

**On the mortality among publicans and other persons engaged in the sale of intoxicating liquors : being the experience of the Scottish Amicable Life Assurance Society, 1826-76 / [by John Stott].**

**Contributors**

Stott, John.  
Assurance magazine.  
Institute of Actuaries (Great Britain)  
University of Glasgow. Library

**Publication/Creation**

[Glasgow] : [Bell and Bain, Printers], [1876]

**Persistent URL**

<https://wellcomecollection.org/works/m2wjkyzs>

**Provider**

University of Glasgow

**License and attribution**

This material has been provided by This material has been provided by The University of Glasgow Library. The original may be consulted at The University of Glasgow Library. where the originals may be consulted. This work has been identified as being free of known restrictions under copyright law, including all related and neighbouring rights and is being made available under the Creative Commons, Public Domain Mark.

You can copy, modify, distribute and perform the work, even for commercial purposes, without asking permission.



Wellcome Collection  
183 Euston Road  
London NW1 2BE UK  
T +44 (0)20 7611 8722  
E [library@wellcomecollection.org](mailto:library@wellcomecollection.org)  
<https://wellcomecollection.org>





*Don P 557. - 1900*  
*Handwritten*  
*High-Gr. P.M.' Comp 11*  
ON THE  
MORTALITY AMONG PUBLICANS

AND  
OTHER PERSONS ENGAGED IN THE SALE OF  
INTOXICATING LIQUORS:

BEING  
THE EXPERIENCE OF THE SCOTTISH AMICABLE  
LIFE ASSURANCE SOCIETY,  
1826-76.

BY JOHN STOTT, F.S.S., &c.,  
MANAGER OF THE SOCIETY.

