

Metropolitan Life Assurance Society. Mortality experience, from 1st January, 1835, to 31st December, 1864.

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Royal College of Physicians of Edinburgh

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METROPOLITAN
LIFE ASSURANCE SOCIETY.

MORTALITY EXPERIENCE,

FROM

1ST JANUARY, 1835, TO 31ST DECEMBER, 1864.

R35287

OBSERVATIONS.

THE following Tables are the results of an investigation of the rate of mortality which has prevailed in the Metropolitan Life Assurance Society, during a period of thirty years, that is to say, from the foundation of the Office on the 1st January, 1835, to the 31st December, 1864.

The observations extend over the whole of the policies issued, but the results have been obtained in regard to lives only; all multiple policies on any life after the first, having been eliminated, except when the risk has not been continuous.

The Experience embraces the deaths from all causes in all classes of assurance. No regard has been paid to any extra premium charged for Climate, Military or Naval risk; nor has any distinction been made between the British and Irish Lives, the latter numbering only 55, or $1\frac{1}{4}$ per cent. of the whole body.

The number of lives under observation is 4,441, whose duration on the office registers was traced, on the average, for a period of eleven and a-half years from their admission.

At the close of the period of observation,

3072 or 69.2 per cent. were still existing.

698 or 15.7 per cent. had lapsed.

671 or 15.1 per cent. had died.

4441 Total number of lives.

The average age at entry is almost exactly 36 years (say 36.012).

The average expectation at entry of the 671 lives who have died was 25.9 years—their average duration 13.2 years.

Under the head of “Diseased Lives” (Table D), only those persons have been classified, who, either for gout, hernia, impaired health, or tendency to disease, have been assured at an increase of their natural ages. The average addition has been $3\frac{1}{4}$ years, but which has been entirely disregarded in determining the mortality of this class.

In the classification of the Causes of Death, Consumption has been included with Diseases of the Respiratory Organs, to afford a means of comparison with the experience of other Societies, and also from a doubt entertained of the technical accuracy of the returns made of this particular class of disease, generally throughout the Kingdom.

NO. 3, PRINCES STREET, BANK,
23RD JUNE, 1865.

TABLE A.—Showing, at each year of age, the number of persons who, during the period of observation, Entered the Society, Discontinued their Assurances, or Died, and also the number left Existing on the 31st December, 1864.

Current Age.	Entered.	Discontinued.	Died.	Existing 31st Dec. 1864.	Current Age.	Entered.	Discontinued.	Died.	Existing 31st Dec. 1864.
3	1	.	.	.	47	76	22	11	101
4	1	.	.	.	48	81	19	14	89
5	1	.	.	.	49	60	18	18	94
6	2	.	.	.	50	54	15	21	88
7	.	1	1	.	51	59	17	12	87
8	.	.	.	.	52	57	12	26	73
9	.	.	.	.	53	38	14	22	74
10	2	.	.	.	54	38	12	19	81
11	4	.	.	1	55	36	12	16	82
12	2	.	.	.	56	31	18	16	81
13	2	.	.	.	57	37	11	16	77
14	2	.	.	.	58	27	10	22	57
15	5	.	.	.	59	26	14	8	50
16	6	.	.	.	60	36	8	19	52
17	12	.	.	1	61	21	9	17	61
18	14	1	.	1	62	16	3	20	47
19	21	.	.	.	63	16	7	19	49
20	29	4	1	1	64	7	4	25	42
21	46	7	.	7	65	11	4	19	44
22	73	12	.	14	66	9	5	11	42
23	94	7	2	16	67	6	3	15	29
24	118	7	1	22	68	3	4	15	28
25	143	11	.	31	69	2	4	21	20
26	146	10	2	32	70	1	1	11	20
27	155	23	2	39	71	2	1	6	14
28	178	11	6	41	72	2	2	9	12
29	186	17	5	37	73	1	1	6	10
30	200	20	4	52	74	1	.	9	14
31	186	17	6	50	75	.	2	8	5
32	200	21	6	51	76	1	1	9	8
33	158	19	6	79	77	.	1	5	9
34	173	21	7	69	78	.	.	1	6
35	170	17	7	83	79	.	.	5	4
36	203	20	8	62	80	.	.	2	2
37	131	29	11	82	81	.	1	2	5
38	154	13	9	60	82	.	.	5	.
39	139	26	14	80	83	.	.	.	1
40	138	18	3	79	84	.	.	2	.
41	126	22	8	78	85	.	.	2	.
42	120	18	13	87	86	.	.	1	.
43	88	12	15	84	87	.	.	.	1
44	91	18	13	117	88	.	.	1	1
45	85	18	12	71	89	.	.	1	.
46	81	23	22	85	90	.	.	.	.

