 | 38757 | 13728 | 26914 | 10.431 | 3.695 |
| 30 | 35330 | 12598 | 29178 | 10.309 | 3.676 |
| 1 | 32182 | 11531 | 31770 | 10.224 | 3.663 |
| 2 | 29289 | 10525 | 34558 | 10.122 | 3.637 |
| 3 | 26631 | 95804 | 37632 | 10.022 | 3.605 |
| 4 | 24192 | 86981 | 41002 | 9.919 | 3.566 |
| 5 | 21956 | 78775 | 44721 | 9.819 | 3.523 |
| 6 | 19907 | 71193 | 48799 | 9.714 | 3.474 |
| 7 | 18031 | 64212 | 53303 | 9.611 | 3.423 |
| 8 | 16314 | 57814 | 58246 | 9.502 | 3.367 |
| 9 | 14745 | 51968 | 63715 | 9.395 | 3.311 |
| 40 | 13312 | 46645 | 69774 | 9.288 | 3.255 |
| 1 | 12004 | 41817 | 76447 | 9.177 | 3.197 |
| 2 | 10811 | 37451 | 83855 | 9.066 | 3.140 |
| 3 | 97244 | 33502 | 92032 | 8.950 | 3.083 |
| 4 | 87356 | 29941 | 10114 | 8.835 | 3.028 |
| 5 | 78365 | 26731 | 11121 | 8.715 | 2.973 |
| 6 | 70195 | 23839 | 12240 | 8.592 | 2.918 |
| 7 | 62777 | 21233 | 13480 | 8.462 | 2.862 |
| 8 | 56051 | 18900 | 14867 | 8.333 | 2.810 |
| 9 | 49955 | 16821 | 16406 | 8.196 | 2.760 |
| 50 | 44438 | 14983 | 18126 | 8.055 | 2.716 |
| 1 | 39447 | 13370 | 20033 | 7.902 | 2.678 |
| 2 | 34931 | 11964 | 22146 | 7.736 | 2.650 |
| 3 | 30849 | 10729 | 24497 | 7.557 | 2.628 |
| 4 | 27162 | 96310 | 27121 | 7.367 | 2.612 |
| 5 | 23835 | 86476 | 30064 | 7.166 | 2.600 |
| 6 | 20840 | 77593 | 33381 | 6.957 | 2.590 |
| 7 | 18147 | 69530 | 37139 | 6.740 | 2.582 |
| 8 | 15733 | 62166 | 41420 | 6.517 | 2.575 |
| 9 | 13575 | 55400 | 46330 | 6.289 | 2.567 |
| 60 | 11651 | 49165 | 51996 | 6.058 | 2.556 |
| 1 | 99443 | 43405 | 58581 | 5.825 | 2.543 |
| 2 | 84358 | 38083 | 66291 | 5.592 | 2.525 |
| 3 | 71090 | 33193 | 75373 | 5.358 | 2.502 |
| 4 | 59482 | 28723 | 86146 | 5.124 | 2.474 |
| 5 | 49383 | 24667 | 99075 | 4.890 | 2.442 |
| 6 | 40649 | 21014 | 11450 | 4.654 | 2.406 |
| 7 | 33147 | 17751 | 13330 | 4.418 | 2.366 |
| 8 | 26762 | 14854 | 15661 | 4.191 | 2.326 |
| 9 | 21373 | 12299 | 18557 | 3.966 | 2.282 |
| 70 | 16869 | 10072 | 22202 | 3.745 | 2.236 |
| 1 | 13144 | 81438 | 26850 | 3.529 | 2.187 |
| 2 | 10102 | 65026 | 32865 | 3.320 | 2.137 |
| 3 | 76441 | 51152 | 40688 | 3.110 | 2.081 |
| 4 | 56895 | 39588 | 51163 | 2.911 | 2.025 |
| 5 | 41583 | 30078 | 65305 | 2.716 | 1.965 |
| 6 | 29787 | 22407 | 84779 | 2.525 | 1.900 |
| 7 | 20875 | 16336 | 11221 | 2.342 | 1.833 |
| 8 | 14289 | 11625 | 15183 | 2.169 | 1.765 |
| 9 | 95209 | 80582 | 20973 | 1.997 | 1.690 |
| 80 | 61673 | 54224 | 29819 | 1.839 | 1.617 |
| 1 | 38736 | 35484 | 43597 | | |
| 2 | 23548 | 22405 | 65842 | | |
| 3 | 13871 | 13740 | 10333 | | |
| 4 | 79110 | 81433 | 16779 | | |
| 5 | 43687 | 46475 | 28230 | | |
| 6 | 23350 | 25701 | 49171 | | |
| 7 | 11988 | 13803 | 88016 | | |
| 8 | 59109 | 69859 | 16455 | | |
| 9 | 27789 | 34765 | 31928 | | |
| 90 | 11855 | 15564 | 62756 | | |
| 1 | 41821 | 61675 | 13033 | | |
| 2 | 11462 | 19724 | 32940 | | |
| 3 | 18855 | 54477 | 10442 | | |
| 4 | 00000 | 73454 | 53036 | | |

DIFFERENCE OF AGE ONE YEAR.
(Female the elder.)

| x | N _{x'y} | N _{x²'y} | D ⁻¹ _{x'y} | Annuities. | |
|----|------------------|------------------------------|--------------------------------|----------------------------------|--|
| | | | | Joint Lives. a _{x'y} | Rever- sionary. a _{x²'y} |
| 18 | 10719 | 30756 | 11049 | 11.843 | 3.398 |
| 19 | 98732 | 29459 | 11828 | 11.678 | 3.484 |
| 20 | 90852 | 28035 | 12690 | 11.529 | 3.558 |
| 1 | 83523 | 26512 | 13644 | 11.396 | 3.617 |
| 2 | 76717 | 24931 | 14694 | 11.273 | 3.663 |
| 3 | 70409 | 23323 | 15849 | 11.159 | 3.696 |
| 4 | 64565 | 21725 | 17115 | 11.050 | 3.718 |
| 5 | 59160 | 20166 | 18501 | 10.945 | 3.731 |
| 6 | 54162 | 18674 | 20011 | 10.838 | 3.737 |
| 7 | 49544 | 17265 | 21652 | 10.727 | 3.738 |
| 8 | 45279 | 15935 | 23448 | 10.617 | 3.736 |
| 9 | 41345 | 14677 | 25419 | 10.509 | 3.731 |
| 30 | 37719 | 13490 | 27582 | 10.404 | 3.721 |
| 1 | 34377 | 12371 | 29914 | 10.284 | 3.701 |
| 2 | 31308 | 11314 | 32584 | 10.201 | 3.687 |
| 3 | 28487 | 10321 | 35455 | 10.100 | 3.659 |
| 4 | 25899 | 93902 | 38620 | 10.002 | 3.626 |
| 5 | 23522 | 85228 | 42088 | 9.900 | 3.587 |
| 6 | 21344 | 77186 | 45913 | 9.800 | 3.544 |
| 7 | 19348 | 69767 | 50105 | 9.694 | 3.496 |
| 8 | 17521 | 62945 | 54735 | 9.590 | 3.445 |
| 9 | 15849 | 56691 | 59817 | 9.480 | 3.391 |
| 40 | 14321 | 50978 | 65439 | 9.372 | 3.336 |
| 1 | 12926 | 45783 | 71668 | 9.264 | 3.281 |
| 2 | 11652 | 41072 | 78527 | 9.150 | 3.225 |
| 3 | 10491 | 36808 | 86143 | 9.037 | 3.171 |
| 4 | 94339 | 32949 | 94554 | 8.920 | 3.115 |
| 5 | 84716 | 29468 | 10392 | 8.804 | 3.062 |
| 6 | 75967 | 26327 | 11430 | 8.683 | 3.009 |
| 7 | 68018 | 23496 | 12580 | 8.557 | 2.956 |
| 8 | 60801 | 20961 | 13855 | 8.424 | 2.904 |
| 9 | 54256 | 18706 | 15278 | 8.289 | 2.858 |
| 50 | 48322 | 16708 | 16854 | 8.144 | 2.816 |
| 1 | 42949 | 14953 | 18611 | 7.993 | 2.783 |
| 2 | 38085 | 13420 | 20556 | 7.829 | 2.759 |
| 3 | 33682 | 12072 | 22715 | 7.651 | 2.742 |
| 4 | 29702 | 10872 | 25123 | 7.462 | 2.731 |
| 5 | 26107 | 97941 | 27820 | 7.263 | 2.725 |
| 6 | 22866 | 88177 | 30853 | 7.055 | 2.721 |
| 7 | 19949 | 79276 | 34283 | 6.839 | 2.718 |
| 8 | 17330 | 71107 | 38184 | 6.617 | 2.715 |
| 9 | 14985 | 63574 | 42648 | 6.391 | 2.711 |
| 60 | 12893 | 56605 | 47788 | 6.161 | 2.705 |
| 1 | 11032 | 50141 | 53750 | 5.930 | 2.695 |
| 2 | 93852 | 44151 | 60711 | 5.698 | 2.680 |
| 3 | 79336 | 38628 | 68890 | 5.465 | 2.661 |
| 4 | 66608 | 33565 | 78562 | 5.233 | 2.637 |
| 5 | 55506 | 28954 | 90078 | 5.000 | 2.608 |
| 6 | 45880 | 24786 | 10389 | 4.766 | 2.575 |
| 7 | 37587 | 21046 | 12058 | 4.532 | 2.538 |
| 8 | 30492 | 17707 | 14095 | 4.298 | 2.496 |
| 9 | 24481 | 14751 | 16635 | 4.072 | 2.454 |
| 70 | 19433 | 12151 | 19811 | 3.850 | 2.407 |
| 1 | 15237 | 98959 | 23833 | 3.631 | 2.358 |
| 2 | 11789 | 79548 | 28995 | 3.418 | 2.306 |
| 3 | 89897 | 63079 | 35729 | 3.212 | 2.254 |
| 4 | 67457 | 49233 | 44565 | 3.006 | 2.194 |
| 5 | 49759 | 37765 | 56501 | 2.811 | 2.134 |
| 6 | 36017 | 28414 | 72770 | 2.621 | 2.068 |
| 7 | 25535 | 20939 | 95405 | 2.436 | 1.998 |
| 8 | 17699 | 15093 | 12761 | 2.259 | 1.926 |
| 9 | 11972 | 10609 | 17464 | 2.091 | 1.853 |
| 80 | 78771 | 72602 | 24418 | 1.923 | 1.773 |
| 1 | 50338 | 48182 | 35170 | | |
| 2 | 31160 | 31066 | 52144 | | |
| 3 | 18650 | 19307 | 79931 | | |
| 4 | 10804 | 11644 | 12846 | | |
| 5 | 60533 | 67780 | 21050 | | |
| 6 | 32813 | 37925 | 36074 | | |
| 7 | 17209 | 20526 | 64085 | | |
| 8 | 86596 | 10816 | 11697 | | |
| 9 | 41809 | 53656 | 22328 | | |
| 90 | 19210 | 26276 | 44250 | | |
| 1 | 79853 | 11571 | 89087 | | |
| 2 | 26979 | 46093 | 18913 | | |
| 3 | 69634 | 14410 | 49661 | | |
| 4 | 10524 | 38350 | 16917 | | |
| 5 | 00000 | 47680 | 95024 | | |

EQUAL AGES.

| x | $N_{x:y}$ | $N_{\frac{x}{2}}_{x:y}$ | $D^{-1}_{x:y}$ | Annuities. | |
|-----|-----------|-------------------------|----------------|---------------------------|---|
| | | | | Joint Lives. $a_{x:y}$ | Rever- sionary. $a_{\frac{x}{2}}_{x:y}$ |
| 18 | 11363 | 32333 | 10465 | 11.891 | 3.384 |
| 9 | 10470 | 31001 | 11203 | 11.730 | 3.473 |
| 20 | 96381 | 29537 | 12019 | 11.584 | 3.550 |
| 1 | 86641 | 27970 | 12920 | 11.452 | 3.614 |
| 2 | 81454 | 26340 | 13913 | 11.333 | 3.665 |
| 3 | 74790 | 24679 | 15005 | 11.222 | 3.703 |
| 4 | 68618 | 23023 | 16203 | 11.118 | 3.730 |
| 5 | 62907 | 21402 | 17512 | 11.016 | 3.748 |
| 6 | 57627 | 19845 | 18939 | 10.914 | 3.758 |
| 7 | 52747 | 18373 | 20490 | 10.808 | 3.765 |
| 8 | 48237 | 16982 | 22175 | 10.696 | 3.766 |
| 9 | 44075 | 15668 | 24023 | 10.588 | 3.764 |
| 30 | 40236 | 14424 | 26050 | 10.481 | 3.757 |
| 1 | 36700 | 13248 | 28278 | 10.378 | 3.746 |
| 2 | 33440 | 12140 | 30680 | 10.259 | 3.725 |
| 3 | 30449 | 11096 | 33430 | 10.179 | 3.709 |
| 4 | 27700 | 10117 | 36486 | 10.107 | 3.691 |
| 5 | 25178 | 92022 | 39643 | 9.981 | 3.648 |
| 6 | 22864 | 83522 | 43210 | 9.880 | 3.609 |
| 7 | 20742 | 75654 | 47142 | 9.778 | 3.566 |
| 8 | 18799 | 68404 | 51452 | 9.672 | 3.520 |
| 9 | 17020 | 61735 | 56211 | 9.567 | 3.470 |
| 40 | 15392 | 55625 | 61436 | 9.456 | 3.417 |
| 1 | 13904 | 50048 | 67215 | 9.346 | 3.364 |
| 2 | 12546 | 44979 | 73617 | 9.236 | 3.311 |
| 3 | 11306 | 40378 | 80669 | 9.120 | 3.257 |
| 4 | 10177 | 36211 | 88503 | 9.007 | 3.205 |
| 5 | 91472 | 32439 | 97156 | 8.887 | 3.152 |
| 6 | 82109 | 29032 | 10680 | 8.769 | 3.101 |
| 7 | 73597 | 25958 | 11748 | 8.646 | 3.050 |
| 8 | 65863 | 23204 | 12931 | 8.517 | 3.001 |
| 9 | 58840 | 20753 | 14239 | 8.378 | 2.955 |
| 50 | 52469 | 18586 | 15696 | 8.236 | 2.917 |
| 1 | 46690 | 16678 | 17305 | 8.080 | 2.886 |
| 2 | 41454 | 15011 | 19097 | 7.916 | 2.867 |
| 3 | 36711 | 13541 | 21084 | 7.740 | 2.855 |
| 4 | 32418 | 12230 | 23296 | 7.552 | 2.849 |
| 5 | 28538 | 11053 | 25770 | 7.354 | 2.848 |
| 6 | 25035 | 99827 | 28549 | 7.147 | 2.850 |
| 7 | 21879 | 90043 | 31686 | 6.933 | 2.853 |
| 8 | 19042 | 81025 | 35247 | 6.712 | 2.856 |
| 9 | 16498 | 72671 | 39314 | 6.486 | 2.857 |
| 60 | 14225 | 64911 | 43990 | 6.258 | 2.855 |
| 1 | 12201 | 57686 | 49400 | 6.027 | 2.850 |
| 2 | 10406 | 50963 | 55704 | 5.797 | 2.839 |
| 3 | 88207 | 44747 | 63091 | 5.565 | 2.823 |
| 4 | 74280 | 39030 | 71805 | 5.334 | 2.803 |
| 5 | 62107 | 33806 | 82148 | 5.102 | 2.777 |
| 6 | 51525 | 29067 | 94511 | 4.870 | 2.747 |
| 7 | 42384 | 24800 | 10940 | 4.637 | 2.713 |
| 8 | 34541 | 20974 | 12750 | 4.404 | 2.674 |
| 9 | 27862 | 17566 | 14972 | 4.171 | 2.630 |
| 70 | 22231 | 14559 | 17759 | 3.948 | 2.586 |
| 1 | 17529 | 11926 | 21267 | 3.728 | 2.536 |
| 2 | 13644 | 96551 | 25737 | 3.512 | 2.485 |
| 3 | 10471 | 77072 | 31522 | 3.301 | 2.429 |
| 4 | 79157 | 60637 | 39133 | 3.098 | 2.373 |
| 5 | 58837 | 46906 | 49214 | 2.896 | 2.308 |
| 6 | 42954 | 35630 | 62958 | 2.704 | 2.243 |
| 7 | 30842 | 26517 | 82567 | 2.547 | 2.189 |
| 8 | 21626 | 19319 | 10850 | 2.346 | 2.096 |
| 9 | 14813 | 13756 | 14678 | 2.174 | 2.019 |
| 80 | 98948 | 95460 | 20332 | 2.012 | 1.941 |
| 1 | 64226 | 64437 | 28800 | | |
| 2 | 40453 | 42134 | 42066 | | |
| 3 | 24656 | 26745 | 63802 | | |
| 4 | 14513 | 16344 | 98590 | | |
| 5 | 82594 | 96826 | 15991 | | |
| 6 | 45419 | 55270 | 26899 | | |
| 7 | 24149 | 30264 | 47016 | | |
| 8 | 12408 | 16063 | 85168 | | |
| 9 | 61074 | 82988 | 15872 | | |
| 90 | 28758 | 40468 | 30944 | | |
| 1 | 12838 | 19499 | 62816 | | |
| 2 | 51025 | 66034 | 12927 | | |
| 3 | 16165 | 33454 | 28686 | | |
| 4 | 38107 | 99851 | 80945 | | |
| 5 | 51157 | 24505 | 30310 | | |
| 6 | 00000 | 27062 | 19548 | | |

DIFFERENCE OF AGE ONE YEAR.
(Male the elder.)

| x | $N_{x:y}$ | $N_{\frac{x}{2}}_{x:y}$ | $D^{-1}_{x:y}$ | Annuities. | |
|-----|-----------|-------------------------|----------------|---------------------------|---|
| | | | | Joint Lives. $a_{x:y}$ | Rever- sionary. $a_{\frac{x}{2}}_{x:y}$ |
| 18 | 12041 | 33958 | 99146 | 11.938 | 3.367 |
| 9 | 11099 | 32575 | 10613 | 11.779 | 3.457 |
| 20 | 10220 | 31071 | 11384 | 11.634 | 3.537 |
| 1 | 94032 | 29460 | 12237 | 11.507 | 3.605 |
| 2 | 86443 | 27762 | 13176 | 11.390 | 3.661 |
| 3 | 79405 | 26071 | 14208 | 11.282 | 3.704 |
| 4 | 72886 | 24360 | 15340 | 11.181 | 3.737 |
| 5 | 66854 | 22681 | 16578 | 11.080 | 3.759 |
| 6 | 61276 | 21061 | 17927 | 10.985 | 3.776 |
| 7 | 56119 | 19526 | 19392 | 10.883 | 3.786 |
| 8 | 51354 | 18072 | 20985 | 10.777 | 3.792 |
| 9 | 46952 | 16697 | 22719 | 10.667 | 3.793 |
| 30 | 42890 | 15397 | 24620 | 10.560 | 3.791 |
| 1 | 39146 | 14166 | 26707 | 10.455 | 3.783 |
| 2 | 35698 | 13001 | 29003 | 10.353 | 3.771 |
| 3 | 32521 | 11906 | 31477 | 10.237 | 3.748 |
| 4 | 29606 | 10878 | 34308 | 10.157 | 3.732 |
| 5 | 26929 | 99159 | 37350 | 10.058 | 3.703 |
| 6 | 24472 | 90195 | 40700 | 9.960 | 3.671 |
| 7 | 22218 | 81878 | 44367 | 9.857 | 3.633 |
| 8 | 20152 | 74188 | 48409 | 9.755 | 3.591 |
| 9 | 18260 | 67101 | 52839 | 9.648 | 3.546 |
| 40 | 16528 | 60587 | 57732 | 9.542 | 3.498 |
| 1 | 14943 | 54622 | 63103 | 9.429 | 3.447 |
| 2 | 13494 | 49179 | 69044 | 9.317 | 3.396 |
| 3 | 12172 | 44229 | 75626 | 9.205 | 3.345 |
| 4 | 10966 | 39733 | 82880 | 9.089 | 3.293 |
| 5 | 98659 | 35659 | 90939 | 8.972 | 3.243 |
| 6 | 88644 | 31968 | 99844 | 8.851 | 3.192 |
| 7 | 79534 | 28635 | 10977 | 8.730 | 3.143 |
| 8 | 71252 | 25644 | 12075 | 8.604 | 3.097 |
| 9 | 63727 | 22981 | 13288 | 8.468 | 3.054 |
| 50 | 56890 | 20626 | 14627 | 8.321 | 3.017 |
| 1 | 50685 | 18556 | 16116 | 8.168 | 2.990 |
| 2 | 45054 | 16744 | 17757 | 8.000 | 2.973 |
| 3 | 39948 | 15144 | 19587 | 7.825 | 2.966 |
| 4 | 35324 | 13716 | 21623 | 7.638 | 2.968 |
| 5 | 31139 | 12430 | 23896 | 7.441 | 2.970 |
| 6 | 27358 | 11261 | 26446 | 7.235 | 2.978 |
| 7 | 23947 | 10189 | 29320 | 7.021 | 2.987 |
| 8 | 20877 | 91975 | 32577 | 6.801 | 2.996 |
| 9 | 18122 | 82752 | 36291 | 6.577 | 3.003 |
| 60 | 15656 | 74145 | 40552 | 6.349 | 3.006 |
| 1 | 13457 | 66100 | 45474 | 6.119 | 3.006 |
| 2 | 11504 | 58586 | 51196 | 5.890 | 2.999 |
| 3 | 97762 | 51611 | 57888 | 5.659 | 2.988 |
| 4 | 82556 | 45175 | 65760 | 5.429 | 2.971 |
| 5 | 69237 | 39276 | 75082 | 5.198 | 2.949 |
| 6 | 57635 | 33908 | 86191 | 4.968 | 2.923 |
| 7 | 47587 | 29057 | 99525 | 4.736 | 2.892 |
| 8 | 38942 | 24690 | 11568 | 4.505 | 2.856 |
| 9 | 31559 | 20785 | 13543 | 4.274 | 2.815 |
| 70 | 25302 | 17319 | 15983 | 4.044 | 2.768 |
| 1 | 20057 | 14274 | 19064 | 3.824 | 2.721 |
| 2 | 15703 | 11623 | 22966 | 3.606 | 2.669 |
| 3 | 12129 | 93436 | 27980 | 3.394 | 2.614 |
| 4 | 92321 | 78998 | 34524 | 3.187 | 2.555 |
| 5 | 69181 | 57700 | 43215 | 2.990 | 2.494 |
| 6 | 50945 | 44199 | 54839 | 2.794 | 2.424 |
| 7 | 36831 | 33210 | 70850 | 2.609 | 2.353 |
| 8 | 26093 | 24435 | 93131 | 2.430 | 2.276 |
| 9 | 18081 | 17585 | 12480 | 2.257 | 2.195 |
| 80 | 12229 | 12362 | 17089 | 2.090 | 2.113 |
| 1 | 80590 | 84617 | 23981 | | |
| 2 | 51560 | 56283 | 34446 | | |
| 3 | 31978 | 36230 | 51067 | | |
| 4 | 19170 | 22619 | 78078 | | |
| 5 | 11085 | 13577 | 12369 | | |
| 6 | 61913 | 78878 | 20434 | | |
| 7 | 33389 | 44073 | 35058 | | |
| 8 | 17385 | 23663 | 62484 | | |
| 9 | 87318 | 12309 | 11557 | | |
| 90 | 41858 | 62524 | 21997 | | |
| 1 | 19093 | 29959 | 43927 | | |
| 2 | 81221 | 14422 | 91153 | | |
| 3 | 30220 | 61927 | 19607 | | |
| 4 | 87037 | 22979 | 46475 | | |
| 5 | 18084 | 62570 | 14503 | | |
| 6 | 20463 | 13661 | 62485 | | |
| 7 | 00000 | 12867 | 48869 | | |

DIFFERENCE OF AGE TWO YEARS,
(Male the elder.)

| x | N _{x:y} | N _{x:y} ² | D _{x:y} ⁻¹ | Annuities. | |
|----|------------------|-------------------------------|--------------------------------|----------------------------------|---|
| | | | | Joint Lives. a _{x:y} | Rever- sionary. a _{x:y} ² |
| 18 | 12756 | 35661 | 93940 | 11.983 | 3.350 |
| 9 | 11761 | 34197 | 10054 | 11.825 | 3.438 |
| 20 | 10834 | 32636 | 10784 | 11.683 | 3.519 |
| 1 | 99710 | 30981 | 11591 | 11.557 | 3.592 |
| 2 | 91697 | 29256 | 12479 | 11.443 | 3.651 |
| 3 | 84265 | 27495 | 13455 | 11.338 | 3.699 |
| 4 | 77380 | 25732 | 14526 | 11.240 | 3.738 |
| 5 | 71009 | 23997 | 15696 | 11.146 | 3.767 |
| 6 | 65117 | 22319 | 16971 | 11.051 | 3.788 |
| 7 | 59689 | 20722 | 18356 | 10.953 | 3.804 |
| 8 | 54634 | 19206 | 19862 | 10.851 | 3.815 |
| 9 | 49983 | 17769 | 21400 | 10.696 | 3.803 |
| 30 | 45688 | 16409 | 23283 | 10.638 | 3.820 |
| 1 | 41726 | 15122 | 25240 | 10.532 | 3.817 |
| 2 | 38076 | 13902 | 27391 | 10.429 | 3.808 |
| 3 | 34715 | 12752 | 29755 | 10.329 | 3.794 |
| 4 | 31619 | 11673 | 32303 | 10.214 | 3.771 |
| 5 | 28780 | 10662 | 35216 | 10.135 | 3.755 |
| 6 | 26172 | 97195 | 38345 | 10.036 | 3.727 |
| 7 | 23779 | 88424 | 41789 | 9.937 | 3.695 |
| 8 | 21584 | 80296 | 45558 | 9.833 | 3.658 |
| 9 | 19572 | 72779 | 49714 | 9.730 | 3.618 |
| 40 | 17780 | 65856 | 54269 | 9.622 | 3.574 |
| 1 | 16043 | 59496 | 59299 | 9.513 | 3.528 |
| 2 | 14500 | 53675 | 64819 | 9.399 | 3.479 |
| 3 | 13091 | 48360 | 70928 | 9.285 | 3.430 |
| 4 | 11804 | 43522 | 77698 | 9.171 | 3.382 |
| 5 | 10629 | 39127 | 85161 | 9.052 | 3.332 |
| 6 | 95592 | 35141 | 93455 | 8.934 | 3.284 |
| 7 | 85848 | 31529 | 10262 | 8.810 | 3.236 |
| 8 | 76985 | 28285 | 11283 | 8.686 | 3.191 |
| 9 | 68926 | 25394 | 12409 | 8.553 | 3.151 |
| 50 | 61601 | 22835 | 13651 | 8.409 | 3.117 |
| 1 | 54942 | 20585 | 15019 | 8.252 | 3.092 |
| 2 | 48895 | 18620 | 16536 | 8.094 | 3.079 |
| 3 | 43404 | 16881 | 18213 | 7.905 | 3.075 |
| 4 | 38426 | 15327 | 20098 | 7.719 | 3.079 |
| 5 | 33918 | 13926 | 22180 | 7.523 | 3.089 |
| 6 | 29840 | 12649 | 24524 | 7.318 | 3.102 |
| 7 | 26158 | 11477 | 27161 | 7.105 | 3.117 |
| 8 | 22841 | 10391 | 30145 | 6.885 | 3.132 |
| 9 | 19860 | 93771 | 33542 | 6.661 | 3.145 |
| 60 | 17188 | 84270 | 37434 | 6.434 | 3.155 |
| 1 | 14803 | 75347 | 41920 | 6.205 | 3.159 |
| 2 | 12681 | 67080 | 47127 | 5.976 | 3.161 |
| 3 | 10801 | 59284 | 53203 | 5.746 | 3.154 |
| 4 | 91439 | 52062 | 60337 | 5.517 | 3.141 |
| 5 | 76896 | 45422 | 68762 | 5.288 | 3.123 |
| 6 | 64202 | 39360 | 78775 | 5.058 | 3.101 |
| 7 | 53184 | 33864 | 90764 | 4.827 | 3.074 |
| 8 | 43682 | 28900 | 10524 | 4.697 | 3.041 |
| 9 | 35544 | 24444 | 12288 | 4.568 | 3.004 |
| 70 | 28628 | 20472 | 14459 | 4.139 | 2.960 |
| 1 | 22800 | 16961 | 17158 | 3.912 | 2.910 |
| 2 | 17942 | 13895 | 20587 | 3.694 | 2.861 |
| 3 | 13937 | 11235 | 24967 | 3.480 | 2.805 |
| 4 | 10674 | 89604 | 30645 | 3.271 | 2.746 |
| 5 | 80510 | 70327 | 38126 | 3.070 | 2.681 |
| 6 | 59743 | 54302 | 48154 | 2.877 | 2.615 |
| 7 | 43539 | 41146 | 61712 | 2.687 | 2.539 |
| 8 | 31128 | 30565 | 80574 | 2.508 | 2.463 |
| 9 | 21793 | 22214 | 10712 | 2.334 | 2.380 |
| 80 | 14911 | 15783 | 14530 | 2.167 | 2.293 |
| 1 | 99492 | 10943 | 20156 | | |
| 2 | 64627 | 73814 | 28682 | | |
| 3 | 40714 | 48339 | 41817 | | |
| 4 | 24837 | 30603 | 62987 | | |
| 5 | 14629 | 18771 | 97957 | | |
| 6 | 83021 | 11049 | 15806 | | |
| 7 | 45471 | 62837 | 26631 | | |
| 8 | 24008 | 34430 | 46592 | | |
| 9 | 12214 | 18113 | 84785 | | |
| 90 | 59699 | 92549 | 16016 | | |
| 1 | 27675 | 46159 | 31227 | | |
| 2 | 11987 | 22030 | 63743 | | |
| 3 | 47540 | 10296 | 13826 | | |
| 4 | 16061 | 42010 | 31767 | | |
| 5 | 40519 | 14259 | 83269 | | |
| 6 | 69997 | 34037 | 29834 | | |
| 7 | 58665 | 62781 | 15388 | | |
| 8 | 00000 | 03866 | 17104 | | |

DIFFERENCE OF AGE THREE YEARS,
(Male the elder.)