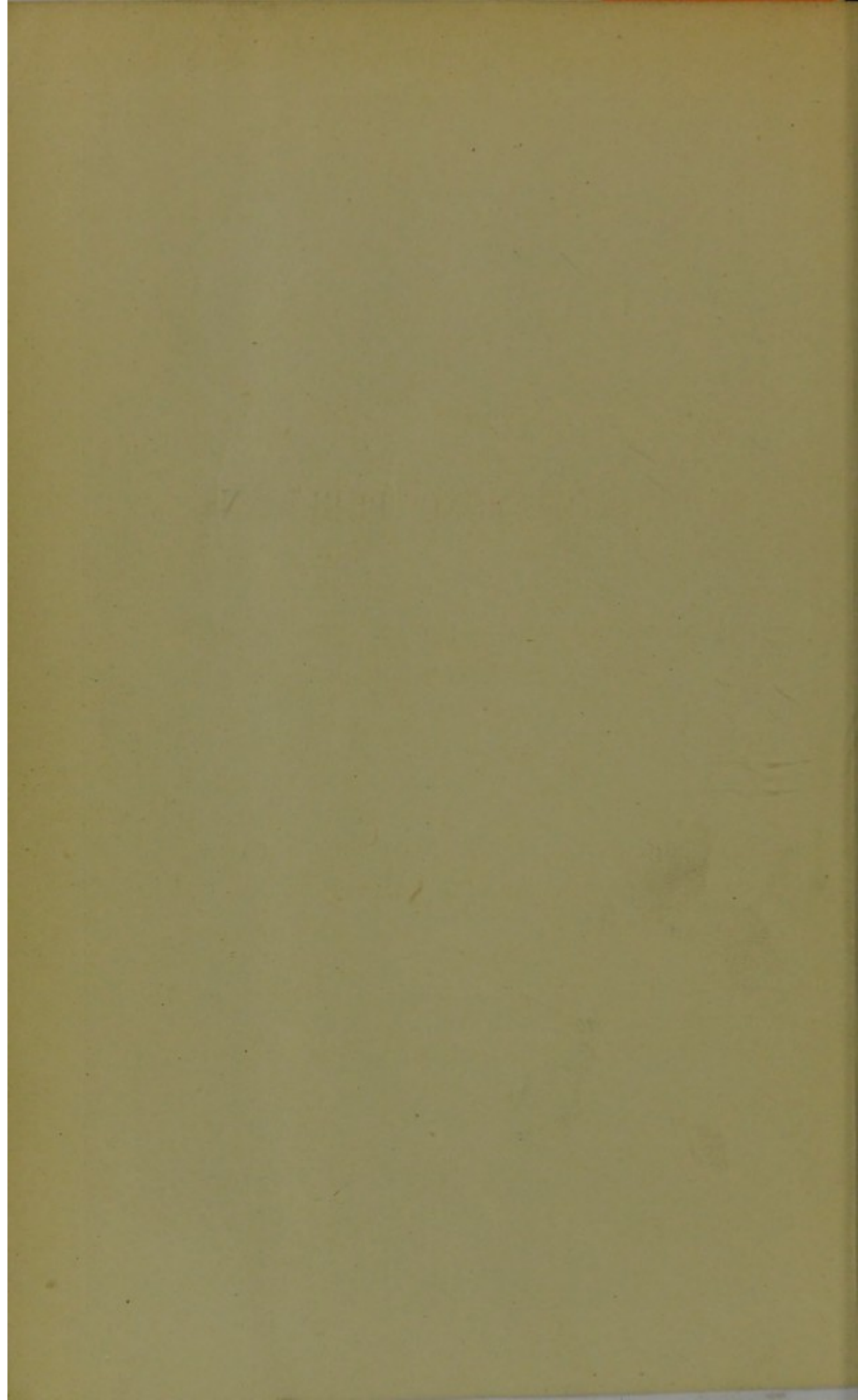
---

*Reprinted from the Journal of the Institute of Actuaries.*

---

GLASGOW:  
BELL AND BAIN, PRINTERS, 41 MITCHELL STREET.  
1876.  
c

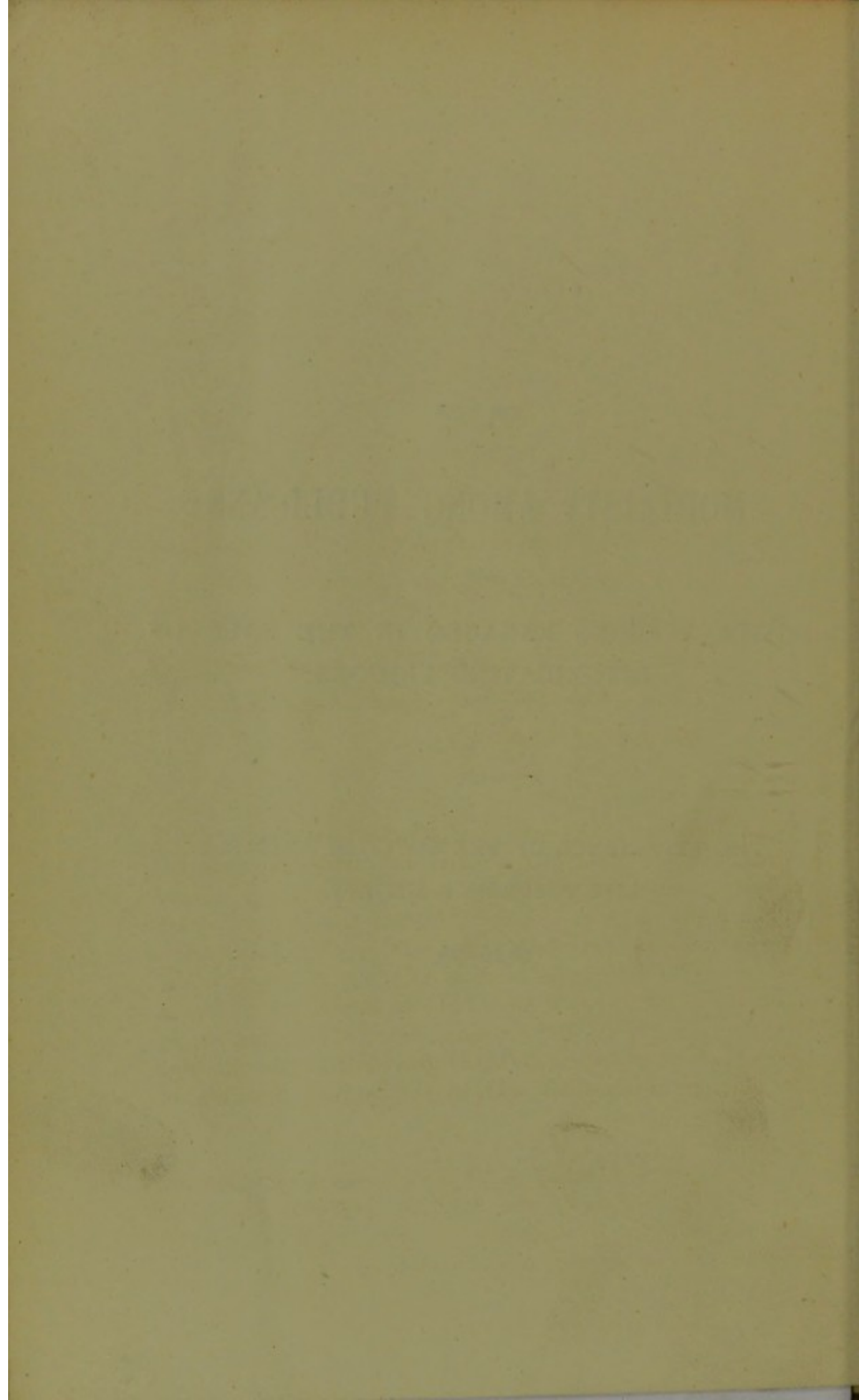




ON THE  
MORTALITY AMONG PUBLICANS  
AND  
OTHER PERSONS ENGAGED IN THE SALE OF  
INTOXICATING LIQUORS:

BEING  
THE EXPERIENCE OF THE SCOTTISH AMICABLE  
LIFE ASSURANCE SOCIETY,

1826-76.



[Reprinted from the Journal of the Institute of  
Actuaries and Assurance Magazine.]

*On the Mortality among Innkeepers, Publicans, and  
other Persons engaged in the Sale of Intoxicat-  
ing Liquors,—being the Experience of the Scottish  
Amicable Life Assurance Society during Fifty  
Years, 1826-1876. By John Stott, F.S.S., &c.,  
Manager of the Society.*

The influence of Occupation upon health and longevity is, I think, a subject deserving of even more attention than has hitherto been given to it by the Actuarial and Medical Professions. As the benefits conferred by Life Assurance are now almost universally recognised, they are being taken advantage of by classes of the community which, until the last few years, did not seem fully to appreciate them. It is, therefore, of no little consequence to have, as far as possible, a clear understanding of the relative risks attaching to different occupations and to the various branches of industry.

