

paper about a consignment, or asking that Messrs. So and so will look after the promissory note of the writer, due that day; and a fair proportion of business-like communications, post size.

What we would recommend is that every merchant and trader, great or small, should provide himself with proper writing paper of good quality, having his name, business, and address printed at the top. It would be more convenient for wholesale importers if such paper were post size, because the majority of letters contain more matter than will readily go upon a sheet of small note, if a margin be left blank, as it should be, at the left-hand side. This blank margin, which we recommend, proves a help to get an order filled quickly, for the importer, or his chief of department, makes his memorandum thereon. Not seldom, these letters are left unsigned, which causes delay and sometimes trouble. Now if the trader's name and address were at the top of his letter, the omission of his signature would not so much matter.

Here is a hint to book sellers or stationers in country places: You may earn an honest penny for yourselves and do a good turn to the grain or provision dealer, and his consigner, to both importer and his customer, if you will take orders from traders in your town or vicinity to supply them with good plain white or blue post paper, and good white envelopes, and to print their names thereon. Such a printed heading need not cost more than \$1.25 per thousand for envelopes, or \$1.50 per 1,000 for paper; so that such a business-like convenience as we have described can be had at the rate of a cent for six sheets.

FIRE LOSSES AND THEIR ORIGIN.

The recent fire on Adelaide street west in this city did not prove quite so disastrous as was at first supposed. The first estimate of a loss by fire is usually very much exaggerated. The reason of this is that after a fire things look their very worst. A good portion of the loss on the contents of the buildings in question was caused by water; in the front lower flat the loss was from water only. Had our excellent fire brigade a well equipped Salvage Corps in connection with their other apparatus, the loss on stock and machinery which the fire did not reach would have been a mere trifle. Why then should Toronto not have a Salvage Corps?

There are various theories as to the origin of the fire, all of which is mere conjecture; but as no effect will exist without some adequate cause, so no fire will occur unless there is a cause to produce it. It is a fact well known to insurance adjusters that the origin of by far the greatest number of fires is never known. A good many fires whose origin is a mystery are often attributed to incendiarism. While there is little doubt that very many fires have their origin in this cause, we believe, were the truth known, that a very frequent incendiary is spontaneous combustion. But because the flames very soon destroy the evidence that would show this to be the case, comparatively few fires are traced to this cause.

For many years a fire originating from spontaneous combustion was regarded as improbable, if not impossible; but owing to investigations made by men of science, the ignition of many substances without the application of fire, heat, or flame, but by the chemical action of certain materials, is now generally accepted, at least by fire underwriters, as a fact. It is wonderful, however, that many intelligent men are still sceptical regarding this matter.

Spontaneous ignition is usually caused by the absorption of oxygen from the atmosphere. The operation of force produces heat—the friction of machinery—the turning of iron in a lathe—the cutting of a screw—the driving of a nail, especially into hardwood, and scores of other processes familiar to all mechanics produce heat. It is not however to the danger arising from such causes as these that we especially desire to direct public attention, but to those inert substances that are liable to self-ignition, and, because not well understood, are for that reason more to be guarded against as endangering property. Oily waste, necessarily used wherever there is working machinery, is probably the most prolific source of spontaneous combustion. Heat results as surely from chemical action as from the application of flame. Vegetable oils, such as linseed, cotton-seed, palm-oil, rape-seed, are the most dangerous, because they absorb oxygen most rapidly.

A well-known Philadelphia chemist writes as follows: "All vegetable or animal oils are compounds of glycerine with fatty acids. When they become old a chemical decomposition takes place, and the oil becomes rancid. When the rancid oil is absorbed by rags lying in heaps it will act on the fibres, produce heat, and finally spontaneous combustion."

"Petroleum is of another nature, it is not composed of fatty acids, consequently it cannot become rancid. I have tried to produce spontaneous combustion with petroleum by saturating rags with it and placing a thermometer in the heap, but have failed to produce the least rise in temperature."

It must not be forgotten that it is not necessary for many oils, especially vegetable oils, to become rancid in order to produce spontaneous combustion in given circumstances, although old and rancid oils ignite more readily.

Oil, when united with some vegetable fibre, such as cotton, hemp, flax, tow, oakum, charcoal, lampblack, sawdust, or other porous or fibrous carbonaceous substances, absorbs oxygen in such quantities as to raise the temperature in a very short time to the point of ignition. It is said that sawdust and oil will ignite in sixteen hours. Cotton waste, such as is used by machinists to wipe off machinery, when greasy, will ignite in a few hours. Cotton saturated with linseed oil will burn in from two to ten hours; with rape or olive oil, from five to six hours. Silk waste will ignite more readily than cotton.

All these substances, when covered up so as to confine the heat as it generates, will take fire more readily than when uncovered; and if subjected to artificial heat from steam pipes or hot air flues, they burn very

readily. Too great care cannot therefore be taken in guarding against spontaneous combustion of any of the substances to which we have drawn attention.

FORMS OF LIFE INSURANCE.

A paper having for its subject the best methods of assessment of fraternal orders, by a St. Louis man, Mr. Isidor Bush, was read at a convention of co-operative insurance men a few weeks ago. The author calls attention to the curious fact that, regardless of the mathematical objections, quite a number of so-called beneficial or protective societies, under the guise of secret orders, are pretending to perform just about such wonders as astrologists and alchemists used to profess. "And these societies are formed and believed in! Some promise to pay their members \$1,000 in seven years, some in six years even, and to advance them half of that amount in case of sickness, at the rate of twenty-five dollars per week, asking from each member no more than about \$300, or, may be, \$350 in assessments, not exceeding \$2.50 for all ages alike. If we ask how this can be possible, the officers and agents of these societies talk boastfully about the result of 'co-operative protection'; 'one of the grandest achievements of modern times'; they discourse learnedly upon 'principles,' etc., without, however, giving us the first logical proof. They ignore the experience of the past, and scoff at all mathematics of actuaries. And as they are organized under the garb of secret benevolent societies, under the cloak of charity and fraternity, tens of thousands are enticed to membership."

But these concerns resist governmental supervision. And what is more intelligible, some of the American organizations for mutual benefit claim exemption from all insurance laws. Even the meeting at which this paper was read, in adopting a standard for admission to membership, provided that it "shall not be applicable to fraternal societies already organized, where there are ties other than mere business considerations." Mr. Bush is unable to see any sound, valid reason for this exemption. "The conditions of that standard are just, and at the same time so liberal that they admit of a wide difference in plans and methods. This is evidenced by the fact that some of the leading societies of Masons, Odd Fellows, and other genuine fraternal orders, comply with that standard. Yet some of the very largest fraternal insurance organizations, such as the Knights of Honor, Royal Arcanum, A. O. U. W., etc., do not comply with its conditions, nor have they availed themselves of the express exemption in their favor. They seem to be misguided by pride, aroused by the magnitude of their membership. But mere volume has no enduring practical value, it only makes the slightest error of method the more serious. These societies are generally managed by men of high standing and excellent character, men of undoubted integrity, considerable ability, and some learning; but we all know that 'a little learning is a dangerous thing.' These managers still labor under the delusion that continual growth of membership is

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