

Table showing the Mortality per-cent among Persons of different Religious Creeds.

Ages	Romish	Reformed	Jewish
5-10	1.47	1.23	0.85
10-14	0.70	0.74	0.41
15-19	1.22	1.23	0.86
20-24	1.70	2.36	1.19
25-29	1.74	2.16	0.88
30-34	1.94	2.72	0.67
35-39	2.36	2.54	1.01
40-44	2.89	3.03	1.17
45-49	3.44	3.53	1.42
50-54	4.01	4.03	2.14
55-59	4.32	3.44	2.64
60-64	5.65	5.83	4.10
65-69	8.58	7.59	5.64

Mr. Samson has pointed out to me that in my notice of the mortality experience of his company (the Pole Star, of Stockholm), which was inserted in your last issue, I overlooked the fact that he has stated, on page 26 of the work, that all the calculations, including that of the expected number of deaths, are based upon the Seventeen Offices' Experience Table. He also wishes me to mention that the Swedish name of the company, by which it would be better known on the Continent, is "Nordstjernen."

I am, Sir,
Your obedient servant,

Edinbro',
23 Dec. 1887.

T. B. SPRAGUE.

ON THE HEREDITY AND TRANSMISSION OF CONSUMPTION AND OF TUBERCULOSIS OR SCROFULA.

To the Editor of the Journal of the Institute of Actuaries.

SIR,—I venture to think that the following facts, which have quite recently come to light, may be of interest to your readers, whose attention has already been drawn to this subject by Dr. Bristowe's lucid article in your *Journal* of January 1887.

The view has for some time been held that in cases of hereditary tuberculosis, it is not the *seed or virus* of the disease itself which is transmitted, but a *soil* favourable to the growth of that seed. In other words, that the tissues of a person having a tendency to consumption or scrofula possess, by inheritance, a diminished power of resisting the growth of the tubercle bacillus. In hereditary syphilis, which has many points of resemblance to tuberculosis, it is manifest that the virus or disease germ itself is directly handed down from either parent to the offspring. Recent researches on tuberculosis prove that in some instances the bacillus of tuberculosis is also directly passed from parent to the unborn offspring, and that this may occur when the father, as well as when the mother, is suffering from consumption or any other form of tuberculosis. It may be premised

that the reader is aware that a healthy animal may be infected with tuberculosis by inoculating it with a portion of a diseased or tuberculous organ.

The facts on which the above statement regarding the direct transmission of tuberculosis rests, may be briefly stated under three heads:

1. Several tubercloses, with the tubercle bacillus, have been found in a fœtus (unborn calf) of a cow suffering with pulmonary tuberculosis. In the human subject tuberculosis has been observed in an infant only fifteen days old. And the disease is stated to be commonest in infants between two and three years of age.
2. Animals become affected with tuberculosis when inoculated with portions of the apparently healthy organs of newly-born infants, the issue of mothers suffering with tuberculosis. This proves that the virus is present in the, as yet, apparently healthy offspring.
3. Children procreated while either parent is suffering with tuberculosis, often die at an early age of the same disease.

Other facts pointing to the same conclusion might be mentioned.

If once the possibility of the direct transmission of the tubercle bacillus from parent to offspring is admitted, the limit of age before it may manifest itself in the offspring cannot be defined. Many circumstances indicate that it may remain latent for years before it is carried into activity. Further, the risk of a proposer with an hereditary history of consumption or scrofula would appear, from this view, much more direct than if we suppose that he is merely subjected to a greater danger from contagion, owing to the hereditary susceptibility of his tissues.

In making this remark, I do not wish to under-estimate the danger of the acquirement of tuberculosis by contagion. This would be blind, when we remember that every consumptive patient sows the seed broadcast during the progress of the disease; and that an abundant harvest is reaped is shown by the number of deaths from tuberculosis in persons without hereditary taint.

I am,

Your obedient servant,

15 *Finsbury Circus, E.C.*,
February 1888.

FREDERIC EVE, F.R.C.S.

ON THE TRUE MEASURE OF THE PROBABILITIES OF SURVIVORSHIP BETWEEN TWO LIVES.

To the Editor of the Journal of the Institute of Actuaries.

SIR,—In the course of the discussion which followed the reading of Mr. Sunderland's paper on "Risk Premiums for Survivorship Assurances", Mr. Sutton called attention to the fact that an expression for the error involved in the use of the ordinary formula