The Registrar-General, in his Fourteenth Annual Report, gave a Table showing the mortality per cent. in twelve distinctly defined Occupations, occurring in the year 1851. For the sake of reference it is here inserted :—



*Table showing the percentage of Mortality, during the year 1851,  
in the following Occupations.*

OCCUPATIONS.	AGES.					
	25-35	35-45	45-55	55-65	65-75	75 and above.
1. Farmers, .	1·015	·864	1·199	2·490	5·530	14·802
2. Shoemakers, .	·912	1·059	1·503	2·869	6·505	16·446
3. Weavers, .	·797	1·056	1·537	3·299	7·459	17·308
4. Grocers, .	·763	1·046	1·579	2·265	4·972	12·457
5. Blacksmiths, .	·812	1·240	1·651	3·724	7·443	16·710
6. Carpenters, .	·945	1·032	1·667	2·966	6·586	14·286
7. Tailors, .	1·163	1·415	1·674	2·818	7·647	15·528
8. Labourers, .	·979	1·252	1·730	2·920	6·790	17·394
9. Miners, .	·849	1·135	2·015	3·450	8·051	17·867
10. Bakers, .	·759	1·475	2·121	3·301	6·678	15·066
11. Butchers, .	1·130	1·653	2·310	4·149	6·647	15·449
12. Innkeepers, .	1·383	2·045	2·834	3·897	8·151	18·084
All England, .	·948	1·236	1·787	3·031	6·396	14·055

