# Tables for Computing the Present Value of Death Benefits Arising Under the New York Workmen's Compensation Law.

BY

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The death benefits (in addition to the funeral benefit) under the New York Workmen's Compensation Law, which went into effect July 1, 1914, may be briefly stated as follows:

1. To the widow (or dependent husband) 30 per cent. of the wages of the deceased employee, until death; upon remarriage, the pension ceases and two years' compensation is paid in one sum.

2. To each child, until it reaches the age of 18, 10 per cent. of the wages, the widow being alive, or 15 per cent., the widow being dead.

3. To parents or grandparents, for life, 15 per cent. of the de-. ceased's wages.

4. To brothers, sisters or grandchildren, until age 18, 15 per cent. of the wages.

NOTE: THE TOTAL AMOUNT OF COMPENSATION PAYABLE MUST NOT EXCEED 66⅔ PER CENT. OF THE DECEASED'S WAGES, AND THE MAXIMUM AMOUNT UPON WHICH COMPENSATION IS PAYABLE IS $1,200.

The New York State Industrial Commission has adopted for purposes of valuation and commutation the Danish Survivorship Annuitants' Table of Mortality* with 3½ per cent. interest, and the Remarriage Table of the Dutch Royal Insurance Institution.* These standards are used for the valuation of death claims in the State Insurance Fund. They are also in use for the calculation of the present values of awards where commutation is granted by the Commission.

The appended tables have been computed in the actuarial department of the Commission, under the supervision of Mr. Joseph H. Woodward, to whom the writer is indebted for valuable suggestions as to the form of this paper. Mr. Harry Lubin computed Table II and Mr. Vincent G. McGuire assisted in calculating the

* Also adopted by the New York Insurance Department for mutual compensation companies.

data upon which all of the tables are based. The law provides for the pension to be payable in the same manner as the deceased received his wages, and at the present time the Commission is ordering pensions to be paid weekly. In effect, payments are being made at frequent intervals throughout the year and the valuation is therefore made on the basis of a continuous annuity, i. e., an annuity assumed to be payable continuously or momently.

## NOTATION.

$x$ = age of widow.

$y_1$ = age of eldest child, $y_2$ the next eldest, etc.

$z_1$ = age of eldest of dependent brothers, sisters or grandchildren, $z_2$ the next eldest, etc.

$w_1$ = age of eldest dependent parents or grandparents, $w_2$ the next eldest, etc.

$\bar{a}_{x'}$, the present value of $1 per annum, payable momently, and ceasing at death or remarriage.

$\bar{E}_{x''}$, the present value of $1 payable at remarriage.

$\bar{a}_{y\,\overline{18-y}|}$, the present value of $1 per annum, payable momently, and ceasing at age 18.

$'\bar{a}_w$, the present value of $1 per annum, payable momently, and ceasing at death.

## ILLUSTRATIONS OF USES OF TABLES.

*Example 1.*—Dependents: widow, aged 37, and children, aged 13, 6 and 1. Annual wage of deceased employee, $720.

The benefit in this case is

$$7.2\left[(30\bar{a}_{37'} + 60\bar{E}_{37''}) + (15\bar{a}_{13\,\overline{5}|} - 5\bar{a}_{37:13\,\overline{5}|})\right.$$
$$+ (15\bar{a}_{6\,\overline{12}|} - 5\bar{a}_{37:6\,\overline{12}|}) + (15\bar{a}_{1\,\overline{17}|} - 5\bar{a}_{37:1\,\overline{17}|})]$$

$$= 7.2\begin{bmatrix} \text{Table I} & \text{Table II} & \text{Table II} & \text{Table II} \\ (469.35) + & (45.71) + & (97.29) + & (127.06) \end{bmatrix}$$

$= 7.2\ (739.41) = $5,323.75$  Total present value.