| x | N _{x:y} | N _{x:y} ² | D _{x:y} ⁻¹ | Annuities. | |
|----|------------------|-------------------------------|--------------------------------|----------------------------------|---|
| | | | | Joint Lives. a _{x:y} | Rever- sionary. a _{x:y} ² |
| 18 | 13508 | 37478 | 89015 | 12.024 | 3.336 |
| 9 | 12459 | 35905 | 95264 | 11.869 | 3.420 |
| 20 | 11480 | 34253 | 10217 | 11.729 | 3.499 |
| 1 | 10569 | 32535 | 10980 | 11.605 | 3.572 |
| 2 | 97231 | 30763 | 11820 | 11.493 | 3.636 |
| 3 | 89384 | 28953 | 12743 | 11.390 | 3.689 |
| 4 | 82114 | 27138 | 13756 | 11.296 | 3.733 |
| 5 | 75385 | 25350 | 14862 | 11.204 | 3.768 |
| 6 | 69162 | 23617 | 16068 | 11.113 | 3.795 |
| 7 | 63407 | 21962 | 17377 | 11.018 | 3.816 |
| 8 | 58088 | 20385 | 18800 | 10.921 | 3.832 |
| 9 | 53174 | 18886 | 20348 | 10.820 | 3.843 |
| 30 | 48635 | 17465 | 22034 | 10.716 | 3.848 |
| 1 | 44446 | 16118 | 23871 | 10.610 | 3.848 |
| 2 | 40583 | 14844 | 25887 | 10.506 | 3.843 |
| 3 | 37025 | 13639 | 28103 | 10.405 | 3.833 |
| 4 | 33750 | 12506 | 30536 | 10.306 | 3.819 |
| 5 | 30734 | 11445 | 33159 | 10.191 | 3.795 |
| 6 | 27968 | 10455 | 36155 | 10.112 | 3.780 |
| 7 | 25428 | 95321 | 39372 | 10.012 | 3.753 |
| 8 | 23098 | 86749 | 42912 | 9.912 | 3.723 |
| 9 | 20961 | 78804 | 46788 | 9.807 | 3.687 |
| 40 | 19002 | 71461 | 51060 | 9.702 | 3.649 |
| 1 | 17208 | 64702 | 55742 | 9.592 | 3.607 |
| 2 | 15566 | 58496 | 60912 | 9.482 | 3.563 |
| 3 | 14065 | 52811 | 66588 | 9.366 | 3.517 |
| 4 | 12692 | 47617 | 72871 | 9.249 | 3.470 |
| 5 | 11440 | 42888 | 79836 | 9.133 | 3.424 |
| 6 | 10297 | 38588 | 87517 | 9.012 | 3.377 |
| 7 | 92561 | 34687 | 96057 | 8.891 | 3.332 |
| 8 | 83081 | 31172 | 10548 | 8.763 | 3.288 |
| 9 | 74456 | 28036 | 11595 | 8.633 | 3.251 |
| 50 | 66611 | 25258 | 12748 | 8.492 | 3.220 |
| 1 | 59477 | 22814 | 14017 | 8.337 | 3.198 |
| 2 | 52988 | 20678 | 15411 | 8.166 | 3.187 |
| 3 | 47092 | 18791 | 16961 | 7.987 | 3.187 |
| 4 | 41738 | 17102 | 18678 | 7.796 | 3.194 |
| 5 | 36885 | 15577 | 20606 | 7.601 | 3.210 |
| 6 | 32492 | 14185 | 22762 | 7.396 | 3.229 |
| 7 | 28522 | 12906 | 25186 | 7.184 | 3.251 |
| 8 | 24941 | 11719 | 27924 | 6.965 | 3.272 |
| 9 | 21719 | 10608 | 31038 | 6.741 | 3.293 |
| 60 | 18828 | 95637 | 34598 | 6.514 | 3.309 |
| 1 | 16244 | 85787 | 38697 | 6.286 | 3.320 |
| 2 | 13942 | 76507 | 43445 | 6.057 | 3.324 |
| 3 | 11901 | 67826 | 48975 | 5.829 | 3.322 |
| 4 | 10097 | 59754 | 55454 | 5.599 | 3.314 |
| 5 | 85123 | 52303 | 63091 | 5.370 | 3.300 |
| 6 | 71262 | 45479 | 72146 | 5.141 | 3.281 |
| 7 | 59208 | 39273 | 82956 | 4.912 | 3.258 |
| 8 | 48788 | 33650 | 95974 | 4.682 | 3.230 |
| 9 | 39843 | 28584 | 11179 | 4.454 | 3.195 |
| 70 | 32220 | 24051 | 13118 | 4.227 | 3.155 |
| 1 | 25777 | 20028 | 15521 | 4.001 | 3.109 |
| 2 | 20380 | 16493 | 18529 | 3.776 | 3.056 |
| 3 | 15912 | 13416 | 22381 | 3.561 | 3.003 |
| 4 | 12255 | 10762 | 27346 | 3.351 | 2.943 |
| 5 | 92998 | 85064 | 33842 | 3.147 | 2.879 |
| 6 | 69459 | 66109 | 42483 | 2.951 | 2.809 |
| 7 | 51006 | 50492 | 54190 | 2.764 | 2.736 |
| 8 | 36757 | 37823 | 70183 | 2.580 | 2.655 |
| 9 | 25967 | 27753 | 92681 | 2.407 | 2.572 |
| 80 | 17949 | 19913 | 12472 | 2.239 | 2.484 |
| 1 | 12114 | 13954 | 17436 | | |
| 2 | 79661 | 95343 | 24107 | | |
| 3 | 50941 | 63316 | 34819 | | |
| 4 | 31553 | 40785 | 51578 | | |
| 5 | 18899 | 25367 | 79023 | | |
| 6 | 10910 | 15262 | 12517 | | |
| 7 | 60558 | 87939 | 20600 | | |
| 8 | 32303 | 49046 | 35393 | | |
| 9 | 16486 | 26334 | 63221 | | |
| 90 | 83354 | 13604 | 11750 | | |
| 1 | 39371 | 68199 | 22736 | | |
| 2 | 17302 | 33827 | 45313 | | |
| 3 | 69590 | 15604 | 96632 | | |
| 4 | 24946 | 69115 | 22399 | | |
| 5 | 73765 | 25685 | 56917 | | |
| 6 | 15387 | 76722 | 17129 | | |
| 7 | 19790 | 15115 | 74585 | | |
| 8 | 14616 | 18964 | 54553 | | |
| 9 | 00000 | 01289 | 68417 | | |

DIFFERENCE OF AGE FOUR YEARS.
(Male the elder.)

| x | $N_{x:y}$ | $N_{x:y}^{-2}$ | $D_{x:y}^{-1}$ | Annuities. | |
|-----|-----------|----------------|----------------|---------------------------|--------------------------------------|
| | | | | Joint Lives. $a_{x:y}$ | Rever- sionary. $a_{x:y}^{-2}$ |
| 19 | 13183 | 37732 | 90270 | 11·900 | 3·406 |
| 20 | 12150 | 35957 | 96805 | 11·762 | 3·481 |
| 1 | 11189 | 34139 | 10402 | 11·639 | 3·551 |
| 2 | 10296 | 32299 | 11197 | 11·528 | 3·617 |
| 3 | 94675 | 30439 | 12070 | 11·427 | 3·674 |
| 4 | 86999 | 28574 | 13028 | 11·334 | 3·723 |
| 5 | 79894 | 26734 | 14075 | 11·245 | 3·763 |
| 6 | 73321 | 24948 | 15214 | 11·155 | 3·796 |
| 7 | 67243 | 23238 | 16452 | 11·063 | 3·823 |
| 8 | 61624 | 21604 | 17898 | 11·029 | 3·867 |
| 9 | 56533 | 20045 | 19261 | 10·889 | 3·861 |
| 30 | 51737 | 18563 | 20854 | 10·789 | 3·871 |
| 1 | 47310 | 17156 | 22590 | 10·687 | 3·875 |
| 2 | 43226 | 15822 | 24482 | 10·583 | 3·874 |
| 3 | 39461 | 14563 | 26559 | 10·480 | 3·868 |
| 4 | 35993 | 13376 | 28840 | 10·380 | 3·858 |
| 5 | 32803 | 12262 | 31345 | 10·282 | 3·844 |
| 6 | 29865 | 11223 | 34042 | 10·167 | 3·821 |
| 7 | 27172 | 10254 | 37122 | 10·086 | 3·806 |
| 8 | 24698 | 93519 | 40430 | 9·985 | 3·781 |
| 9 | 22429 | 85141 | 44070 | 9·884 | 3·752 |
| 40 | 20348 | 77379 | 48053 | 9·778 | 3·718 |
| 1 | 18441 | 70210 | 52444 | 9·671 | 3·682 |
| 2 | 16695 | 63614 | 57258 | 9·559 | 3·642 |
| 3 | 15097 | 57554 | 62574 | 9·447 | 3·601 |
| 4 | 13635 | 51998 | 68413 | 9·328 | 3·557 |
| 5 | 12300 | 46921 | 74876 | 9·210 | 3·513 |
| 6 | 11081 | 42294 | 82046 | 9·092 | 3·470 |
| 7 | 99690 | 38085 | 89953 | 8·967 | 3·426 |
| 8 | 89561 | 34289 | 98730 | 8·842 | 3·385 |
| 9 | 80336 | 30891 | 10840 | 8·708 | 3·349 |
| 50 | 71941 | 27878 | 11911 | 8·569 | 3·321 |
| 1 | 64301 | 25224 | 13089 | 8·416 | 3·302 |
| 2 | 57348 | 22908 | 14382 | 8·248 | 3·294 |
| 3 | 51021 | 20853 | 15807 | 8·065 | 3·296 |
| 4 | 45272 | 19021 | 17395 | 7·875 | 3·309 |
| 5 | 40053 | 17363 | 19160 | 7·674 | 3·327 |
| 6 | 35324 | 15849 | 21147 | 7·470 | 3·352 |
| 7 | 31046 | 14455 | 23377 | 7·258 | 3·379 |
| 8 | 27185 | 13158 | 25894 | 7·039 | 3·407 |
| 9 | 23707 | 11944 | 28752 | 6·816 | 3·434 |
| 60 | 20583 | 10800 | 32015 | 6·590 | 3·458 |
| 1 | 17787 | 97170 | 35765 | 6·362 | 3·475 |
| 2 | 15293 | 86926 | 40105 | 6·133 | 3·486 |
| 3 | 13078 | 77298 | 45148 | 5·904 | 3·490 |
| 4 | 11120 | 68309 | 51047 | 5·676 | 3·487 |
| 5 | 93949 | 59981 | 57985 | 5·448 | 3·478 |
| 6 | 78843 | 52324 | 66196 | 5·219 | 3·464 |
| 7 | 65680 | 45338 | 75974 | 4·990 | 3·445 |
| 8 | 54280 | 38988 | 87719 | 4·761 | 3·420 |
| 9 | 44471 | 33249 | 10195 | 4·534 | 3·390 |
| 70 | 36092 | 28096 | 11934 | 4·307 | 3·353 |
| 1 | 28991 | 23506 | 14082 | 4·083 | 3·310 |
| 2 | 23024 | 19455 | 16761 | 3·859 | 3·261 |
| 3 | 18060 | 15908 | 20143 | 3·638 | 3·204 |
| 4 | 13980 | 12837 | 24513 | 3·427 | 3·147 |
| 5 | 10669 | 10204 | 30198 | 3·222 | 3·081 |
| 6 | 80171 | 79867 | 37710 | 3·023 | 3·012 |
| 7 | 59255 | 61396 | 47808 | 2·833 | 2·935 |
| 8 | 43028 | 46358 | 61628 | 2·652 | 2·857 |
| 9 | 30641 | 34302 | 80728 | 2·474 | 2·769 |
| 80 | 21373 | 24847 | 10790 | 2·306 | 2·681 |
| 1 | 14575 | 17584 | 14710 | | |
| 2 | 96964 | 12142 | 20497 | | |
| 3 | 62795 | 81681 | 29265 | | |
| 4 | 39510 | 53355 | 42947 | | |
| 5 | 24057 | 33768 | 64710 | | |
| 6 | 14154 | 20600 | 10098 | | |
| 7 | 80244 | 12136 | 16314 | | |
| 8 | 43718 | 68573 | 27377 | | |
| 9 | 22895 | 37478 | 48025 | | |
| 90 | 11482 | 19759 | 87619 | | |
| 1 | 54868 | 10010 | 16680 | | |
| 2 | 24558 | 49832 | 32992 | | |
| 3 | 10008 | 23873 | 68729 | | |
| 4 | 36242 | 10374 | 15664 | | |
| 5 | 11325 | 41804 | 40132 | | |
| 6 | 27840 | 13613 | 11709 | | |
| 7 | 42889 | 33891 | 42824 | | |
| 8 | 45822 | 45548 | 26105 | | |
| 9 | 00000 | 05892 | 21824 | | |

DIFFERENCE OF AGE FIVE YEARS.
(Male the elder.)

| x | $N_{x:y}$ | $N_{x:y}^{-2}$ | $D_{x:y}^{-1}$ | Annuities. | |
|-----|-----------|----------------|----------------|---------------------------|--------------------------------------|
| | | | | Joint Lives. $a_{x:y}$ | Rever- sionary. $a_{x:y}^{-2}$ |
| 20 | 12876 | 37786 | 91730 | 11·811 | 3·466 |
| 1 | 11862 | 35833 | 98558 | 11·691 | 3·532 |
| 2 | 10919 | 33887 | 10608 | 11·583 | 3·595 |
| 3 | 10044 | 31956 | 11434 | 11·484 | 3·654 |
| 4 | 92339 | 30039 | 12340 | 11·395 | 3·707 |
| 5 | 84837 | 28148 | 13330 | 11·309 | 3·752 |
| 6 | 77897 | 26310 | 14408 | 11·223 | 3·791 |
| 7 | 71477 | 24548 | 15579 | 11·135 | 3·824 |
| 8 | 65543 | 22860 | 16851 | 11·045 | 3·852 |
| 9 | 60059 | 21245 | 18234 | 10·951 | 3·874 |
| 30 | 54993 | 19703 | 19739 | 10·855 | 3·889 |
| 1 | 50315 | 18236 | 21380 | 10·758 | 3·899 |
| 2 | 45999 | 16842 | 23168 | 10·657 | 3·902 |
| 3 | 42018 | 15524 | 25118 | 10·554 | 3·899 |
| 4 | 38349 | 14284 | 27256 | 10·452 | 3·893 |
| 5 | 34971 | 13117 | 29603 | 10·352 | 3·883 |
| 6 | 31864 | 12025 | 32180 | 10·254 | 3·870 |
| 7 | 29003 | 11009 | 34954 | 10·138 | 3·848 |
| 8 | 26379 | 10061 | 38121 | 10·056 | 3·835 |
| 9 | 23971 | 91798 | 41520 | 9·953 | 3·811 |
| 40 | 21761 | 83612 | 45261 | 9·849 | 3·784 |
| 1 | 19735 | 76035 | 49358 | 9·741 | 3·753 |
| 2 | 17879 | 69039 | 53872 | 9·632 | 3·719 |
| 3 | 16179 | 62598 | 58821 | 9·517 | 3·682 |
| 4 | 14624 | 56675 | 64288 | 9·401 | 3·644 |
| 5 | 13201 | 51244 | 70295 | 9·280 | 3·602 |
| 6 | 11901 | 46276 | 76948 | 9·158 | 3·561 |
| 7 | 10716 | 41748 | 84329 | 9·037 | 3·521 |
| 8 | 96341 | 37653 | 92457 | 8·907 | 3·481 |
| 9 | 86485 | 33983 | 10146 | 8·775 | 3·448 |
| 50 | 77505 | 30718 | 11136 | 8·631 | 3·421 |
| 1 | 69328 | 27840 | 12230 | 8·479 | 3·405 |
| 2 | 61882 | 25320 | 13431 | 8·311 | 3·401 |
| 3 | 55103 | 23093 | 14752 | 8·129 | 3·407 |
| 4 | 48935 | 21102 | 16211 | 7·933 | 3·421 |
| 5 | 43330 | 19303 | 17843 | 7·731 | 3·444 |
| 6 | 38244 | 17658 | 19662 | 7·520 | 3·472 |
| 7 | 33640 | 16140 | 21718 | 7·308 | 3·505 |
| 8 | 29579 | 14727 | 24040 | 7·111 | 3·540 |
| 9 | 25828 | 13402 | 26661 | 6·886 | 3·573 |
| 60 | 22456 | 12151 | 29657 | 6·660 | 3·604 |
| 1 | 19435 | 10965 | 33095 | 6·432 | 3·629 |
| 2 | 16737 | 98385 | 37066 | 6·204 | 3·647 |
| 3 | 14337 | 87756 | 41675 | 5·975 | 3·657 |
| 4 | 12212 | 77787 | 47058 | 5·747 | 3·660 |
| 5 | 10339 | 68514 | 53377 | 5·519 | 3·657 |
| 6 | 86952 | 59955 | 60839 | 5·290 | 3·648 |
| 7 | 72607 | 52116 | 69708 | 5·061 | 3·633 |
| 8 | 60159 | 44968 | 80335 | 4·833 | 3·613 |
| 9 | 49427 | 38488 | 93178 | 4·606 | 3·586 |
| 70 | 40239 | 32650 | 10884 | 4·380 | 3·554 |
| 1 | 32433 | 27431 | 12811 | 4·155 | 3·514 |
| 2 | 25857 | 22809 | 15207 | 3·932 | 3·469 |
| 3 | 20388 | 18744 | 18285 | 3·728 | 3·427 |
| 4 | 15855 | 15204 | 22062 | 3·493 | 3·354 |
| 5 | 12161 | 12159 | 27070 | 3·292 | 3·291 |
| 6 | 91695 | 95704 | 33650 | 3·092 | 3·220 |
| 7 | 68331 | 74092 | 42437 | 2·900 | 3·144 |
| 8 | 49939 | 56306 | 54371 | 2·715 | 3·061 |
| 9 | 35832 | 41995 | 70887 | 2·540 | 2·977 |
| 80 | 25192 | 30675 | 93986 | 2·368 | 2·883 |
| 1 | 17334 | 21916 | 12727 | | |
| 2 | 11651 | 15282 | 17594 | | |
| 3 | 76319 | 10389 | 24894 | | |
| 4 | 48616 | 68747 | 36097 | | |
| 5 | 30057 | 44122 | 53882 | | |
| 6 | 17964 | 27393 | 82690 | | |
| 7 | 10365 | 16364 | 13161 | | |
| 8 | 57531 | 94560 | 21681 | | |
| 9 | 30611 | 52357 | 37148 | | |
| 90 | 15587 | 28097 | 66558 | | |
| 1 | 75470 | 14526 | 12438 | | |
| 2 | 34157 | 73017 | 24205 | | |
| 3 | 14173 | 35055 | 50041 | | |
| 4 | 51924 | 15826 | 11135 | | |
| 5 | 16292 | 62082 | 28065 | | |
| 6 | 41793 | 21881 | 82558 | | |
| 7 | 76295 | 58808 | 29271 | | |
| 8 | 95768 | 10129 | 14988 | | |
| 9 | 00000 | 13219 | 10442 | | |

DIFFERENCE OF AGE SIX YEARS.
(Male the elder.)

| x | N _{x'y} | N _x x'y | D ⁻¹ x'y | Annuities. | |
|----|------------------|-----------------------|------------------------|----------------------------------|---|
| | | | | Joint Lives. a _{x'y} | Rever- sionary. a _x ⁻² x'y |
| 21 | 12561 | 37658 | 93391 | 11·731 | 3·517 |
| 2 | 11566 | 35567 | 10051 | 11·625 | 3·575 |
| 3 | 10643 | 33524 | 10833 | 11·529 | 3·632 |
| 4 | 97879 | 31534 | 11690 | 11·442 | 3·686 |
| 5 | 89958 | 29591 | 12626 | 11·358 | 3·736 |
| 6 | 82630 | 27701 | 13646 | 11·276 | 3·780 |
| 7 | 75852 | 25888 | 14753 | 11·190 | 3·819 |
| 8 | 69584 | 24149 | 15956 | 11·103 | 3·853 |
| 9 | 63792 | 22480 | 17264 | 11·013 | 3·881 |
| 30 | 58441 | 20883 | 18687 | 10·921 | 3·902 |
| 1 | 53499 | 19356 | 20238 | 10·827 | 3·917 |
| 2 | 48939 | 17903 | 21927 | 10·731 | 3·926 |
| 3 | 44732 | 16526 | 23770 | 10·633 | 3·928 |
| 4 | 40852 | 15228 | 25777 | 10·530 | 3·925 |
| 5 | 37278 | 14009 | 27978 | 10·430 | 3·919 |
| 6 | 33988 | 12865 | 30392 | 10·330 | 3·910 |
| 7 | 30961 | 11797 | 33041 | 10·230 | 3·898 |
| 8 | 28175 | 10703 | 35892 | 10·113 | 3·877 |
| 9 | 25621 | 98773 | 39148 | 10·030 | 3·867 |
| 40 | 23276 | 90163 | 42643 | 9·926 | 3·845 |
| 1 | 21125 | 82172 | 46491 | 9·821 | 3·820 |
| 2 | 19153 | 74777 | 50700 | 9·711 | 3·791 |
| 3 | 17346 | 67946 | 55342 | 9·600 | 3·760 |
| 4 | 15691 | 61651 | 60432 | 9·482 | 3·726 |
| 5 | 14177 | 55861 | 66058 | 9·365 | 3·690 |
| 6 | 12793 | 50548 | 72239 | 9·242 | 3·652 |
| 7 | 11528 | 45685 | 79090 | 9·117 | 3·613 |
| 8 | 10375 | 41279 | 86677 | 8·993 | 3·578 |
| 9 | 93222 | 37320 | 95015 | 8·857 | 3·546 |
| 50 | 83628 | 33794 | 10423 | 8·717 | 3·522 |
| 1 | 74882 | 30676 | 11434 | 8·562 | 3·507 |
| 2 | 66914 | 27942 | 12549 | 8·397 | 3·506 |
| 3 | 59654 | 25524 | 13775 | 8·217 | 3·516 |
| 4 | 53045 | 23361 | 15129 | 8·025 | 3·534 |
| 5 | 47031 | 21406 | 16628 | 7·820 | 3·559 |
| 6 | 41570 | 19621 | 18311 | 7·612 | 3·593 |
| 7 | 36617 | 17972 | 20193 | 7·394 | 3·629 |
| 8 | 32139 | 16434 | 22328 | 7·176 | 3·669 |
| 9 | 28098 | 14989 | 24746 | 6·953 | 3·709 |
| 60 | 24462 | 13624 | 27500 | 6·727 | 3·747 |
| 1 | 21200 | 12327 | 30657 | 6·499 | 3·779 |
| 2 | 18284 | 11093 | 34298 | 6·271 | 3·805 |
| 3 | 15688 | 99247 | 38519 | 6·043 | 3·823 |
| 4 | 13386 | 88242 | 43474 | 5·819 | 3·836 |
| 5 | 11354 | 77957 | 49205 | 5·587 | 3·836 |
| 6 | 95680 | 68427 | 56004 | 5·358 | 3·832 |
| 7 | 80072 | 59665 | 64067 | 5·130 | 3·823 |
| 8 | 66505 | 51644 | 73709 | 4·902 | 3·807 |
| 9 | 54786 | 44349 | 85334 | 4·675 | 3·784 |
| 70 | 44734 | 37757 | 99475 | 4·450 | 3·756 |
| 1 | 36174 | 31845 | 11683 | 4·226 | 3·720 |
| 2 | 28946 | 26591 | 13834 | 4·004 | 3·679 |
| 3 | 22897 | 21952 | 16532 | 3·783 | 3·629 |
| 4 | 17886 | 17896 | 19957 | 3·570 | 3·572 |
| 5 | 13782 | 14385 | 24364 | 3·358 | 3·505 |
| 6 | 10467 | 11391 | 30164 | 3·157 | 3·436 |
| 7 | 78260 | 88684 | 37867 | 2·963 | 3·358 |
| 8 | 57540 | 67874 | 48262 | 2·777 | 3·276 |
| 9 | 41550 | 50948 | 62540 | 2·599 | 3·186 |
| 80 | 29433 | 37512 | 82500 | 2·429 | 3·096 |
| 1 | 20412 | 27025 | 11085 | | |
| 2 | 13843 | 19026 | 15222 | | |
| 3 | 91606 | 13061 | 21358 | | |
| 4 | 59024 | 87335 | 30692 | | |
| 5 | 36943 | 56781 | 45288 | | |
| 6 | 22419 | 35750 | 68853 | | |
| 7 | 13140 | 21739 | 10777 | | |
| 8 | 74230 | 12738 | 17491 | | |
| 9 | 40239 | 72145 | 29420 | | |
| 90 | 20816 | 39219 | 51484 | | |
| 1 | 10232 | 20639 | 94483 | | |
| 2 | 46916 | 10584 | 18049 | | |
| 3 | 19678 | 51283 | 36713 | | |
| 4 | 73434 | 23163 | 81075 | | |
| 5 | 23309 | 94621 | 19950 | | |
| 6 | 59879 | 32190 | 57733 | | |
| 7 | 11429 | 93733 | 20639 | | |
| 8 | 16680 | 17540 | 10245 | | |
| 9 | 00000 | 29336 | 59953 | | |

DIFFERENCE OF AGE SEVEN YEARS.
(Male the elder.)

| x | N _{x'y} | N _x x'y | D ⁻¹ x'y | Annuities. | |
|----|------------------|-----------------------|------------------------|----------------------------------|---|
| | | | | Joint Lives. a _{x'y} | Rever- sionary. a _x ⁻² x'y |
| 22 | 12247 | 37382 | 95238 | 11·684 | 3·560 |
| 3 | 11273 | 35167 | 10264 | 11·571 | 3·612 |
| 4 | 10370 | 33081 | 11075 | 11·485 | 3·664 |
| 5 | 95342 | 31064 | 11960 | 11·403 | 3·715 |
| 6 | 87605 | 29123 | 12925 | 11·323 | 3·764 |
| 7 | 80448 | 27259 | 13972 | 11·240 | 3·807 |
| 8 | 73830 | 25469 | 15110 | 11·156 | 3·848 |
| 9 | 67712 | 23749 | 16347 | 11·069 | 3·882 |
| 30 | 62060 | 22099 | 17692 | 10·980 | 3·910 |
| 1 | 56840 | 20517 | 19158 | 10·889 | 3·931 |
| 2 | 52022 | 19006 | 20756 | 10·798 | 3·945 |
| 3 | 47577 | 17570 | 22497 | 10·703 | 3·953 |
| 4 | 43478 | 16213 | 24394 | 10·606 | 3·955 |
| 5 | 39699 | 14937 | 26460 | 10·504 | 3·952 |
| 6 | 36217 | 13742 | 28724 | 10·403 | 3·947 |
| 7 | 33013 | 12623 | 31206 | 10·302 | 3·939 |
| 8 | 30065 | 11578 | 33929 | 10·201 | 3·928 |
| 9 | 27353 | 10607 | 36861 | 10·083 | 3·910 |
| 40 | 24865 | 97028 | 40207 | 9·997 | 3·901 |
| 1 | 22582 | 88622 | 43800 | 9·891 | 3·882 |
| 2 | 20488 | 80823 | 47755 | 9·784 | 3·860 |
| 3 | 18568 | 73603 | 52083 | 9·671 | 3·833 |
| 4 | 16810 | 66926 | 56858 | 9·558 | 3·805 |
| 5 | 15199 | 60773 | 62095 | 9·438 | 3·774 |
| 6 | 13726 | 55107 | 67885 | 9·318 | 3·741 |
| 7 | 12379 | 49907 | 74251 | 9·192 | 3·706 |
| 8 | 11149 | 45177 | 81292 | 9·063 | 3·673 |
| 9 | 10027 | 40917 | 89074 | 8·931 | 3·645 |
| 50 | 90020 | 37112 | 97609 | 8·787 | 3·622 |
| 1 | 80677 | 33744 | 10702 | 8·634 | 3·611 |
| 2 | 72153 | 30783 | 11732 | 8·465 | 3·611 |
| 3 | 64384 | 28160 | 12871 | 8·287 | 3·624 |
| 4 | 57306 | 25811 | 14128 | 8·096 | 3·647 |
| 5 | 50862 | 23688 | 15519 | 7·893 | 3·676 |
| 6 | 45002 | 21747 | 17065 | 7·680 | 3·711 |
| 7 | 39684 | 19958 | 18805 | 7·463 | 3·753 |
| 8 | 34868 | 18288 | 20761 | 7·239 | 3·797 |
| 9 | 30518 | 16715 | 22990 | 7·016 | 3·843 |
| 60 | 26600 | 15227 | 25525 | 6·790 | 3·887 |
| 1 | 23083 | 13811 | 28428 | 6·562 | 3·926 |
| 2 | 19935 | 12462 | 31772 | 6·336 | 3·959 |
| 3 | 17130 | 11182 | 35643 | 6·106 | 3·986 |
| 4 | 14639 | 99720 | 40149 | 5·877 | 4·004 |
| 5 | 12437 | 88365 | 45422 | 5·649 | 4·014 |
| 6 | 10500 | 77796 | 51628 | 5·421 | 4·016 |
| 7 | 88046 | 68040 | 58975 | 5·193 | 4·013 |
| 8 | 73285 | 59074 | 67745 | 4·965 | 4·002 |
| 9 | 60513 | 50883 | 78296 | 4·738 | 3·984 |
| 70 | 49536 | 43468 | 91101 | 4·513 | 3·960 |
| 1 | 40171 | 36792 | 10678 | 4·289 | 3·929 |
| 2 | 32245 | 30839 | 12617 | 4·068 | 3·891 |
| 3 | 25596 | 25566 | 15040 | 3·850 | 3·845 |
| 4 | 20074 | 20937 | 18107 | 3·635 | 3·791 |
| 5 | 15536 | 16914 | 22039 | 3·424 | 3·728 |
| 6 | 11853 | 13463 | 27148 | 3·218 | 3·655 |
| 7 | 89069 | 10545 | 33945 | 3·023 | 3·580 |
| 8 | 65848 | 81157 | 43064 | 2·836 | 3·495 |
| 9 | 47835 | 61353 | 55513 | 2·655 | 3·406 |
| 80 | 34100 | 45461 | 72811 | 2·483 | 3·310 |
| 1 | 23827 | 33013 | 97341 | | |
| 2 | 16285 | 23435 | 13259 | | |
| 3 | 10873 | 16242 | 18479 | | |
| 4 | 70774 | 10967 | 26344 | | |
| 5 | 44804 | 72050 | 38506 | | |
| 6 | 27525 | 45955 | 57871 | | |
| 7 | 16381 | 28341 | 89737 | | |
| 8 | 93989 | 16906 | 14323 | | |
| 9 | 51854 | 97091 | 23733 | | |
| 90 | 27328 | 54002 | 40773 | | |
| 1 | 13645 | 28785 | 73085 | | |
| 2 | 63518 | 15019 | 13710 | | |
| 3 | 26989 | 74250 | 27376 | | |
| 4 | 10177 | 33837 | 59481 | | |
| 5 | 32923 | 13801 | 14526 | | |
| 6 | 85568 | 49072 | 41041 | | |
| 7 | 16283 | 13638 | 14433 | | |
| 8 | 24402 | 27727 | 72239 | | |
| 9 | 00000 | 48685 | 40980 | | |

DIFFERENCE OF AGE Eight YEARS.
(Male the elder.)