TABLE B.—Showing the number exposed to the risk of Mortality,
and the Deaths in each year of age.

Completed Age.	Number exposed to the risk of Mortality.	Deaths.	Completed Age.	Number exposed to the risk of Mortality.	Deaths.
2	·5	.	46	1574·	11
3	1·5	.	47	1520·	14
4	2·5	.	48	1469·	18
5	4·	.	49	1397·5	21
6	4·5	1	50	1329·	12
7	3·	.	51	1273·5	26
8	3·	.	52	1209·	22
9	4·	.	53	1138·	19
10	7·	.	54	1063·	16
11	9·	.	55	983·5	16
12	11·	.	56	906·	16
13	13·	.	57	834·5	22
14	16·5	.	58	770·	8
15	22·	.	59	732·	19
16	31·	.	60	681·	17
17	42·5	.	61	615·5	20
18	58·5	.	62	559·5	19
19	81·5	1	63	497·5	25
20	111·5	.	64	435·5	19
21	154·5	.	65	378·	11
22	214·5	2	66	328·5	15
23	295·5	1	67	285·5	15
24	394·	.	68	241·	21
25	497·	2	69	199·	11
26	597·	2	70	168·5	6
27	705·5	6	71	149·	9
28	826·5	5	72	128·	6
29	959·	4	73	112·5	9
30	1077·5	6	74	89·	8
31	1195·5	6	75	75·	9
32	1297·5	6	76	57·5	5
33	1358·	7	77	43·	1
34	1434·5	7	78	36·	5
35	1512·5	8	79	27·	2
36	1585·	11	80	22·5	2
37	1613·5	9	81	15·	5
38	1671·5	14	82	10·	.
39	1694·	3	83	9·	2
40	1724·	8	84	7·	2
41	1741·	13	85	5·	1
42	1730·	15	86	4·	.
43	1705·5	13	87	3·	1
44	1645·5	12	88	1·	1
45	1625·	22	89	.	.

COMPARATIVE MORTALITY.

GENERAL EXPERIENCE.

TABLE C.—Showing, in Decennial Groups of Age, the number exposed to the risk of Mortality, the actual number of Deaths accrued, and the computed number of Deaths which might have been expected according to different Tables of Mortality.

Completed Ages.	Number exposed to the risk of Mortality.	Actual Deaths.	Computed Deaths by				
			Experience of 17 Offices.	Carlisle.	Healthy Districts (Males).	London Life (1806-44).	Equitable (Morgan).
Under 20	315.	2	2	2	1	(say) 2	2
20 to 29	4,755.	22	37	37	36	33	36
30 to 39	14,439½	77	133	153	125	94	135
40 to 49	16,131½	147	196	230	171	157	200
50 to 59	10,238½	176	211	181	164	178	207
60 to 69	4,221.	173	169	165	139	158	167
70 to 79	885½	60	74	68	65	68	72
80 to 89	76½	14	13	11	12	12	14
Totals . . .	51,062½	671	835	847	713	702	833
Actual Deaths, per centage of Expected Deaths			80.3 %	79.2 %	94.1 %	95.6 %	80.6 %
Proportion of Actual Deaths to Expected Deaths			1245	1263	1063	1046	1242
			1000				

COMPARATIVE MORTALITY.

TABLE D.—DIFFERENT CLASSES OF ASSURANCE.

Class of Risk.	(1) Number of Lives.	(2) Average No. of Years under Observation.	(3) Total Numbers exposed to a Year's risk at each Age.	(4) Total Deaths.	(5) Percentage of Mortality on Column 3.	(6) The computed Number of Deaths by the "Experience" Table.	(7) Actual Deaths, Percentage of computed Deaths.
Healthy Lives	3,886	11.5	44,642.	572	1.28	723	79.1
Diseased Lives	555	11.6	6,420.5	99	1.54	112	88.4
Males	4,144	11.6	47,914.	615	1.28	767	80.2
Females	297	10.6	3,148.5	56	1.78	68	82.4
Members	4,110	11.7	48,180.	612	1.27	772	79.3
Non-Members	406	7.9	3,188.5	64	2.01	69	92.7
General Experience	4,441	11.5	51,062.5	671	1.31	835	80.3

* To distinguish between Members and Non-Members, 75 Lives, assured in both Classes, have been included.