The work may be arranged in tabular form as follows:

| Table No. | Dependent. | Age. | Present Value of $100 Wage. | Multiplier. | Present Value. |
|---|---|---|---|---|---|
| I | Widow | 37 | $469.35 | 7.2 | $3,379.32 |
| II | Child | 13 | 45.71 | 7.2 | 329.11 |
| II | " | 6 | 97.29 | 7.2 | 700.49 |
| II | " | 1 | 127.06 | 7.2 | 914.83 |
| | | | | Total..... | $5,323.75 |

*Example 2.*—Dependents: children, aged 15, 12, 7 and 2. Annual wage of deceased employee, $1,050.

The benefit in this case is

$$10.5 \, (15\bar{a}_{15\,\overline{3}|} + 15\bar{a}_{12\,\overline{6}|} + 15\bar{a}_{7\,\overline{11}|} + 15\bar{a}_{2\,\overline{16}|})$$

From Table III

$= 10.5 \, (42.44 + 80.10 + 133.76 + 177.78)$

$= 10.5 \, (434.08) = \$4,557.84$   Total present value.

The work may be arranged in tabular form as follows:

| Table No. | Dependent. | Age. | Present Value of $100 Wage. | Multiplier. | Present Value. |
|-----------|-----------|------|------------------------------|-------------|----------------|
| III | Child | 15 | $ 42.44 | 10.5 | $   445.62 |
| III | " | 12 | 80.10 | 10.5 | 841.05 |
| III | " | 7 | 133.76 | 10.5 | 1,404.48 |
| III | " | 2 | 177.78 | 10.5 | 1,866.69 |
| | | | | Total..... | $4,557.84 |

*Example 3.*—Dependents: grandparents, aged 84 and 79, and parents, aged 52 and 48. Annual wage of deceased employee, $1,200.

The benefit in this case is

$$12 \, (15\bar{a}_{84} + 15\bar{a}_{79} + 15\bar{a}_{52} + 15\bar{a}_{48})$$

From Table IV

$= 12 \, (55.95 + 77.22 + 222.70 + 241.78)$

$= 12 \, (597.65) = \$7,171.80$   Total present value.

The work may be arranged in tabular form as follows:

| Table No. | Dependent. | Age. | Present Value of $100 Wage. | Multiplier. | Present Value. |
|-----------|-----------|------|------------------------------|-------------|----------------|
| IV | Grandparent | 84 | $ 55.95 | 12 | $   671.40 |
| IV | " | 79 | 77.22 | 12 | 926.64 |
| IV | Parent | 52 | 222.70 | 12 | 2,672.40 |
| IV | " | 48 | 241.78 | 12 | 2,901.36 |
| | | | | Total..... | $7,171.80 |

*Example 4.*—Dependents: widow, aged 26, child, aged 5, and grandparent, aged 73. Annual wage of deceased employee, $1,130.

The benefit in this case is

$$11.3 \, [(30\bar{a}_{26'} + 60\overline{E}_{26''}) + (15\bar{a}_{5\,\overline{13}|} - 5\bar{a}_{26:5\,\overline{13}|}) + (15\bar{a}_{73})]$$

$$= 11.3 \begin{bmatrix} \text{Table I} & \text{Table II} & \text{Table IV} \\ (356.34) + & (103.30) + & (107.38) \end{bmatrix}$$

$= 11.3 \, (567.02) = \$6,407.33$   Total present value.

The work may be arranged in tabular form as follows:

| Table No. | Dependent | Age. | Present Value of $100 Wage. | Multiplier. | Present Value. |
|---|---|---|---|---|---|
| I | Widow | 26 | $356.34 | 11.3 | $4,026.64 |
| II | Child | 5 | 103.30 | 11.3 | 1,167.29 |
| IV | Grandparent | 73 | 107.38 | 11.3 | 1,213.40 |
| | | | | Total..... | $6,407.33 |

*Example 5.*—Dependents: widow, aged 40, children, aged 16 and 10, and parent, aged 68. Annual wage of deceased employee, $910.50.