From this we learn that, taking the mortality at middle life (ages 45 to 55) out of every 1,000 farmers, 12 die annually; out of every 1,000 shoemakers and weavers, 15; out of every 1,000 grocers, 16; out of every 1,000 blacksmiths, carpenters, tailors, and labourers, 17; out of every 1,000 miners, 20; out of every 1,000 bakers, 21; and out of every 1,000 butchers, 23; whilst out of every 1,000 innkeepers and publicans, no fewer than 28 die annually:—the yearly mortality at the ages stated being rather under 18 per 1,000 in the general population of the country.

Ten years afterwards similar observations were made by



the Registrar-General as applicable to the deaths of males upwards of 15 years of age in the years 1860-61, and published by him in the supplement to his Twenty-fifth Annual Report. Some slight transpositions are here apparent, but, as in the Table of 1851, the Farmer class remained at the head of the list, and the Innkeeper class at the bottom. Again, in the supplement to his last Report—the Thirty-fifth—the deaths occurring in the year 1871 are tabulated for various occupations, and added to those previously given for 1860-61; but with the unvarying result that the highest rate of mortality is to be found among Publicans,—this mortality exceeding that of the general population (males above 15) by about 55 per cent.

The following remarks apply to the experience of the SCOTTISH AMICABLE SOCIETY during its first fifty years, in connection with this class of lives; and it is hoped that this small contribution to the statistics of the subject, may, notwithstanding the comparatively limited number of Lives under observation, aid in determining, with some approach to accuracy, the addition which should be made to such risks, so as to place them on a more equitable footing with the general body of Assurers.

As the occupation under review is not well defined, and the unsettled nomenclature of its various branches makes classification somewhat difficult, it is right to state that in the following returns are included all innkeepers, licensed victuallers, publicans, spirit merchants, beer-sellers, travellers in connection with any of these trades, steamboat stewards, and generally all persons connected with the sale of intoxicating liquors. Wine merchants, not carrying on any retail business, are not included.

The Society, I find, has assured 361 persons directly engaged in the liquor traffic. Of these 102 have died, 115 have surrendered or relinquished their Policies; leaving 144 members of this class still on the Registers.



It was at first thought scarcely worth the labour of taking out the exact experience at the different ages, and consequently an approximate calculation was made by extracting from the Journal of Benefits an equal number of lives entering next before and next after each publican. This basis of comparison, experience had shown, would probably be sufficiently accurate to enable an estimate to be made of the aggregate experience among Publican as compared with Non-Publican lives. The following Table gives the result :—

*Scottish Amicable Society's experience of "Publican" as compared with Non-Publican Lives.*

LIVES ENTERING	NUMBER.	WHEREOF		
		Died.	Cancelled.	In Force.
Next before each Publican, .	361	76	104	181
Next after, ,, ,, .	361	60	144	157
	722	136	248	338
Mean of these, . . . . .	361	68	124	169
Publicans, . . . . .	361	102	115	144

Showing no fewer than 34 deaths (102—68), or, singularly enough, exactly Fifty per cent. excess of mortality in the Publican class.

But, on second thoughts, it was deemed better to adopt the more exact method of ascertaining the actual years of risk, and it is somewhat striking to observe how closely the results correspond with the approximate method referred to. The following Table shows the numbers at risk, and the actual deaths as compared with the deaths to be expected by the Carlisle, the Actuaries, and the English Life Tables of Mortality respectively :—

*Table showing the Actual Mortality Experience of the Scottish Amicable Society among Publicans and Innkeepers.*

