

BALTIMORE CONFLAGRATION LESSONS.

The United States National Fire Protection Association has issued an elaborate illustrated report on the Baltimore conflagration. The report makes the following recommendations and suggestions:—

Structural metal work must be properly protected to withstand severe heat. To resist distortion, steel columns should be designed to equalize the transverse strength of the material in all directions from the axis of the column. Well-burnt ordinary brick of good quality laid in cement mortar is the best material as a fire-protecting covering for steel or iron columns. This combines rigid construction and the necessary fire-resistive qualities. Hollow terra cotta tile, as ordinarily used as a fire-protective covering for columns, lacks stability and breaks when exposed to heat. Plaster blocks and plaster on metal lath are unsatisfactory for use as a fire-protective covering for columns or other structural metal work. Pipes or electric wire conduits should not be located inside the column covering. The covering for lower flanges of beams and girders should not be less than two inches thick, and not be held by exposed metal clips nor by mortar alone. Wedge-shaped flange tile, held by skew backs of tile arches as ordinarily constructed, cannot be depended upon, owing to the breaking of the tile. Shoe tile for girders is also unreliable. Terra-cotta tile for floor arches is defective, as the lower web breaks off under severe heat. This apparently is true of all grades of tile.

Floor surfaces should be of non-combustible material. The space between floor and floor arch should be classed as fragile, especially under great heat. It is unsuitable, from a fire protection view point, both for wall and pier construction, and for exterior or interior finish. Good terra-cotta wall trim, when reasonably plain and free from ornamentation involving regular shapes, is superior to stone, but not so desirable as brick. Ordinary well-burnt brick is the best fire resistive material. Wall facings should not be tied to the wall with metal binding clips. All walls should be bonded with full brick headers.

It is essential that the spandril beams used to support the exterior curtain walls at each storey should be thoroughly protected, especially over windows. All window openings should be single to avoid the use of readily destructible mullions and light piers between the windows. Large, unbroken floor areas assist the spread of fire and augment its severity. Buildings of large area having large quantities of combustible contents, should be subdivided by substantial brick fire walls sufficient to form a positive barrier to spread of fire.

Vertical openings throughout buildings, as for stairs, and elevators, rapidly communicate fire to all stories. This is likely to result in fire conditions beyond fire department control. All such openings

should be inclosed in brick-walled shafts, crowned by a thin glass skylight, and extended through roof and with five door openings and storeys. Municipal building laws and insurance discrimination should be evoked to guard against the dangers of vertical openings.

Stair treads should be of iron or its equivalent. If slate or marble treads are used, they should be supported by a metal plate beneath. All interior finish is liable to total destruction by fire.

Municipal building laws and inspection should enforce good construction in all details. Inspection of fire-resistive buildings in course of erection, should be more frequent than is necessary for ordinary structures. Buildings of fire-resistive construction, with combustible contents and unprotected windows, are not a positive barrier to fire. From a fire protection view-point it is essential that solid brick walls without openings of any kind should be provided wherever necessary. All windows and openings should be protected by the best devices. The contents of a fire-resistive building "without proper subdivision and no adequate protection against exposing fires are scarcely any safer than if contained in a building of ordinary construction."

One serious defect in the above valuable report is the omission of references to the invaluable aid to fire protection given by the use of fire-proofed or fire-resisting wood, which is capable of preventing or delaying the spread of a fire in a building where it is used.

The full report containing illustrations can be had from Mr. W. H. Merrill, jr., secretary of the U. S. National Fire Protection Association, Chicago.

THE DIMINISHING BIRTH-RATE.

The low and diminishing birth-rate of a number of countries in Europe, including Great Britain, is exciting general attention and calling out comments more or less judicious and some more or less hysterical. In a new country like Canada where more population is wanted, it is important for the birth-rate to be maintained at a normal figure. In countries, however, where the population has increased so as to press hard upon the means of subsistence, for the birth-rate to be decreasing cannot be regarded as such a calamity as some represent. So long as this is not attributable to criminal interference with natural laws, there seems to be nothing to justify the keen lamentations heard of late in regard to a decreasing birth-rate. The rush, hurry, strain, luxurious living and chronic excitement of modern life are most unfavourable to the birth-rate, so also are the restless, nomadic habits of the artisan and labouring classes. These conditions alone are enough to account for what is complained of, but there is another influence which is also a sufficient