| x | N _{x:y} | N _{x:y} ⁻² | D _{x:y} ⁻¹ | Annuities. | |
|----|------------------|--------------------------------|--------------------------------|----------------------------------|---|
| | | | | Joint Lives. a _{x:y} | Rever- sionary. a _{x:y} ² |
| 23 | 11937 | 36883 | 97258 | 11·610 | 3·587 |
| 4 | 10984 | 34621 | 10493 | 11·526 | 3·633 |
| 5 | 10101 | 32486 | 11331 | 11·445 | 3·681 |
| 6 | 92844 | 30471 | 12244 | 11·368 | 3·731 |
| 7 | 85288 | 28556 | 13235 | 11·288 | 3·779 |
| 8 | 78300 | 26816 | 14310 | 11·205 | 3·837 |
| 9 | 71840 | 25046 | 15480 | 11·121 | 3·877 |
| 30 | 65871 | 23346 | 16753 | 11·035 | 3·911 |
| 1 | 60358 | 21712 | 18139 | 10·948 | 3·938 |
| 2 | 55268 | 20145 | 19649 | 10·860 | 3·958 |
| 3 | 50572 | 18652 | 21295 | 10·769 | 3·972 |
| 4 | 46241 | 17237 | 23087 | 10·676 | 3·980 |
| 5 | 42247 | 15904 | 25040 | 10·579 | 3·982 |
| 6 | 38566 | 14653 | 27165 | 10·476 | 3·980 |
| 7 | 35176 | 13484 | 29493 | 10·374 | 3·977 |
| 8 | 32055 | 12391 | 32045 | 10·272 | 3·971 |
| 9 | 29185 | 11370 | 34844 | 10·169 | 3·962 |
| 40 | 26544 | 10422 | 37858 | 10·049 | 3·946 |
| 1 | 24122 | 95382 | 41298 | 9·962 | 3·939 |
| 2 | 21900 | 87180 | 44992 | 9·853 | 3·922 |
| 3 | 19861 | 79565 | 49058 | 9·743 | 3·903 |
| 4 | 17992 | 72508 | 53511 | 9·628 | 3·880 |
| 5 | 16281 | 65981 | 58423 | 9·512 | 3·855 |
| 6 | 14714 | 59961 | 63814 | 9·390 | 3·826 |
| 7 | 13281 | 54416 | 69775 | 9·267 | 3·797 |
| 8 | 11970 | 49357 | 76318 | 9·135 | 3·767 |
| 9 | 10773 | 44783 | 83540 | 9·000 | 3·741 |
| 50 | 96804 | 40689 | 91506 | 8·858 | 3·723 |
| 1 | 86826 | 37056 | 10022 | 8·702 | 3·714 |
| 2 | 77720 | 33858 | 10981 | 8·534 | 3·718 |
| 3 | 69410 | 31016 | 12033 | 8·352 | 3·732 |
| 4 | 61835 | 28468 | 13201 | 8·163 | 3·758 |
| 5 | 54934 | 26163 | 14492 | 7·961 | 3·792 |
| 6 | 48655 | 24054 | 15926 | 7·749 | 3·831 |
| 7 | 42949 | 22110 | 17526 | 7·527 | 3·875 |
| 8 | 37777 | 20297 | 19335 | 7·304 | 3·924 |
| 9 | 33099 | 18588 | 21476 | 7·108 | 3·992 |
| 60 | 28882 | 16969 | 23714 | 6·849 | 4·024 |
| 1 | 25092 | 15425 | 26387 | 6·621 | 4·070 |
| 2 | 21698 | 13953 | 29462 | 6·393 | 4·111 |
| 3 | 18669 | 12554 | 33017 | 6·164 | 4·145 |
| 4 | 15978 | 11228 | 37151 | 5·936 | 4·171 |
| 5 | 13596 | 99800 | 41982 | 5·708 | 4·190 |
| 6 | 11497 | 88132 | 47657 | 5·474 | 4·200 |
| 7 | 96580 | 77311 | 54367 | 5·251 | 4·203 |
| 8 | 80544 | 67328 | 62361 | 5·023 | 4·199 |
| 9 | 66648 | 58179 | 71961 | 4·796 | 4·187 |
| 70 | 54684 | 49852 | 83588 | 4·571 | 4·167 |
| 1 | 44459 | 42337 | 97794 | 4·348 | 4·140 |
| 2 | 35787 | 35615 | 11531 | 4·127 | 4·107 |
| 3 | 28496 | 29641 | 13716 | 3·909 | 4·066 |
| 4 | 22425 | 24379 | 16473 | 3·694 | 4·016 |
| 5 | 17424 | 19789 | 19996 | 3·484 | 3·957 |
| 6 | 13352 | 15833 | 24558 | 3·279 | 3·888 |
| 7 | 10079 | 12469 | 30551 | 3·079 | 3·809 |
| 8 | 74886 | 96598 | 38604 | 2·891 | 3·729 |
| 9 | 54699 | 73483 | 49536 | 2·710 | 3·640 |
| 80 | 39226 | 54889 | 64631 | 2·535 | 3·548 |
| 1 | 27582 | 40166 | 85878 | | |
| 2 | 18993 | 28797 | 11642 | | |
| 3 | 12780 | 20185 | 16096 | | |
| 4 | 83924 | 13824 | 22892 | | |
| 5 | 53668 | 92380 | 33051 | | |
| 6 | 33345 | 60250 | 49205 | | |
| 7 | 20087 | 38394 | 75424 | | |
| 8 | 11702 | 24017 | 11926 | | |
| 9 | 65566 | 14874 | 19435 | | |
| 90 | 35163 | 92591 | 32892 | | |
| 1 | 17886 | 39590 | 57880 | | |
| 2 | 84571 | 20916 | 10605 | | |
| 3 | 36484 | 10519 | 20895 | | |
| 4 | 13937 | 48938 | 44352 | | |
| 5 | 45337 | 20143 | 10657 | | |
| 6 | 12072 | 71370 | 29882 | | |
| 7 | 23256 | 20894 | 11433 | | |
| 8 | 34608 | 40214 | 50517 | | |
| 9 | 00000 | 76193 | 28895 | | |

DIFFERENCE OF AGE Nine YEARS.
(Male the elder.)

| x | N _{x:y} | N _{x:y} ² | D _{x:y} ⁻¹ | Annuities. | |
|----|------------------|-------------------------------|--------------------------------|----------------------------------|---|
| | | | | Joint Lives. a _{x:y} | Rever- sionary. a _{x:y} ² |
| 24 | 11630 | 36496 | 99430 | 11·564 | 3·629 |
| 5 | 10698 | 34203 | 10736 | 11·485 | 3·672 |
| 6 | 98361 | 32070 | 11600 | 11·410 | 3·720 |
| 7 | 90385 | 30082 | 12537 | 11·332 | 3·771 |
| 8 | 83007 | 28191 | 13555 | 11·252 | 3·821 |
| 9 | 76187 | 26372 | 14661 | 11·170 | 3·866 |
| 80 | 69883 | 24622 | 15865 | 11·088 | 3·907 |
| 1 | 64061 | 22938 | 17175 | 11·002 | 3·940 |
| 2 | 58686 | 21320 | 18603 | 10·917 | 3·966 |
| 3 | 53725 | 19773 | 20159 | 10·830 | 3·986 |
| 4 | 49149 | 18301 | 21854 | 10·741 | 4·000 |
| 5 | 44930 | 16911 | 23699 | 10·648 | 4·008 |
| 6 | 41040 | 15604 | 25707 | 10·550 | 4·011 |
| 7 | 37454 | 14381 | 27892 | 10·447 | 4·011 |
| 8 | 34153 | 13238 | 30285 | 10·343 | 4·009 |
| 9 | 31114 | 12169 | 32909 | 10·239 | 4·005 |
| 40 | 28320 | 11172 | 35787 | 10·135 | 3·998 |
| 1 | 25748 | 10246 | 38886 | 10·012 | 3·984 |
| 2 | 23391 | 93839 | 42421 | 9·923 | 3·981 |
| 3 | 21227 | 85829 | 46219 | 9·811 | 3·967 |
| 4 | 19243 | 78386 | 50402 | 9·699 | 3·951 |
| 5 | 17424 | 71488 | 54983 | 9·580 | 3·931 |
| 6 | 15759 | 65102 | 60040 | 9·462 | 3·909 |
| 7 | 14234 | 59210 | 65590 | 9·336 | 3·884 |
| 8 | 12840 | 53815 | 71718 | 9·209 | 3·860 |
| 9 | 11565 | 48924 | 78429 | 9·070 | 3·837 |
| 50 | 10400 | 44529 | 85821 | 8·925 | 3·822 |
| 1 | 93353 | 40619 | 93957 | 8·771 | 3·816 |
| 2 | 83628 | 37169 | 10284 | 8·600 | 3·822 |
| 3 | 74750 | 34099 | 11263 | 8·419 | 3·841 |
| 4 | 66647 | 31339 | 12341 | 8·225 | 3·868 |
| 5 | 59262 | 28838 | 13541 | 8·025 | 3·905 |
| 6 | 52538 | 26549 | 14872 | 7·818 | 3·948 |
| 7 | 46424 | 24437 | 16356 | 7·593 | 3·997 |
| 8 | 40874 | 22467 | 18019 | 7·365 | 4·048 |
| 9 | 35851 | 20613 | 19907 | 7·137 | 4·103 |
| 60 | 31316 | 18853 | 22049 | 6·905 | 4·157 |
| 1 | 27236 | 17173 | 24513 | 6·676 | 4·210 |
| 2 | 23580 | 15568 | 27346 | 6·448 | 4·257 |
| 3 | 20313 | 14041 | 30617 | 6·219 | 4·299 |
| 4 | 17408 | 12592 | 34414 | 5·991 | 4·333 |
| 5 | 14833 | 11224 | 38847 | 5·762 | 4·360 |
| 6 | 12563 | 99415 | 44047 | 5·534 | 4·379 |
| 7 | 10571 | 87469 | 50186 | 5·305 | 4·390 |
| 8 | 88310 | 76397 | 57488 | 5·077 | 4·392 |
| 9 | 73214 | 66209 | 66243 | 4·850 | 4·386 |
| 70 | 60197 | 56902 | 76824 | 4·625 | 4·371 |
| 1 | 49053 | 48470 | 89696 | 4·400 | 4·348 |
| 2 | 39583 | 40903 | 10561 | 4·180 | 4·320 |
| 3 | 31607 | 34157 | 12536 | 3·962 | 4·282 |
| 4 | 24950 | 28196 | 15022 | 3·748 | 4·236 |
| 5 | 19453 | 22977 | 18191 | 3·539 | 4·180 |
| 6 | 14965 | 18463 | 22281 | 3·334 | 4·114 |
| 7 | 11346 | 14609 | 27636 | 3·136 | 4·037 |
| 8 | 84681 | 11370 | 34744 | 2·942 | 3·950 |
| 9 | 62161 | 86963 | 44405 | 2·760 | 3·862 |
| 80 | 44821 | 65259 | 57672 | 2·585 | 3·764 |
| 1 | 31703 | 48032 | 76229 | | |
| 2 | 21967 | 34585 | 10271 | | |
| 3 | 14892 | 24363 | 14134 | | |
| 4 | 98548 | 16746 | 19853 | | |
| 5 | 63578 | 11216 | 28595 | | |
| 6 | 39901 | 72994 | 42235 | | |
| 7 | 24307 | 46083 | 64130 | | |
| 8 | 14331 | 28245 | 10024 | | |
| 9 | 81516 | 16751 | 16182 | | |
| 90 | 44389 | 96183 | 26935 | | |
| 1 | 22972 | 53181 | 46693 | | |
| 2 | 11066 | 28730 | 83989 | | |
| 3 | 48493 | 14619 | 16086 | | |
| 4 | 18812 | 69171 | 33692 | | |
| 5 | 62280 | 29091 | 79465 | | |
| 6 | 16666 | 10400 | 21923 | | |
| 7 | 32796 | 30184 | 74705 | | |
| 8 | 49489 | 61484 | 85911 | | |
| 9 | 00000 | 10865 | 20207 | | |

DIFFERENCE OF AGE TEN YEARS.
(Male the elder.)

| x | N _{x:y} | N _{x:y} ² | D _{x:y} ⁻¹ | Annuities. | |
|----|------------------|-------------------------------|--------------------------------|------------------|-------------------------------|
| | | | | Joint Lives. | Rever- sionary. |
| | | | | a _{x:y} | a _{x:y} ² |
| 25 | 11327 | 35952 | 10173 | 11.523 | 3.657 |
| 6 | 10417 | 33661 | 10991 | 11.449 | 3.700 |
| 7 | 95753 | 31558 | 11877 | 11.373 | 3.748 |
| 8 | 87965 | 29595 | 12840 | 11.295 | 3.800 |
| 9 | 80764 | 27726 | 13887 | 11.216 | 3.850 |
| 30 | 74109 | 25927 | 15028 | 11.137 | 3.896 |
| 1 | 67960 | 24194 | 16265 | 11.054 | 3.935 |
| 2 | 62283 | 22526 | 17615 | 10.971 | 3.968 |
| 3 | 57044 | 20928 | 19086 | 10.887 | 3.994 |
| 4 | 52210 | 19403 | 20688 | 10.801 | 4.014 |
| 5 | 47753 | 17957 | 22432 | 10.712 | 4.028 |
| 6 | 43643 | 16594 | 24390 | 10.645 | 4.047 |
| 7 | 39854 | 15316 | 26395 | 10.519 | 4.043 |
| 8 | 36363 | 14120 | 28642 | 10.415 | 4.044 |
| 9 | 33147 | 13003 | 31102 | 10.309 | 4.044 |
| 40 | 30189 | 11959 | 33799 | 10.204 | 4.042 |
| 1 | 27468 | 10985 | 36758 | 10.097 | 4.038 |
| 2 | 24965 | 10081 | 39943 | 9.972 | 4.027 |
| 3 | 22670 | 92398 | 43580 | 9.880 | 4.027 |
| 4 | 20564 | 84570 | 47486 | 9.765 | 4.016 |
| 5 | 18633 | 77295 | 51789 | 9.650 | 4.003 |
| 6 | 16864 | 70545 | 56505 | 9.529 | 3.986 |
| 7 | 15243 | 64295 | 61711 | 9.407 | 3.968 |
| 8 | 13760 | 58562 | 67416 | 9.276 | 3.948 |
| 9 | 12408 | 53347 | 73701 | 9.141 | 3.932 |
| 50 | 11162 | 48446 | 80570 | 8.993 | 3.919 |
| 1 | 10027 | 44449 | 88119 | 8.836 | 3.917 |
| 2 | 89897 | 40736 | 96408 | 8.667 | 3.927 |
| 3 | 80417 | 37425 | 10548 | 8.482 | 3.947 |
| 4 | 71760 | 34443 | 11552 | 8.290 | 3.979 |
| 5 | 63860 | 31784 | 12659 | 8.084 | 4.017 |
| 6 | 56664 | 29251 | 13896 | 7.874 | 4.065 |
| 7 | 50117 | 26958 | 15274 | 7.653 | 4.118 |
| 8 | 44170 | 24818 | 16816 | 7.428 | 4.173 |
| 9 | 38780 | 22803 | 18552 | 7.194 | 4.230 |
| 60 | 33910 | 20893 | 20534 | 6.963 | 4.290 |
| 1 | 29523 | 19068 | 22793 | 6.729 | 4.346 |
| 2 | 25587 | 17321 | 25405 | 6.500 | 4.400 |
| 3 | 22068 | 15656 | 28418 | 6.271 | 4.449 |
| 4 | 18934 | 14074 | 31912 | 6.042 | 4.491 |
| 5 | 16155 | 12579 | 35985 | 5.813 | 4.527 |
| 6 | 13702 | 11174 | 40758 | 5.585 | 4.554 |
| 7 | 11546 | 98609 | 46384 | 5.355 | 4.574 |
| 8 | 96614 | 86386 | 53067 | 5.127 | 4.584 |
| 9 | 80238 | 75087 | 61065 | 4.900 | 4.585 |
| 70 | 66097 | 64724 | 70718 | 4.674 | 4.577 |
| 1 | 53971 | 55299 | 82467 | 4.451 | 4.560 |
| 2 | 43651 | 46807 | 96896 | 4.230 | 4.535 |
| 3 | 34941 | 39214 | 11481 | 4.012 | 4.502 |
| 4 | 27657 | 32483 | 13730 | 3.797 | 4.460 |
| 5 | 21630 | 26571 | 16590 | 3.588 | 4.408 |
| 6 | 16696 | 21439 | 20270 | 3.384 | 4.345 |
| 7 | 12708 | 17041 | 25074 | 3.186 | 4.273 |
| 8 | 95264 | 13329 | 31439 | 2.995 | 4.191 |
| 9 | 70242 | 10247 | 39965 | 2.807 | 4.095 |
| 80 | 50899 | 77365 | 51698 | 2.631 | 4.000 |
| 1 | 36198 | 57258 | 68022 | | |
| 2 | 25230 | 41525 | 91174 | | |
| 3 | 17210 | 29435 | 12469 | | |
| 4 | 11474 | 20394 | 17433 | | |
| 5 | 74587 | 13773 | 24907 | | |
| 6 | 47221 | 90499 | 36540 | | |
| 7 | 29054 | 57694 | 55045 | | |
| 8 | 17321 | 35730 | 85228 | | |
| 9 | 99684 | 21468 | 12755 | | |
| 90 | 55096 | 12500 | 22427 | | |
| 1 | 28942 | 70372 | 38235 | | |
| 2 | 14183 | 38510 | 67756 | | |
| 3 | 63331 | 20043 | 12739 | | |
| 4 | 24960 | 95904 | 26061 | | |
| 5 | 83939 | 41031 | 60364 | | |
| 6 | 22767 | 15014 | 16347 | | |
| 7 | 45208 | 44048 | 54807 | | |
| 8 | 69617 | 88982 | 26147 | | |
| 9 | 00000 | 16873 | 14364 | | |

DIFFERENCE OF AGE ELEVEN YEARS.
(Male the elder.)

| x | N _{x:y} | N _{x:y} ² | D _{x:y} ⁻¹ | Annuities. | |
|----|------------------|-------------------------------|--------------------------------|------------------|-------------------------------|
| | | | | Joint Lives. | Rever- sionary. |
| | | | | a _{x:y} | a _{x:y} ² |
| 26 | 11029 | 35384 | 10415 | 11.487 | 3.685 |
| 7 | 10141 | 33124 | 11254 | 11.413 | 3.728 |
| 8 | 93186 | 31047 | 12165 | 11.336 | 3.777 |
| 9 | 85584 | 29107 | 13155 | 11.259 | 3.829 |
| 30 | 78558 | 27259 | 14232 | 11.180 | 3.880 |
| 1 | 72066 | 25477 | 15404 | 11.101 | 3.924 |
| 2 | 66071 | 23761 | 16682 | 11.022 | 3.964 |
| 3 | 60538 | 22114 | 18073 | 10.941 | 3.997 |
| 4 | 55433 | 20539 | 19587 | 10.858 | 4.023 |
| 5 | 50724 | 19040 | 21236 | 10.772 | 4.043 |
| 6 | 46382 | 17623 | 23030 | 10.682 | 4.059 |
| 7 | 42379 | 16289 | 24982 | 10.587 | 4.069 |
| 8 | 38689 | 15040 | 27105 | 10.487 | 4.076 |
| 9 | 35290 | 13871 | 29414 | 10.380 | 4.080 |
| 40 | 32159 | 12780 | 31944 | 10.273 | 4.082 |
| 1 | 29279 | 11760 | 34716 | 10.164 | 4.083 |
| 2 | 26630 | 10811 | 37759 | 10.055 | 4.082 |
| 3 | 24193 | 99280 | 41034 | 9.927 | 4.074 |
| 4 | 21960 | 91055 | 44774 | 9.832 | 4.077 |
| 5 | 19910 | 83402 | 48793 | 9.715 | 4.069 |
| 6 | 18031 | 76284 | 53222 | 9.596 | 4.060 |
| 7 | 16310 | 69673 | 58078 | 9.473 | 4.047 |
| 8 | 14733 | 63597 | 63429 | 9.345 | 4.034 |
| 9 | 13290 | 58054 | 69280 | 9.207 | 4.022 |
| 50 | 11969 | 53043 | 75713 | 9.062 | 4.016 |
| 1 | 10760 | 48553 | 82727 | 8.901 | 4.017 |
| 2 | 96541 | 44567 | 90418 | 8.729 | 4.030 |
| 3 | 86428 | 41004 | 98884 | 8.546 | 4.055 |
| 4 | 77184 | 37788 | 10818 | 8.350 | 4.088 |
| 5 | 68745 | 34862 | 11849 | 8.146 | 4.131 |
| 6 | 61047 | 32172 | 12991 | 7.931 | 4.179 |
| 7 | 54040 | 29684 | 14271 | 7.712 | 4.236 |
| 8 | 47672 | 27360 | 15703 | 7.486 | 4.296 |
| 9 | 41896 | 25171 | 17314 | 7.254 | 4.358 |
| 60 | 36671 | 23096 | 19136 | 7.017 | 4.420 |
| 1 | 31960 | 21116 | 21226 | 6.784 | 4.482 |
| 2 | 27726 | 19218 | 23622 | 6.549 | 4.540 |
| 3 | 23939 | 17406 | 26401 | 6.320 | 4.595 |
| 4 | 20563 | 15681 | 29620 | 6.091 | 4.645 |
| 5 | 17566 | 14049 | 33369 | 5.862 | 4.688 |
| 6 | 14917 | 12513 | 37756 | 5.632 | 4.724 |
| 7 | 12587 | 11075 | 42921 | 5.402 | 4.754 |
| 8 | 10548 | 97311 | 49037 | 5.172 | 4.772 |
| 9 | 87744 | 84837 | 56369 | 4.946 | 4.782 |
| 70 | 72405 | 73343 | 65192 | 4.720 | 4.781 |
| 1 | 59232 | 62848 | 75913 | 4.496 | 4.771 |
| 2 | 48004 | 53357 | 89056 | 4.275 | 4.752 |
| 3 | 38511 | 44836 | 10534 | 4.057 | 4.723 |
| 4 | 30558 | 37258 | 12575 | 3.843 | 4.685 |
| 5 | 23963 | 30583 | 15163 | 3.635 | 4.637 |
| 6 | 18554 | 24770 | 18486 | 3.430 | 4.579 |
| 7 | 14170 | 19769 | 22811 | 3.232 | 4.510 |
| 8 | 10663 | 15534 | 28516 | 3.041 | 4.430 |
| 9 | 78969 | 12002 | 36152 | 2.855 | 4.339 |
| 80 | 57477 | 91077 | 46529 | 2.674 | 4.238 |
| 1 | 41077 | 67820 | 60976 | | |
| 2 | 28785 | 49456 | 81357 | | |
| 3 | 19751 | 35310 | 11068 | | |
| 4 | 13249 | 24617 | 15380 | | |
| 5 | 86765 | 16757 | 21871 | | |
| 6 | 55346 | 11102 | 31828 | | |
| 7 | 30348 | 71463 | 47624 | | |
| 8 | 20678 | 44689 | 73155 | | |
| 9 | 12031 | 27129 | 11565 | | |
| 90 | 67262 | 16002 | 18850 | | |
| 1 | 35852 | 91840 | 31837 | | |
| 2 | 17829 | 50863 | 55483 | | |
| 3 | 80984 | 26800 | 10277 | | |
| 4 | 32553 | 13121 | 20639 | | |
| 5 | 11117 | 56732 | 46693 | | |
| 6 | 30638 | 21113 | 12418 | | |
| 7 | 61692 | 63466 | 40868 | | |
| 8 | 95615 | 12949 | 19182 | | |
| 9 | 00000 | 24036 | 10459 | | |

DIFFERENCE OF AGE Twelve YEARS.

| x | $N_{x:y}$ | $N_{x:y}^{-2}$ | $D_{x:y}^{-1}$ | Annuities. | |
|-----|-----------|----------------|----------------|---------------------------|--------------------------------------|
| | | | | Joint Lives. $a_{x:y}$ | Rever- sionary. $a_{x:y}^{-2}$ |
| 27 | 10736 | 34821 | 10664 | 11.449 | 3.713 |
| 8 | 98684 | 32590 | 11526 | 11.374 | 3.756 |
| 9 | 90660 | 30537 | 12463 | 11.299 | 3.806 |
| 30 | 83243 | 28618 | 13482 | 11.223 | 3.858 |
| 1 | 76389 | 26788 | 14591 | 11.146 | 3.909 |
| 2 | 70060 | 25024 | 15799 | 11.069 | 3.954 |
| 3 | 64217 | 23328 | 17115 | 10.991 | 3.993 |
| 4 | 58825 | 21705 | 18547 | 10.910 | 4.026 |
| 5 | 53851 | 20157 | 20106 | 10.827 | 4.053 |
| 6 | 49265 | 18688 | 21802 | 10.741 | 4.074 |
| 7 | 45036 | 17302 | 23647 | 10.650 | 4.091 |
| 8 | 41138 | 15998 | 25653 | 10.553 | 4.104 |
| 9 | 37545 | 14777 | 27836 | 10.451 | 4.113 |
| 40 | 34235 | 13635 | 30210 | 10.342 | 4.119 |
| 1 | 31187 | 12570 | 32811 | 10.233 | 4.124 |
| 2 | 28383 | 11575 | 35661 | 10.122 | 4.128 |
| 3 | 25805 | 10648 | 38788 | 10.009 | 4.130 |
| 4 | 23433 | 97850 | 42158 | 9.879 | 4.125 |
| 5 | 21259 | 89810 | 46006 | 9.780 | 4.132 |
| 6 | 19265 | 82322 | 50143 | 9.660 | 4.128 |
| 7 | 17437 | 75355 | 54704 | 9.539 | 4.122 |
| 8 | 15762 | 68928 | 59694 | 9.409 | 4.115 |
| 9 | 14228 | 63049 | 65183 | 9.274 | 4.110 |
| 50 | 12823 | 57723 | 71172 | 9.126 | 4.108 |
| 1 | 11536 | 52936 | 77741 | 8.968 | 4.115 |
| 2 | 10358 | 48673 | 84886 | 8.792 | 4.132 |
| 3 | 92799 | 44848 | 92739 | 8.606 | 4.159 |
| 4 | 82938 | 41387 | 10141 | 8.410 | 4.197 |
| 5 | 73926 | 38230 | 11096 | 8.203 | 4.242 |
| 6 | 65703 | 35325 | 12160 | 7.989 | 4.296 |
| 7 | 58208 | 32629 | 13342 | 7.766 | 4.353 |
| 8 | 51392 | 30109 | 14673 | 7.541 | 4.418 |
| 9 | 45207 | 27732 | 16169 | 7.310 | 4.484 |
| 60 | 39608 | 25477 | 17859 | 7.074 | 4.550 |
| 1 | 34553 | 23326 | 19782 | 6.835 | 4.614 |
| 2 | 30007 | 21266 | 21998 | 6.601 | 4.678 |
| 3 | 25933 | 19297 | 24548 | 6.366 | 4.737 |
| 4 | 22299 | 17421 | 27518 | 6.136 | 4.794 |
| 5 | 19071 | 15642 | 30973 | 5.907 | 4.845 |
| 6 | 16214 | 13965 | 35011 | 5.677 | 4.889 |
| 7 | 13699 | 12392 | 39760 | 5.447 | 4.927 |
| 8 | 11496 | 10920 | 45385 | 5.217 | 4.956 |
| 9 | 95766 | 95487 | 52099 | 4.989 | 4.975 |
| 70 | 79148 | 82798 | 60178 | 4.763 | 4.983 |
| 1 | 64859 | 71158 | 69981 | 4.539 | 4.980 |
| 2 | 52660 | 60590 | 81978 | 4.317 | 4.967 |
| 3 | 42331 | 51066 | 96817 | 4.098 | 4.944 |
| 4 | 33664 | 42563 | 11538 | 3.884 | 4.911 |
| 5 | 26463 | 35049 | 13886 | 3.675 | 4.867 |
| 6 | 20544 | 28485 | 16896 | 3.471 | 4.813 |
| 7 | 15737 | 22820 | 20803 | 3.274 | 4.747 |
| 8 | 11882 | 18005 | 25942 | 3.083 | 4.671 |
| 9 | 88336 | 13974 | 32800 | 2.897 | 4.583 |
| 80 | 64577 | 10658 | 42089 | 2.718 | 4.486 |
| 1 | 46355 | 79767 | 54879 | | |
| 2 | 32643 | 58526 | 72929 | | |
| 3 | 22518 | 42015 | 98765 | | |
| 4 | 15193 | 29504 | 13652 | | |
| 5 | 10011 | 20208 | 19296 | | |
| 6 | 64326 | 13496 | 27948 | | |
| 7 | 40219 | 87592 | 41482 | | |
| 8 | 24419 | 55305 | 63292 | | |
| 9 | 14345 | 33899 | 99264 | | |
| 90 | 81055 | 20199 | 16027 | | |
| 1 | 43685 | 11677 | 26759 | | |
| 2 | 22039 | 65887 | 46199 | | |
| 3 | 10156 | 35317 | 84155 | | |
| 4 | 41504 | 17492 | 16650 | | |
| 5 | 14461 | 77459 | 36979 | | |
| 6 | 40506 | 29115 | 96055 | | |
| 7 | 82944 | 88985 | 31045 | | |
| 8 | 13033 | 18670 | 14304 | | |
| 9 | 00000 | 35150 | 76730 | | |

DIFFERENCE OF AGE Thirteen YEARS.