AGES.	Number at Risk.	Deaths.	DEATHS EXPECTED BY		
			Carlisle Table.	H <sup>m</sup> Table.	English Life, (Males, 2.)
20 to 25, . .	25	...	·176	·168	·211
25 „ 30, . .	107	3	·918	·758	·992
30 „ 35, . .	314	5	3·179	2·561	3·216
35 „ 40, . .	547	13	6·012	5·192	6·350
40 „ 45, . .	675	16	9·527	7·321	9·097
45 „ 50, . .	630	13	9·060	8·603	10·095
50 „ 55, . .	488	19	7·335	8·559	9·426
55 „ 60, . .	331	12	7·136	7·880	8·317
60 „ 65, . .	213	9	7·796	7·296	7·821
65 „ 70, . .	114	5	5·047	5·625	6·008
70 „ 75, . .	68	1	4·550	5·031	5·177
75 and upwards, .	17	6	1·744	1·853	1·814
	3529	102	62·480	60·847	68·524

The mortality being thus 63 per cent. in excess of the Carlisle Table; 68 per cent. in excess of the Actuaries Table; and 49 per cent. in excess of the English Life Table (Males No. 2).

This result shows a difference of not more than one per cent. between the approximate method and the exact excess as ascertained by the “English Life,” the Table on which the Society’s calculations are now based.



Having arrived at this conclusion, it will be interesting to inquire into the causes of death of these Publicans, and so endeavour to account for the excessive mortality among their class. The following Table has accordingly been prepared, showing the causes of death and the percentage thereof under each class of disease to the whole number of deaths. This percentage again is compared with two Tables, namely—the Society's own General Mortality Experience, which was published shortly after its Fifth Septennial Investigation, and the Ordinary English Death Rate between ages 15 and 75, as given in the Eighteenth Report of the Registrar-General. The classification of the Registrar-General in his earlier reports has been adopted as more convenient for analytical comparison than the form since introduced by him. It will be observed that there were seven cases of "Dropsy," and in accordance with Dr. Farr's classification these fall to be entered under the Diseases of Uncertain Seat. As, however, it is now generally conceded that "Dropsy" is not an independent or primary disease, but rather the *sequela* of Cardiac, Hepatic, or Renal complaints, and would scarcely now be accepted by the Medical Adviser of a Life Office as a sufficiently explicit term, the method adopted by Dr. J. G. Fleming in his "Medical Statistics of Life Assurance" has been followed, the seven cases of Dropsy being distributed over the three diseases mentioned, giving to "Liver" (as perhaps best entitled to it) the odd seventh.

*Nosological Table.*



*NOSOLOGICAL TABLE, showing the Deaths among Publicans assured by the Scottish Amicable Society,—and the percentage thereof as compared with the General Mortality Experience of the Society; and with the Ordinary English Death Rate.*

CAUSES OF DEATH (Registrar-General's Classification).	DEATHS.	Percentage under each Disease.	Percentage of Deaths as compared with	
			The Society's own Experience.	The English Life Table.
1. ZYMOTIC DISEASES—				
Small-pox, . . . 1	9	8·824	19·405	16·030
Diarrhœa, . . . 3				
Fever, . . . 3				
Erysipelas, . . . 2				
2. DISEASES OF UNCERTAIN SEAT—				
Hæmorrhage, . . . 1	5	4·902	3·881	3·820
Cancer, . . . 4				
Dropsy 7 (see page 8), —				
3. TUBERCULAR DISEASE—				
Phthisis, . . . . .	16	15·686	13·842	25·170
4. DISEASES OF NERVOUS SYSTEM—				
Apoplexy, . . . 3	22	21·569	16·817	9·800
Paralysis, . . . 3				
Disease of Brain, . . . 11				
Delirium Tremens, . . . 2				
Epilepsy, . . . 3				
5. HEART DISEASE, . . . . .	13	12·746	8·667	7·050
6. BRONCHITIS, . . . . .	10	9·804	10·092	11·310
7. DISEASES OF DIGESTIVE ORGANS—				
Disease of Stomach, &c., 9	21	20·587	12·549	8·770
Obstruction of Bowels, 1				
Disease of Liver, . . . 11				
8. DISEASE OF KIDNEY, . . . . .	3	2·941	2·975	3·000
9. GENERATIVE ORGANS, . . . . .	...	...	·388	1·800
10. RHEUMATISM, . . . . .	1	·980	·905	·980
11. INTEGUMENTARY TISSUES, . . . . .	...	...	·517	·210
12. MALFORMATIONS, . . . . .	...	...	...	·010
13. PREMATURE BIRTH, &c., . . . . .	...	...	...	·460
14. ATROPHY, . . . . .	...	...	...	2·060
15. OLD AGE, . . . . .	2	1·961	2·070	2·740
16. UNASCERTAINED CAUSES, . . . . .	...	...	2·329	2·450
17. VIOLENT DEATHS, . . . . .	...	...	5·563	4·340
Total, . . . . .	102	100·	100·	100·



