

### THE FOUNDATION OF RATES.

**Classification of Fire Hazards Dealt with, by Mr. A. C. Fairweather, at Insurance Institute of Toronto.**

In his paper dealing with the subject of Classification of Fire Hazards, Mr. A. C. Fairweather treats of a subject in which THE CHRONICLE not unnaturally feels a species of proprietary interest. The recognized pioneer along lines of scientific classification was the late Jeremiah Griswold who was for many years connected with this publication, and who wrote many of his valuable works in its editorial office. Among the most prized features in THE CHRONICLE'S library to-day is a collection of these writings including his Classification of Fire Hazards.

### THE CO-INSURANCE CLAUSE.

Mr. Fairweather's paper, after referring to the Coinsurance Clause as a fundamental step towards scientific rate-making, proceeds along the lines indicated by the following excerpts:

The cost of insuring a given risk is the average chance of loss in all the risks in a given group or class, and that chance of loss is determined mainly by the fire loss experience met with in that group or class. Let us take one hundred buildings of a given class. These risks, we will assume, are of an uniform value of \$5,000. Experience has shown that in a single year or a series of years, the total fire loss on those one hundred risks will average \$5,000. The fire cost of each risk, therefore, will be \$50 per annum and the company insuring the risk should, all other things being equal, receive that amount of premium in order to cover the cost. Therefore, if the owner of the building takes \$5,000 insurance, the full value of the building, the rate to cover the fire cost should be 1 p.c. if he takes \$2,500, one-half the value of the building, the rate to cover the cost will be found to be much higher, about 1.8 p.c. In an excellent treatise entitled "Graded Co-Insurance" Herbert Wilmerding has made very careful estimates of the rates which should prevail where policies range under 60 p.c. of value. From his statistics it is shown that where the insurance covers more than 50 p.c. of value the losses above that percentage will represent not more than 7 p.c. of the total losses. Therefore, under a \$2,500 policy in the case cited the companies would not be liable, by about 7 p.c., for as much loss as they would under a \$5,000 policy, so that under a \$2,500 policy the rate should be enough to produce about \$45 premium instead of \$50, as under the \$5,000 policy.

In the above illustration it has been assumed that all of the one hundred buildings were of equal value, namely, \$5,000. Suppose we take two groups of one hundred buildings each, one

where the value of each is \$5,000, the other where the value of each is \$50,000. The latter group we will say, are modern fire-proof buildings; the former, old structures of inferior construction. The total fire cost of the former group as we have seen is \$5,000, an average of \$50 per risk or 1 p.c. of value. In the second group we will assume that the yearly fire damage will be one-tenth of 1 p.c. The total value of one hundred risks is \$50,000, therefore, the total loss will be \$5,000, or an average of \$50 per risk. We, therefore, find this to be true of the two groups of risks: A difference in value and construction hazard, but identity in net fire loss. Therefore, to cover the cost, the fire insurance company must collect the same amount of premium from the owner of the \$5,000 building. Based on the valuation, the percentage rate of the insurance would be 1 p.c.; in the case of the \$50,000 building one-tenth of 1 p.c. But suppose the owner of the \$50,000 building, believing that he is warranted in so doing, because of the superior character of his risks, concludes to carry insurance of \$5,000. If the percentage rate of the insurance company remains the same, one-tenth of 1 p.c., the total premium paid will be \$5 which is \$45 short of the actual fire cost of this risk, and the company will lose to that extent. It is, therefore, clear that in order to cover the cost, if but \$5,000 insurance is carried, the rate, instead of being one-tenth of 1 p.c., should be advanced very materially. Not to do so would expose the company to a loss, which it must make up by excess collections from other property owners.

I have given these illustrations to show the conditions governing the introduction and use of the Co-Insurance Clause. When one considers how long Co-Insurance Clauses have been in use, he can readily see that while they have accomplished a great deal of good, and have been a concerted move in the right direction, there is yet more to be done to reach a concrete and scientific system for the adjustment of rates, and the reaching of fundamental principles governing the actual fire cost.

### THE UNIVERSAL SCHEDULE.

We now come to the next important step in the problem of rate making—the application of the Universal Schedule.

To quote from the preface to the Dean Schedule: "Fire hazard is by nature a net work of relativity. In constructing a basis-schedule we necessarily select certain features of hazard as separable and attach to each of these a charge, while to the residue consisting of unanalyzable parts we attach a lump charge and call it a basis rate. There is no intrinsic difference between the charge we call a basis rate and the other charges, except-