

Insurance.

VALUATION OF LIFE ASSURANCE POLICIES.—To Massachusetts belongs the honor of having first established a system of public supervision of Life Insurance, which includes an official valuation of policies. The necessity of the valuation to an effective supervision, arises from the peculiar nature of the business of Life Insurance. In this peculiarity lies its greatest danger—the opportunity for fraud or fatal error. Life Insurance reverses the laws which govern all other commercial enterprises and investments. In the latter the expenditure comes first, and the profits, if any, come afterwards. In the first years of a Life Insurance Company, its treasury overflows with the incoming premiums, while its liabilities are postponed for the lifetime of a generation. For more than thirty years it furnishes a constant margin for plunder and perversion of its funds, while its ultimate failure, though certain if the opportunity is improved, is still remote. Unless its condition is probed by some decisive test, it exhibits no necessary symptoms of its insolvency until the claims by death begin to equal or exceed the premium receipts; and this period will not ordinarily be reached until nearly forty years from its start.

Life Insurance proceeds upon two principal assumptions—the law of mortality and the rate of interest on money. Assuming that a given table of mortality correctly expresses the rate of decrease of a large number of lives, and that a certain rate of interest will be realized in the future on invested capital, it is not difficult, though somewhat laborious, to ascertain the exact average cost or premium for insuring a life at any given age, assuming that there will be no expenditure other than for claims on policies. To meet the probable expenses of the business and other contingencies, there is added to this net or mathematical premium a per centage of margin or loading, ranging from 10 to 40 per cent., making the gross or actual premium charged. But it must be assumed that this margin or loading will be used up year by year in expenses or dividends, and no profit from this source can be safely anticipated as present assets.

The precise mode in which a valuation of the policies of a company decides the question whether the company has been true to the assumptions on which its business proceeds, and which, if obeyed, make a Life Assurance Company one of the most stable and secure of all human institutions, in other words, how the valuation determines the solvency or soundness of the company, or the reverse, is often not very clearly apprehended. The ordinary import of the term *valuation* is that of estimating the value or worth of a contract or thing; and its technical meaning as applied to policies of Life Insurance is substantially the same. A policy may be valued for two purposes, by different processes and with different results—either to ascertain its value or worth to the company, or in other words the pecuniary loss which its discontinuance would involve to the company—or to ascertain its value or worth to the insured. It is with reference to the latter that the term is here used, and the official valuation made. Consequently the valuation must be based on the net or mathematical premium without the loading.

By the actuaries table of mortality, with interest at four per cent., the net annual premium for a whole life policy of \$1,000, commencing at the age of 30, is \$16.97. The corresponding premium for a policy commencing at the age of 40, is \$23.68. The difference is \$6.71. Supposing then a company has taken a risk for \$1,000 at the age of 30, and carried it ten years, or until the insured is aged 40, and then wishes to transfer the risk or re-insure it with another company—how much must the first company pay the second for assuming the risk? The latter company, taking the risk as a new one at the age of 40, would charge a net annual premium of £23 68; but it will actually receive from the policy-holder only the net annual premium corresponding to the age of 30, or \$16.97. This annual difference of \$6.71, running through the remaining years of the policy, must be made up to the company taking, by the company transferring the risk. In other words, the latter company must pay the former the present value of a life annuity of \$6.71, commencing at the age of 40. This is the amount of the premium reserve required, or the liability for re-insurance, on this particular policy; for though the company may not desire to re-insure the risk, it must have the ability to do so. It also represents the value of the policy to the in-

sured. It is what he has paid in excess of the risk carried by the company. It is the amount of his unearned premiums. The company must have reserved this amount out of the premiums already paid.

Ascertaining upon the same general principle the unearned premium on all the outstanding policies, or technically speaking, the value of all the policies, the whole amount of the required premium reserve is found; and by comparing the required with the actual reserve, or net assets of the company, its soundness or unsoundness is revealed; and in no other way can the revelation be made. It answers the vital question in life insurance, whether the company is accumulating for the future that portion of its current premiums which belongs to the future.—*Report of Mass. Ins. Com.*

ACCIDENTS TO TRAVELLERS.—The number of railway and steamboat accidents which occur in the United States is not so large as is generally supposed. On an average the number of railway accidents alone from May 1, 1867, to Aug. 1, 1867, was about six each month; and the number of river accidents during the same period, was about ten per month. That is, within the last three months, there have been about twenty railway accidents, and fifty railway and river accidents in the United States. This estimate does not include accidents from street railways.

The total loss of life from both railway and river accidents within the past three months probably does not exceed seventy-five; and of these deaths, about twenty took place on railroads and the remaining fifty-five on steamboats and other river transports. At this rate, the whole number of persons killed in this country during the year by accidents while travelling, would be about 300; that is, 80 on railroads and 220 on rivers. This estimate does not make any allowance for great disasters. It does not include the very large number of travellers injured more or less severely. But no very serious calamity of the kind has occurred within the time mentioned. The greatest loss of life at one time on a railroad was only three or four. This was at Bellefontaine, Ohio. The greatest loss of life on our river boats was by the capsizing of small boats at Newark, N. J., and at Philadelphia, Penn., by which about five persons in each case were drowned.