The benefit in this case is

$$9.105[(30\bar{a}_{40'} + 60\bar{E}_{40''}) + (15\bar{a}_{\overline{16\,2}|} - 5\bar{a}_{40:\overline{16\,2}|})$$
$$+ (15\bar{a}_{\overline{10\,8}|} - 5\bar{a}_{40:\overline{10\,8}|}) + (15\bar{a}_{68})]$$

$$= 9.105\begin{bmatrix} \text{Table I} & \text{Table II} & \text{Table II} & \text{Table IV} \\ (481.89) & + (19.30) & + (69.48) & + (135.03) \end{bmatrix}$$

$$= 9.105\ (705.70) = \$6,425.40\quad \text{Total present value.}$$

The work may be arranged in tabular form as follows:

| Table No. | Dependent. | Age. | Present Value of $100 Wage. | Multiplier. | Present Value. |
|---|---|---|---|---|---|
| I | Widow | 40 | $481.89 | 9.105 | $4,387.61 |
| II | Child | 16 | 19.30 | 9.105 | 175.73 |
| II | " | 10 | 69.48 | 9.105 | 632.62 |
| IV | Parent | 68 | 135.03 | 9.105 | 1,229.44 |
| | | | | Total..... | $6,425.40 |

*Age of Annuitant.*—In order to secure the correct value, it is advisable to ascertain the date of birth of all annuitants and then to take the age at nearest birthday as the age on the date that the present value is desired. For example: If an employee were killed on May 24, 1915, and his widow was born on August 15, 1870, her age must be taken as 45 if it is desired to compute the value as of date of death. In valuation, assume that six months after the date of death, the ages of all dependents increase one year. If a valuation is being made as of December 31, 1918, the attained age of the widow, 49, should be used. Similar principles are applicable to all classes of annuitants.

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# TABLE II.
## CHILD, DURING LIFE OF WIDOW.
### *Present Value of Pension per $100 Wage, Payable until Age 18.*