| x | $N_{x:y}$ | $N_{x:y}^{-2}$ | $D_{x:y}^{-1}$ | Annuities. | |
|-----|-----------|----------------|----------------|---------------------------|--------------------------------------|
| | | | | Joint Lives. $a_{x:y}$ | Rever- sionary. $a_{x:y}^{-2}$ |
| 28 | 10447 | 34261 | 10923 | 11.411 | 3.742 |
| 9 | 96006 | 32056 | 11809 | 11.337 | 3.785 |
| 30 | 88176 | 30026 | 12773 | 11.263 | 3.835 |
| 1 | 80941 | 28125 | 13822 | 11.188 | 3.887 |
| 2 | 74259 | 26313 | 14965 | 11.113 | 3.938 |
| 3 | 68090 | 24570 | 16209 | 11.037 | 3.983 |
| 4 | 62396 | 22900 | 17564 | 10.959 | 4.022 |
| 5 | 57144 | 21304 | 19038 | 10.879 | 4.056 |
| 6 | 52299 | 19787 | 20642 | 10.796 | 4.084 |
| 7 | 47832 | 18350 | 22366 | 10.708 | 4.108 |
| 8 | 43714 | 16995 | 24282 | 10.615 | 4.127 |
| 9 | 39918 | 15721 | 26345 | 10.516 | 4.142 |
| 40 | 36420 | 14528 | 28589 | 10.412 | 4.153 |
| 1 | 33197 | 13413 | 31030 | 10.301 | 4.162 |
| 2 | 30230 | 12374 | 33703 | 10.188 | 4.170 |
| 3 | 27501 | 11402 | 36621 | 10.071 | 4.176 |
| 4 | 24991 | 10496 | 39852 | 9.959 | 4.183 |
| 5 | 22683 | 96526 | 43318 | 9.826 | 4.181 |
| 6 | 20568 | 88658 | 47279 | 9.724 | 4.192 |
| 7 | 18627 | 81331 | 51539 | 9.600 | 4.192 |
| 8 | 16849 | 74552 | 56227 | 9.474 | 4.192 |
| 9 | 15219 | 68338 | 61345 | 9.336 | 4.192 |
| 50 | 13725 | 62689 | 66963 | 9.190 | 4.198 |
| 1 | 12357 | 57602 | 73078 | 9.030 | 4.209 |
| 2 | 11103 | 53056 | 79768 | 8.857 | 4.232 |
| 3 | 99549 | 48965 | 87063 | 8.667 | 4.263 |
| 4 | 89035 | 45249 | 95112 | 8.468 | 4.304 |
| 5 | 79422 | 41853 | 10402 | 8.261 | 4.354 |
| 6 | 70640 | 38718 | 11367 | 8.044 | 4.409 |
| 7 | 62633 | 35807 | 12488 | 7.822 | 4.472 |
| 8 | 55343 | 33077 | 13718 | 7.592 | 4.538 |
| 9 | 48724 | 30499 | 15107 | 7.361 | 4.607 |
| 60 | 42727 | 28050 | 16677 | 7.126 | 4.678 |
| 1 | 37811 | 25712 | 18462 | 6.888 | 4.747 |
| 2 | 32433 | 23475 | 20501 | 6.649 | 4.813 |
| 3 | 28059 | 21338 | 22861 | 6.415 | 4.878 |
| 4 | 24150 | 19299 | 25587 | 6.179 | 4.938 |
| 5 | 20675 | 17363 | 28774 | 5.949 | 4.996 |
| 6 | 17598 | 15535 | 32497 | 5.719 | 5.048 |
| 7 | 14886 | 13818 | 36869 | 5.488 | 5.095 |
| 8 | 12507 | 12209 | 42042 | 5.258 | 5.133 |
| 9 | 10433 | 10707 | 48209 | 5.030 | 5.162 |
| 70 | 86347 | 93119 | 55620 | 4.803 | 5.179 |
| 1 | 70867 | 80269 | 64599 | 4.578 | 5.185 |
| 2 | 57635 | 68548 | 75572 | 4.356 | 5.180 |
| 3 | 46414 | 57943 | 89122 | 4.137 | 5.164 |
| 4 | 36984 | 48438 | 10604 | 3.922 | 5.136 |
| 5 | 29135 | 40006 | 12741 | 3.712 | 5.097 |
| 6 | 22672 | 32617 | 15474 | 3.508 | 5.047 |
| 7 | 17413 | 26220 | 19013 | 3.311 | 4.985 |
| 8 | 13186 | 20766 | 23658 | 3.120 | 4.913 |
| 9 | 98349 | 16183 | 29840 | 2.935 | 4.829 |
| 80 | 72162 | 12399 | 38287 | 2.763 | 4.747 |
| 1 | 52048 | 93266 | 49643 | | |
| 2 | 36813 | 68777 | 65637 | | |
| 3 | 25518 | 49679 | 88535 | | |
| 4 | 17309 | 35076 | 12182 | | |
| 5 | 11471 | 24199 | 17128 | | |
| 6 | 74154 | 16260 | 24657 | | |
| 7 | 46701 | 10638 | 36425 | | |
| 8 | 28561 | 67719 | 55129 | | |
| 9 | 16917 | 41906 | 85881 | | |
| 90 | 96483 | 25205 | 13757 | | |
| 1 | 52531 | 14712 | 22752 | | |
| 2 | 26798 | 83982 | 38830 | | |
| 3 | 12527 | 45640 | 70072 | | |
| 4 | 51927 | 22995 | 13634 | | |
| 5 | 18405 | 10295 | 29831 | | |
| 6 | 52594 | 39681 | 76070 | | |
| 7 | 10951 | 12242 | 24014 | | |
| 8 | 17478 | 26147 | 10866 | | |
| 9 | 00000 | 50517 | 57215 | | |

DIFFERENCE OF AGE Fourteen YEARS.
(Male the elder.)

| x | N _{x·y} | N _{x²·y} | D _{x·y} ⁻¹ | Annuities. | |
|----|------------------|------------------------------|--------------------------------|----------------------------------|--|
| | | | | Joint Lives. a _{x·y} | Rever- sionary. a _{x²·y} |
| 29 | 10164 | 83706 | 11190 | 11·874 | 3·772 |
| 30 | 93874 | 31525 | 12102 | 11·800 | 3·815 |
| 1 | 85737 | 29514 | 13095 | 11·227 | 3·865 |
| 2 | 78683 | 27632 | 14176 | 11·154 | 3·917 |
| 3 | 72170 | 25842 | 15353 | 11·080 | 3·968 |
| 4 | 66158 | 24125 | 16635 | 11·005 | 4·013 |
| 5 | 60612 | 22483 | 18029 | 10·928 | 4·053 |
| 6 | 55495 | 20919 | 19546 | 10·847 | 4·089 |
| 7 | 50777 | 19435 | 21195 | 10·762 | 4·119 |
| 8 | 46427 | 18030 | 22987 | 10·672 | 4·145 |
| 9 | 42417 | 16706 | 24937 | 10·578 | 4·166 |
| 40 | 88721 | 15461 | 27058 | 10·477 | 4·183 |
| 1 | 85316 | 14296 | 29364 | 10·370 | 4·198 |
| 2 | 82178 | 13209 | 31874 | 10·256 | 4·210 |
| 3 | 29290 | 12194 | 34622 | 10·141 | 4·222 |
| 4 | 26633 | 11244 | 37638 | 10·024 | 4·232 |
| 5 | 24191 | 10355 | 40948 | 9·906 | 4·240 |
| 6 | 21945 | 95303 | 44516 | 9·769 | 4·243 |
| 7 | 19887 | 87603 | 48195 | 9·664 | 4·257 |
| 8 | 17999 | 80473 | 52974 | 9·535 | 4·263 |
| 9 | 16268 | 73920 | 57782 | 9·400 | 4·271 |
| 50 | 14682 | 67949 | 63020 | 9·253 | 4·282 |
| 1 | 13227 | 62553 | 68756 | 9·094 | 4·301 |
| 2 | 11894 | 57723 | 74984 | 8·919 | 4·328 |
| 3 | 10671 | 53360 | 81817 | 8·731 | 4·366 |
| 4 | 95515 | 49386 | 89293 | 8·529 | 4·410 |
| 5 | 85265 | 45739 | 97561 | 8·318 | 4·462 |
| 6 | 75898 | 42367 | 10675 | 8·102 | 4·523 |
| 7 | 67347 | 39226 | 11695 | 7·876 | 4·587 |
| 8 | 59558 | 36277 | 12840 | 7·647 | 4·658 |
| 9 | 52478 | 33484 | 14124 | 7·412 | 4·729 |
| 60 | 46061 | 30828 | 15583 | 7·178 | 4·804 |
| 1 | 40261 | 28290 | 17240 | 6·941 | 4·877 |
| 2 | 35034 | 25859 | 19133 | 6·703 | 4·948 |
| 3 | 30340 | 23537 | 21305 | 6·464 | 5·015 |
| 4 | 26144 | 21324 | 23828 | 6·230 | 5·081 |
| 5 | 22386 | 19221 | 26612 | 5·957 | 5·115 |
| 6 | 19073 | 17232 | 30190 | 5·758 | 5·202 |
| 7 | 16151 | 15360 | 34221 | 5·527 | 5·256 |
| 8 | 13586 | 13603 | 38985 | 5·297 | 5·303 |
| 9 | 11347 | 11961 | 44658 | 5·067 | 5·342 |
| 70 | 94039 | 10433 | 51733 | 4·865 | 5·397 |
| 1 | 77291 | 90202 | 59700 | 4·614 | 5·385 |
| 2 | 62956 | 77262 | 69760 | 4·392 | 5·389 |
| 3 | 50784 | 65500 | 82158 | 4·172 | 5·381 |
| 4 | 40539 | 54917 | 97611 | 3·957 | 5·361 |
| 5 | 32000 | 45491 | 11711 | 3·748 | 5·327 |
| 6 | 24956 | 37200 | 14197 | 3·543 | 5·281 |
| 7 | 19213 | 30000 | 17413 | 3·346 | 5·224 |
| 8 | 14589 | 23840 | 21623 | 3·155 | 5·155 |
| 9 | 10914 | 18649 | 27213 | 2·970 | 5·075 |
| 80 | 80355 | 14347 | 34740 | 2·792 | 4·984 |
| 1 | 58152 | 10841 | 45041 | | |
| 2 | 41310 | 80352 | 59375 | | |
| 3 | 28760 | 58334 | 79683 | | |
| 4 | 19603 | 41443 | 10920 | | |
| 5 | 13060 | 28747 | 15284 | | |
| 6 | 84912 | 19457 | 21887 | | |
| 7 | 53794 | 12808 | 32136 | | |
| 8 | 33137 | 82190 | 48409 | | |
| 9 | 19769 | 51283 | 74805 | | |
| 90 | 11367 | 31144 | 11902 | | |
| 1 | 62467 | 18353 | 19529 | | |
| 2 | 32178 | 10579 | 39015 | | |
| 3 | 15199 | 58103 | 58896 | | |
| 4 | 63910 | 29635 | 11353 | | |
| 5 | 22973 | 13501 | 24428 | | |
| 6 | 66782 | 52565 | 61368 | | |
| 7 | 14199 | 16657 | 19018 | | |
| 8 | 23008 | 35913 | 34048 | | |
| 9 | 00000 | 70315 | 43462 | | |

DIFFERENCE OF AGE Fifteen YEARS.
(Male the elder.)

| x | N _{x·y} | N _{x²·y} | D _{x·y} ⁻¹ | Annuities. | |
|----|------------------|------------------------------|--------------------------------|----------------------------------|--|
| | | | | Joint Lives. a _{x·y} | Rever- sionary. a _{x²·y} |
| 30 | 98843 | 33147 | 11467 | 11·334 | 3·801 |
| 1 | 90783 | 30987 | 12407 | 11·263 | 3·845 |
| 2 | 83337 | 28996 | 13430 | 11·192 | 3·894 |
| 3 | 76462 | 27137 | 14544 | 11·121 | 3·947 |
| 4 | 70115 | 25373 | 15756 | 11·047 | 3·998 |
| 5 | 64259 | 23685 | 17075 | 10·972 | 4·044 |
| 6 | 58856 | 22076 | 18510 | 10·894 | 4·086 |
| 7 | 53873 | 20546 | 20069 | 10·812 | 4·123 |
| 8 | 49278 | 19096 | 21764 | 10·725 | 4·156 |
| 9 | 45042 | 17723 | 23607 | 10·633 | 4·184 |
| 40 | 41138 | 16429 | 25612 | 10·536 | 4·208 |
| 1 | 37540 | 15214 | 27792 | 10·433 | 4·228 |
| 2 | 34224 | 14077 | 30163 | 10·323 | 4·246 |
| 3 | 31170 | 13015 | 32744 | 10·206 | 4·262 |
| 4 | 28359 | 12023 | 35571 | 10·088 | 4·277 |
| 5 | 25773 | 11095 | 38647 | 9·960 | 4·288 |
| 6 | 23397 | 10228 | 42081 | 9·846 | 4·304 |
| 7 | 21212 | 94202 | 45756 | 9·706 | 4·310 |
| 8 | 19210 | 86711 | 49948 | 9·595 | 4·331 |
| 9 | 17373 | 79818 | 54439 | 9·458 | 4·345 |
| 50 | 15688 | 73521 | 59360 | 9·312 | 4·364 |
| 1 | 14143 | 67817 | 64708 | 9·152 | 4·388 |
| 2 | 12725 | 62694 | 70550 | 8·977 | 4·423 |
| 3 | 11425 | 58058 | 76910 | 8·787 | 4·465 |
| 4 | 10233 | 53820 | 83910 | 8·587 | 4·516 |
| 5 | 91413 | 49920 | 91593 | 8·373 | 4·572 |
| 6 | 81425 | 46299 | 10012 | 8·152 | 4·635 |
| 7 | 72304 | 42020 | 10964 | 7·927 | 4·607 |
| 8 | 63988 | 39738 | 12024 | 7·694 | 4·778 |
| 9 | 56423 | 36721 | 13220 | 7·459 | 4·855 |
| 60 | 49559 | 33844 | 14568 | 7·220 | 4·930 |
| 1 | 45351 | 31091 | 16109 | 6·983 | 5·008 |
| 2 | 37754 | 28451 | 17867 | 6·746 | 5·083 |
| 3 | 32725 | 25929 | 19883 | 6·507 | 5·155 |
| 4 | 28222 | 23525 | 22206 | 6·267 | 5·224 |
| 5 | 24208 | 21242 | 24916 | 6·032 | 5·293 |
| 6 | 20646 | 19080 | 28071 | 5·796 | 5·356 |
| 7 | 17500 | 17044 | 31791 | 5·563 | 5·418 |
| 8 | 14737 | 15129 | 36185 | 5·333 | 5·474 |
| 9 | 12322 | 13336 | 41411 | 5·103 | 5·523 |
| 70 | 10224 | 11665 | 47676 | 4·874 | 5·561 |
| 1 | 84144 | 10118 | 55248 | 4·649 | 5·590 |
| 2 | 68635 | 86755 | 64476 | 4·425 | 5·594 |
| 3 | 55449 | 73770 | 75840 | 4·205 | 5·595 |
| 4 | 44336 | 62033 | 89984 | 3·990 | 5·582 |
| 5 | 35059 | 51538 | 10779 | 3·779 | 5·555 |
| 6 | 27395 | 42270 | 13049 | 3·575 | 5·516 |
| 7 | 21136 | 34190 | 15977 | 3·377 | 5·463 |
| 8 | 16087 | 27257 | 19803 | 3·186 | 5·398 |
| 9 | 12066 | 21395 | 24872 | 3·001 | 5·321 |
| 80 | 89096 | 16521 | 31682 | 2·823 | 5·234 |
| 1 | 64691 | 12535 | 40975 | | |
| 2 | 46128 | 93333 | 53871 | | |
| 3 | 32255 | 68104 | 72080 | | |
| 4 | 22080 | 48630 | 98283 | | |
| 5 | 14781 | 33946 | 13700 | | |
| 6 | 96607 | 23104 | 19530 | | |
| 7 | 61550 | 15324 | 28517 | | |
| 8 | 38135 | 98966 | 42708 | | |
| 9 | 22912 | 62281 | 65687 | | |
| 90 | 13266 | 33168 | 10367 | | |
| 1 | 73475 | 22744 | 16896 | | |
| 2 | 38187 | 13267 | 28339 | | |
| 3 | 18218 | 72957 | 50076 | | |
| 4 | 77381 | 37634 | 95421 | | |
| 5 | 28218 | 17350 | 20340 | | |
| 6 | 83179 | 68772 | 50252 | | |
| 7 | 17998 | 21982 | 15342 | | |
| 8 | 29745 | 48825 | 66561 | | |
| 9 | 00000 | 96269 | 33610 | | |

DIFFERENCE OF AGE Sixteen YEARS.

(Male the elder.)

| x | N _{x:y} | N _{x:y} ² | D ⁻¹ _{x:y} | Annuities. | |
|----|------------------|-------------------------------|--------------------------------|----------------------------------|---|
| | | | | Joint Lives. a _{x:y} | Rever- sionary. a _{x:y} ² |
| 31 | 96099 | 32585 | 11757 | 11·298 | 3·831 |
| 2 | 88240 | 30446 | 12725 | 11·229 | 3·874 |
| 3 | 80983 | 28479 | 13779 | 11·159 | 3·924 |
| 4 | 74283 | 26648 | 14926 | 11·087 | 3·977 |
| 5 | 68100 | 24914 | 16174 | 11·014 | 4·030 |
| 6 | 62396 | 23259 | 17530 | 10·938 | 4·077 |
| 7 | 57134 | 21685 | 19005 | 10·858 | 4·121 |
| 8 | 52282 | 20190 | 20608 | 10·774 | 4·161 |
| 9 | 47807 | 18772 | 22351 | 10·685 | 4·196 |
| 40 | 43683 | 17431 | 24246 | 10·591 | 4·226 |
| 1 | 39882 | 16167 | 26307 | 10·492 | 4·253 |
| 2 | 36379 | 14982 | 28548 | 10·385 | 4·277 |
| 3 | 33152 | 13872 | 30987 | 10·273 | 4·299 |
| 4 | 30179 | 12834 | 33641 | 10·153 | 4·317 |
| 5 | 27443 | 11864 | 36550 | 10·030 | 4·336 |
| 6 | 24927 | 10956 | 39744 | 9·907 | 4·354 |
| 7 | 22615 | 10107 | 43253 | 9·782 | 4·372 |
| 8 | 20489 | 93215 | 47029 | 9·636 | 4·384 |
| 9 | 18541 | 85972 | 51829 | 9·517 | 4·413 |
| 50 | 16752 | 79348 | 56176 | 9·411 | 4·457 |
| 1 | 15112 | 73333 | 60950 | 9·211 | 4·470 |
| 2 | 13606 | 67918 | 66397 | 9·034 | 4·510 |
| 3 | 12224 | 63000 | 72361 | 8·845 | 4·559 |
| 4 | 10956 | 58497 | 78865 | 8·640 | 4·613 |
| 5 | 97940 | 54339 | 86071 | 8·430 | 4·677 |
| 6 | 87301 | 50466 | 93996 | 8·206 | 4·744 |
| 7 | 77576 | 46838 | 10283 | 7·977 | 4·816 |
| 8 | 68705 | 43414 | 11272 | 7·744 | 4·894 |
| 9 | 60627 | 40160 | 12300 | 7·457 | 4·940 |
| 60 | 53294 | 37052 | 13636 | 7·267 | 5·052 |
| 1 | 46654 | 34069 | 15060 | 7·026 | 5·131 |
| 2 | 40664 | 31206 | 16694 | 6·788 | 5·210 |
| 3 | 35278 | 28467 | 18567 | 6·550 | 5·285 |
| 4 | 30453 | 25855 | 20724 | 6·311 | 5·358 |
| 5 | 26146 | 23375 | 23220 | 6·071 | 5·428 |
| 6 | 22321 | 21029 | 26142 | 5·835 | 5·497 |
| 7 | 18938 | 18816 | 29560 | 5·598 | 5·562 |
| 8 | 15963 | 16732 | 33617 | 5·366 | 5·625 |
| 9 | 13362 | 14778 | 38438 | 5·136 | 5·680 |
| 70 | 11100 | 12954 | 44210 | 4·896 | 5·714 |
| 1 | 91458 | 11262 | 51179 | 4·681 | 5·764 |
| 2 | 74697 | 97041 | 59662 | 4·457 | 5·790 |
| 3 | 60430 | 82768 | 70097 | 4·236 | 5·802 |
| 4 | 48391 | 69810 | 83063 | 4·020 | 5·799 |
| 5 | 38328 | 58170 | 99371 | 3·809 | 5·780 |
| 6 | 30002 | 47851 | 12011 | 3·604 | 5·747 |
| 7 | 23192 | 38819 | 14684 | 3·406 | 5·700 |
| 8 | 17689 | 31039 | 18170 | 3·214 | 5·640 |
| 9 | 13299 | 24441 | 22779 | 3·029 | 5·567 |
| 80 | 98452 | 18937 | 28957 | 2·851 | 5·484 |
| 1 | 71692 | 14422 | 37368 | | |
| 2 | 51287 | 10782 | 49009 | | |
| 3 | 35996 | 79028 | 65398 | | |
| 4 | 24748 | 56714 | 88905 | | |
| 5 | 16638 | 39785 | 12331 | | |
| 6 | 10926 | 27244 | 17507 | | |
| 7 | 69977 | 18163 | 25454 | | |
| 8 | 43599 | 11813 | 37910 | | |
| 9 | 26343 | 74738 | 57951 | | |
| 90 | 15358 | 46117 | 91036 | | |
| 1 | 85636 | 27650 | 14717 | | |
| 2 | 44850 | 16222 | 24516 | | |
| 3 | 21585 | 90644 | 42983 | | |
| 4 | 92589 | 47151 | 81131 | | |
| 5 | 34097 | 21983 | 17096 | | |
| 6 | 10198 | 88159 | 41843 | | |
| 7 | 22379 | 28717 | 12563 | | |
| 8 | 37559 | 64363 | 53697 | | |
| 9 | 00000 | 18066 | 26625 | | |

DIFFERENCE OF AGE Seventeen YEARS.

(Male the elder.)

| x | N _{x:y} | N _{x:y} ² | D ⁻¹ _{x:y} | Annuities. | |
|----|------------------|-------------------------------|--------------------------------|----------------------------------|---|
| | | | | Joint Lives. a _{x:y} | Rever- sionary. a _{x:y} ² |
| 32 | 93403 | 32022 | 12058 | 11·263 | 3·861 |
| 3 | 85744 | 29909 | 13055 | 11·194 | 3·905 |
| 4 | 78672 | 27971 | 14141 | 11·125 | 3·955 |
| 5 | 72145 | 26171 | 15321 | 11·053 | 4·010 |
| 6 | 66122 | 24471 | 16605 | 10·980 | 4·063 |
| 7 | 60567 | 22853 | 18000 | 10·902 | 4·114 |
| 8 | 55443 | 21314 | 19516 | 10·820 | 4·160 |
| 9 | 50718 | 19853 | 21164 | 10·734 | 4·202 |
| 40 | 46361 | 18468 | 22956 | 10·643 | 4·240 |
| 1 | 42346 | 17158 | 24904 | 10·546 | 4·273 |
| 2 | 38645 | 15925 | 27022 | 10·443 | 4·303 |
| 3 | 35236 | 14768 | 29326 | 10·333 | 4·331 |
| 4 | 32094 | 13683 | 31835 | 10·217 | 4·356 |
| 5 | 29202 | 12668 | 34566 | 10·094 | 4·379 |
| 6 | 26539 | 11719 | 37562 | 9·969 | 4·402 |
| 7 | 24091 | 10830 | 40850 | 9·841 | 4·424 |
| 8 | 21842 | 10005 | 44456 | 9·710 | 4·448 |
| 9 | 19773 | 92450 | 48330 | 9·556 | 4·468 |
| 50 | 17876 | 85491 | 52731 | 9·426 | 4·508 |
| 1 | 16135 | 79164 | 57422 | 9·265 | 4·546 |
| 2 | 14536 | 73453 | 62539 | 9·091 | 4·594 |
| 3 | 13067 | 68255 | 68101 | 8·899 | 4·648 |
| 4 | 11720 | 63479 | 74213 | 8·698 | 4·711 |
| 5 | 10484 | 59060 | 80909 | 8·482 | 4·778 |
| 6 | 93519 | 54930 | 88330 | 8·261 | 4·852 |
| 7 | 83160 | 51050 | 96535 | 8·028 | 4·928 |
| 8 | 73701 | 47374 | 10572 | 7·791 | 5·008 |
| 9 | 65085 | 43872 | 11606 | 7·554 | 5·092 |
| 60 | 57254 | 40520 | 12770 | 7·311 | 5·174 |
| 1 | 50160 | 37298 | 14096 | 7·071 | 5·258 |
| 2 | 43753 | 34196 | 15607 | 6·829 | 5·337 |
| 3 | 37981 | 31225 | 17349 | 6·589 | 5·417 |
| 4 | 32821 | 28389 | 19353 | 6·352 | 5·494 |
| 5 | 28207 | 25695 | 21670 | 6·112 | 5·568 |
| 6 | 24102 | 23146 | 24363 | 5·872 | 5·639 |
| 7 | 20470 | 20744 | 27529 | 5·635 | 5·711 |
| 8 | 17270 | 18480 | 31257 | 5·398 | 5·776 |
| 9 | 14470 | 16353 | 35709 | 5·167 | 5·839 |
| 70 | 12033 | 14365 | 41034 | 4·938 | 5·895 |
| 1 | 99258 | 12518 | 47457 | 4·710 | 5·941 |
| 2 | 81164 | 10815 | 55267 | 4·486 | 5·977 |
| 3 | 65746 | 92509 | 64861 | 4·264 | 6·000 |
| 4 | 52721 | 78266 | 76772 | 4·047 | 6·009 |
| 5 | 41819 | 65416 | 91729 | 3·836 | 6·001 |
| 6 | 32788 | 53971 | 11073 | 3·631 | 5·976 |
| 7 | 25390 | 43915 | 13517 | 3·432 | 5·936 |
| 8 | 19402 | 35219 | 16700 | 3·240 | 5·882 |
| 9 | 14617 | 27815 | 20900 | 3·055 | 5·813 |
| 80 | 10846 | 2·620 | 26520 | 2·876 | 5·734 |
| 1 | 79183 | 16521 | 34154 | | |
| 2 | 56809 | 12397 | 44694 | | |
| 3 | 40001 | 91237 | 59495 | | |
| 4 | 27604 | 65773 | 80663 | | |
| 5 | 18638 | 46375 | 11154 | | |
| 6 | 12292 | 31916 | 15757 | | |
| 7 | 79093 | 21412 | 22817 | | |
| 8 | 49582 | 14000 | 33828 | | |
| 9 | 30092 | 89236 | 51440 | | |
| 90 | 17641 | 55383 | 80315 | | |
| 1 | 99029 | 33463 | 12381 | | |
| 2 | 52203 | 19780 | 21356 | | |
| 3 | 25513 | 11149 | 37187 | | |
| 4 | 10953 | 58468 | 69639 | | |
| 5 | 40733 | 27480 | 14536 | | |
| 6 | 12299 | 11143 | 35169 | | |
| 7 | 27398 | 36700 | 10417 | | |
| 8 | 46558 | 83942 | 45993 | | |
| 9 | 00000 | 17099 | 21479 | | |

DIFFERENCE OF AGE Eighteen YEARS.

(Male the elder.)

| x | $N_{x'y}$ | $N_{\frac{x}{2}y}$ | $D_{x'y}^{-1}$ | Annuities. | |
|-----|-----------|--------------------|----------------|---------------------------|--|
| | | | | Joint Lives. $a_{x'y}$ | Rever- sionary. $a_{\frac{x}{2}y}$ |
| 33 | 90757 | 31461 | 12371 | 11·228 | 3·892 |
| 4 | 83293 | 29380 | 13398 | 11·160 | 3·936 |
| 5 | 76404 | 27475 | 14515 | 11·090 | 3·988 |
| 6 | 70046 | 25710 | 15729 | 11·018 | 4·044 |
| 7 | 64181 | 24048 | 17049 | 10·942 | 4·100 |
| 8 | 58770 | 22466 | 18483 | 10·862 | 4·152 |
| 9 | 53781 | 20962 | 20042 | 10·779 | 4·201 |
| 40 | 49180 | 19534 | 21737 | 10·690 | 4·246 |
| 1 | 44939 | 18182 | 23579 | 10·596 | 4·287 |
| 2 | 41030 | 16904 | 25581 | 10·496 | 4·324 |
| 3 | 37428 | 15700 | 27760 | 10·390 | 4·358 |
| 4 | 34109 | 14569 | 30130 | 10·277 | 4·390 |
| 5 | 31052 | 13508 | 32712 | 10·158 | 4·419 |
| 6 | 28237 | 12515 | 35523 | 10·031 | 4·446 |
| 7 | 25647 | 11587 | 38607 | 9·902 | 4·473 |
| 8 | 23265 | 10722 | 41987 | 9·768 | 4·502 |
| 9 | 21076 | 99235 | 45686 | 9·629 | 4·630 |
| 50 | 19063 | 91937 | 49650 | 9·464 | 4·565 |
| 1 | 17215 | 85290 | 54143 | 9·321 | 4·618 |
| 2 | 15518 | 79282 | 58921 | 9·143 | 4·671 |
| 3 | 13959 | 73801 | 64145 | 8·954 | 4·734 |
| 4 | 12527 | 68752 | 69843 | 8·749 | 4·802 |
| 5 | 11213 | 64065 | 76124 | 8·536 | 4·877 |
| 6 | 10009 | 59677 | 83032 | 8·311 | 4·955 |
| 7 | 89067 | 55539 | 90715 | 8·080 | 5·038 |
| 8 | 78992 | 51608 | 99251 | 7·840 | 5·122 |
| 9 | 69805 | 47848 | 10885 | 7·598 | 5·208 |
| 60 | 61452 | 44241 | 11971 | 7·356 | 5·296 |
| 1 | 53876 | 40765 | 13201 | 7·112 | 5·381 |
| 2 | 47031 | 37415 | 14609 | 6·871 | 5·466 |
| 3 | 40866 | 34196 | 16219 | 6·628 | 5·546 |
| 4 | 35336 | 31120 | 18083 | 6·390 | 5·627 |
| 5 | 30394 | 28194 | 20236 | 6·151 | 5·705 |
| 6 | 25996 | 25425 | 22737 | 5·911 | 5·781 |
| 7 | 22098 | 22815 | 25655 | 5·669 | 5·853 |
| 8 | 18663 | 20358 | 29109 | 5·433 | 5·926 |
| 9 | 15651 | 18047 | 33202 | 5·196 | 5·992 |
| 70 | 13028 | 15884 | 38121 | 4·966 | 6·055 |
| 1 | 10757 | 13871 | 44049 | 4·738 | 6·110 |
| 2 | 88062 | 12011 | 51249 | 4·513 | 6·156 |
| 3 | 71418 | 10302 | 60084 | 4·291 | 6·190 |
| 4 | 57342 | 87410 | 71039 | 4·074 | 6·210 |
| 5 | 45546 | 73285 | 84780 | 3·861 | 6·213 |
| 6 | 35763 | 60650 | 10221 | 3·655 | 6·199 |
| 7 | 27738 | 49497 | 12461 | 3·456 | 6·168 |
| 8 | 21232 | 39814 | 15372 | 3·264 | 6·120 |
| 9 | 16026 | 31538 | 19209 | 3·078 | 6·058 |
| 80 | 11917 | 24586 | 24332 | 2·900 | 5·982 |
| 1 | 87197 | 18847 | 31279 | | |
| 2 | 62717 | 14190 | 40850 | | |
| 3 | 44286 | 10482 | 54258 | | |
| 4 | 30659 | 75871 | 73383 | | |
| 5 | 20778 | 53734 | 10120 | | |
| 6 | 13762 | 37167 | 14253 | | |
| 7 | 88923 | 25067 | 20536 | | |
| 8 | 55946 | 16494 | 30324 | | |
| 9 | 34160 | 10568 | 45902 | | |
| 90 | 20133 | 66076 | 71292 | | |
| 1 | 11362 | 40149 | 11401 | | |
| 2 | 60296 | 23907 | 18753 | | |
| 3 | 29424 | 13573 | 32391 | | |
| 4 | 12826 | 71793 | 60250 | | |
| 5 | 48115 | 34018 | 12477 | | |
| 6 | 14673 | 13903 | 29903 | | |
| 7 | 32999 | 46306 | 87913 | | |
| 8 | 56856 | 10720 | 36613 | | |
| 9 | 00000 | 22281 | 17588 | | |

DIFFERENCE OF AGE Nineteen YEARS.