GENERAL EXPERIENCE.

TABLE E.—ANNUAL MORTALITY PER CENT. IN DECENNIAL GROUPS OF AGE.

Completed Ages.	Metropolitan. (1835-64) (Persons)	Experience of 17 Offices.	Carlisle.	Equitable. (Morgan)	English Life Table No. 3. (Males)	Healthy Districts. (Males)	Peagee. (Males) (Bailey and Day)	London Life. (1806-44) (Persons)
10 to 19	3425	6942	5865	7420	5632	4514	5350	Not given.
20 to 29	4627	7737	7595	7482	9064	7609	10487	8841
30 to 39	5333	9212	10521	9251	11182	8624	8704	6407
40 to 49	9114	12219	14231	12389	15221	10692	12237	9848
50 to 59	17190	21196	18411	20846	24050	16355	17426	17827
60 to 69	40985	42421	40290	41961	44339	35316	36030	40144
70 to 79	67758	88828	82733	85396	91450	78311	81818	80553
80 to 89	183010	142610	156322	182259	174807	159582	183976	166963

CAUSES OF

TABLE F.—Showing (1), The Number of Lives at Risk for the Thirty Years
Deaths during that period :—(3), The Causes of Death in Classes (as
Disease as Causes of Death, measured by the ratio the decrements

CAUSES OF DEATH.	NUMBER OF LIVES AT					
	51,062.5		315.0		4,755.0	
	All Ages.		Under 20.		Age 20 to 29.	
	No. of Deaths.	Mortality per Cent.	No. of Deaths.	Mortality per Cent.	No. of Deaths.	Mortality per Cent.
1. Epidemic and Infectious Diseases	64	·1253	1	·3174	4	·0841
2. Diseases of Uncertain Seat	51	·0999	..	..	1	·0210
3. Diseases of Brain and Nerves	150	·2938	..	..	2	·0421
4. Diseases of Respiratory Organs	163	·3192	1	·3174	6	·1262
5. Diseases of Heart and Blood Vessels	72	·1410	..	..	1	·0210
6. Diseases of Digestive Organs	81	·1586	..	..	5	·1052
7. Diseases of Urinary Organs	35	·0685	..	..	1	·0210
8. Diseases of Uterus and Childbirth	1	·0020	..	..	..	..
9. Diseases of Joints and Bones	4	·0078	..	..	..	..
10. Diseases of Integumentary System	4	·0078	..	..	..	..
11. Violent Deaths and Accidents	21	·0411	..	..	2	·0421
12. Natural Decay and Old Age	25	·0490	..	..	..	..
Total Number of Deaths, and per Centages of Mortality }	671	1·3140	2	·6348	22	·4627

DEATH.

ending 31st December, 1864, arranged decennially:—(2), The Number of Certified to the Directors); and (4), The Intensity of the various Classes of bear to the Numbers at Risk, at the respective Ages.

RISK DURING THE PERIOD OF OBSERVATION, 1835 TO 1864.

14,439.5		16,131.5		10,238.5		4,221.0		885.5		76.5		Class of Disease.
Age 30 to 39.		Age 40 to 49.		Age 50 to 59.		Age 60 to 69.		Age 70 to 79.		Age 80 and upwards.		
No. of Deaths.	Mortality per Cent.	No. of Deaths.	Mortality per Cent.	No. of Deaths.	Mortality per Cent.	No. of Deaths.	Mortality per Cent.	No. of Deaths.	Mortality per Cent.	No. of Deaths.	Mortality per Cent.	
12	·0831	25	·1550	12	·1171	10	·2369	..	..	..	..	1
4	·0277	10	·0620	11	·1074	16	·3790	9	1·0164	..	..	2
20	·1386	28	·1736	47	·4591	45	1·0660	8	·9034	..	..	3
24	·1663	43	·2666	31	·3028	32	·7581	22	2·4845	4	5·2288	4
4	·0277	13	·0806	27	·2637	23	·5449	4	·4517	..	..	5
4	·0277	14	·0868	27	·2637	26	·6160	5	·5647	..	..	6
4	·0277	4	·0248	13	·1270	11	·2606	2	·2259	..	..	7
1	·0069	..	..	..	..	..	..	..	..	..	..	8
..	..	2	·0124	1	·0098	1	·0237	..	..	..	..	9
1	·0069	1	·0062	..	..	1	·0237	1	·1129	..	..	10
3	·0207	7	·0434	7	·0684	1	·0237	1	·1129	..	..	11
..	..	..	..	..	..	7	·1659	8	·9034	10	13·0722	12
77	·5333	147	·9114	176	1·7190	173	4·0985	60	6·7758	14	18·3010	

TABLE G.—Showing the Diseases of which Persons Assured by the Metropolitan Life Assurance Society have Died, from 1835 to 1864, both inclusive; and the Age, by Decennial Periods, at which Death occurred.