$$15\bar{a}_{y\,\overline{18-y}|} - 5\bar{a}_{x:y\,\overline{18-y}|}.$$

| Age of Widow (x) | Age of Child (y). | | | | | | | | | | | | | | | | | | Age of Widow (x) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | |
| 15 | 131.40 | | | | | | | | | | | | | | | | | | 15 |
| 16 | 131.41 | 126.18 | | | | | | | | | | | | | | | | | 16 |
| 17 | 131.42 | 126.18 | 120.75 | | | | | | | | | | | | | | | | 17 |
| 18 | 131.44 | 126.20 | 120.76 | 115.12 | | | | | | | | | | | | | | | 18 |
| 19 | 131.46 | 126.22 | 120.77 | 115.13 | 109.28 | | | | | | | | | | | | | | 19 |
| 20 | 131.48 | 126.24 | 120.79 | 115.14 | 109.29 | 103.22 | | | | | | | | | | | | | 20 |
| 21 | 131.49 | 126.26 | 120.81 | 115.16 | 109.30 | 103.23 | 96.92 | | | | | | | | | | | | 21 |
| 22 | 131.51 | 126.26 | 120.83 | 115.18 | 109.32 | 103.24 | 96.93 | 90.40 | | | | | | | | | | | 22 |
| 23 | 131.53 | 126.29 | 120.83 | 115.20 | 109.34 | 103.25 | 96.94 | 90.41 | 83.62 | | | | | | | | | | 23 |
| 24 | 131.56 | 126.32 | 120.86 | 115.21 | 109.36 | 103.27 | 96.95 | 90.42 | 83.63 | 76.59 | | | | | | | | | 24 |
| 25 | 131.59 | 126.34 | 120.88 | 115.23 | 109.36 | 103.29 | 96.97 | 90.43 | 83.64 | 76.60 | 69.27 | | | | | | | | 25 |
| 26 | 131.63 | 126.37 | 120.90 | 115.26 | 109.38 | 103.30 | 96.98 | 90.44 | 83.65 | 76.61 | 69.27 | 61.69 | | | | | | | 26 |
| 27 | 131.67 | 126.41 | 120.94 | 115.29 | 109.41 | 103.32 | 96.98 | 90.46 | 83.66 | 76.62 | 69.28 | 61.69 | 53.82 | | | | | | 27 |
| 28 | 131.72 | 126.45 | 120.97 | 115.31 | 109.43 | 103.34 | 97.00 | 90.46 | 83.67 | 76.63 | 69.29 | 61.70 | 53.83 | 45.66 | | | | | 28 |
| 29 | 131.77 | 126.49 | 121.01 | 115.35 | 109.46 | 103.36 | 97.02 | 90.48 | 83.68 | 76.63 | 69.30 | 61.71 | 53.83 | 45.67 | 37.19 | | | | 29 |
| 30 | 131.82 | 126.54 | 121.05 | 115.39 | 109.49 | 103.39 | 97.04 | 90.50 | 83.69 | 76.63 | 69.31 | 61.72 | 53.83 | 45.67 | 37.20 | 28.41 | | | 30 |
| 31 | 131.87 | 126.59 | 121.10 | 115.43 | 109.53 | 103.42 | 97.07 | 90.52 | 83.71 | 76.64 | 69.32 | 61.73 | 53.84 | 45.68 | 37.20 | 28.41 | 19.29 | | 31 |
| 32 | 131.93 | 126.66 | 121.15 | 115.47 | 109.57 | 103.45 | 97.10 | 90.54 | 83.73 | 76.66 | 69.32 | 61.74 | 53.85 | 45.68 | 37.20 | 28.41 | 19.29 | 9.83 | 32 |
| 33 | 132.01 | 126.72 | 121.20 | 115.51 | 109.61 | 103.49 | 97.13 | 90.57 | 83.75 | 76.68 | 69.34 | 61.74 | 53.86 | 45.69 | 37.21 | 28.41 | 19.29 | 9.83 | 33 |
| 34 | 132.09 | 126.79 | 121.27 | 115.57 | 109.65 | 103.53 | 97.16 | 90.60 | 83.77 | 76.70 | 69.36 | 61.76 | 53.86 | 45.69 | 37.21 | 28.42 | 19.29 | 9.83 | 34 |
| 35 | 132.18 | 126.87 | 121.34 | 115.64 | 109.71 | 103.58 | 97.20 | 90.63 | 83.80 | 76.72 | 69.37 | 61.77 | 53.88 | 45.70 | 37.21 | 28.42 | 19.29 | 9.83 | 35 |
| 36 | 132.29 | 126.96 | 121.42 | 115.71 | 109.77 | 103.63 | 97.24 | 90.66 | 83.82 | 76.74 | 69.39 | 61.78 | 53.88 | 45.70 | 37.22 | 28.42 | 19.29 | 9.83 | 36 |
| 37 | 132.41 | 127.06 | 121.50 | 115.78 | 109.83 | 103.68 | 97.29 | 90.70 | 83.86 | 76.76 | 69.41 | 61.80 | 53.90 | 45.71 | 37.23 | 28.43 | 19.29 | 9.83 | 37 |
| 38 | 132.53 | 127.17 | 121.60 | 115.87 | 109.91 | 103.74 | 97.34 | 90.74 | 83.90 | 76.80 | 69.43 | 61.82 | 53.91 | 45.72 | 37.23 | 28.43 | 19.29 | 9.84 | 38 |
| 39 | 132.70 | 127.29 | 121.71 | 115.96 | 109.99 | 103.81 | 97.40 | 90.80 | 83.94 | 76.82 | 69.46 | 61.84 | 53.92 | 45.73 | 37.23 | 28.43 | 19.30 | 9.84 | 39 |
| 40 | 132.82 | 127.44 | 121.82 | 116.06 | 110.08 | 103.88 | 97.46 | 90.85 | 83.98 | 76.86 | 69.48 | 61.86 | 53.94 | 45.74 | 37.24 | 28.44 | 19.30 | 9.84 | 40 |