(Male the elder.)

| x | $N_{x'y}$ | $N_{\frac{x}{2}y}$ | $D_{x'y}^{-1}$ | Annuities. | |
|-----|-----------|--------------------|----------------|---------------------------|--|
| | | | | Joint Lives. $a_{x'y}$ | Rever- sionary. $a_{\frac{x}{2}y}$ |
| 34 | 88158 | 30909 | 12696 | 11·193 | 3·924 |
| 5 | 80887 | 28863 | 13753 | 11·124 | 3·970 |
| 6 | 74177 | 26996 | 14900 | 11·052 | 4·022 |
| 7 | 67985 | 25269 | 16151 | 10·980 | 4·081 |
| 8 | 62273 | 23644 | 17507 | 10·902 | 4·139 |
| 9 | 57005 | 22098 | 18982 | 10·821 | 4·195 |
| 40 | 52147 | 20629 | 20584 | 10·734 | 4·246 |
| 1 | 47668 | 19235 | 22326 | 10·642 | 4·294 |
| 2 | 43539 | 17915 | 24220 | 10·545 | 4·339 |
| 3 | 39734 | 16668 | 26280 | 10·442 | 4·380 |
| 4 | 36227 | 15491 | 28520 | 10·332 | 4·418 |
| 5 | 32997 | 14385 | 30960 | 10·216 | 4·454 |
| 6 | 30023 | 13347 | 33617 | 10·093 | 4·487 |
| 7 | 27284 | 12376 | 36512 | 9·962 | 4·519 |
| 8 | 24764 | 11472 | 39682 | 9·827 | 4·552 |
| 9 | 22446 | 10636 | 43148 | 9·685 | 4·589 |
| 50 | 20316 | 98690 | 46934 | 9·535 | 4·632 |
| 1 | 18354 | 91719 | 50979 | 9·357 | 4·676 |
| 2 | 16554 | 85407 | 55556 | 9·197 | 4·745 |
| 3 | 14899 | 79641 | 60434 | 9·004 | 4·813 |
| 4 | 13379 | 74317 | 65786 | 8·802 | 4·889 |
| 5 | 11983 | 69362 | 71642 | 8·585 | 4·969 |
| 6 | 10703 | 64708 | 78121 | 8·361 | 5·055 |
| 7 | 95307 | 60311 | 85274 | 8·127 | 5·143 |
| 8 | 84585 | 56119 | 93267 | 7·889 | 5·234 |
| 9 | 74799 | 52098 | 10219 | 7·644 | 5·324 |
| 60 | 65892 | 48225 | 11228 | 7·398 | 5·415 |
| 1 | 57812 | 44485 | 12375 | 7·154 | 5·505 |
| 2 | 50502 | 40871 | 13680 | 6·909 | 5·591 |
| 3 | 43915 | 37394 | 15181 | 6·667 | 5·677 |
| 4 | 38000 | 34062 | 16906 | 6·424 | 5·759 |
| 5 | 32711 | 30888 | 18908 | 6·185 | 5·840 |
| 6 | 28002 | 27881 | 21232 | 5·945 | 5·920 |
| 7 | 23825 | 25046 | 23943 | 5·704 | 5·997 |
| 8 | 20139 | 22376 | 27128 | 5·463 | 6·070 |
| 9 | 16905 | 19869 | 30921 | 5·227 | 6·144 |
| 70 | 14083 | 17518 | 35446 | 4·992 | 6·209 |
| 1 | 11640 | 15327 | 40923 | 4·763 | 6·272 |
| 2 | 95375 | 13300 | 47568 | 4·537 | 6·327 |
| 3 | 77427 | 11433 | 55715 | 4·314 | 6·370 |
| 4 | 62231 | 97275 | 65807 | 4·095 | 6·401 |
| 5 | 49484 | 81799 | 78450 | 3·882 | 6·417 |
| 6 | 38898 | 67910 | 94471 | 3·675 | 6·416 |
| 7 | 30205 | 55597 | 11502 | 3·474 | 6·395 |
| 8 | 23148 | 44857 | 14171 | 3·280 | 6·357 |
| 9 | 17493 | 35642 | 17682 | 3·093 | 6·302 |
| 80 | 13021 | 27871 | 22363 | 2·912 | 6·233 |
| 1 | 95365 | 21431 | 28699 | | |
| 2 | 69035 | 16189 | 37979 | | |
| 3 | 48870 | 12002 | 49591 | | |
| 4 | 33928 | 87127 | 66923 | | |
| 5 | 23066 | 61962 | 92067 | | |
| 6 | 15333 | 43056 | 12932 | | |
| 7 | 99499 | 29180 | 18576 | | |
| 8 | 62858 | 19296 | 27292 | | |
| 9 | 38555 | 12442 | 41147 | | |
| 90 | 22836 | 78192 | 63616 | | |
| 1 | 12955 | 47857 | 10120 | | |
| 2 | 69104 | 28647 | 16544 | | |
| 3 | 33946 | 16381 | 28443 | | |
| 4 | 14891 | 87257 | 52479 | | |
| 5 | 56270 | 41704 | 10795 | | |
| 6 | 17309 | 17183 | 25667 | | |
| 7 | 39324 | 57661 | 74757 | | |
| 8 | 68282 | 13507 | 30773 | | |
| 9 | 00000 | 28306 | 14645 | | |

DIFFERENCE OF AGE Twenty YEARS.

(Male the elder.)

| x | N _{x'y} | N _{x'y} ² | D ⁻¹ _{x'y} | Annuities. | |
|----|------------------|-------------------------------|--------------------------------|----------------------------------|---|
| | | | | Joint Lives. a _{x'y} | Rever- sionary. a _{x'y} ² |
| 35 | 85609 | 30368 | 13032 | 11·157 | 3·958 |
| 6 | 78526 | 28363 | 14119 | 11·087 | 4·005 |
| 7 | 71991 | 26537 | 15301 | 11·015 | 4·060 |
| 8 | 65961 | 24849 | 16585 | 10·940 | 4·121 |
| 9 | 60399 | 23261 | 17979 | 10·858 | 4·182 |
| 40 | 55270 | 21751 | 19495 | 10·775 | 4·240 |
| 1 | 50540 | 20316 | 21143 | 10·686 | 4·295 |
| 2 | 46180 | 18956 | 22939 | 10·593 | 4·348 |
| 3 | 42161 | 17667 | 24881 | 10·490 | 4·396 |
| 4 | 38457 | 16448 | 26999 | 10·383 | 4·441 |
| 5 | 35045 | 15298 | 29305 | 10·270 | 4·483 |
| 6 | 31902 | 14215 | 31817 | 10·150 | 4·523 |
| 7 | 29007 | 13200 | 34552 | 10·022 | 4·561 |
| 8 | 26343 | 12254 | 37528 | 9·886 | 4·599 |
| 9 | 23891 | 11381 | 40780 | 9·743 | 4·641 |
| 50 | 21635 | 10577 | 44326 | 9·590 | 4·688 |
| 1 | 19559 | 98448 | 48190 | 9·425 | 4·744 |
| 2 | 17648 | 91829 | 52309 | 9·231 | 4·803 |
| 3 | 15893 | 85771 | 56982 | 9·056 | 4·867 |
| 4 | 14279 | 80171 | 61980 | 8·850 | 4·969 |
| 5 | 12797 | 74946 | 67480 | 8·635 | 5·057 |
| 6 | 11437 | 70026 | 73522 | 8·409 | 5·148 |
| 7 | 10191 | 65362 | 80231 | 8·176 | 5·244 |
| 8 | 90503 | 60908 | 87673 | 7·935 | 5·340 |
| 9 | 80089 | 56620 | 96030 | 7·691 | 5·437 |
| 60 | 70602 | 52478 | 10541 | 7·442 | 5·532 |
| 1 | 61986 | 48463 | 11606 | 7·194 | 5·625 |
| 2 | 54189 | 44573 | 12825 | 6·950 | 5·716 |
| 3 | 47155 | 40823 | 14217 | 6·704 | 5·804 |
| 4 | 40836 | 37224 | 15824 | 6·462 | 5·890 |
| 5 | 35179 | 33785 | 17677 | 6·219 | 5·972 |
| 6 | 30138 | 30524 | 19839 | 5·979 | 6·056 |
| 7 | 25666 | 27446 | 22359 | 5·739 | 6·137 |
| 8 | 21716 | 24545 | 25317 | 5·498 | 6·214 |
| 9 | 18245 | 21820 | 28816 | 5·257 | 6·288 |
| 70 | 15216 | 19269 | 33010 | 5·023 | 6·361 |
| 1 | 12588 | 16888 | 38050 | 4·790 | 6·426 |
| 2 | 10325 | 14682 | 44191 | 4·563 | 6·488 |
| 3 | 83914 | 12648 | 51714 | 4·340 | 6·541 |
| 4 | 67527 | 10786 | 61022 | 4·121 | 6·582 |
| 5 | 53766 | 90939 | 72672 | 3·907 | 6·609 |
| 6 | 42327 | 75722 | 87416 | 3·700 | 6·619 |
| 7 | 32921 | 62187 | 10631 | 3·500 | 6·611 |
| 8 | 25276 | 50331 | 13081 | 3·306 | 6·584 |
| 9 | 19141 | 40110 | 16300 | 3·120 | 6·538 |
| 80 | 14284 | 31458 | 20586 | 2·941 | 6·476 |
| 1 | 10492 | 24259 | 26377 | | |
| 2 | 75790 | 18377 | 34325 | | |
| 3 | 53772 | 13664 | 45416 | | |
| 4 | 37423 | 99610 | 61167 | | |
| 5 | 25513 | 71100 | 83962 | | |
| 6 | 17013 | 49609 | 11765 | | |
| 7 | 11080 | 33774 | 16854 | | |
| 8 | 70293 | 22449 | 24688 | | |
| 9 | 43290 | 14547 | 37033 | | |
| 90 | 25754 | 91992 | 57026 | | |
| 1 | 14681 | 56585 | 90306 | | |
| 2 | 78711 | 34109 | 14686 | | |
| 3 | 38861 | 19601 | 25093 | | |
| 4 | 17160 | 10514 | 46082 | | |
| 5 | 65251 | 50603 | 94026 | | |
| 6 | 20219 | 21034 | 22206 | | |
| 7 | 46343 | 71171 | 64167 | | |
| 8 | 81240 | 16805 | 26165 | | |
| 9 | 00000 | 35586 | 12309 | | |

DIFFERENCE OF AGE Twenty-one YEARS.

(Male the elder.)

| x | N _{x'y} | N _{x'y} ² | D ⁻¹ _{x'y} | Annuities. | |
|----|------------------|-------------------------------|--------------------------------|----------------------------------|---|
| | | | | Joint Lives. a _{x'y} | Rever- sionary. a _{x'y} ² |
| 36 | 83106 | 29855 | 13379 | 11·119 | 3·994 |
| 7 | 76208 | 27893 | 14497 | 11·048 | 4·044 |
| 8 | 69844 | 26108 | 15712 | 10·974 | 4·102 |
| 9 | 63972 | 24459 | 17032 | 10·896 | 4·166 |
| 40 | 58557 | 22907 | 18466 | 10·813 | 4·230 |
| 1 | 53563 | 21433 | 20024 | 10·725 | 4·292 |
| 2 | 48959 | 20033 | 21718 | 10·633 | 4·351 |
| 3 | 44714 | 18705 | 23559 | 10·534 | 4·407 |
| 4 | 40802 | 17445 | 25563 | 10·430 | 4·459 |
| 5 | 37197 | 16253 | 27742 | 10·319 | 4·509 |
| 6 | 33877 | 15128 | 30118 | 10·202 | 4·556 |
| 7 | 30819 | 14069 | 32702 | 10·078 | 4·601 |
| 8 | 28003 | 13081 | 35514 | 9·945 | 4·646 |
| 9 | 25410 | 12166 | 38567 | 9·800 | 4·692 |
| 50 | 23023 | 11327 | 41894 | 9·645 | 4·745 |
| 1 | 20826 | 10560 | 45514 | 9·478 | 4·806 |
| 2 | 18804 | 98641 | 49448 | 9·298 | 4·878 |
| 3 | 16940 | 92288 | 53652 | 9·089 | 4·951 |
| 4 | 15229 | 86303 | 58440 | 8·900 | 5·044 |
| 5 | 13656 | 80807 | 63676 | 8·682 | 5·137 |
| 6 | 12212 | 75619 | 69251 | 8·457 | 5·237 |
| 7 | 10888 | 70690 | 75508 | 8·221 | 5·338 |
| 8 | 96752 | 65965 | 82488 | 7·981 | 5·441 |
| 9 | 85675 | 61408 | 90271 | 7·734 | 5·543 |
| 60 | 75579 | 56992 | 99053 | 7·486 | 5·645 |
| 1 | 66402 | 52698 | 10896 | 7·235 | 5·742 |
| 2 | 58088 | 48522 | 12028 | 6·987 | 5·836 |
| 3 | 50585 | 44486 | 13328 | 6·742 | 5·929 |
| 4 | 43837 | 40603 | 14818 | 6·496 | 6·017 |
| 5 | 37793 | 36889 | 16546 | 6·253 | 6·104 |
| 6 | 32401 | 33356 | 18547 | 6·009 | 6·187 |
| 7 | 27614 | 30017 | 20891 | 5·769 | 6·271 |
| 8 | 23385 | 26867 | 23642 | 5·529 | 6·352 |
| 9 | 19666 | 23907 | 26893 | 5·289 | 6·429 |
| 70 | 16416 | 21135 | 30764 | 5·050 | 6·502 |
| 1 | 13594 | 18552 | 35435 | 4·817 | 6·574 |
| 2 | 11160 | 16154 | 41090 | 4·586 | 6·638 |
| 3 | 90785 | 13941 | 48043 | 4·362 | 6·698 |
| 4 | 73130 | 11921 | 56640 | 4·142 | 6·752 |
| 5 | 58290 | 10074 | 67388 | 3·928 | 6·789 |
| 6 | 45941 | 84105 | 80979 | 3·720 | 6·811 |
| 7 | 35776 | 69276 | 98374 | 3·519 | 6·815 |
| 8 | 27505 | 56243 | 12090 | 3·325 | 6·800 |
| 9 | 20859 | 44960 | 15047 | 3·139 | 6·765 |
| 80 | 15589 | 35391 | 18977 | 2·958 | 6·716 |
| 1 | 11471 | 27375 | 24281 | | |
| 2 | 83010 | 20800 | 31548 | | |
| 3 | 59012 | 15512 | 41670 | | |
| 4 | 41161 | 11343 | 56018 | | |
| 5 | 28130 | 81240 | 76739 | | |
| 6 | 18809 | 56892 | 10729 | | |
| 7 | 12288 | 38891 | 15333 | | |
| 8 | 78231 | 25967 | 22399 | | |
| 9 | 48380 | 16912 | 33499 | | |
| 90 | 28896 | 10747 | 51324 | | |
| 1 | 16543 | 66519 | 80952 | | |
| 2 | 89115 | 40285 | 13104 | | |
| 3 | 44221 | 23310 | 22274 | | |
| 4 | 19624 | 12563 | 40655 | | |
| 5 | 75121 | 60887 | 82564 | | |
| 6 | 23421 | 25483 | 19342 | | |
| 7 | 54081 | 86997 | 55515 | | |
| 8 | 95548 | 20725 | 22458 | | |
| 9 | 00000 | 44154 | 10466 | | |

DIFFERENCE OF AGE Twenty-two YEARS.
(Male the elder.)

| x | $N_{x:y}$ | $N_{x:y}^2$ | $D_{x:y}^{-1}$ | Annuities. | |
|-----|-----------|-------------|----------------|---------------------------|-----------------------------------|
| | | | | Joint Lives. $a_{x:y}$ | Rever- sionary. $a_{x:y}^2$ |
| 37 | 80648 | 29347 | 13737 | 11·079 | 4·031 |
| 8 | 73931 | 27429 | 14887 | 11·006 | 4·083 |
| 9 | 67734 | 25684 | 16136 | 10·930 | 4·144 |
| 40 | 62017 | 24073 | 17493 | 10·849 | 4·211 |
| 1 | 56745 | 22558 | 18967 | 10·763 | 4·279 |
| 2 | 51883 | 21119 | 20569 | 10·672 | 4·344 |
| 3 | 47401 | 19752 | 22311 | 10·576 | 4·407 |
| 4 | 43270 | 18454 | 24205 | 10·474 | 4·467 |
| 5 | 39462 | 17223 | 26266 | 10·365 | 4·524 |
| 6 | 35955 | 16057 | 28510 | 10·251 | 4·578 |
| 7 | 32724 | 14955 | 30955 | 10·130 | 4·629 |
| 8 | 29749 | 13925 | 33612 | 9·999 | 4·680 |
| 9 | 27009 | 12969 | 36496 | 9·857 | 4·733 |
| 50 | 24485 | 12091 | 39620 | 9·701 | 4·790 |
| 1 | 22160 | 11289 | 43014 | 9·532 | 4·856 |
| 2 | 20019 | 10560 | 46701 | 9·349 | 4·932 |
| 3 | 18047 | 98928 | 50717 | 9·153 | 5·017 |
| 4 | 16230 | 92757 | 55025 | 8·931 | 5·104 |
| 5 | 14562 | 86983 | 59945 | 8·729 | 5·214 |
| 6 | 13029 | 81525 | 65244 | 8·501 | 5·320 |
| 7 | 11623 | 76326 | 71121 | 8·266 | 5·428 |
| 8 | 10335 | 71332 | 77631 | 8·023 | 5·538 |
| 9 | 91576 | 66500 | 84931 | 7·778 | 5·648 |
| 60 | 80836 | 61806 | 93112 | 7·527 | 5·755 |
| 1 | 71070 | 57227 | 10239 | 7·277 | 5·859 |
| 2 | 62215 | 52761 | 11292 | 7·025 | 5·958 |
| 3 | 54215 | 48428 | 12500 | 6·777 | 6·054 |
| 4 | 47016 | 44250 | 13892 | 6·531 | 6·147 |
| 5 | 40562 | 40244 | 15494 | 6·285 | 6·235 |
| 6 | 34802 | 36427 | 17360 | 6·042 | 6·324 |
| 7 | 29682 | 32810 | 19531 | 5·797 | 6·408 |
| 8 | 25155 | 29394 | 22091 | 5·557 | 6·493 |
| 9 | 21173 | 26179 | 25113 | 5·317 | 6·574 |
| 70 | 17690 | 23168 | 28710 | 5·079 | 6·652 |
| 1 | 14662 | 20361 | 33024 | 4·842 | 6·724 |
| 2 | 12049 | 17760 | 38266 | 4·611 | 6·796 |
| 3 | 98104 | 15354 | 44671 | 4·382 | 6·859 |
| 4 | 79099 | 13145 | 52619 | 4·162 | 6·917 |
| 5 | 63112 | 11132 | 62548 | 3·948 | 6·963 |
| 6 | 49794 | 93156 | 75090 | 3·739 | 6·995 |
| 7 | 38821 | 76946 | 91128 | 3·538 | 7·012 |
| 8 | 29832 | 62667 | 11188 | 3·343 | 7·011 |
| 9 | 22692 | 50264 | 13907 | 3·156 | 6·990 |
| 80 | 16983 | 39670 | 17518 | 2·975 | 6·949 |
| 1 | 12516 | 30780 | 22383 | | |
| 2 | 90723 | 23459 | 29040 | | |
| 3 | 64612 | 17548 | 38298 | | |
| 4 | 45156 | 12870 | 51398 | | |
| 5 | 30928 | 92463 | 70280 | | |
| 6 | 20730 | 64969 | 98062 | | |
| 7 | 13579 | 44576 | 13983 | | |
| 8 | 86712 | 29884 | 20378 | | |
| 9 | 53811 | 19551 | 30393 | | |
| 90 | 32271 | 12487 | 46427 | | |
| 1 | 18546 | 77653 | 72858 | | |
| 2 | 10033 | 47308 | 11747 | | |
| 3 | 50020 | 27495 | 19676 | | |
| 4 | 22310 | 14921 | 36088 | | |
| 5 | 85816 | 72641 | 72841 | | |
| 6 | 26940 | 30618 | 16985 | | |
| 7 | 62597 | 10524 | 48356 | | |
| 8 | 11132 | 25319 | 19431 | | |
| 9 | 00000 | 54366 | 89834 | | |

DIFFERENCE OF AGE Twenty-three YEARS.
(Male the elder.)

| x | $N_{x:y}$ | $N_{x:y}^2$ | $D_{x:y}^{-1}$ | Annuities. | |
|-----|-----------|-------------|----------------|---------------------------|-----------------------------------|
| | | | | Joint Lives. $a_{x:y}$ | Rever- sionary. $a_{x:y}^2$ |
| 38 | 78235 | 28870 | 14106 | 11·036 | 4·072 |
| 9 | 71694 | 26995 | 15288 | 10·961 | 4·127 |
| 40 | 65660 | 25291 | 16572 | 10·881 | 4·191 |
| 1 | 60094 | 23718 | 17967 | 10·797 | 4·261 |
| 2 | 54961 | 22239 | 19483 | 10·708 | 4·333 |
| 3 | 50229 | 20834 | 21130 | 10·613 | 4·402 |
| 4 | 45866 | 19498 | 22922 | 10·513 | 4·469 |
| 5 | 41845 | 18229 | 24871 | 10·407 | 4·554 |
| 6 | 38141 | 17025 | 26993 | 10·295 | 4·596 |
| 7 | 34728 | 15883 | 29304 | 10·177 | 4·654 |
| 8 | 31585 | 14812 | 31817 | 10·049 | 4·713 |
| 9 | 28690 | 13815 | 34542 | 9·910 | 4·771 |
| 50 | 26023 | 12898 | 37493 | 9·757 | 4·836 |
| 1 | 23565 | 12058 | 40680 | 9·586 | 4·905 |
| 2 | 21299 | 11297 | 44136 | 9·401 | 4·986 |
| 3 | 19211 | 10598 | 47900 | 9·202 | 5·076 |
| 4 | 17289 | 99493 | 52016 | 8·993 | 5·175 |
| 5 | 15517 | 93438 | 56762 | 8·808 | 5·304 |
| 6 | 13892 | 87703 | 61518 | 8·546 | 5·395 |
| 7 | 12399 | 82235 | 67006 | 8·308 | 5·510 |
| 8 | 11032 | 76968 | 72591 | 8·008 | 5·587 |
| 9 | 97806 | 71860 | 79932 | 7·818 | 5·744 |
| 60 | 86391 | 66882 | 87605 | 7·568 | 5·849 |
| 1 | 76001 | 62016 | 96253 | 7·315 | 5·969 |
| 2 | 66578 | 57254 | 10612 | 7·065 | 6·076 |
| 3 | 58056 | 52620 | 11755 | 6·813 | 6·175 |
| 4 | 50381 | 48134 | 13029 | 6·564 | 6·271 |
| 5 | 43497 | 43823 | 14526 | 6·318 | 6·366 |
| 6 | 37346 | 39706 | 16257 | 6·071 | 6·455 |
| 7 | 31876 | 35799 | 18281 | 5·827 | 6·544 |
| 8 | 27034 | 32097 | 20652 | 5·583 | 6·629 |
| 9 | 22772 | 28611 | 23465 | 5·343 | 6·714 |
| 70 | 19042 | 25341 | 26810 | 5·105 | 6·794 |
| 1 | 15798 | 22291 | 30819 | 4·869 | 6·870 |
| 2 | 12994 | 19465 | 35662 | 4·634 | 6·942 |
| 3 | 10590 | 16855 | 41601 | 4·406 | 7·012 |
| 4 | 85458 | 14454 | 48926 | 4·181 | 7·072 |
| 5 | 68249 | 12263 | 58108 | 3·966 | 7·126 |
| 6 | 53901 | 10284 | 69697 | 3·757 | 7·168 |
| 7 | 42067 | 85140 | 84502 | 3·555 | 7·195 |
| 8 | 32418 | 69531 | 10364 | 3·360 | 7·206 |
| 9 | 24647 | 55942 | 12869 | 3·172 | 7·199 |
| 80 | 18471 | 44297 | 16191 | 2·991 | 7·172 |
| 1 | 13631 | 34482 | 20662 | | |
| 2 | 98960 | 26362 | 26771 | | |
| 3 | 70595 | 19780 | 35255 | | |
| 4 | 49426 | 14552 | 47239 | | |
| 5 | 33918 | 10485 | 64484 | | |
| 6 | 22783 | 73905 | 89809 | | |
| 7 | 14959 | 50877 | 12781 | | |
| 8 | 95777 | 34233 | 18584 | | |
| 9 | 59611 | 22487 | 27650 | | |
| 90 | 35871 | 14426 | 42123 | | |
| 1 | 20698 | 90155 | 65906 | | |
| 2 | 11239 | 55171 | 10572 | | |
| 3 | 56268 | 32253 | 17817 | | |
| 4 | 25214 | 17577 | 32202 | | |
| 5 | 97482 | 86184 | 64657 | | |
| 6 | 30746 | 36480 | 14984 | | |
| 7 | 71952 | 12629 | 42461 | | |
| 8 | 12866 | 30602 | 16924 | | |
| 9 | 00000 | 66272 | 77722 | | |

DIFFERENCE OF AGE Twenty-four YEARS.

(Male the elder.)

| x | $N_{x:y}$ | $N_{x:y}^2$ | $D_{x:y}^{-1}$ | Annuities. | |
|-----|-----------|-------------|----------------|---------------------------|-----------------------------------|
| | | | | Joint Lives. $a_{x:y}$ | Rever- sionary. $a_{x:y}^2$ |
| 39 | 75863 | 28425 | 14487 | 10·990 | 4·118 |
| 40 | 69494 | 26595 | 15702 | 10·911 | 4·176 |
| 1 | 63619 | 24930 | 17022 | 10·829 | 4·244 |
| 2 | 58201 | 23395 | 18456 | 10·742 | 4·318 |
| 3 | 53205 | 21952 | 20015 | 10·649 | 4·394 |
| 4 | 48599 | 20579 | 21709 | 10·550 | 4·467 |
| 5 | 44353 | 19273 | 23553 | 10·446 | 4·539 |
| 6 | 40440 | 18031 | 25559 | 10·336 | 4·609 |
| 7 | 36836 | 16842 | 27744 | 10·220 | 4·673 |
| 8 | 33516 | 15732 | 30120 | 10·095 | 4·738 |
| 9 | 30457 | 14695 | 32696 | 9·958 | 4·805 |
| 50 | 27639 | 13738 | 35485 | 9·808 | 4·875 |
| 1 | 25042 | 12861 | 38497 | 9·640 | 4·951 |
| 2 | 22646 | 12065 | 41741 | 9·453 | 5·036 |
| 3 | 20437 | 11334 | 45270 | 9·252 | 5·131 |
| 4 | 18401 | 10655 | 49126 | 9·040 | 5·234 |
| 5 | 16527 | 10018 | 53354 | 8·818 | 5·345 |
| 6 | 14801 | 94170 | 57923 | 8·573 | 5·454 |
| 7 | 13218 | 88425 | 63179 | 8·351 | 5·567 |
| 8 | 11766 | 82885 | 68891 | 8·106 | 5·710 |
| 9 | 10438 | 77498 | 75288 | 7·859 | 5·835 |
| 60 | 92253 | 72236 | 82447 | 7·606 | 5·956 |
| 1 | 81211 | 67075 | 90560 | 7·354 | 6·074 |
| 2 | 71186 | 62014 | 99753 | 7·101 | 6·186 |
| 3 | 62118 | 57073 | 11028 | 6·850 | 6·294 |
| 4 | 53942 | 52275 | 12232 | 6·598 | 6·394 |
| 5 | 46602 | 47646 | 13624 | 6·349 | 6·491 |
| 6 | 40041 | 43216 | 15241 | 6·103 | 6·587 |
| 7 | 34200 | 39001 | 17120 | 5·855 | 6·677 |
| 8 | 29027 | 35004 | 19331 | 5·611 | 6·767 |
| 9 | 24468 | 31226 | 21938 | 5·368 | 6·850 |
| 70 | 20476 | 27680 | 25051 | 5·129 | 6·934 |
| 1 | 17002 | 24368 | 28780 | 4·893 | 7·013 |
| 2 | 13997 | 21297 | 33281 | 4·658 | 7·081 |
| 3 | 11418 | 18461 | 38770 | 4·427 | 7·157 |
| 4 | 92229 | 15856 | 45563 | 4·202 | 7·224 |
| 5 | 73721 | 13475 | 54030 | 3·983 | 7·281 |
| 6 | 58277 | 11321 | 64750 | 3·773 | 7·330 |
| 7 | 45528 | 93922 | 78433 | 3·571 | 7·367 |
| 8 | 35122 | 76881 | 96100 | 3·375 | 7·388 |
| 9 | 26733 | 62027 | 11921 | 3·187 | 7·394 |
| 80 | 20058 | 49269 | 14982 | 3·005 | 7·381 |
| 1 | 14822 | 38481 | 19097 | | |
| 2 | 10775 | 29517 | 24713 | | |
| 3 | 76983 | 22217 | 32500 | | |
| 4 | 53987 | 16395 | 43484 | | |
| 5 | 37118 | 11850 | 59266 | | |
| 6 | 24978 | 83772 | 82401 | | |
| 7 | 16434 | 57850 | 11705 | | |
| 8 | 10547 | 39055 | 16985 | | |
| 9 | 65809 | 25748 | 25216 | | |
| 90 | 39714 | 16583 | 38321 | | |
| 1 | 22991 | 10408 | 59796 | | |
| 2 | 12534 | 63993 | 95636 | | |
| 3 | 62983 | 37571 | 16036 | | |
| 4 | 28341 | 20595 | 28867 | | |
| 5 | 11008 | 10139 | 57696 | | |
| 6 | 34900 | 43239 | 13301 | | |
| 7 | 82059 | 15028 | 37461 | | |
| 8 | 14771 | 36698 | 14861 | | |
| 9 | 00000 | 79918 | 67698 | | |

DIFFERENCE OF AGE Twenty-five YEARS.