After giving effect to the correction referred to, it will be seen from the Nosological Table given above, that the greatest number of deaths occurred from diseases of the Nervous System, the Organs of Circulation, and the Digestive Organs. The mortality in these three classes is greatly in excess of that of the general population, and about 30 per cent., 50 per cent., and 60 per cent. respectively in excess of the general mortality experience of the Society itself. The deaths from diseases of Uncertain Seat are also in excess of the percentage under both Tables, notwithstanding the elimination of the seven cases of Dropsy. On the other hand Tubercular Disease and Bronchitis are as much as 40 per cent. and 13 per cent. respectively under the expectation. The deaths by Contagious and Infectious Diseases are greatly under the expectation, being no less than 45 per cent. below the ordinary death rate, and 55 below the Society's general experience. This surely is an unexpected result in a class a large proportion of which must of necessity be specially exposed to such diseases by coming in contact with numbers of people of a degraded type.

As it is the Digestive Organs and the Nervous System which suffer most from the abuse of stimulants, so we are prepared to find that the greatest mortality occurred in connection with them—no less than 43 out of the 102 deaths being traceable to these diseases. Thus—

*Deaths among Publicans from Diseases of the Nervous System  
and of the Digestive Organs.*

	DEATHS.	Percentage of Total.	Percentage by	
			The Society's own Experience.	The English Life Table.
Nervous System, . . .	22	21·569	16·817	9·800
Digestive Organs, . . .	21	20·587	12·549	8·770
Together, . . .	43	42·156	29·366	18·570



The excessive development of these diseases making the deaths 45 per cent. above the general experience of the Society, and about 130 per cent. above the ordinary English death rate.

Another unlooked for result in investigating this subject is that it is not in the lowest branches of the trade that the greatest mortality is to be found. The returns from time to time bring out the embarrassing fact that the humble beer-seller belongs to the healthiest section of the trade, whilst the innkeeper belongs to the most unhealthy. It would also appear that the mortality is greater in the large towns than in the country. The following figures are obtained from the last supplement issued by the Registrar-General.

*Annual Mortality per cent. among Publicans in London,—and in England exclusive of London,—as compared with the Mortality of the Male Population of all Classes.*

AGES.	LONDON.		ENGLAND <i>ex</i> London.	
	Publicans.	General Population.	Publicans.	General Population.
15 to 25,	·686	·703	1·003	·727
25 „ 35,	1·642	1·086	1·407	·972
35 „ 45,	2·324	1·714	1·981	1·281
45 „ 55,	3·766	2·568	2·797	1·812
55 „ 65,	5·487	4·385	4·228	3·154
65 „ 75,	10·383	8·283	7·088	6·489
75 and above,	32·692	18·451	21·034	16·288

Although somewhat apart from the subject, reference may be here made to Mr. F. G. P. Neison's "Contributions to Vital Statistics," in which he gives some curious data collected as to confirmed drinkers. If the returns,—obtained as they



were,—may be relied on, they go to show that the mortality among confirmed drinkers is, between the ages of 20 and 30 fully five times, and between the ages of 30 and 50 fully four times that of the community at large; and that the average duration of life after falling into intemperate habits is, among working men, about 18 years; among merchants and tradesmen, 17 years; among professional men, 15 years; and among females, 14 years. The observations extended over 6,111 years of life, in which 357 deaths had occurred, as against 110, the rate for the general population. They also showed that the intemperate indulgence in distilled liquors is, as might have been expected, more hurtful than the abuse of fermented liquors;—the rate of mortality among the Beer-drinkers being about  $4\frac{1}{2}$  per cent. yearly, and among the Spirit-drinkers 6 per cent.

