associations, including the other nine, as observed during the same nine years:

Policy Year.	Lives exposed.	Deaths per 1,000	Deaths per 1,000 in 14 societies.
1st	120,113	2·49	2·35
2nd	93,341	6·03	5·81
3rd	58,253	6·03	5·81
4th	37,764	9·32	8·87
5th	25,256	9·98	9·10
6th	13,818	11·65	11·14
7th	5,519	7·97	11·11
8th	2,324	9·09	11·75
9th	708	21·19	14·22

The first line across this table shows a very light mortality, because most of the 120,113 lives exposed had been only a few weeks or months on the books during that first year. It may be said to have been only a half year's record at most. The results among the nine societies seem to have been much more irregular, from year to year, than among the larger number of lives found in the fourteen societies. But in both cases the increase of the mortality, as the years grew in number, is most marked. Nine years added to a man's age seems to make a wonderful difference in the chances of his living "through another year." The ages under observation ranged from twenty-five to sixty-five the first year, and of course nine years later the youngest had become thirty-four and the oldest seventy-four. Of the whole 120,113 persons the largest number were of the ages between twenty-five and forty at entry, there being about 4,000 of each age, while opposite age sixty there were only 1,021 entrants and between the ages of sixty and sixty-five only 494. Had there been an equal number of lives at all the ages, the ninth year would have shown a death loss of more than double 14·22 per thousand. Those who were aged sixty at entry do show a death rate of about 33 per 1,000 exposed, each year, in the full table.

As demonstrating the folly of depending upon the members of an assessment society to contribute their share of the reserve, as the death losses grow heavy, it is worth while to notice how rapidly the 120,113 members disappeared as the years rolled by and the assessments increased. They kept their share of the reserve in their pockets (which the society ought to have been laying aside for old age,) and they promptly buttoned up their pockets when the assessments grew heavier; and in the ninth year only a miserable remnant was on the books out of the powerful army of 120,113 who started on the march, promising to "bear one another's burdens." Rather a weak reed to depend upon for satisfactory insurance ten years from the date on which a man enters a society, full of hope and faith in the cheapness and permanence of his certificate!

The figures are not ours. They are collected and printed by the convention of the chief officers of the assessment societies of the United States. But even a worse exhibit is furnished by the four assessment societies making sworn returns to our Dominion Insurance Department at Ottawa. The last *Blue Book* shows that during the one year 1886, the new business put on their books by the four assessment societies was $9,784,755, and no less than $6,303,450 discontinued by lapse, while only $139,349

became claims by death, an enormous disproportion. These four concerns collected $262,847 from their members and paid only $141,762, in death claims, or little more than one half the amount received. Four of the older regular companies paid $186,228 in death losses, and only received $108,896 in premiums. If they had levied the $186,228 as an assessment upon their members, each would have had to pay, in 1886, on the average, no less than $40 for each $1,000 of insurance he held. How many members of an assessment society would be left after one year of such an assessment? But no one supposes the Royal, Queen, Life Association of Scotland, or Scottish Provident will lose a single member by reason of their death losses in Canada being now greater than their whole income from premiums. That is just what their officers expected would happen, and they made provision for it many years ago, by a proper reserve fund.

The following table gives the insurance in force, the death losses paid, and the increasing assessments that would be required in the case of ten regular companies if they were built on a similarly sandy foundation. The figures, covering the twelve years past, are taken from the Insurance Report, published at Ottawa;—

Year.	Insurance in force.	Death losses.	Deaths per $1,000
1875	$12,351,727	$179,380	$14 52
1876	11,760,378	209,910	18 85
1877	11,480,890	186,379	16 23
1878	11,457,903	208,301	18 18
1879	10,665,451	181,437	17 01
1880	10,124,900	149,761	14 79
1881	9,697,272	230,586	23 77
1882	9,567,143	302,206	31 59
1883	9,057,349	196,183	21 66
1884	8,311,045	236,102	28 75
1885	7,112,780	296,531	41 69
1886	5,773,340	244,949	42 43

Two of the original ten companies have disappeared, so that for 1886 there are but eight companies of the original ten embraced in the table. The "Briton Medical," of England, and the "Life Association of Hamilton," are being wound up, and have made no report to the government the past year. The death losses of the remaining eight companies are now just three times as heavy per $1,000 of insurance carried as they were twelve years ago; they exceed the premiums by nearly $100,000. The premium receipts of these companies in 1886 were $151,105, and their death claims paid footed up $244,949, as above, which does not seem to show that the ordinary life insurance premiums are much higher than necessary to make sure work of providing for the last man. And that last man, it must be agreed, has a stronger claim for consideration than the first man, by reason of having contributed for so many long years to the payment of all preceding claims. Therefore, we maintain, the life insurance scheme which provides, as the assessment plan does, only for the payment of the first few death losses, and lays up no reserve with which to meet the last ones, is a seductive delusion, unworthy the confidence of any one who means to "provide things honest in the sight of all men."

HOUSE WARMING.

We have been interested in finding, among the editorial articles of *Medical Science*, a new medical monthly published in Toronto, one upon the practical subject of house-warming, so important to the general health and comfort. The average householder is accustomed to ask by what means his house can be warmed most economically. Not every one considers how his dwelling can be warmed most healthfully. And yet this is the more important consideration of the two. To physicians, it is not incorrect to say, the subject is one of paramount importance, since "to methods of heating we shall have to look for causes of ill-health not otherwise very well explainable, and must endeavor in such cases, to explain some of the details of improvement in house warming."

The journal quoted considers that, speaking generally, there are three principal conditions in the atmosphere of rooms in which, under even so-called good heating, there are great variations from the normal external air. They are purity, distribution of temperature, moisture. Premising that, under DeChaumont's general rule of ventilation, the changes in the air of a room are limited to six within the hour, if draughts are to be prevented, it is further to be considered that only with the best systems of ventilation is the air of a room changed thus often. "It is evident that impurities in the air of rooms are invariably present, and often in large degree. Carbonic acid from the lamp, from gas-lights and base-burning stoves ; carbonic oxides from superheated furnaces and stoves ; organic emanations and bacteria from impurities in the rooms and under them—all are measurably present."

As to distribution of temperature, we notice, within-doors, says the author, "that the air of a room as ordinarily heated in winter will show a difference of from 10 to 20° Fahrenheit between the temperature of the floor level and that of six feet above it. Again, while the air along an inner wall may be at 66°, that near the window may be near freezing point and that near the ceiling at 80 or 90°. When it is remembered that the ordinary stove or grate may utilize a hundred cubic feet of air per minute, it is apparent that it must be replaced in the room by air being drawn along the floor, through cracks in the floor, etc., draughts of a most dangerous nature being thus created. These great differences of temperature, even in small rooms, are the cause of equally important differences in the relative humidity of the air of the room."

Next as to moisture : In external air the relative humidity or degree of moisture is about 75 per cent. of complete saturation. Since the capacity of air for moisture is doubled with every 27°, it is apparent that if house air at 66° has normal humidity, a reduction of temperature of 20° must raise it to near saturation point. Conversely if external air at or below freezing is introduced in a room heated to 66°, its relative humidity must thereby be reduced to a point much below the average. We thus