(Male the elder.)

| x | $N_{x:y}$ | $N_{x:y}^2$ | $D_{x:y}^{-1}$ | Annuities. | |
|-----|-----------|-------------|----------------|---------------------------|-----------------------------------|
| | | | | Joint Lives. $a_{x:y}$ | Rever- sionary. $a_{x:y}^2$ |
| 40 | 73531 | 27985 | 14879 | 10·941 | 4·164 |
| 1 | 67331 | 26198 | 16128 | 10·859 | 4·225 |
| 2 | 61612 | 24574 | 17485 | 10·773 | 4·297 |
| 3 | 56337 | 23075 | 18960 | 10·681 | 4·375 |
| 4 | 51474 | 21664 | 20563 | 10·585 | 4·455 |
| 5 | 46991 | 20321 | 22307 | 10·482 | 4·533 |
| 6 | 42860 | 19044 | 24204 | 10·374 | 4·609 |
| 7 | 39053 | 17829 | 26271 | 10·260 | 4·684 |
| 8 | 35547 | 16681 | 28517 | 10·137 | 4·757 |
| 9 | 32316 | 15608 | 30953 | 10·003 | 4·831 |
| 50 | 29339 | 14612 | 33589 | 9·855 | 4·908 |
| 1 | 26594 | 13698 | 36435 | 9·690 | 4·991 |
| 2 | 24063 | 12865 | 39501 | 9·505 | 5·082 |
| 3 | 21727 | 12101 | 42813 | 9·302 | 5·181 |
| 4 | 19573 | 11391 | 46429 | 9·088 | 5·289 |
| 5 | 17588 | 10724 | 50391 | 8·863 | 5·404 |
| 6 | 15762 | 10092 | 54756 | 8·631 | 5·526 |
| 7 | 14081 | 94898 | 59488 | 8·377 | 5·645 |
| 8 | 12542 | 89077 | 64956 | 8·147 | 5·766 |
| 9 | 11132 | 83410 | 70932 | 7·896 | 5·916 |
| 60 | 98441 | 77861 | 77658 | 7·645 | 6·047 |
| 1 | 86708 | 72406 | 85228 | 7·390 | 6·171 |
| 2 | 76053 | 67038 | 93853 | 7·138 | 6·292 |
| 3 | 66406 | 61787 | 10366 | 6·884 | 6·405 |
| 4 | 57706 | 56672 | 11494 | 6·633 | 6·514 |
| 5 | 49888 | 51721 | 12790 | 6·381 | 6·615 |
| 6 | 42892 | 46965 | 14294 | 6·131 | 6·713 |
| 7 | 36661 | 42430 | 16050 | 5·884 | 6·810 |
| 8 | 31137 | 38117 | 18103 | 5·637 | 6·900 |
| 9 | 26267 | 34037 | 20534 | 5·394 | 6·989 |
| 70 | 21997 | 30195 | 23420 | 5·152 | 7·072 |
| 1 | 18279 | 26603 | 26892 | 4·916 | 7·154 |
| 2 | 15061 | 23268 | 31079 | 4·681 | 7·231 |
| 3 | 12297 | 20187 | 36182 | 4·449 | 7·304 |
| 4 | 99421 | 17356 | 42463 | 4·222 | 7·370 |
| 5 | 79547 | 14773 | 50317 | 4·003 | 7·433 |
| 6 | 62937 | 12432 | 60205 | 3·789 | 7·485 |
| 7 | 49214 | 10333 | 72866 | 3·586 | 7·529 |
| 8 | 38003 | 84758 | 89199 | 3·390 | 7·560 |
| 9 | 28956 | 68541 | 11055 | 3·201 | 7·577 |
| 80 | 21751 | 54595 | 13878 | 3·019 | 7·577 |
| 1 | 16092 | 42775 | 17956 | | |
| 2 | 11714 | 32922 | 22840 | | |
| 3 | 83803 | 24862 | 30000 | | |
| 4 | 58857 | 18405 | 40087 | | |
| 5 | 40527 | 13344 | 54555 | | |
| 6 | 27322 | 94625 | 75733 | | |
| 7 | 18011 | 65538 | 10739 | | |
| 8 | 11582 | 44382 | 15555 | | |
| 9 | 72434 | 29356 | 23047 | | |
| 90 | 43820 | 18974 | 34948 | | |
| 1 | 25437 | 11956 | 54400 | | |
| 2 | 13913 | 73811 | 86771 | | |
| 3 | 70190 | 43536 | 14506 | | |
| 4 | 31699 | 23964 | 25980 | | |
| 5 | 12364 | 11868 | 51719 | | |
| 6 | 39382 | 50805 | 11869 | | |
| 7 | 93091 | 17798 | 33252 | | |
| 8 | 16822 | 43642 | 13111 | | |
| 9 | 00000 | 95688 | 59446 | | |

DIFFERENCE OF AGE Twenty-six YEARS.

(Male the elder.)

| x | N _{x:y} | N _{x-2:y} | D _{x-1} | Annuities. | |
|----|------------------|--------------------|------------------|----------------------------------|--|
| | | | | Joint Lives. a _{x:y} | Rever- sionary. a _{x-2} |
| 41 | 71238 | 27579 | 15283 | 10·887 | 4·215 |
| 2 | 65202 | 25835 | 16567 | 10·802 | 4·280 |
| 3 | 59634 | 24249 | 17962 | 10·711 | 4·356 |
| 4 | 54501 | 22784 | 19479 | 10·616 | 4·438 |
| 5 | 49768 | 21405 | 21129 | 10·515 | 4·523 |
| 6 | 45406 | 20091 | 22924 | 10·409 | 4·606 |
| 7 | 41386 | 18841 | 24878 | 10·296 | 4·687 |
| 8 | 37683 | 17659 | 27002 | 10·175 | 4·768 |
| 9 | 34270 | 16550 | 29306 | 10·043 | 4·850 |
| 50 | 31125 | 15518 | 31798 | 9·897 | 4·934 |
| 1 | 28226 | 14567 | 34489 | 9·735 | 5·024 |
| 2 | 25551 | 13699 | 37386 | 9·553 | 5·122 |
| 3 | 23083 | 12900 | 40515 | 9·352 | 5·226 |
| 4 | 20805 | 12157 | 43909 | 9·135 | 5·338 |
| 5 | 18706 | 11460 | 47624 | 8·909 | 5·458 |
| 6 | 16772 | 10798 | 51713 | 8·673 | 5·584 |
| 7 | 14994 | 10165 | 56233 | 8·432 | 5·716 |
| 8 | 13359 | 95548 | 61161 | 8·170 | 5·844 |
| 9 | 11863 | 89594 | 66881 | 7·934 | 5·992 |
| 60 | 10497 | 83757 | 73164 | 7·680 | 6·028 |
| 1 | 92510 | 78004 | 80277 | 7·426 | 6·262 |
| 2 | 81188 | 72331 | 88328 | 7·171 | 6·389 |
| 3 | 70935 | 66761 | 97532 | 6·918 | 6·511 |
| 4 | 61680 | 61325 | 10805 | 6·665 | 6·626 |
| 5 | 53360 | 56046 | 12019 | 6·413 | 6·736 |
| 6 | 45908 | 50960 | 13419 | 6·160 | 6·838 |
| 7 | 39265 | 46090 | 15052 | 5·910 | 6·937 |
| 8 | 33372 | 41449 | 16971 | 5·664 | 7·034 |
| 9 | 28172 | 37048 | 19229 | 5·417 | 7·124 |
| 70 | 23610 | 32898 | 21922 | 5·176 | 7·212 |
| 1 | 19633 | 29007 | 25141 | 4·936 | 7·293 |
| 2 | 16189 | 25390 | 29039 | 4·701 | 7·373 |
| 3 | 13229 | 22044 | 33788 | 4·470 | 7·448 |
| 4 | 10706 | 18969 | 39629 | 4·243 | 7·517 |
| 5 | 85735 | 16162 | 46892 | 4·020 | 7·579 |
| 6 | 67899 | 13622 | 56068 | 3·807 | 7·638 |
| 7 | 53139 | 11341 | 67752 | 3·600 | 7·684 |
| 8 | 41072 | 93195 | 82868 | 3·404 | 7·723 |
| 9 | 31325 | 75517 | 10260 | 3·214 | 7·748 |
| 80 | 23555 | 60291 | 12869 | 3·031 | 7·759 |
| 1 | 17446 | 47370 | 16369 | | |
| 2 | 12714 | 36574 | 21133 | | |
| 3 | 91080 | 27715 | 27728 | | |
| 4 | 64055 | 20587 | 37003 | | |
| 5 | 44171 | 14974 | 50292 | | |
| 6 | 29827 | 10651 | 69713 | | |
| 7 | 19696 | 74000 | 98703 | | |
| 8 | 12689 | 50260 | 14273 | | |
| 9 | 79516 | 33346 | 21107 | | |
| 90 | 48209 | 21623 | 31941 | | |
| 1 | 28052 | 13672 | 49610 | | |
| 2 | 15384 | 84712 | 78939 | | |
| 3 | 77853 | 50163 | 13161 | | |
| 4 | 35302 | 27737 | 23501 | | |
| 5 | 13819 | 13792 | 46548 | | |
| 6 | 44201 | 59410 | 10639 | | |
| 7 | 10499 | 20884 | 29672 | | |
| 8 | 19067 | 51659 | 11638 | | |
| 9 | 00000 | 11358 | 52446 | | |

DIFFERENCE OF AGE Twenty-seven YEARS.

(Male the elder.)

| x | N _{x:y} | N _{x-2} | D _{x-1} | Annuities. | |
|----|------------------|------------------|------------------|----------------------------------|--|
| | | | | Joint Lives. a _{x:y} | Rever- sionary. a _{x-2} |
| 42 | 68981 | 27198 | 15698 | 10·823 | 4·270 |
| 3 | 63105 | 25495 | 17019 | 10·740 | 4·339 |
| 4 | 57686 | 23945 | 18454 | 10·645 | 4·419 |
| 5 | 52690 | 22513 | 20015 | 10·546 | 4·506 |
| 6 | 48085 | 21163 | 21714 | 10·441 | 4·595 |
| 7 | 43841 | 19878 | 23562 | 10·330 | 4·684 |
| 8 | 39930 | 18661 | 25571 | 10·211 | 4·772 |
| 9 | 36326 | 17518 | 27749 | 10·080 | 4·861 |
| 50 | 33005 | 16453 | 30105 | 9·936 | 4·953 |
| 1 | 29942 | 15467 | 32649 | 9·776 | 5·050 |
| 2 | 27116 | 14564 | 35488 | 9·623 | 5·168 |
| 3 | 24508 | 13731 | 38346 | 9·398 | 5·265 |
| 4 | 22101 | 12955 | 41552 | 9·183 | 5·383 |
| 5 | 19881 | 12226 | 45039 | 8·954 | 5·506 |
| 6 | 17835 | 11534 | 48874 | 8·717 | 5·637 |
| 7 | 15952 | 10871 | 53110 | 8·462 | 5·774 |
| 8 | 14223 | 10229 | 57815 | 8·193 | 5·914 |
| 9 | 12635 | 96051 | 62973 | 7·957 | 6·049 |
| 60 | 11185 | 89917 | 68985 | 7·716 | 6·203 |
| 1 | 98628 | 83866 | 75633 | 7·460 | 6·343 |
| 2 | 86608 | 77883 | 83197 | 7·206 | 6·480 |
| 3 | 75714 | 71996 | 91790 | 6·950 | 6·609 |
| 4 | 65877 | 66230 | 10166 | 6·697 | 6·733 |
| 5 | 57026 | 60620 | 11298 | 6·443 | 6·849 |
| 6 | 49096 | 55196 | 12610 | 6·191 | 6·960 |
| 7 | 42020 | 49989 | 14131 | 5·938 | 7·064 |
| 8 | 35737 | 45006 | 15916 | 5·688 | 7·163 |
| 9 | 30189 | 40270 | 18027 | 5·442 | 7·259 |
| 70 | 25318 | 35793 | 20528 | 5·197 | 7·348 |
| 1 | 21069 | 31590 | 23532 | 4·958 | 7·434 |
| 2 | 17385 | 27672 | 27149 | 4·720 | 7·513 |
| 3 | 14218 | 24043 | 31571 | 4·489 | 7·591 |
| 4 | 11516 | 20703 | 37006 | 4·262 | 7·661 |
| 5 | 92305 | 17654 | 43762 | 4·039 | 7·726 |
| 6 | 73167 | 14894 | 52252 | 3·823 | 7·782 |
| 7 | 57318 | 12419 | 63095 | 3·616 | 7·836 |
| 8 | 44340 | 10222 | 77051 | 3·416 | 7·876 |
| 9 | 33849 | 82984 | 95246 | 3·224 | 7·904 |
| 80 | 25477 | 66386 | 11945 | 3·043 | 7·930 |
| 1 | 18889 | 52280 | 15179 | | |
| 2 | 13782 | 40479 | 19578 | | |
| 3 | 98841 | 30772 | 25657 | | |
| 4 | 69602 | 22937 | 34201 | | |
| 5 | 48062 | 16740 | 46425 | | |
| 6 | 32501 | 11946 | 64266 | | |
| 7 | 21495 | 83261 | 90859 | | |
| 8 | 13872 | 56725 | 13118 | | |
| 9 | 87084 | 37745 | 19366 | | |
| 90 | 52900 | 24549 | 29253 | | |
| 1 | 30846 | 15571 | 45343 | | |
| 2 | 16955 | 96795 | 71990 | | |
| 3 | 86028 | 57519 | 11973 | | |
| 4 | 39130 | 31927 | 21323 | | |
| 5 | 15381 | 15949 | 42107 | | |
| 6 | 49373 | 68967 | 95756 | | |
| 7 | 11777 | 24405 | 26598 | | |
| 8 | 21481 | 60587 | 10385 | | |
| 9 | 00000 | 13434 | 46553 | | |

DIFFERENCE OF AGE Twenty-eight YEARS.

(Male the elder.)

| x | $N_{x:y}$ | $N_{x:y}^2$ | $D_{x:y}^{-1}$ | Annuities. | |
|-----|-----------|-------------|----------------|---------------------------|-----------------------------------|
| | | | | Joint Lives. $a_{x:y}$ | Rever- sionary. $a_{x:y}^2$ |
| 43 | 66759 | 26841 | 16127 | 10.766 | 4.329 |
| 4 | 61039 | 25176 | 17485 | 10.673 | 4.402 |
| 5 | 55766 | 23661 | 18962 | 10.574 | 4.487 |
| 6 | 50904 | 22260 | 20569 | 10.470 | 4.579 |
| 7 | 46423 | 20939 | 22318 | 10.361 | 4.673 |
| 8 | 42294 | 19688 | 24218 | 10.243 | 4.768 |
| 9 | 38489 | 18512 | 26278 | 10.115 | 4.865 |
| 50 | 34981 | 17414 | 28506 | 9.972 | 4.964 |
| 1 | 31746 | 16396 | 30912 | 9.813 | 5.068 |
| 2 | 28761 | 15460 | 33501 | 9.635 | 5.179 |
| 3 | 26006 | 14593 | 36296 | 9.439 | 5.297 |
| 4 | 23463 | 13784 | 39327 | 9.227 | 5.421 |
| 5 | 21117 | 13022 | 42623 | 9.000 | 5.550 |
| 6 | 18953 | 12299 | 46221 | 8.760 | 5.685 |
| 7 | 16961 | 11606 | 50193 | 8.513 | 5.825 |
| 8 | 15130 | 10934 | 54607 | 8.262 | 5.971 |
| 9 | 13450 | 10277 | 59528 | 8.007 | 6.118 |
| 60 | 11910 | 96343 | 64955 | 7.736 | 6.258 |
| 1 | 10508 | 89985 | 71313 | 7.494 | 6.417 |
| 2 | 92322 | 83691 | 78383 | 7.236 | 6.560 |
| 3 | 80756 | 77483 | 86453 | 6.982 | 6.699 |
| 4 | 70304 | 71388 | 95674 | 6.726 | 6.830 |
| 5 | 60896 | 65439 | 10630 | 6.473 | 6.956 |
| 6 | 52460 | 59675 | 11854 | 6.217 | 7.074 |
| 7 | 44930 | 54122 | 13280 | 5.967 | 7.187 |
| 8 | 38238 | 48793 | 14943 | 5.714 | 7.291 |
| 9 | 32323 | 43708 | 16907 | 5.465 | 7.390 |
| 70 | 27127 | 38890 | 19245 | 5.221 | 7.484 |
| 1 | 22589 | 34356 | 22037 | 4.978 | 7.571 |
| 2 | 18654 | 30124 | 25412 | 4.740 | 7.655 |
| 3 | 15266 | 26192 | 29515 | 4.506 | 7.731 |
| 4 | 12374 | 22570 | 34578 | 4.279 | 7.804 |
| 5 | 99269 | 19259 | 40866 | 4.057 | 7.870 |
| 6 | 78762 | 16260 | 48764 | 3.841 | 7.929 |
| 7 | 61755 | 13571 | 58801 | 3.631 | 7.980 |
| 8 | 47819 | 11187 | 71756 | 3.431 | 8.027 |
| 9 | 36536 | 90968 | 88628 | 3.238 | 8.062 |
| 80 | 27525 | 72909 | 11097 | 3.054 | 8.091 |
| 1 | 20427 | 57532 | 14089 | | |
| 2 | 14919 | 44648 | 18155 | | |
| 3 | 10712 | 34038 | 23768 | | |
| 4 | 75518 | 25454 | 31647 | | |
| 5 | 52213 | 18642 | 42907 | | |
| 6 | 35356 | 13350 | 59324 | | |
| 7 | 23417 | 93347 | 83758 | | |
| 8 | 15135 | 63800 | 12075 | | |
| 9 | 95172 | 42584 | 17799 | | |
| 90 | 57914 | 27776 | 26840 | | |
| 1 | 33833 | 17669 | 41527 | | |
| 2 | 18635 | 11016 | 65797 | | |
| 3 | 94764 | 65666 | 10919 | | |
| 4 | 43213 | 36573 | 19398 | | |
| 5 | 17037 | 18339 | 38203 | | |
| 6 | 54922 | 79670 | 86619 | | |
| 7 | 13149 | 28295 | 23939 | | |
| 8 | 24073 | 70754 | 93094 | | |
| 9 | 00000 | 15718 | 41540 | | |

DIFFERENCE OF AGE Twenty-nine YEARS.

(Male the elder.)

| x | $N_{x:y}$ | $N_{x:y}^2$ | $D_{x:y}^{-1}$ | Annuities. | |
|-----|-----------|-------------|----------------|---------------------------|-----------------------------------|
| | | | | Joint Lives. $a_{x:y}$ | Rever- sionary. $a_{x:y}^2$ |
| 44 | 64568 | 26504 | 16569 | 10.698 | 4.391 |
| 5 | 59002 | 24877 | 17966 | 10.600 | 4.469 |
| 6 | 53870 | 23395 | 19470 | 10.488 | 4.555 |
| 7 | 49140 | 22024 | 21142 | 10.389 | 4.656 |
| 8 | 44781 | 20739 | 22939 | 10.272 | 4.757 |
| 9 | 40763 | 19530 | 24888 | 10.145 | 4.861 |
| 50 | 37059 | 18399 | 26996 | 9.904 | 4.967 |
| 1 | 33642 | 17350 | 29270 | 9.847 | 5.078 |
| 2 | 30490 | 16384 | 31718 | 9.671 | 5.197 |
| 3 | 27579 | 15486 | 34361 | 9.476 | 5.321 |
| 4 | 24893 | 14644 | 37226 | 9.267 | 5.451 |
| 5 | 22414 | 13849 | 40340 | 9.042 | 5.587 |
| 6 | 20128 | 13093 | 43741 | 8.804 | 5.727 |
| 7 | 18021 | 12368 | 47470 | 8.555 | 5.871 |
| 8 | 16083 | 11666 | 51606 | 8.300 | 6.020 |
| 9 | 14305 | 10979 | 56221 | 8.042 | 6.173 |
| 60 | 12676 | 10303 | 61402 | 7.783 | 6.326 |
| 1 | 11187 | 96359 | 67146 | 7.512 | 6.470 |
| 2 | 98333 | 89747 | 73905 | 7.268 | 6.633 |
| 3 | 86071 | 83216 | 81456 | 7.011 | 6.778 |
| 4 | 74975 | 76788 | 90116 | 6.756 | 6.920 |
| 5 | 64979 | 70500 | 10004 | 6.500 | 7.053 |
| 6 | 56013 | 64386 | 11153 | 6.247 | 7.181 |
| 7 | 48002 | 58486 | 12483 | 5.992 | 7.301 |
| 8 | 40880 | 52804 | 14042 | 5.740 | 7.415 |
| 9 | 34580 | 47366 | 15873 | 5.489 | 7.518 |
| 70 | 29040 | 42194 | 18050 | 5.242 | 7.616 |
| 1 | 24199 | 37315 | 20659 | 4.999 | 7.709 |
| 2 | 19997 | 32749 | 23797 | 4.759 | 7.793 |
| 3 | 16377 | 28503 | 27627 | 4.524 | 7.875 |
| 4 | 13284 | 24579 | 32327 | 4.294 | 7.946 |
| 5 | 10665 | 20987 | 38185 | 4.072 | 8.014 |
| 6 | 84689 | 17731 | 45337 | 3.856 | 8.074 |
| 7 | 66467 | 14809 | 54877 | 3.648 | 8.127 |
| 8 | 51513 | 12219 | 66872 | 3.445 | 8.171 |
| 9 | 39397 | 99510 | 82537 | 3.252 | 8.213 |
| 80 | 29705 | 79883 | 10318 | 3.065 | 8.242 |
| 1 | 22065 | 63152 | 13089 | | |
| 2 | 16131 | 49108 | 16851 | | |
| 3 | 11594 | 37524 | 22040 | | |
| 4 | 81826 | 28140 | 29316 | | |
| 5 | 56640 | 20677 | 39704 | | |
| 6 | 38401 | 14859 | 54830 | | |
| 7 | 25468 | 10427 | 77317 | | |
| 8 | 16484 | 71496 | 11131 | | |
| 9 | 10381 | 47873 | 16385 | | |
| 90 | 63271 | 31321 | 24668 | | |
| 1 | 37026 | 19980 | 38101 | | |
| 2 | 20431 | 12492 | 60259 | | |
| 3 | 10410 | 74676 | 99798 | | |
| 4 | 47577 | 41718 | 17690 | | |
| 5 | 18804 | 20989 | 34755 | | |
| 6 | 60800 | 91533 | 78589 | | |
| 7 | 14621 | 32666 | 21655 | | |
| 8 | 26854 | 82007 | 83786 | | |
| 9 | 00000 | 18346 | 37238 | | |

DIFFERENCE OF AGE Thirty YEARS.

(Male the elder.)

| x | $N_{x:y}$ | $N_{x:y}^2$ | $D_{x:y}^{-1}$ | Annuities. | |
|-----|-----------|-------------|----------------|---------------------------|-----------------------------------|
| | | | | Joint Lives. $a_{x:y}$ | Rever- sionary. $a_{x:y}^2$ |
| 45 | 62411 | 26190 | 17025 | 10.625 | 4.459 |
| 6 | 56995 | 24598 | 18464 | 10.524 | 4.542 |
| 7 | 52002 | 23147 | 20029 | 10.415 | 4.636 |
| 8 | 47400 | 21813 | 21730 | 10.300 | 4.740 |
| 9 | 43158 | 20571 | 23574 | 10.174 | 4.849 |
| 50 | 39247 | 19409 | 25567 | 10.034 | 4.962 |
| 1 | 35639 | 18329 | 27718 | 9.878 | 5.080 |
| 2 | 32310 | 17333 | 30034 | 9.704 | 5.206 |
| 3 | 29236 | 16405 | 32533 | 9.511 | 5.337 |
| 4 | 26398 | 15533 | 35240 | 9.303 | 5.474 |
| 5 | 23779 | 14707 | 38184 | 9.080 | 5.616 |
| 6 | 21364 | 13918 | 41398 | 8.844 | 5.762 |
| 7 | 19138 | 13160 | 44922 | 8.597 | 5.912 |
| 8 | 17089 | 12426 | 48805 | 8.340 | 6.065 |
| 9 | 15207 | 11707 | 53135 | 8.080 | 6.221 |
| 60 | 13482 | 10999 | 57991 | 7.818 | 6.378 |
| 1 | 11907 | 10299 | 63473 | 7.558 | 6.537 |
| 2 | 10470 | 96053 | 69587 | 7.286 | 6.684 |
| 3 | 91676 | 89191 | 76803 | 7.041 | 6.850 |
| 4 | 79898 | 82430 | 84903 | 6.784 | 6.999 |
| 5 | 69285 | 75798 | 94229 | 6.529 | 7.142 |
| 6 | 59758 | 69336 | 10496 | 6.272 | 7.278 |
| 7 | 51244 | 63077 | 11745 | 6.019 | 7.408 |
| 8 | 43668 | 57039 | 13200 | 5.764 | 7.529 |
| 9 | 36964 | 51240 | 14916 | 5.514 | 7.643 |
| 70 | 31062 | 45708 | 16945 | 5.263 | 7.745 |
| 1 | 25901 | 40470 | 19376 | 5.019 | 7.841 |
| 2 | 21419 | 35557 | 22309 | 4.778 | 7.932 |
| 3 | 17553 | 30976 | 25871 | 4.541 | 8.014 |
| 4 | 14248 | 26738 | 30258 | 4.311 | 8.090 |
| 5 | 11447 | 22847 | 35699 | 4.086 | 8.156 |
| 6 | 90971 | 19315 | 42549 | 3.871 | 8.218 |
| 7 | 71457 | 16142 | 51245 | 3.662 | 8.272 |
| 8 | 55433 | 13328 | 62409 | 3.460 | 8.318 |
| 9 | 42433 | 10864 | 76920 | 3.264 | 8.357 |
| 80 | 82026 | 87342 | 96093 | 3.077 | 8.393 |
| 1 | 23810 | 69158 | 12170 | | |
| 2 | 17422 | 53877 | 15655 | | |
| 3 | 12533 | 41250 | 20457 | | |
| 4 | 88548 | 31005 | 27184 | | |
| 5 | 61359 | 22847 | 36779 | | |
| 6 | 41649 | 16473 | 50736 | | |
| 7 | 27656 | 11601 | 71461 | | |
| 8 | 17924 | 79828 | 10275 | | |
| 9 | 11303 | 53628 | 15104 | | |
| 90 | 68994 | 35198 | 22708 | | |
| 1 | 40437 | 22521 | 35018 | | |
| 2 | 22350 | 14118 | 55289 | | |
| 3 | 11409 | 84623 | 91398 | | |
| 4 | 52244 | 47406 | 16169 | | |
| 5 | 20694 | 23923 | 31696 | | |
| 6 | 67075 | 10467 | 71496 | | |
| 7 | 16178 | 37493 | 19647 | | |
| 8 | 29838 | 94614 | 75792 | | |
| 9 | 00000 | 21220 | 33515 | | |

ANNUITIES. DAUGHTERS, UNMARRIED. 4½ PER CENT.

| | D_u | N_u | D_u^{-1} | a_u | | D_u | N_u | D_u^{-1} | a_u |
|----|----------|----------|------------|--------|-----|-------|--------|------------|-------|
| 0 | 1.000000 | 10924892 | 1.000000 | 10.925 | 60 | 53103 | 495549 | 18831 | 9.332 |
| 1 | 828029 | 10098863 | 12077 | 12.194 | 1 | 49350 | 446199 | 20263 | 9.041 |
| 2 | 743307 | 9353556 | 18453 | 12.583 | 2 | 45762 | 400437 | 21852 | 8.750 |
| 3 | 686131 | 8667425 | 14574 | 12.632 | 3 | 42349 | 358088 | 23613 | 8.456 |
| 4 | 640711 | 8026714 | 15608 | 12.528 | 4 | 39084 | 319004 | 25586 | 8.162 |
| 5 | 602280 | 7424434 | 16604 | 12.328 | 5 | 35971 | 283033 | 27800 | 7.868 |
| 6 | 568696 | 6855738 | 17584 | 12.055 | 6 | 33010 | 250023 | 30294 | 7.574 |
| 7 | 538460 | 6317278 | 18571 | 11.732 | 7 | 30184 | 219839 | 33130 | 7.283 |
| 8 | 510597 | 5806681 | 19585 | 11.372 | 8 | 27501 | 192338 | 36362 | 6.994 |
| 9 | 484855 | 5321826 | 20625 | 10.976 | 9 | 24954 | 167384 | 40074 | 6.708 |
| 10 | 460904 | 4860922 | 21696 | 10.546 | 70 | 22544 | 144840 | 44358 | 6.425 |
| 1 | 438475 | 4422447 | 22806 | 10.086 | 1 | 20264 | 124576 | 49349 | 6.148 |
| 2 | 417346 | 4005101 | 23961 | 9.597 | 2 | 18122 | 106454 | 55182 | 5.874 |
| 3 | 397332 | 3607769 | 25168 | 9.080 | 3 | 16111 | 90343 | 62069 | 5.607 |
| 4 | 378294 | 3229475 | 26434 | 8.537 | 4 | 14235 | 76108 | 70249 | 5.347 |
| 5 | 360113 | 2869362 | 27769 | 7.968 | 5 | 12491 | 63617 | 80058 | 5.098 |
| 6 | 343674 | 2532688 | 29702 | 7.523 | 6 | 10882 | 52735 | 91895 | 4.846 |
| 7 | 308718 | 2228970 | 32925 | 7.339 | 7 | 9405 | 43330 | 10638 | 4.607 |
| 8 | 266967 | 1962003 | 37458 | 7.849 | 8 | 8060 | 35270 | 12407 | 4.376 |
| 9 | 230625 | 1731378 | 43360 | 7.507 | 9 | 6845 | 28425 | 14609 | 4.153 |
| 20 | 197241 | 1534137 | 50699 | 7.778 | 80 | 5758 | 22667 | 17367 | 3.938 |
| 1 | 167996 | 1366141 | 59527 | 8.132 | 1 | 4792 | 17875 | 20868 | 3.730 |
| 2 | 143664 | 1222477 | 69607 | 8.509 | 2 | 3944 | 13931 | 25355 | 3.532 |
| 3 | 123466 | 1099011 | 80994 | 8.901 | 3 | 3209 | 10722 | 31162 | 3.341 |
| 4 | 106707 | 992304 | 93715 | 9.299 | 4 | 2578 | 8144 | 38790 | 3.159 |
| 5 | 92782 | 899522 | 10778 | 9.695 | 5 | 2045 | 6099 | 48900 | 2.982 |
| 6 | 81183 | 818339 | 12318 | 10.080 | 6 | 1598 | 4501 | 62578 | 2.817 |
| 7 | 71511 | 746828 | 13984 | 10.444 | 7 | 1229 | 32721 | 81867 | 2.662 |
| 8 | 63387 | 683441 | 15776 | 10.771 | 8 | 9333 | 23389 | 10715 | 2.506 |
| 9 | 56512 | 626929 | 17696 | 11.094 | 9 | 6962 | 16426 | 14364 | 2.359 |
| 30 | 50653 | 576276 | 19742 | 11.377 | 90 | 5101 | 11325 | 19604 | 2.220 |
| 1 | 45623 | 530653 | 21919 | 11.631 | 1 | 8661 | 7664 | 27815 | 2.093 |
| 2 | 41289 | 489364 | 24220 | 11.852 | 2 | 2580 | 5084 | 38760 | 1.971 |
| 3 | 37522 | 451842 | 26651 | 12.042 | 3 | 1785 | 3299 | 56022 | 1.848 |
| 4 | 34214 | 417628 | 29228 | 12.206 | 4 | 1213 | 2086 | 82440 | 1.720 |
| 5 | 31292 | 386336 | 31957 | 12.346 | 5 | 794 | 1292 | 12594 | 1.627 |
| 6 | 28692 | 357644 | 34853 | 12.465 | 6 | 512 | 780 | 19581 | 1.523 |
| 7 | 26363 | 331281 | 37932 | 12.566 | 7 | 322 | 458 | 31056 | 1.422 |
| 8 | 24270 | 307011 | 41203 | 12.650 | 8 | 201 | 257 | 49751 | 1.279 |
| 9 | 22385 | 284626 | 44673 | 12.715 | 9 | 115 | 1418 | 66957 | 1.233 |
| 40 | 20683 | 263943 | 48349 | 12.761 | 100 | 735 | 683 | 13605 | 0.929 |
| 1 | 19144 | 244799 | 52236 | 12.787 | 1 | 852 | 331 | 28409 | |
| 2 | 17744 | 227055 | 56357 | 12.796 | 2 | 224 | 107 | 44643 | |
| 3 | 16470 | 210585 | 60716 | 12.786 | 3 | 107 | | | |
| 4 | 15313 | 195272 | 65304 | 12.752 | | | | | |
| 5 | 14257 | 181015 | 70141 | 12.697 | | | | | |
| 6 | 13293 | 167722 | 75228 | 12.617 | | | | | |
| 7 | 12411 | 155311 | 80574 | 12.514 | | | | | |
| 8 | 11600 | 143711 | 86207 | 12.389 | | | | | |
| 9 | 10854 | 132857 | 92132 | 12.240 | | | | | |
| 50 | 10163 | 1226937 | 98396 | 12.073 | | | | | |
| 1 | 95687 | 1131250 | 10451 | 11.823 | | | | | |
| 2 | 90036 | 1041214 | 11107 | 11.565 | | | | | |
| 3 | 84684 | 956530 | 11809 | 11.296 | | | | | |
| 4 | 79608 | 876922 | 12562 | 11.016 | | | | | |
| 5 | 74678 | 802244 | 13391 | 10.743 | | | | | |
| 6 | 69966 | 732278 | 14293 | 10.466 | | | | | |
| 7 | 65456 | 666822 | 15277 | 10.187 | | | | | |
| 8 | 61143 | 605679 | 16355 | 9.906 | | | | | |
| 9 | 57027 | 548652 | 17536 | 9.621 | | | | | |