CAUSES OF DEATH.	Total.	AGE AT DEATH.							
		Under 20.	20 to 29.	30 to 39.	40 to 49.	50 to 59.	60 to 69.	70 to 79.	80 and above.
CLASS I.									
Small Pox	1	.	.	1	.	.	.	.	.
Scarlatina and Scarlet Fever	4	.	1	2	.	.	1	.	.
Diarrhoea	9	.	.	1	3	3	2	.	.
Dysentery	2	.	.	.	.	2	.	.	.
Cholera	8	.	.	1	3	1	3	.	.
Influenza	2	.	.	.	.	1	1	.	.
Fevers (various)	29	1	3	5	14	3	3	.	.
Erysipelas	9	.	.	2	5	2	.	.	.
CLASS II.									
Hæmorrhage	2	.	.	.	1	.	.	1	.
Dropsy	10	.	.	1	1	3	3	2	.
Abscess	2	.	.	.	.	1	1	.	.
Mortification	8	.	.	1	.	3	4	.	.
Collapse after Sea Sickness .	1	.	.	1	.	.	.	.	.
Cancer	16	.	.	1	2	3	5	5	.
Tumour	2	.	1	.	.	1	.	.	.
Gout	4	.	.	.	3	.	.	1	.
Atrophy	1	.	.	.	1	.	.	.	.
Debility	4	.	.	.	2	.	2	.	.
Sudden Death	1	.	.	.	.	.	1	.	.
CLASS III.									
Cephalitis	1	.	.	1	.	.	.	.	.
Apoplexy	59	.	.	5	10	22	19	3	.
Paralysis	31	.	.	2	8	5	13	3	.
Tetanus	1	.	.	.	.	1	.	.	.
Epilepsy	6	.	.	1	1	2	2	.	.
Delirium Tremens	5	.	.	1	2	1	1	.	.
Disease of Brain	44	.	2	9	7	15	9	2	.
Inflammation of Spinal Marrow	3	.	.	1	.	1	1	.	.
CLASS IV.									
Laryngitis	2	.	.	.	1	1	.	.	.
Bronchitis	36	.	1	1	4	4	14	10	2
Pleurisy	12	.	.	3	3	2	1	2	1
Pneumonia	31	.	.	4	10	5	7	5	.
Hydrothorax	9	.	.	1	1	1	4	1	1
Asthma	2	.	.	.	.	.	.	2	.
Consumption	51	1	3	12	19	13	3	.	.
Disease of Lungs	20	.	2	3	5	5	3	2	.
Carry forward	428	2	13	60	106	101	103	39	4

TABLE G—continued.