| Age of Widow (x). | Age of Child (y). | | | | | | | | | | | | | | | | | | Age of Widow (x). |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | |
| 41 | 133.00 | 127.57 | 121.96 | 116.17 | 110.17 | 103.97 | 97.54 | 90.90 | 84.02 | 76.90 | 69.52 | 61.88 | 53.96 | 45.75 | 37.25 | 28.44 | 19.30 | 9.84 | 41 |
| 42 | 133.17 | 127.74 | 122.10 | 116.30 | 110.28 | 104.06 | 97.62 | 90.98 | 84.08 | 76.94 | 69.55 | 61.90 | 53.98 | 45.76 | 37.25 | 28.44 | 19.30 | 9.84 | 42 |
| 43 | 133.37 | 127.92 | 122.26 | 116.44 | 110.40 | 104.16 | 97.70 | 91.04 | 84.14 | 76.99 | 69.58 | 61.93 | 54.00 | 45.78 | 37.27 | 28.45 | 19.31 | 9.84 | 43 |
| 44 | 133.60 | 128.12 | 122.44 | 116.59 | 110.53 | 104.28 | 97.80 | 91.12 | 84.20 | 77.04 | 69.63 | 61.96 | 54.02 | 45.80 | 37.27 | 28.46 | 19.31 | 9.84 | 44 |
| 45 | 133.83 | 128.34 | 122.63 | 116.77 | 110.68 | 104.40 | 97.90 | 91.22 | 84.28 | 77.10 | 69.68 | 62.00 | 54.04 | 45.82 | 37.29 | 28.46 | 19.31 | 9.84 | 45 |
| 46 | 134.05 | 128.58 | 122.85 | 116.95 | 110.85 | 104.54 | 98.02 | 91.32 | 84.36 | 77.17 | 69.72 | 62.04 | 54.07 | 45.84 | 37.30 | 28.47 | 19.31 | 9.84 | 46 |
| 47 | 134.33 | 128.86 | 123.58 | 117.16 | 111.03 | 104.70 | 98.16 | 91.42 | 84.45 | 77.24 | 69.78 | 62.08 | 54.10 | 45.86 | 37.31 | 28.48 | 19.31 | 9.84 | 47 |
| 48 | 134.57 | 128.86 | 123.34 | 117.39 | 111.22 | 104.87 | 98.30 | 91.54 | 84.55 | 77.32 | 69.84 | 62.13 | 54.14 | 45.88 | 37.33 | 28.49 | 19.32 | 9.84 | 48 |
| 49 | 134.85 | 129.15 | 123.34 | 117.64 | 111.44 | 105.06 | 98.46 | 91.68 | 84.66 | 77.41 | 69.92 | 62.18 | 54.18 | 45.91 | 37.35 | 28.50 | 19.33 | 9.84 | 49 |
| 50 | 135.13 | 129.48 | 123.64 | 117.64 | 111.69 | 105.26 | 98.64 | 91.82 | 84.78 | 77.51 | 70.00 | 62.24 | 54.22 | 45.94 | 37.37 | 28.51 | 19.33 | 9.84 | 50 |
| 51 | ...... | 129.83 | 123.94 | 117.92 | 111.69 | 105.50 | 98.83 | 91.99 | 84.92 | 77.62 | 70.08 | 62.31 | 54.27 | 45.97 | 37.39 | 28.52 | 19.34 | 9.84 | 51 |
| 52 | ...... | ...... | 124.30 | 118.23 | 111.95 | 105.50 | 99.04 | 92.17 | 85.06 | 77.74 | 70.18 | 62.38 | 54.32 | 46.00 | 37.41 | 28.54 | 19.34 | 9.84 | 52 |
| 53 | ...... | ...... | ...... | 118.56 | 112.24 | 105.75 | 99.04 | 92.37 | 85.23 | 77.87 | 70.28 | 62.46 | 54.38 | 46.04 | 37.43 | 28.55 | 19.35 | 9.84 | 53 |
| 54 | ...... | ...... | ...... | ...... | 112.57 | 106.02 | 99.28 | 92.37 | 85.41 | 78.02 | 70.40 | 62.55 | 54.44 | 46.10 | 37.47 | 28.56 | 19.35 | 9.84 | 54 |
| 55 | ...... | ...... | ...... | ...... | ...... | 106.33 | 99.54 | 92.59 | 85.41 | 78.18 | 70.52 | 62.65 | 54.52 | 46.14 | 37.50 | 28.58 | 19.37 | 9.85 | 55 |
| 56 | ...... | ...... | ...... | ...... | ...... | ...... | 99.83 | 92.83 | 85.61 | 78.18 | 70.66 | 62.76 | 54.60 | 46.20 | 37.53 | 28.60 | 19.37 | 9.85 | 56 |
| 57 | ...... | ...... | ...... | ...... | ...... | ...... | ...... | 93.10 | 85.83 | 78.36 | 70.66 | 62.88 | 54.68 | 46.26 | 37.57 | 28.62 | 19.38 | 9.86 | 57 |
| 58 | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | 86.08 | 78.56 | 70.82 | 62.88 | 54.78 | 46.33 | 37.61 | 28.65 | 19.39 | 9.86 | 58 |
| 59 | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | 78.78 | 71.00 | 63.01 | 54.78 | 46.40 | 37.67 | 28.67 | 19.41 | 9.86 | 59 |
| 60 | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | 71.18 | 63.16 | 54.89 | 46.40 | 37.72 | 28.70 | 19.42 | 9.86 | 60 |
| 61 | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | 63.32 | 55.01 | 46.48 | 37.72 | 28.74 | 19.43 | 9.86 | 61 |
| 62 | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | 55.14 | 46.58 | 37.77 | 28.74 | 19.45 | 9.87 | 62 |
| 63 | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | 46.68 | 37.85 | 28.78 | 19.45 | 9.88 | 63 |
| 64 | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | 37.91 | 28.82 | 19.47 | 9.88 | 64 |
| 65 | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | 28.86 | 19.49 | 9.88 | 65 |
| 66 | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | 19.51 | 9.89 | 66 |
| 67 | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | ...... | 9.90 | 67 |