The Publican class is of course a very important section of the community, numbering, as it does, nearly ONE HUNDRED THOUSAND MEN, representing in the aggregate, as was sometime ago stated in Parliament, the enormous capital of ONE HUNDRED AND SEVENTEEN MILLIONS STERLING. We know that in this large and useful body there are many respectable and strictly temperate men, and no one would wish to detract from their merits, or try to make out a case against the class. Still, as Dr. Farr observes, if we admit that many of them are temperate, the mortality of the intemperate among them must be excessive, seeing that the mortality of the trade continues to be so great; and, without doubt, as has been shown, the excess of mortality arises chiefly from diseases induced or aggravated by excessive drinking.

Dr. B. W. Richardson, who has made the National Health his special study, in a recent article in one of the magazines makes the following striking remarks:—

“The most startling fact of all in reference to occupation and health is that which is told of the innkeepers and publicans. This class of the community is really at the lowest of the vital scale. The cause, unhappily, is not diffi-



cult to discover. There is nothing in the occupation of an innkeeper as an occupation, which can account for its unhealthiness on ordinary grounds of labour. It is not an occupation which exposes those who fill it to physical danger, as the work of the miner or the engine-driver does. It is not an occupation which makes great demands on the physical organism, like that of the blacksmith or ropemaker. It is not an occupation which leads men into solemn charges and responsibilities, like those of the physician, solicitor, or clergyman. It is not an occupation which brings those who follow it to the miseries of want and starvation. Why, then, is it the occupation most nearly allied to death? The answer is simply told. The occupation is the one the most nearly allied to alcohol. This agent of death, which diffuses danger more or less amongst all classes of workers in our part of the garden of life, tempts most rapidly into destruction those who are the dispensers of it."

Notwithstanding all that has been said, we find that Dr. J. A. Allen, Medical Adviser to several of the American Companies, in his "Examinations in Life Insurance"—a treatise which has gone through half-a-dozen editions—in dividing the different occupations into four classes places in the highest or "least dangerous" class innkeepers, saloonkeepers, brewers, rectifiers, and steamboat stewards. As we are not aware that there is any great difference in the habits of the vendors of intoxicating drinks on this and on the other side of the Atlantic, it is not easy to see how such a conclusion is arrived at. It will be satisfactory, however, to the profession, to know that he also places "Actuaries" (as well as Physicians) in this select class!

Let us now endeavour to elicit from the interesting facts obtained some deduction of a practical character. We know that each particular pursuit has its own attendant risks, and that the lives daily accepted by Assurance Offices at the same premiums are by no means of the same vitality. But it would be impracticable to frame Tables of Rates for each depart-



ment of skill and industry. The deviation in other occupations is perhaps not so great as to justify the suggestion of such a course. Still in the class of lives now under review, it is obvious that the marked excess in the mortality proves the necessity for a higher rate of premium than is adopted for the general body of the community. The Publican class is undoubtedly the lowest in the scale of vitality, and consequently the most disadvantageously placed in relation to the value of life. The figures of the Scottish Amicable Society, it is thought, afford the means of determining, at least approximately, the proper rate of extra to be imposed. The result of the first rough estimate, as explained, agrees almost exactly with the more scientific investigation thereafter made, and proves that the mortality in the Publican class is just about 50 per cent. above that of the English Life Table, or the general male population of England above the age of 15.

Consequently, applying the figures, we have

$$\frac{102 - 68.524}{3529} \times 100 = .948$$

showing that an extra rate of premium, amounting to 19s. per cent. per annum, is necessary to cover the extra risk attaching to the class. It may be added, that the Scottish Amicable for a number of years past has been in the habit of imposing an extra of £1 per cent. per annum in all such cases, and it is therefore satisfactory to know that this loading so closely meets the extra risk now indicated by its actual experience of half a century.