ANNUITIES. FATHERS AND DAUGHTERS. DIFF. 34. 4½ PER CENT.

| Ages. | | $\frac{x+u}{2}$ | l_x | l_{x+u} | D_{x+u} | N_{x+u} | D_{x+u}^{-1} | a_{x+u} | u |
|-------|-----|-----------------|-------|-----------|-----------|-----------|----------------|-----------|-----|
| x | u | | | | | | | | |
| 84 | 0 | 17 | 67780 | 677800 | 3207190 | 26283192 | 31180 | 8.195 | 0 |
| 5 | 1 | 18 | 66031 | 571360 | 2587120 | 23696072 | 38653 | 9.159 | 1 |
| 6 | 2 | 19 | 64317 | 522068 | 2262130 | 21433942 | 44206 | 9.475 | 2 |
| 7 | 3 | 20 | 62640 | 490465 | 2033678 | 19400264 | 49172 | 9.539 | 3 |
| 8 | 4 | 21 | 61001 | 466084 | 1849363 | 17550901 | 54073 | 9.490 | 4 |
| 9 | 5 | 22 | 59399 | 445819 | 1692779 | 15858122 | 59074 | 9.368 | 5 |
| 40 | 6 | 23 | 57834 | 428313 | 1556726 | 14301396 | 64237 | 9.187 | 6 |
| 1 | 7 | 24 | 56306 | 412593 | 1434600 | 12866796 | 69706 | 8.969 | 7 |
| 2 | 8 | 25 | 54815 | 398023 | 1324344 | 11542452 | 75509 | 8.716 | 8 |
| 3 | 9 | 26 | 53359 | 384473 | 1224172 | 10318280 | 81688 | 8.429 | 9 |
| 4 | 10 | 27 | 51936 | 371742 | 1132666 | 9185614 | 88287 | 8.110 | 10 |
| 5 | 1 | 28 | 50545 | 359668 | 1048686 | 8136928 | 95357 | 7.759 | 1 |
| 6 | 2 | 29 | 49184 | 348110 | 971279 | 7165649 | 10296 | 7.378 | 2 |
| 7 | 3 | 30 | 47852 | 336950 | 899657 | 6265992 | 11117 | 6.966 | 3 |
| 8 | 4 | 31 | 46556 | 326162 | 833352 | 5432640 | 12000 | 6.519 | 4 |
| 9 | 5 | 32 | 45303 | 315726 | 771950 | 4660690 | 12954 | 6.037 | 5 |
| 50 | 16 | 33 | 44099 | 300261 | 702524 | 3958166 | 14234 | 5.634 | 6 |
| 1 | 7 | 34 | 42949 | 275677 | 617229 | 3340937 | 16201 | 5.413 | 7 |
| 2 | 8 | 35 | 41857 | 246785 | 528748 | 2812189 | 18913 | 5.319 | 8 |
| 3 | 9 | 36 | 40809 | 217206 | 445333 | 2366856 | 22455 | 5.315 | 9 |
| 4 | 20 | 37 | 39791 | 189282 | 371370 | 1995486 | 26927 | 5.373 | 20 |
| 5 | 1 | 38 | 38792 | 164241 | 308363 | 1687123 | 32429 | 5.471 | 1 |
| 6 | 2 | 39 | 37800 | 143020 | 256958 | 1430165 | 38917 | 5.566 | 2 |
| 7 | 3 | 40 | 36806 | 125067 | 215026 | 1215139 | 46506 | 5.651 | 3 |
| 8 | 4 | 41 | 35799 | 109864 | 180754 | 1034385 | 55324 | 5.723 | 4 |
| 9 | 5 | 42 | 34769 | 96953 | 152643 | 881742 | 65512 | 5.776 | 5 |
| 60 | 26 | 43 | 33708 | 85945 | 129485 | 752257 | 77229 | 5.810 | 6 |
| 1 | 7 | 44 | 32608 | 76531 | 110337 | 641920 | 90631 | 5.818 | 7 |
| 2 | 8 | 45 | 31464 | 68403 | 94372 | 547548 | 10696 | 5.857 | 8 |
| 3 | 9 | 46 | 30277 | 61323 | 80961 | 466587 | 12352 | 5.763 | 9 |
| 4 | 30 | 47 | 29048 | 55107 | 69621 | 396966 | 14363 | 5.702 | 30 |
| 5 | 1 | 48 | 27780 | 49604 | 59970 | 336996 | 16675 | 5.619 | 1 |
| 6 | 2 | 49 | 26477 | 44712 | 51728 | 285268 | 19332 | 5.515 | 2 |
| 7 | 3 | 50 | 25143 | 40322 | 44640 | 240628 | 22401 | 5.390 | 3 |
| 8 | 4 | 51 | 23778 | 36335 | 38494 | 202134 | 26039 | 5.263 | 4 |
| 9 | 5 | 52 | 22385 | 32693 | 33144 | 168990 | 30171 | 5.099 | 5 |
| 70 | 36 | 53 | 20968 | 29843 | 28467 | 140523 | 35128 | 4.936 | 6 |
| 1 | 7 | 54 | 19533 | 26246 | 24366 | 116157 | 41041 | 4.767 | 7 |
| 2 | 8 | 55 | 18088 | 23382 | 20772 | 95385 | 48142 | 4.592 | 8 |
| 3 | 9 | 56 | 16688 | 20729 | 17622 | 77763 | 56747 | 4.413 | 9 |
| 4 | 40 | 57 | 15191 | 18275 | 14867 | 62896 | 67263 | 4.230 | 40 |
| 5 | 1 | 58 | 13756 | 16006 | 12461 | 50435 | 80250 | 4.047 | 1 |
| 6 | 2 | 59 | 12345 | 13913 | 10365 | 40070 | 96479 | 3.866 | 2 |
| 7 | 3 | 60 | 10970 | 11992 | 8549 | 31521 | 11697 | 3.687 | 3 |
| 8 | 4 | 61 | 9646 | 10245 | 6989 | 24532 | 14308 | 3.510 | 4 |
| 9 | 5 | 62 | 8386 | 8686 | 5670 | 18862 | 17637 | 3.327 | 6 |
| 80 | 46 | 63 | 7203 | 7253 | 4531 | 14331 | 22070 | 3.163 | 6 |
| 1 | 7 | 64 | 6107 | 6000 | 3587 | 10744 | 27878 | 2.995 | 7 |
| 2 | 8 | 65 | 5106 | 4899 | 2803 | 7941 | 35676 | 2.833 | 8 |
| 3 | 9 | 66 | 4206 | 3946 | 2160 | 5781 | 46296 | 2.676 | 9 |
| 4 | 50 | 67 | 3410 | 3130 | 1640 | 4141 | 60976 | 2.525 | 50 |
| 5 | 1 | 68 | 2718 | 2455 | 1231 | 2910 | 81235 | 2.364 | 1 |
| 6 | 2 | 69 | 2127 | 1889 | 906.2 | 2003.8 | 11035 | 2.211 | 2 |
| 7 | 3 | 70 | 1632 | 1425 | 654.1 | 1349.7 | 15288 | 2.063 | 3 |
| 8 | 4 | 71 | 1228 | 1053 | 462.6 | 887.1 | 21617 | 1.918 | 4 |
| 9 | 5 | 72 | 905 | 761 | 319.9 | 567.2 | 31260 | 1.773 | 5 |
| 90 | 56 | 73 | 653 | 537 | 216.0 | 351.2 | 46296 | 1.626 | 6 |
| 1 | 7 | 74 | 460 | 370 | 142.4 | 208.79 | 70225 | 1.466 | 7 |
| 2 | 8 | 75 | 317 | 249 | 91.73 | 117.07 | 10903 | 1.276 | 8 |
| 3 | 9 | 76 | 209 | 160 | 56.40 | 60.67 | 17730 | 1.076 | 9 |
| 4 | 60 | 77 | 129 | 96 | 32.38 | 28.29 | 30883 | .874 | 60 |
| 5 | 1 | 78 | 72 | 52 | 16.79 | 11.50 | 59559 | .685 | 1 |
| 6 | 2 | 79 | 35 | 25 | 7.72 | 3.78 | 12953 | .490 | 2 |
| 7 | 3 | 80 | 14 | 9 | 2.66 | 1.12 | 37594 | .421 | 3 |
| 8 | 4 | 81 | 4 | 3 | .85 | .27 | 11765 | .318 | 4 |
| 9 | 5 | 82 | 1 | 1 | .27 | .00 | .000 | .000 | 5 |

ANNUITIES. DAUGHTERS WITH FATHERS LIVING. 4½ PER CENT.

| Ages. | | Life Reversionary $a_u - a_{x+u}$ | Ages. | | Life Reversionary $a_u - a_{x+u}$ |
|-------|-----|--------------------------------------|-------|-----|--------------------------------------|
| x | u | | x | u | |
| 34 | 0 | 2.730 | 70 | 36 | 7.529 |
| 5 | 1 | 3.035 | 1 | 7 | 7.799 |
| 6 | 2 | 3.108 | 2 | 8 | 8.058 |
| 7 | 3 | 3.093 | 3 | 9 | 8.302 |
| 8 | 4 | 3.038 | 4 | 40 | 8.531 |
| 9 | 5 | 2.960 | 5 | 1 | 8.740 |
| | | | 6 | 2 | 8.930 |
| 40 | 6 | 2.868 | 7 | 3 | 9.099 |
| 1 | 7 | 2.763 | 8 | 4 | 9.242 |
| 2 | 8 | 2.656 | 9 | 5 | 9.370 |
| 3 | 9 | 2.547 | | | |
| 4 | 10 | 2.436 | 80 | 46 | 9.454 |
| 5 | 1 | 2.327 | 1 | 7 | 9.519 |
| 6 | 2 | 2.219 | 2 | 8 | 9.556 |
| 7 | 3 | 2.114 | 3 | 9 | 9.564 |
| 8 | 4 | 2.018 | 4 | 50 | 9.548 |
| 9 | 5 | 1.931 | 5 | 1 | 9.459 |
| | | | 6 | 2 | 9.354 |
| 50 | 16 | 1.889 | 7 | 3 | 9.233 |
| 1 | 7 | 1.926 | 8 | 4 | 9.098 |
| 2 | 8 | 2.030 | 9 | 5 | 8.970 |
| 3 | 9 | 2.192 | | | |
| 4 | 20 | 2.405 | 90 | 56 | 8.840 |
| 5 | 1 | 2.661 | 1 | 7 | 8.721 |
| 6 | 2 | 2.943 | 2 | 8 | 8.630 |
| 7 | 3 | 3.250 | 3 | 9 | 8.545 |
| 8 | 4 | 3.576 | 4 | 60 | 8.458 |
| 9 | 5 | 3.919 | 5 | 1 | 8.366 |
| | | | 6 | 2 | 8.260 |
| 60 | 26 | 4.270 | 7 | 3 | 8.035 |
| 1 | 7 | 4.626 | 8 | 4 | 7.844 |
| 2 | 8 | 4.914 | 9 | 5 | 7.868 |
| 3 | 9 | 5.331 | | | |
| 4 | 30 | 5.675 | | | |
| 5 | 1 | 6.012 | | | |
| 6 | 2 | 6.337 | | | |
| 7 | 3 | 6.652 | | | |
| 8 | 4 | 6.943 | | | |
| 9 | 5 | 7.247 | | | |

THE FOREGOING ANNUITIES DEFERRED.

| Age. u | Single Life. | | | Joint Lives. | | | Reversionary. | | | Age. u |
|-------------|------------------|-------------------|-------------------|------------------|-------------------|-------------------|------------------|-------------------|-------------------|-------------|
| | Deferred till 6. | Deferred till 12. | Deferred till 21. | Deferred till 6. | Deferred till 12. | Deferred till 21. | Deferred till 6. | Deferred till 12. | Deferred till 21. | |
| 0 | 6.856 | 4.005 | 1.366 | 4.459 | 2.234 | 0.526 | 2.397 | 1.771 | 0.840 | 0 |
| 1 | 8.280 | 4.827 | 1.650 | 5.528 | 2.770 | 0.652 | 2.752 | 2.067 | 0.998 | 1 |
| 2 | 9.223 | 5.388 | 1.838 | 6.322 | 3.168 | 0.746 | 2.901 | 2.220 | 1.092 | 2 |
| 3 | 9.992 | 5.837 | 1.991 | 7.032 | 3.523 | 0.830 | 2.960 | 2.314 | 1.161 | 3 |
| 4 | 10.700 | 6.251 | 2.132 | 7.733 | 3.875 | 0.912 | 2.967 | 2.376 | 1.220 | 4 |
| 5 | 11.383 | 6.650 | 2.268 | 8.448 | 4.233 | 0.997 | 2.935 | 2.417 | 1.271 | 5 |
| 6 | 12.055 | 7.043 | 2.402 | 9.187 | 4.603 | 1.084 | 2.868 | 2.440 | 1.318 | 6 |
| 7 | | 7.438 | 2.537 | | 4.995 | 1.176 | | 2.443 | 1.361 | 7 |
| 8 | | 7.844 | 2.676 | | 5.411 | 1.274 | | 2.453 | 1.402 | 8 |
| 9 | | 8.261 | 2.818 | | 5.853 | 1.378 | | 2.408 | 1.440 | 9 |
| 10 | | 8.689 | 2.964 | | 6.326 | 1.490 | | 2.366 | 1.474 | 10 |
| 11 | | 9.134 | 3.116 | | 6.833 | 1.609 | | 2.301 | 1.507 | 11 |
| 12 | | 9.597 | 3.273 | | 7.378 | 1.737 | | 2.218 | 1.536 | 12 |
| 13 | | | 3.438 | | | 1.876 | | | 1.562 | 13 |
| 14 | | | 3.611 | | | 2.025 | | | 1.586 | 14 |
| 15 | | | 3.794 | | | 2.185 | | | 1.609 | 15 |
| 16 | | | 4.058 | | | 2.401 | | | 1.657 | 16 |
| 17 | | | 4.498 | | | 2.733 | | | 1.765 | 17 |
| 18 | | | 5.117 | | | 3.191 | | | 1.926 | 18 |
| 19 | | | 5.924 | | | 3.788 | | | 2.136 | 19 |
| 20 | | | 6.946 | | | 4.543 | | | 2.383 | 20 |
| 21 | | | 8.132 | | | 5.471 | | | 2.661 | 21 |

SONS.
ENGLISH LIFE TABLE No. 3. 4½ PER CENT. TEMPORARY ANNUITIES.

| s | l _s | D _s | N _s | D _s ⁻¹ | a _s | Deferred | |
|----|----------------|----------------|----------------|------------------------------|----------------|----------|----------|
| | | | | | | till 6. | till 12. |
| 0 | 511745 | 511745 | 4874695 | 19541 | 9.526 | | |
| 1 | 428026 | 409594 | 4465101 | 24414 | 10.901 | 5.600 | 2.853 |
| 2 | 400505 | 366754 | 4098347 | 27266 | 11.175 | 6.997 | 3.564 |
| 3 | 386290 | 338505 | 3759842 | 29543 | 11.107 | 7.814 | 3.981 |
| 4 | 377077 | 316202 | 3443640 | 31626 | 10.891 | 8.467 | 4.313 |
| 5 | 370358 | 297194 | 3146446 | 33648 | 10.587 | 9.064 | 4.617 |
| 6 | 365325 | 280531 | 2865915 | 35647 | 10.216 | 9.643 | 4.912 |
| 7 | 361372 | 265546 | 2600369 | 37658 | 9.792 | - | 5.204 |
| 8 | 358062 | 251784 | 2348585 | 39717 | 9.328 | - | 5.498 |
| 9 | 355328 | 239102 | 2109483 | 41948 | 8.849 | - | 5.798 |
| 0 | 353031 | 227326 | 1882157 | 43990 | 8.280 | - | 6.124 |
| 1 | 351048 | 216315 | 1665842 | 46229 | 7.701 | - | 6.422 |
| 2 | 349272 | 205952 | 1459890 | 48555 | 7.088 | - | 6.749 |
| 3 | 347606 | 196143 | 1263747 | 50983 | 6.443 | | |
| 4 | 345969 | 186814 | 1076933 | 53529 | 5.765 | | |
| 5 | 344290 | 177902 | 899031 | 56211 | 5.054 | | |
| 6 | 342509 | 169360 | 729671 | 59046 | 4.308 | | |
| 7 | 340581 | 161155 | 568516 | 62052 | 3.528 | | |
| 8 | 338469 | 153259 | 415257 | 65249 | 2.710 | | |
| 9 | 336149 | 145654 | 269603 | 68656 | 1.851 | | |
| 20 | 333608 | 138328 | 131275 | 72292 | 0.949 | | |
| 1 | 330844 | 131275 | 000000 | | | | |

FATHERS AND SONS.

| s | α | l _s | D _{s'} | N _{s'} | D _{s'} ⁻¹ | a _{s'} | Deferred | |
|----|----|----------------|-----------------|-----------------|-------------------------------|-----------------|----------|----------|
| | | | | | | | till 6. | till 12. |
| 0 | 4 | 67780 | 346861 | 2628740 | 28830 | 7.579 | 3.975 | 1.830 |
| 1 | 5 | 66081 | 270459 | 2358281 | 36974 | 8.720 | 5.097 | 2.347 |
| 2 | 6 | 64317 | 235885 | 2122396 | 42393 | 8.997 | 5.844 | 2.691 |
| 3 | 7 | 62640 | 212039 | 1910357 | 47163 | 9.010 | 6.502 | 2.994 |
| 4 | 8 | 61001 | 192887 | 1717470 | 51846 | 8.904 | 7.148 | 3.292 |
| 5 | 9 | 59399 | 176590 | 1540940 | 56648 | 8.728 | 7.810 | 3.596 |
| 6 | 40 | 57894 | 162243 | 1378697 | 61637 | 8.498 | - | 3.913 |
| 7 | 1 | 56306 | 149519 | 1229178 | 66881 | 8.221 | - | 4.246 |
| 8 | 2 | 54815 | 138015 | 1091163 | 72453 | 7.906 | - | 4.600 |
| 9 | 3 | 53359 | 127582 | 963581 | 78616 | 7.575 | - | 4.991 |
| 10 | 4 | 51936 | 118064 | 845514 | 84703 | 7.162 | - | 5.378 |
| 1 | 5 | 50545 | 109337 | 736177 | 91458 | 6.733 | - | 5.806 |
| 2 | 6 | 49184 | 101295 | 634882 | 98717 | 6.267 | | |
| 3 | 7 | 47852 | 93858 | 541024 | 10654 | 5.764 | | |
| 4 | 8 | 46556 | 86973 | 454051 | 11498 | 5.221 | | |
| 5 | 9 | 45303 | 80595 | 373456 | 12408 | 4.634 | | |
| 6 | 50 | 44099 | 74686 | 298770 | 13389 | 4.000 | | |
| 7 | 1 | 42949 | 69214 | 229556 | 14448 | 3.317 | | |
| 8 | 2 | 41857 | 64150 | 165406 | 15588 | 2.578 | | |
| 9 | 3 | 40809 | 59440 | 105966 | 16824 | 1.783 | | |
| 20 | 4 | 39791 | 55042 | 50924 | 18168 | .925 | | |
| 1 | 5 | 38792 | 50924 | 00000 | | | | |

SONS. REVERSIONARY ANNUITIES.

Commencing on Decease of the Father, and continuing till the Age of 21.

| s | till 21. | Deferred till 6. | Deferred till 12. |
|----|----------|------------------|-------------------|
| 0 | 1.947 | 1.625 | 1.023 |
| 1 | 2.181 | 1.900 | 1.217 |
| 2 | 2.178 | 1.970 | 1.290 |
| 3 | 2.097 | 1.965 | 1.319 |
| 4 | 1.987 | 1.916 | 1.325 |
| 5 | 1.859 | 1.833 | 1.316 |
| 6 | 1.718 | - | 1.291 |
| 7 | 1.571 | - | 1.252 |
| 8 | 1.422 | - | 1.198 |
| 9 | 1.274 | - | 1.133 |
| 10 | 1.118 | - | 1.044 |
| 1 | 0.968 | - | 0.943 |
| 2 | 0.821 | | |
| 3 | 0.679 | | |
| 4 | 0.544 | | |
| 5 | 0.420 | | |
| 6 | 0.308 | | |
| 7 | 0.211 | | |
| 8 | 0.132 | | |
| 9 | 0.068 | | |
| 20 | 0.024 | | |

COMPUTATION OF THE PAYMENTS

TO BE REQUIRED ON

MARRIAGE AND PROMOTION, AND FOR CHILDREN.

COMPUTATION of the requisite DONATIONS on MARRIAGE and on subsequent PROMOTION to each RANK.

| Ranks. | Present Ages. | | Advanced Ages. | | Present Ages. | Advanced Ages. | Advanced Ages. | Half Product of the Three preceding Columns. | Present Ages. | Differences of the Two preceding Columns. | Present Ages. |
|----------------------|---------------|----|----------------|----|----------------|----------------|----------------|--|---------------|---|-------------------------|
| | H. | W. | H. | W. | $D_{x'y}^{-1}$ | $D_{(x'y)+n}$ | $a_{(x'y)+n}$ | | $a_{x'y}$ | | $a_{x'y}^{\frac{1}{2}}$ |
| Lieutenant - - - | 25 | 20 | 49 | 44 | 13330 | 98560 | 9.233 | 0.606 | 11.767 | 11.161 | 3.752 |
| Captain - - - | 30 | 24 | 49 | 43 | 18687 | 105247 | 9.315 | 0.916 | 11.379 | 10.463 | 3.902 |
| Major - - - | 38 | 31 | 49 | 42 | 33929 | 112266 | 9.389 | 1.788 | 10.659 | 8.871 | 3.928 |
| Lieut.-Colonel - - - | 44 | 36 | 49 | 41 | 53511 | 119703 | 9.458 | 3.029 | 10.086 | 7.057 | 3.880 |
| Colonel - - - | 49 | 39 | 49 | 39 | 73701 | 135684 | 9.600 | 4.800 | 9.600 | 4.800 | 3.932 |

| Ranks. | Yearly Subscriptions. | | Pensions. | | | |
|----------------------|-----------------------|------------------------|---------------|------------------------|---------------------|--------|
| | Of each Rank. | Increase in each Rank. | Of each Rank. | Increase in each Rank. | The same exchanged. | |
| | Rs. | Rs. | £ | £ | Rs. | Rs. |
| Lieutenant - - - | 120 | 0 | 40 | | 417.39 | |
| Captain - - - | 240 | 120 | 70 | 30 | 730.43 | 313.04 |
| Major - - - | 360 | 120 | 100 | 30 | 1043.48 | 313.04 |
| Lieut.-Colonel - - - | 480 | 120 | 130 | 30 | 1356.52 | 313.04 |
| Colonel - - - | 600 | 120 | 160 | 30 | 1669.57 | 313.04 |

| Ranks. | Present Values of the | | | | Differences, being the requisite Donations. | |
|----------------------|-----------------------|------------------------|-----------|-----------|---|---------------|
| | Yearly Subscriptions. | Increase in each Rank. | Pensions. | Increase. | On Marriage. | On Promotion. |
| | Rs. | Rs. | Rs. | Rs. | Rs. | Rs. |
| Lieutenant - - - | 1339.32 | | 1566.05 | | 236.73 | |
| Captain - - - | 2511.12 | 1255.56 | 2850.14 | 1221.51 | 339.02 | |
| Major - - - | 3193.56 | 1064.52 | 4098.79 | 1229.64 | 905.23 | 165.12 |
| Lieut.-Colonel - - - | 3387.36 | 846.84 | 5263.81 | 1214.61 | 1875.95 | 367.77 |
| Colonel - - - | 2880.00 | 576.00 | 6564.79 | 1231.83 | 3684.79 | 655.83 |

COMPUTATION of the MARRIAGE DONATIONS for DISPARITY of AGES.

| Difference of Ages. | Age of Husband. | $\frac{a-x}{y}$ Half Rates after Age 49. | Rank and Rates and Values of Subscription. | | | | | $\frac{a-x}{y}$ Ex-changed into Rupees. | Rank, and Amounts and Values of Pensions. | | | | |
|---------------------|-----------------|--|--|-------------------|----------------|-------------------|-------------------|---|---|---------------|--------------|----------------|----------------|
| | | | Lient. Rs. 120. | Captain. Rs. 240. | Major Rs. 360. | Lt.-Col. Rs. 480. | Colonel. Rs. 600. | | Lient. £40. | Captain. £70. | Major. £100. | Lt.-Col. £130. | Colonel. £160. |
| 15 | 30 | 10.748 | 1290 | 2580 | 3869 | 5159 | 6449 | 39.663 | 1587 | 2776 | 3966 | 5156 | 6346 |
| | 35 | 9.875 | 1185 | 2370 | 3555 | 4740 | 5925 | 42.198 | 1688 | 2954 | 4220 | 5486 | 6752 |
| | 40 | 8.662 | 1039 | 2079 | 3118 | 4158 | 5197 | 43.910 | 1756 | 3074 | 4391 | 5708 | 7026 |
| | 45 | 6.848 | 822 | 1644 | 2465 | 3287 | 4109 | 44.744 | 1790 | 3132 | 4474 | 5817 | 7159 |
| | 50 | 4.885 | 586 | 1172 | 1759 | 2345 | 2931 | 46.437 | 1857 | 3251 | 4644 | 6037 | 7430 |
| | 55 | 4.415 | 530 | 1060 | 1589 | 2119 | 2649 | 47.708 | 1908 | 3340 | 4771 | 6202 | 7633 |
| 20 | 60 | 8.839 | 461 | 921 | 1382 | 1843 | 2303 | 51.443 | 2058 | 3601 | 5144 | 6688 | 8231 |
| | 85 | 9.985 | 1198 | 2396 | 3595 | 4793 | 5991 | 41.301 | 1652 | 2891 | 4130 | 5369 | 6608 |
| | 40 | 8.794 | 1055 | 2111 | 3166 | 4221 | 5276 | 44.243 | 1770 | 3097 | 4424 | 5752 | 7079 |
| | 45 | 7.062 | 847 | 1695 | 2542 | 3390 | 4237 | 46.779 | 1871 | 3275 | 4678 | 6081 | 7485 |
| | 50 | 5.024 | 603 | 1206 | 1809 | 2412 | 3014 | 48.918 | 1957 | 3424 | 4892 | 6359 | 7827 |
| | 55 | 4.546 | 546 | 1091 | 1637 | 2182 | 2728 | 52.769 | 2111 | 3694 | 5277 | 6860 | 8443 |
| 25 | 60 | 3.950 | 474 | 948 | 1422 | 1896 | 2370 | 57.725 | 2309 | 4041 | 5773 | 7504 | 9236 |
| | 40 | 8.885 | 1066 | 2132 | 3199 | 4265 | 5331 | 43.450 | 1738 | 3042 | 4345 | 5649 | 6952 |
| | 45 | 7.170 | 860 | 1721 | 2581 | 3442 | 4302 | 47.301 | 1892 | 3311 | 4730 | 6149 | 7568 |
| | 50 | 5.156 | 619 | 1237 | 1856 | 2475 | 3094 | 51.214 | 2049 | 3585 | 5121 | 6658 | 8194 |
| | 55 | 4.660 | 559 | 1118 | 1678 | 2237 | 2796 | 56.390 | 2256 | 3947 | 5639 | 7331 | 9022 |
| | 60 | 4.051 | 486 | 972 | 1458 | 1944 | 2431 | 63.099 | 2524 | 4417 | 6310 | 8203 | 10096 |
| 30 | 45 | 7.194 | 863 | 1727 | 2590 | 3453 | 4316 | 46.529 | 1861 | 3257 | 4653 | 6049 | 7445 |
| | 50 | 5.246 | 630 | 1259 | 1889 | 2518 | 3148 | 51.777 | 2071 | 3624 | 5178 | 6731 | 8284 |
| | 55 | 4.769 | 572 | 1145 | 1717 | 2289 | 2861 | 58.602 | 2344 | 4102 | 5860 | 7618 | 9376 |
| | 60 | 4.138 | 497 | 993 | 1490 | 1986 | 2483 | 66.553 | 2662 | 4659 | 6655 | 8652 | 10648 |

Note.—The differences of the corresponding values show the requisite marriage donations. For example, at age 50 the donation of a colonel for a disparity of 20 years is 7827 — 3014 = Rs. 4813, which amount is entered in the scale. The intermediate values have been interpolated.