## TABLE I.

### WIDOW OR WIDOWER.

*Present Value of Pension per $100 Wage, Payable till Death or Remarriage.*

$$30\bar{a}_{x'} + 60\bar{E}_{x''}.$$

| Age $(x)$ | Present Value. | Age $(x)$. | Present Value. |
|---|---|---|---|
| 15 | 260.97 | 40 | 481.89 |
| 16 | 266.55 | 41 | 483.66 |
| 17 | 272.73 | 42 | 484.26 |
| 18 | 279.54 | 43 | 483.69 |
| 19 | 286.02 | 44 | 482.07 |
| 20 | 294.96 | 45 | 479.43 |
| 21 | 303.72 | 46 | 475.83 |
| 22 | 313.14 | 47 | 471.36 |
| 23 | 323.16 | 48 | 466.02 |
| 24 | 333.75 | 49 | 459.96 |
| 25 | 344.76 | 50 | 453.18 |
| 26 | 356.34 | 51 | 445.83 |
| 27 | 368.10 | 52 | 437.85 |
| 28 | 380.07 | 53 | 429.45 |
| 29 | 392.04 | 54 | 420.51 |
| 30 | 403.86 | 55 | 411.15 |
| 31 | 415.38 | 56 | 401.46 |
| 32 | 426.42 | 57 | 391.44 |
| 33 | 436.83 | 58 | 381.12 |
| 34 | 446.43 | 59 | 370.56 |
| 35 | 455.13 | 60 | 359.82 |
| 36 | 462.81 | 61 | 348.87 |
| 37 | 469.35 | 62 | 337.80 |
| 38 | 474.72 | 63 | 326.61 |
| 39 | 478.92 | 64 | 315.33 |
| | | 65 | 304.02 |

## TABLE III.

CHILD, THE WIDOW BEING DEAD; BROTHER, SISTER OR GRANDCHILD.