During May, June and July, 1866, about fifty persons were killed while travelling—twelve on railroads and thirty-eight on rivers. This is less, nominally, than the present year; but the difference may be fully accounted for by making allowances for the greater number of miles gone over by trains and vessels, and by the large number of travellers this year.—*New York Times.*

FIRES.—The Anglo-American Hotel at Wyoming, owned by Mr. Ward, and occupied by Mr. Rhodes, was destroyed by fire on the 20th. Very little was saved. The probable loss is \$4,000. It is partially covered by insurance.

—The Petersburg saw and flour mills at Humberstone, belonging to Swan & Co., were burned down last night. They originally cost \$20,000, and were insured for \$10,000 in four American companies. The fire is supposed to have been caused by the machinery heating in the upper story.

—On the 9th inst., the stables on the premises occupied by the Rev. Mr. Farrelly, Catholic priest in this town, caught fire by some unknown means and were speedily burned to the ground.

—Incendiaries are abroad in the sister province, Fredericton, N. B., having been fired in four places in one day; but the fires in all cases being happily put out without serious damage.

—On Sunday morning, August 18, the alarm of fire was again sounded by the fire telegraph. Middleton's coal oil stores, on the line of the Grand Trunk station, about 800 feet long by 200 feet wide, (we judge these figures by the eye,) and containing, we are informed, 15,000 barrels of coal oil, each barrel containing 40 gallons, making 600,000 gallons, of a material so inflammable that it is not allowed to be stored in the city, were found to be on fire in the inside. The barrels began rapidly to burst and blow out the roof, which is covered over with sods and earth for better protection from without. The barrels, as they burst by thousands, poured the fiery liquid into the St. Pierre creek, and the stream bore it towards the city, which was only 200 yards off. There was another circumstance of great danger to be particularly noted. It was that this stream gave greater surface to the fire in the open, where it burned with a fury quite inconceivable, and almost impossible for words to describe. This roaring flame, on the surface of the creek, which,

from the sudden pouring out of thousands of barrels of oil, overflowed its natural bank, making a stream of apparently forty or fifty feet wide and a foot deep on the banks where it had overflowed, went slowly rolling forward, a column of the most furious fire, threatening the entire suburb. The column of fire which arose from this liquid mass of about 600 feet long by, as we have said, 50 broad, was unequalled by anything we have ever seen. It arose to the height of at least 300 feet, rising something in the form of a waterspout, making a standing column of fierce fire, which burst, or opened out at the top, with a noise at times as of an explosion. It gave out an immense column of black smoke, which, at times, seemed to rise out of the earth, and then burst out into flame. The roars of this terrific flame was remarkable. The whole city was illuminated as if the sun was shining bright on it at noon-day. On the other side of the railway track, within forty feet, were two other coal oil stores of immense extent, containing 20,000 barrels of coal oil and benzine. To save these other stores, and to prevent at the same time the column of liquid fire we have described rolling into the suburb, was the object of the hour, and the crisis was supreme. Mr. Patton undertook to prevent the fire getting into the stores on the opposite side of the track. Mr. Perry to arrest the progress of the column of fire. To arrest the column it became evident that nothing but stopping the current of water above, and throwing up dams or dykes in the intervening space between it and the city, could be effectual. This work was accordingly commenced with extreme energy, men on the spot working with spades in intense heat, and men at a little distance from the stream cutting large sods, which others carried in their arms and threw on the dam. Before the first dam could be completed, the liquid fire came on, but it was held in check for a while by the embankment already raised. The men retreated about a hundred feet, and commenced another. The heat at this point was very great—almost, in fact, beyond endurance. The men suffered greatly, but did not flinch from their work. Here a few soldiers of the 78th Highlanders lent great assistance, working with very great energy, notwithstanding that their kilts were not so favorable under the circumstances as woolen trousers would have been. In about half an hour, the second embankment was completed to the height of three feet, and it was not ready any too soon, for the fiery liquid now began to overflow the first, and came rolling along against the second. Again, the heat compelled the men to retreat, and another embankment was commenced forty or fifty feet more distant. The fire, however, did not pass the second embankment, the back of which was kept wet by the hose playing upon it, to prevent the sods from burning and the clay crumbling away; and it was clear, when daylight came, from the appearance of the two sides, that good service was in this way rendered. A still further embankment was thrown up at the bridge at Grand Trunk street, as a measure of ulterior precaution, and this was the last. Had the stream of fire not been checked by these means, nothing earthly could have saved a large portion of the city from destruction. A culvert passed under the track of the railway connecting the two sides opposite the oil stores. Through this culvert flowed the burning oil, which ran along the ditch immediately in front of the other stores, and the fierce flame was within ten feet of their doors. The peril was very great. All that could be done was for the firemen to shelter themselves behind the embankment, keep the sods wet, and throw water on the doors. The heat inside of these stores must have been very great, and it was feared some of the barrels would burst. Keeping the sods covering the stores well saturated with water, of course kept down the heat within. The work seemed almost like a forlorn hope, for the men scarcely believed they could prevent the fire breaking out among the remaining 20,000 barrels of coal oil and benzine. Had these become ignited and burst, the liquid must have flowed through the culvert and over the embankments at the other side. The consequences would have been dreadful. The fire was set to this store, beyond a doubt, by an incendiary; and we regret to have to state that the first line of hose which was put down was cut open by some miscreant within three minutes after it was laid. Hanging would be too mild a fate for this scoundrel if he could be caught. It is a fact that over a week ago notice was given to several of the insurance offices, in writing, that this store would be burned down; and two of the insurance agents, Messrs. Gault and Stevenson, for a week past, have had watchmen