CAUSES OF DEATH.	Total.	AGE AT DEATH.							
		Under 20.	20 to 29.	30 to 39.	40 to 49.	50 to 59.	60 to 69.	70 to 79.	80 and above.
Brought forward	428	2	13	60	106	101	103	39	4
CLASS V.									
Aneurism	6	.	.	.	1	3	1	1	.
Pericarditis	5	.	.	.	3	2	.	.	.
Disease of Heart	54	.	.	4	7	20	20	3	.
Rupture of Blood Vessels . .	6	.	.	.	2	2	2	.	.
Pyæmia	1	.	1	.	.	.	.	.	.
CLASS VI.									
Enteritis and Gastritis	9	.	2	.	3	3	1	.	.
Peritonitis	2	.	1	.	.	.	1	.	.
Ulceration of Bowels	3	.	.	1	.	1	1	.	.
Obstruction of Bowels	10	.	.	1	.	3	4	2	.
Hæmatemesis	4	.	.	1	2	1	.	.	.
Disease of Stomach & Bowels	14	.	.	.	3	5	5	1	.
Hepatitis	4	.	1	.	.	2	1	.	.
Jaundice and Gall Stones . .	7	.	.	.	.	3	3	1	.
Disease of Liver	27	.	1	1	5	9	10	1	.
Disease of Oesophagus	1	.	.	.	1	.	.	.	.
CLASS VII.									
Ischuria	2	.	1	.	.	1	.	.	.
Diabetes	8	.	.	.	2	4	1	1	.
Disease of Kidneys	23	.	.	4	1	8	10	.	.
Stricture of Urethra	1	.	.	.	1	.	.	.	.
Disease of Prostate Gland . .	1	.	.	.	.	.	.	1	.
CLASS VIII.									
Childbirth	1	.	.	1	.	.	.	.	.
CLASS IX.									
Rheumatism	1	.	.	.	1	.	.	.	.
Disease of Spine	3	.	.	.	1	1	1	.	.
CLASS X.									
Carbuncle	4	.	.	1	1	.	1	1	.
CLASS XI.									
Suicides	7	.	.	.	4	3	.	.	.
Drowned	5	.	1	2	.	1	.	1	.
Accidental Injuries	6	.	.	1	2	2	1	.	.
Accidentally Poisoned	2	.	1	.	1	.	.	.	.
Wounds received in Battle . .	1	.	.	.	.	1	.	.	.
CLASS XII.									
Natural Decay and Old Age.	25	.	.	.	.	.	7	8	10
TOTALS	671	2	22	77	147	176	173	60	14

CAUSES OF DEATH.—COMPARATIVE EXPERIENCE OF DIFFERENT LIFE OFFICES.

TABLE H.—Showing the proportional number of Deaths in each Class of Disease to 1000 Deaths from all Classes of Disease.

CAUSES OF DEATH.	Metropolitan, 1833-64. No. of Deaths, 671.	Scottish Widows' Fund, 1815-59. No. of Deaths, 2307.	Scottish Amicable, 1826-60. No. of Deaths, 773.	Standard, 1825-60. No. of Deaths, 1515.	London Life, 1806-57. No. of Deaths, 2294.	Eagle, 1807-51. (?) No. of Deaths, 2020.	North British, 1823-60. No. of Deaths, 1303.
1. Epidemic and Infectious Diseases .	95	143	194	133	110	142	143
2. Diseases of Uncertain Seat	76	65	39	45	55	101	106
3. Diseases of Brain and Nerves . . .	224	223	168	197	240	185	198
4. Diseases of Respiratory Organs . .	244	207	239	237	201	212	211
5. Diseases of Heart & Blood Vessels	107	111	87	98	117	63	94
6. Diseases of Digestive Organs . . .	121	125	125	143	122	95	104
7. Diseases of Urinary Organs	52	46	30	44	39	18	32
8. Diseases of Uterus and Childbirth.	2	5	4	3	4	19	4
9. Diseases of Joints and Bones . . .	6	9	9	5	4	4	2
10. Diseases of Integumentary System	6	1	5	2	3	6	2
11. Violent Deaths and Accidents . . .	30	28	56	47	26	24	35
12. Natural Decay and Old Age	37	24	21	29	62	74	38
13. Causes not specified	.	13	23	17	17	57	31
	1000	1000	1000	1000	1000	1000	1000

NOTE.—Classes 1, 2, 8, 9, 10, 11, and 13, in the London Life are proportionally distributed.

TABLE I.—Showing the Estimated and Actual Amount of Claims for each Financial Year, to the 4th April, 1865.

The Year ending	Estimated Amount by "Experience" Table.	Actual Amount Accrued.
	£.	£.
4th April, 1836	1,642	1,000
1837	3,208	1,000
1838	4,702	2,000
1839	6,166	10,000
1840	7,625	2,500
1841	8,477	2,724
1842	12,078	2,200
1843	14,333	3,400
1844	17,351	10,849
1845	19,938	27,000
1846	23,462	7,600
1847	24,408	13,613
1848	27,256	28,250
1849	29,840	21,900
1850	31,680	24,699
1851	38,404	18,329
1852	41,931	33,610
1853	44,860	33,649
1854	48,302	30,948
1855	51,926	32,397
1856	55,732	49,869
1857	58,004	40,218
1858	60,285	46,560
1859	63,638	56,647
1860	66,161	44,553
1861	70,973	88,146
1862	74,615	60,498
1863	77,255	60,307
1864	79,824	58,699
1865	83,896	67,769
Totals	£1,147,972	£880,934

Actual Claims, per Centage of Computed Claims = 76.7 %