*Present Value of Pension per $100 Wage, Payable until Age 18.*

$$\bar{a}_{y\,\overline{18-y}|}.$$

| Age (y). | Present Value. | Age (y). | Present Value. |
|---|---|---|---|
| 0 | 193.10 | 10 | 102.84 |
| 1 | 185.60 | 11 | 91.70 |
| 2 | 177.78 | 12 | 80.10 |
| 3 | 169.66 | 13 | 68.04 |
| 4 | 161.20 | 14 | 55.48 |
| 5 | 152.42 | 15 | 42.44 |
| 6 | 143.26 | 16 | 28.84 |
| 7 | 133.76 | 17 | 14.72 |
| 8 | 123.86 | | |
| 9 | 113.56 | | |

## TABLE IV.

### PARENT OR GRANDPARENT.

*Present Value of Pension per $100 Wage, Payable until Death.*

$$\bar{a}_w.$$

| Age ($w$). | Present Value. | Age ($w$). | Present Value. | Age ($w$). | Present Value. |
|---|---|---|---|---|---|
| 0 | 356.40 | 35 | 292.06 | 70 | 123.80 |
| 1 | 355.48 | 36 | 288.82 | 71 | 118.26 |
| 2 | 354.54 | 37 | 285.50 | 72 | 112.78 |
| 3 | 353.55 | 38 | 282.06 | 73 | 107.38 |
| 4 | 352.53 | 39 | 278.52 | 74 | 102.08 |
| 5 | 351.46 | 40 | 274.88 | 75 | 96.87 |
| 6 | 350.36 | 41 | 271.11 | 76 | 91.77 |
| 7 | 349.22 | 42 | 267.26 | 77 | 86.79 |
| 8 | 348.02 | 43 | 263.28 | 78 | 81.93 |
| 9 | 346.77 | 44 | 259.20 | 79 | 77.22 |
| 10 | 345.50 | 45 | 255.00 | 80 | 72.64 |
| 11 | 344.14 | 46 | 250.71 | 81 | 68.24 |
| 12 | 342.76 | 47 | 246.30 | 82 | 63.98 |
| 13 | 341.32 | 48 | 241.78 | 83 | 59.88 |
| 14 | 339.82 | 49 | 237.16 | 84 | 55.95 |
| 15 | 338.26 | 50 | 232.46 | 85 | 52.20 |
| 16 | 336.66 | 51 | 227.62 | 86 | 48.62 |
| 17 | 334.98 | 52 | 222.70 | 87 | 45.21 |
| 18 | 333.26 | 53 | 217.70 | 88 | 41.98 |
| 19 | 331.46 | 54 | 212.58 | 89. | 38.94 |
| 20 | 329.58 | 55 | 207.39 | 90 | 36.06 |
| 21 | 327.64 | 56 | 202.12 | 91 | 33.36 |
| 22 | 325.64 | 57 | 196.77 | 92 | 30.82 |
| 23 | 323.55 | 58 | 191.34 | 93 | 28.46 |
| 24 | 321.40 | 59 | 185.86 | 94 | 26.25 |
| 25 | 319.17 | 60 | 180.33 | 95 | 24.20 |
| 26 | 316.84 | 61 | 174.74 | 96 | 22.30 |
| 27 | 314.46 | 62 | 169.11 | 97 | 20.56 |
| 28 | 311.97 | 63 | 163.44 | 98 | 18.94 |
| 29 | 309.40 | 64 | 157.77 | 99 | 17.48 |
| 30 | 306.75 | 65 | 152.07 | 100 | 16.14 |
| 31 | 304.00 | 66 | 146.37 | 101 | 14.92 |
| 32 | 301.16 | 67 | 140.68 | 102 | 13.83 |
| 33 | 298.23 | 68 | 135.03 | 103 | 12.81 |
| 34 | 295.20 | 69 | 129.39 | 104 | 11.85 |
| | | | | 105 | 9.80 |
| | | | | 106 | 7.50 |

The younger ages are included, for the sake of completeness.

*Note.—Where the total compensation exceeds 66 2/3 per cent., a deduction must be made, the actuarial principles of which are fully treated in the papers contained in the following bibliography.*

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