SCALE of MARRIAGE DONATIONS. Increased for Disparity of Age.

| Age. | Captains. | | Majors. | | Lient.-Colonels. | | | Colonels. | | | |
|------|-----------|------|---------|------|------------------|------|------|-----------|------|------|------|
| | 15. | 20. | 15. | 20. | 15. | 20. | 25. | 15. | 20. | 25. | 30. |
| 34 | 533 | | | | | | | | | | |
| 35 | 600 | | | | | | | | | | |
| 36 | 671 | 543 | | | | | | | | | |
| 37 | 746 | 651 | | | | | | | | | |
| 38 | 825 | 761 | | | | | | | | | |
| 39 | 908 | 872 | 1143 | 1091 | | | | | | | |
| 40 | 995 | 986 | 1273 | 1258 | | | | | | | |
| 41 | 1086 | 1101 | 1409 | 1428 | | | | | | | |
| 42 | 1180 | 1218 | 1551 | 1601 | | | | | | | |
| 43 | 1279 | 1337 | 1698 | 1777 | 2110 | | | | | | |
| 44 | 1382 | 1458 | 1850 | 1995 | 2305 | 2377 | | | | | |
| 45 | 1488 | 1580 | 2009 | 2136 | 2530 | 2691 | 2707 | | | | |
| 46 | - | - | 2173 | 2320 | 2824 | 2984 | 3047 | | | | |
| 47 | - | - | 2343 | 2507 | 3087 | 3256 | 3365 | | | | |
| 48 | - | - | 2518 | 2696 | 3320 | 3508 | 3660 | | | | |
| 49 | - | - | - | - | 3521 | 3737 | 3933 | | | | |
| 50 | - | - | - | - | 3692 | 3947 | 4183 | 4499 | 4813 | 5100 | 5136 |
| 51 | - | - | - | - | 3832 | 4135 | 4410 | 4559 | 4973 | 5300 | 5390 |
| 52 | - | - | - | - | 3941 | 4302 | 4615 | 4638 | 5144 | 5513 | 5655 |
| 53 | - | - | - | - | - | - | - | 4735 | 5324 | 5738 | 5931 |
| 54 | - | - | - | - | - | - | - | 4850 | 5515 | 5976 | 6218 |
| 55 | - | - | - | - | - | - | - | 4984 | 5715 | 6226 | 6515 |
| 56 | - | - | - | - | - | - | - | 5136 | 5925 | 6489 | 6823 |
| 57 | - | - | - | - | - | - | - | 5307 | 6146 | 6764 | 7142 |
| 58 | - | - | - | - | - | - | - | 5495 | 6376 | 7052 | 7472 |
| 59 | - | - | - | - | - | - | - | 5702 | 6616 | 7352 | 7813 |
| 60 | - | - | - | - | - | - | - | 5928 | 6866 | 7665 | 8165 |

Example. A captain aged 37 marries a lady aged 22. The difference of age is 15. The marriage donation is Rs. 746, to be paid instead of the ordinary donation.

In like manner, a colonel aged 54 marries a lady aged 29. The difference of age is 25, and the corresponding marriage donation is Rs. 5976.

It will be observed that the amounts depend much more on the age of the husband than on that of the wife, a circumstance which, in the present case, is caused by the re-marriage of young widows being an element in the calculation. It follows that the table will serve for all cases, nearly enough.

COMPUTATION of the FAMILY CONTRIBUTION for SONS.

| Son's Age. | Reversionary Pensions. | | |
|------------|------------------------|----------|----------|
| | Immediate. | Deferred | |
| | | till 6. | till 12. |
| 0 to 1 | 2.064 | 1.762 | 1.120 |

Sum of the above values - 4.946.

$4.946 \times 10 = \text{£}49.46 = \text{Rs. } 516.1$

Deduct birth donation - 156.0

Balance - 360.1

The value of the joint life annuity till age 21 is - 8.608.

Hence $\frac{360.1}{8.608 \times 12} = \text{Rs. } 3.500$ monthly.

Deduct the rate in aid 2.500 „ (See Report, Art. 20.)

Balance family contribution - Rs. 1.000 „

COMPUTATION of the FAMILY CONTRIBUTION for DAUGHTERS.

| Daughter's Age. | Reversionary Pensions. | | | |
|--------------------------------|------------------------|-----------|----------|--------------|
| | Immediate. | Deferred. | | |
| | | till 6. | till 12. | till 21. |
| 0 to 1 | 2.883 | 2.575 | 1.919 | 0.919 |
| Add for £5 after the age of 21 | - | - | - | 0.460 |
| | | | | <u>1.379</u> |

Sum of the values - 8.756.

$8.756 \times 10 = \text{£}87.56 = \text{Rs. } 913.67$

Deduct birth donation - 250.

663.67

The value of the joint life annuity is - 9.135.

Hence $\frac{663.67}{9.135 \times 12} = \text{Rs. } 6.054$ monthly.

Deduct the rate in aid 3.500 „ (See Report, Art. 20.)

Balance family contribution - Rs. 2.554 „

In accordance with the results herein set forth, the family contributions have been assigned as follows :—
(See Report, Art. 22.)

| | Donation on Birth. | | Monthly Subscription. | | |
|-----------------|--------------------|--|-----------------------|----|----|
| | Rs. | | R. | A. | P. |
| For Sons - | 156 | | 1 | 0 | 0 |
| For Daughters - | 250 | | 2 | 8 | 0 |

F O R M S
FOR THE
REGISTRY OF MARRIAGES, BIRTHS, AND DEATHS.

DATES expressed in Decimals of the Year.

| Day of the Month. | Jan. | Feb. | March. | April. | May. | June. | July. | August. | Sept. | Oct. | Nov. | Dec. | Day of the Month. |
|-------------------|------|------|--------|--------|------|-------|-------|---------|-------|------|------|------|-------------------|
| 1 | .000 | .085 | .162 | .247 | .329 | .414 | .496 | .581 | .666 | .748 | .833 | .915 | 1 |
| 2 | .003 | .088 | .164 | .249 | .332 | .416 | .499 | .584 | .668 | .751 | .836 | .918 | 2 |
| 3 | .005 | .090 | .167 | .252 | .334 | .419 | .501 | .586 | .671 | .753 | .838 | .921 | 3 |
| 4 | .008 | .093 | .170 | .255 | .337 | .422 | .504 | .589 | .674 | .756 | .841 | .923 | 4 |
| 5 | .011 | .096 | .173 | .258 | .340 | .425 | .507 | .592 | .677 | .759 | .844 | .926 | 5 |
| 6 | .014 | .099 | .175 | .260 | .342 | .427 | .510 | .595 | .679 | .762 | .847 | .929 | 6 |
| 7 | .016 | .101 | .178 | .263 | .345 | .430 | .512 | .597 | .682 | .764 | .849 | .932 | 7 |
| 8 | .019 | .104 | .181 | .266 | .348 | .433 | .515 | .600 | .685 | .767 | .852 | .934 | 8 |
| 9 | .022 | .107 | .184 | .268 | .351 | .436 | .518 | .603 | .688 | .770 | .855 | .937 | 9 |
| 10 | .025 | .110 | .186 | .271 | .353 | .438 | .521 | .605 | .690 | .773 | .858 | .940 | 10 |
| 11 | .027 | .112 | .189 | .274 | .356 | .441 | .523 | .608 | .693 | .775 | .860 | .942 | 11 |
| 12 | .030 | .115 | .192 | .277 | .359 | .444 | .526 | .611 | .696 | .778 | .863 | .945 | 12 |
| 13 | .033 | .118 | .195 | .279 | .362 | .447 | .529 | .614 | .699 | .781 | .866 | .948 | 13 |
| 14 | .036 | .121 | .197 | .282 | .364 | .449 | .532 | .616 | .701 | .784 | .868 | .951 | 14 |
| 15 | .038 | .123 | .200 | .285 | .367 | .452 | .534 | .619 | .704 | .786 | .871 | .953 | 15 |
| 16 | .041 | .126 | .203 | .288 | .370 | .455 | .537 | .622 | .707 | .789 | .874 | .956 | 16 |
| 17 | .044 | .129 | .205 | .290 | .373 | .458 | .540 | .625 | .710 | .792 | .877 | .959 | 17 |
| 18 | .047 | .132 | .208 | .293 | .375 | .460 | .542 | .627 | .712 | .795 | .879 | .962 | 18 |
| 19 | .049 | .134 | .211 | .296 | .378 | .463 | .545 | .630 | .715 | .797 | .882 | .964 | 19 |
| 20 | .052 | .137 | .214 | .299 | .381 | .466 | .548 | .633 | .718 | .800 | .885 | .967 | 20 |
| 21 | .055 | .140 | .216 | .301 | .384 | .468 | .551 | .636 | .721 | .803 | .888 | .970 | 21 |
| 22 | .058 | .142 | .219 | .304 | .386 | .471 | .553 | .638 | .723 | .805 | .890 | .973 | 22 |
| 23 | .060 | .145 | .222 | .307 | .389 | .474 | .556 | .641 | .726 | .808 | .893 | .975 | 23 |
| 24 | .063 | .148 | .225 | .310 | .392 | .477 | .559 | .644 | .729 | .811 | .896 | .978 | 24 |
| 25 | .066 | .151 | .227 | .312 | .395 | .479 | .562 | .647 | .732 | .814 | .899 | .981 | 25 |
| 26 | .068 | .153 | .230 | .315 | .397 | .482 | .564 | .649 | .734 | .816 | .901 | .984 | 26 |
| 27 | .071 | .156 | .233 | .318 | .400 | .485 | .567 | .652 | .737 | .819 | .904 | .986 | 27 |
| 28 | .074 | .159 | .236 | .321 | .403 | .488 | .570 | .655 | .740 | .822 | .907 | .989 | 28 |
| 29 | .077 | | .238 | .323 | .405 | .490 | .573 | .658 | .742 | .825 | .910 | .992 | 29 |
| 30 | .079 | | .241 | .326 | .408 | .493 | .575 | .660 | .745 | .827 | .912 | .995 | 30 |
| 31 | .082 | | .244 | | .411 | | .578 | .663 | | .830 | | .997 | 31 |

Example.—The decimal part of the year corresponding to the 22d June is .471.

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R E P O R T

ON THE

FOREGOING CALCULATIONS,

BY

SAMUEL BROWN, F.S.S.,

**ACTUARY OF THE GUARDIAN ASSURANCE COMPANY, AND LATE PRESIDENT OF THE
INSTITUTE OF ACTUARIES.**

To the Under Secretary of State for India, India Office, S.W.

Guardian Assurance Office,
11, Lombard Street, E.C.,
25th February 1871.

Sir,

Para. 1. In accordance with the instructions which I received in Letter No. 3529, dated 6th September 1870, I have carefully examined Major-General Hannyngton's report on the scheme for granting pensions to the widows and orphans of Officers entering the Staff Corps, and of Chaplains and Medical Officers on the Indian Establishment.

Report on General Hannyngton's calculations as to the scheme for granting pensions to the widows and orphans of Officers entering the Staff Corps, and of Chaplains and Medical Officers on the Indian establishment.

2. In my previous Reports on the Indian Military Funds for widows and orphans, I have had occasion to follow General Hannyngton's calculations and methods of dealing with the complicated contingencies which, in such Funds, present themselves in what appears, at first sight, simple questions. I can fully appreciate the ability and scientific skill with which he treats these subjects, and the caution and prudence with which he meets those doubtful points which may affect the future safety or prosperity of the Fund.

3. The object of Colonel Norman's proposition appears to be, by taking the leading features of the former Military Pension Funds, to make some additions to the benefits granted to widows and orphans of Officers in the British Army, bringing up the scale to what was formerly the average rate in the three Presidencies, and requiring from the members such contributions as would make the Fund self-supporting, without causing any additional charge on the Government.

Objects of the Scheme.

4. As it is not proposed to have different rates, as formerly, for each Presidency, it is of great importance that we should be able to form some clear idea of what would be safe data for the computations of the benefits and the equivalent contributions applicable to the whole of India.

5. General Hannyngton judiciously points out that the bases of his tables must be the rates of mortality amongst military Officers in India, their wives, widows, sons, and daughters; the rates of marriage among widows and unmarried daughters; the rate of interest and the rate of exchange.

Basis of the Tables.

6. The two last points have been settled by the letter of the 23d April 1869, from the Military Secretary, authorizing the rate of interest to be taken at $4\frac{1}{2}$ per cent., and the rate of exchange at 1s. 11d. the rupee.

Rate of interest.
Rate of exchange.

7. I should have been inclined to propose that the rupee should be taken = 2s., as having been offered in the settlement of some of the existing Pension Funds now winding up, and as being nearer the average of exchange of late years. The facilities in the accounts and computations would have been very great. The Exchange Table, however, given in p. 31, contains in small compass the ready means of computing when the exchange is 1s. 11d. the rupee, and it is essential to the scheme as agreed on.

8. One of the most important questions is the tables of mortality, on which the calculations are made, especially that of subscribers and their wives whilst resident in India.

Mortality of Indian military Officers.

9. The table for the former, adopted by General Hannyngton is taken from Mr. Neison's report on the Bengal Military Fund, 1849, Table XI. The data for this table were collected from the records of the India Office, and include observations on mortality amongst Officers after they had retired from the service.

10. This table, it must be admitted, is a very important one, but in the twenty years which have since elapsed other observations of considerable value have been gathered, and are now available for use or comparison.

11. In my Report of 31st January 1863, on the Madras Military Fund, will be found the complete experience of the Fund collected for 50 years, 1808 to 1858, and the summaries of the tables, as still further corrected in the course of the investigation, may be examined in the "Journal of the Institute of Actuaries," Vol. XI., pp. 139, &c.

12. These observations throw light, not merely on the differences in the rate of mortality amongst married and unmarried Indian Officers, whether on active

service or retired, but amongst their wives and sons and daughters, as well as the rates of marriage amongst their widows, and daughters. They show, also, the marked improvement in the rate of mortality in India in recent years, as compared with the earlier periods of the present century.

13. The total number of lives accounted for was 5,104 (of whom 117 had entered as married). Of the total number, 2,400 had died, 473 withdrew, and 2,231 were living at the close of the observations.

14. In my Report on the Bengal Military Fund, of 16th March 1869, further observations are given, as deduced from the experience of the Bombay Military Fund in an investigation of that Fund then proceeding. The totals have been combined with those of the Madras Military Fund, and the rates per cent. of death, withdrawal, retirement, and marriage computed and shown in Abstract H, p. 43. The numbers were, 3,332 who entered as bachelors, besides 257 who entered as married, total 3,589. Of these, 1,501 died, 431 withdrew, 211 had retired as bachelors, and were not further traced, and 1,446 were living on 31st December 1865.

15. The more detailed observations on the Bombay Military Fund from 1816 to 31st December 1865, in my Report on that Fund in the present year, may be compared with Mr. Davies's data from the same Fund from 1825 to 1849. The effect of the addition of 15 recent years of observation is to show clearly in the middle periods of life a still diminishing rate of mortality at the same ages.

16. It was hoped that the experience of the Bengal Military Fund would have enabled the observations to be continued from 1849 to the present time. But the documents only allowed of comparisons at the average ages in the different ranks, and not of grouping the facts in quinquennial or decennial periods of age.

17. But if we add to the above recent observations in Madras and Bombay, the facts for the Bengal Army up to 1847, from Mr. Neison's Table XI., it will probably afford in the combination the best general Table of Mortality for all India which has ever yet been obtained.

18. The number of Officers who entered from 1800 to 1847, by Mr. Neison's Table XI., were 5,199. Of these, 2,019 died, 75 discontinued, and 3,105 were living at the close of the observations.

19. By taking for the number exposed to risk the number living in the middle of any year of age, the following Table shows the effect of bringing together these three Tables and the mortality per cent. resulting therefrom.

TABLE A.

OBSERVATIONS of Mortality amongst Indian Military Officers, deduced from the combined experience of the Bengal, Madras, and Bombay Military Funds.

| Ages. | Exposed to Risk. | Died. | Mortality per Cent. | |
|-----------------|------------------|-------|---------------------|-------------|
| | | | By Ditto. | Hannington. |
| 15 and under 20 | 18038 | 271 | 1·50 | 1·20 |
| 20 " " 25 | 49883·5 | 1342 | 2·69 | 2·22 |
| 25 " " 30 | 42612 | 1181 | 2·77 | 2·37 |
| 30 " " 35 | 33303 | 956 | 2·87 | 2·65 |
| 35 " " 40 | 24956 | 706 | 2·83 | 2·67 |
| 40 " " 45 | 17488·5 | 504 | 2·88 | 2·58 |
| 45 " " 50 | 11805·5 | 361 | 3·06 | 2·97 |
| 50 " " 55 | 8221·5 | 211 | 2·57 | 3·25 |
| 55 " " 60 | 5180·5 | 151 | 2·92 | 2·57 |
| 60 " " 65 | 2521·5 | 92 | 3·65 | 3·08 |
| 65 " " 70 | 1180 | 68 | 5·76 | 1·53 |
| 70 " " 75 | 531·5 | 39 | 7·34 | |
| 75 " " 80 | 200 | 27 | 13·50 | |
| 80 " " 85 | 64 | 8 | 12·50 | |
| 85 " " 90 | 11·5 | 3 | 26·09 | |
| | 215997 | 5920 | 2·76 | |

20. From the large number of lives exposed to risk, 215,997, and deaths, 5,920, and also from the fact that the observations in the three Presidencies are combined, showing the rates of mortality at quinquennial periods of age, this Table is the most complete and authentic which has yet been obtained, and may be safely used as a basis, if any correction of the monetary tables should be required hereafter.

21. It indicates at most ages, and particularly the younger ages, a somewhat higher rate of mortality than that selected by General Hannington; but inasmuch as all observations show that there is a marked difference of mortality in favour of married life, and the risks under the proposed new scheme almost entirely depend on that class, I feel confident that the table on which his calculations are based may be safely and judiciously adopted.

22. It would be very desirable, however, to carry out the proposed registers for the collection of original data from the experience of the New Fund, both for the sake of checking or confirming the accuracy of the above Table, as well as to fill up the deficiencies which we find in the other tables required.

23. The mortality amongst the wives of Officers is a subject on which more information is much desired. Mortality of the
wives of Officers.

24. General Hannington has used the table of mortality deduced by Mr. Davies from the records of the Madras Military Fund, and somewhat modified for use in the Bengal Military Fund.

25. It must be admitted, that the larger collection of facts which I made from the records of the Madras Military Fund presents results which in the middle and older periods of life seem to indicate a too favourable rate of mortality and require cautious use.

26. Most of the observations as to mortality amongst adult female European lives in India are liable to the objection, that in former days their ages were not accurately recorded till they became widows, and thus the effect of climate during the earlier years of married female life has not been accurately ascertained. Amongst widows the observations at the younger ages are comparatively few. But it is probable on the one hand, that the younger widows do not generally return immediately to Europe; and on the other hand, after the middle periods of life, the retirement of the husbands would lead to the greater portion of married females or widows after these ages being no longer exposed to the risks of a tropical climate.

27. I am disposed to think, therefore, that by combining the observations for female lives, whether wives or widows, both in the Military and Civil Funds, a sufficient number of facts may be obtained to give confidence in the comparison, except as to the middle periods of life, ages 45 to 60, when from some cause or other the per-centage of mortality shown is so small as to be scarcely admissible without further evidence.

28. The following Tables comprise all the recent collection of facts.

| | | | Exposed to Risk. | Died. | Married. |
|--------------------------|-----------|---------|------------------|-------|----------|
| Madras Military Fund: | | | | | |
| 1808 to 1807 | - Wives - | 22274·5 | 300 | | |
| (S. Brown.) | | | | | |
| | Widows | 8273·5 | 140 | 145 | |
| Bengal Military Fund: | | | | | |
| 1800 to 1847 | - Widows | 6094·5 | 92 | 119 | |
| (Neison.) | | | | | |
| Bengal Civil Fund: | | | | | |
| 1850 to 1862 | - Wives - | 4135 | 54 | | |
| (S. Brown.) | | | | | |
| | Widows | 1170 | 18 | 8 | |
| Total (Wives and Widows) | | 41947·5 | 604 | | |
| „ (Widows only) | | 15538 | 250 | 272 | |

29. The observations in quinquennial periods of age, and the rates per cent. of mortality and marriage, computed on 100 living in the middle of the year, by these combined Tables, may be compared as follows with the Table deduced by Mr. Davies, slightly corrected by him at the younger ages for the Bengal Military Fund, which General Hannington has used.

TABLE B.

Rates of Mortality amongst the Wives and Widows, and Rates of Marriage amongst the Widows of Indian Military Officers and Civil Servants.

| Ages. | Wives and Widows. | | | Widows only. | | | Hannington. | | |
|-------|-------------------|-------|---------------------|------------------|----------|-------------------|---------------------|---------------------|-------------------|
| | Exposed to Risk. | Died. | Mortality per Cent. | Exposed to Risk. | Married. | Married per Cent. | Wives. | Widows. | |
| | | | | | | | Mortality per Cent. | Mortality per Cent. | Married per Cent. |
| 15-20 | 1011·5 | 19 | 1·88 | 61·5 | 7 | 11·38 | ·61 | ·79 | 6·85 |
| 20-25 | 5198·5 | 85 | 1·64 | 551 | 41 | 7·44 | ·82 | ·88 | 5·50 |
| 25-30 | 7329 | 93 | 1·27 | 1354 | 67 | 4·95 | 1·11 | ·97 | 3·51 |
| 30-35 | 7199·5 | 93 | 1·29 | 2006 | 67 | 3·34 | 1·45 | 1·07 | 3·05 |
| 35-40 | 6246·5 | 82 | 1·31 | 2386 | 36 | 1·51 | 1·68 | 1·15 | 1·88 |
| 40-45 | 4951 | 56 | 1·13 | 2421 | 19 | ·78 | 2·03 | 1·23 | ·88 |
| 45-50 | 3680 | 42 | 1·14 | 2064·5 | 18 | ·87 | 2·42 | 1·37 | ·79 |
| 50-55 | 2562 | 37 | 1·44 | 1645 | 10 | ·61 | 2·92 | 1·62 | 1·32 |
| 55-60 | 1746·5 | 24 | 1·37 | 1315 | 6 | ·46 | 3·42 | 2·10 | ·79 |
| 60-65 | 1067 | 34 | 3·19 | 881 | 1 | ·11 | 4·12 | 2·80 | |
| 65-70 | 570·5 | 16 | 2·80 | 493·5 | — | — | 5·19 | 4·07 | |
| 70-75 | 253 | 11 | 4·35 | 230·5 | — | — | 7·24 | 6·02 | |
| 75-80 | 91 | 4 | 4·40 | 87·5 | — | — | 10·30 | 9·10 | |
| 80-85 | 39·5 | 6 | 15·19 | 39·5 | — | — | 15·70 | 13·59 | |
| 85-90 | 2 | 2 | 100 | 2 | — | — | 23·33 | 19·71 | |
| | 41947·5 | 604 | 1·44 | 15538 | 272 | 1·75 | | | |

30. The table of mortality which General Hannington has used for wives is the same, after age 27, as Mr. Davies gives in his report on the Madras Military Fund, dated June 1839, but which he afterwards corrected by making the deaths an equal number at each of the ages 13 to 27. But it will be found, by Appendix 20 (Mr. Davies), that it was deduced from only 21 deaths of daughters and 41 deaths of widows of members of the Fund, and that of the latter only 11 had the ages at death recorded, so that it would evidently be desirable to continue to collect the facts, since the recent experience with the larger numbers shows a much lighter mortality amongst female lives returned from India than has generally been supposed.

31. As Mr. Davies' Table, however, does not begin to show the excess of mortality to any great extent until after the age of 40, at which age the widows, whose pensions are valued by a different table, begin to bear a larger proportion to the wives, I am not prepared to recommend that General Hannington's Joint Life Tables of Husband and Wife should be recomputed until some better observations shall have been collected, by which the tables may be corrected.

Mortality amongst children of Indian Officers.

32. In regard to the mortality under 20 years of age of sons and daughters of Officers, there have been considerable additions to the facts of late years, and the observations on the mortality and rate of marriage of daughters after that age have also been extended. General Hannington has himself given the data which were furnished to Mr. Griffith Davies and Mr. Peter Hardy in 1852, from the Register of the Bengal Military Fund up to 1850, and if these be combined with those contained in my Report for the Madras Military Fund and in some of the Reports of the Civil Funds, they may fairly be made the basis of comparison for the mortality amongst children born of European parents in India.

33. They will then comprise the following numbers for the mortality of sons and daughters under 20 years of age :—

| | Sons. | | Daughters. | |
|--|------------------|-------|------------------|-------|
| | Exposed to Risk. | Died. | Exposed to Risk. | Died. |
| Madras Military Fund, 1808 to 1857 - - | 26770·5 | 445 | 25364 | 434 |
| " " Annuitants, 1808 to 1857 - - | 5829 | 42 | 5778·5 | 35 |
| Bengal Military Fund, to 1850 - - | 10887 | 393 | 10320·5 | 370 |
| " Civil Fund, 1850 to 1863 - - | 7588·5 | 102 | 6644·5 | 84 |
| Madras Medical Fund, 1824 to 1855 - - | 5323·5 | 66 | 4603·5 | 71 |
| | 56398·5 | 1048 | 52711 | 994 |

34. The combination of these tables affords sufficient materials for trustworthy results under age 20, except, perhaps, for the first year of life, when, from the very light mortality which is observable, it is probable that some of the deaths which take place soon after birth have escaped registration.

35. General Hannington has adopted Dr. Farr's English Life Table No. 3, which includes the deaths for 17 years, 1838 to 1854, compared with the living at the two censuses in 1841 and 1851, and the following comparison of the above Indian tables may be made with it :—

TABLE C.

MORTALITY amongst Children born of European Parents in India.

| Age. | Males. | | Females. | | Indian Table. Force of Mortality, per Cent. | | Hannington. Farr No. 3. Annual Mortality per Cent. at Mean Age. | |
|-------|------------------|-------|------------------|-------|---|---------|---|---------|
| | Exposed to Risk. | Died. | Exposed to Risk. | Died. | Male. | Female. | Male. | Female. |
| 0 | 3552 | 306 | 3404 | 261 | 8·62 | 7·67 | 18·33 | 14·75 |
| 1 | 4781 | 346 | 4526 | 306 | 7·24 | 6·76 | 6·68 | 6·44 |
| 2 | 4292 | 136 | 4071 | 150 | 3·17 | 3·68 | 3·62 | 3·60 |
| 3 | 4011 | 64 | 3740·5 | 70 | 1·60 | 1·87 | 2·42 | 2·45 |
| 4 | 3778·5 | 30 | 3495 | 40 | ·79 | 1·14 | 1·80 | 1·79 |
| 0·5 | 20414·5 | 882 | 19236·5 | 827 | 4·32 | 4·30 | 6·57 | 5·80 |
| 5·10 | 16024·5 | 82 | 14926·5 | 87 | ·51 | ·58 | ·92 | ·91 |
| 10·15 | 12107· | 39 | 11112·5 | 39 | ·32 | ·35 | ·48 | ·51 |
| 15·20 | 7852·5 | 45 | 7435·5 | 41 | ·57 | ·55 | ·62 | ·66 |
| — | 56398·5 | 1048 | 52711 | 994 | — | — | — | — |

36. It will thus be seen that Farr's English Life Table No. 3, exhibits a much higher rate of mortality in the first year of life and generally in and after the third year, indicating that a smaller number would survive to obtain the benefits than according to the Indian rates. I think, therefore, it would be prudent to collect further observations to check the above tables, and, if found necessary, the contributions for the contingent benefits to children might be modified hereafter.

37. Assuming that the mortality of daughters, after the age of 20, may be fairly represented by the English Life Table No. 3, the only remaining point is their rate of marriage.

38. In the proportions given for 1851 in England, in the Registrar General's 14th Report, the rates of marriage amongst spinsters are much lower at all ages than amongst widows, and, being computed on 140,331 marriages of spinsters and 13,875 marriages of widows, may be supposed to fairly exhibit the ratios in the general population of this country. The rates amongst spinsters in 1851 are also confirmed by recent observations of a similar kind in 1868.

39. But General Hannington has prudently thought that allowance should be made for what, in this case, must be considered a special class, and has accordingly formed a table by reducing the full English rates by one-fifth, a course in which he is strengthened by the opinion of Dr. Farr.

40. By collecting my own observations for the Indian services a few more facts have been put together, which show that at the younger marriageable ages the daughters of Indian Officers marry in rather higher proportions than their widows do, but at the subsequent ages less. They are principally derived from the Madras tables, but include also the Bengal Civil Fund.

TABLE E.
Proportion of Marriages amongst Spinsters.

| Age. | Daughters of Indian Officers. | | | England, 1851, less one-fifth. | England. | |
|-------|-------------------------------|----------|-----------|-----------------------------------|----------|-------|
| | At Risk. | Married. | Per Cent. | | 1851. | 1868. |
| 15-20 | 6675· | 209 | 3·13 | 1·74 | 2·18 | 2·70 |
| 20-25 | 2966· | 238 | 8·02 | 10·14 | 12·67 | 13·20 |
| 25-30 | 1267· | 69 | 5·45 | 7·60 | 9·50 | 9·77 |
| 30-35 | 679·5 | 19 | 2·80 | 4·82 | 6·03 | 5·76 |
| 35-40 | 373· | 3 | ·80 | 3·02 | 3·78 | 4·01 |
| 40-45 | 99·5 | 2 | 1·00 | 2·00 | 2·50 | 2·93 |
| 45-50 | 93·5 | — | — | 1·14 | 1·42 | 2·09 |
| 50-55 | 39· | — | — | ·48 | ·60 | 1·26 |
| 55-60 | 19· | — | — | ·25 | ·31 | ·72 |
| 60-65 | 7· | — | — | ·07 | ·09 | ·35 |
| | 12318·5 | 540 | | | | |

41. Even the reduced table of General Hannington still considerably exceeds the rates of marriage by actual observations amongst the daughters of Indian Officers. As, however, they are combined with the rates of mortality amongst the same class, and affect mostly the earlier periods of the marriageable ages, they will probably be safe enough for practical use.

42. On the whole, I come to the conclusion that the bases of the various tables which General Hannington has taken have been selected with great care and judgment, and that they will only require that the registers which he suggests should be kept with accuracy and the results compared from time to time, so that any alteration which may be necessary in the subscriptions or benefits may be effected on good authority. They are, as far as our experience extends at present, sufficient to preserve the Fund financially in a sound condition and render it free from the need of any extraneous aid.

43. As to the other questions discussed, the amount of the pensions to be paid to widows and children, the amount of donations on promotion and marriage, the increase of the subscriptions on promotion, and their reduction after retirement, the corresponding contributions appear to have been very judiciously and carefully computed by General Hannington so as to place the new benefits proposed, when added to the scale of pensions in the British Army, in accordance with the average of the total benefits which have hitherto been found sufficient and convenient in the Indian Pension Funds.

44. I also agree in the view which General Hannington takes as to the proportion of the rate in aid which may be expected from the unmarried members, and their effect upon the family contributions for sons and daughters, as shown in p. 82.

45. I have carefully examined the methods adopted, and tables given, for computing the various benefits, and need only say that General Hannington has shown the greatest mathematical skill in simplifying the processes and arriving at accurate results.

46. On the whole, I beg to report that in my judgment the scheme has been well devised, and with the collection of facts from the actual experience of the

Funds, as recommended by General Hannington, to correct, from time to time, some of the data on which at present more precise information is required, I believe it may be worked out with perfect safety to the Government. Reasoning from the success of the Pension Funds, which have been so long tried in the three Presidencies, there is every reason to think that it will prove the greatest boon and advantage to the families of Military Officers in India.

I have the honour to be,

Sir,

Your most obedient Servant,

(Signed) SAMUEL BROWN, Actuary.
