

MUNITIONS MANUFACTURE FROM THE UNDERWRITERS' POINT OF VIEW.

An exhaustive report on the processes and hazards of artillery and small arms manufacture, recently compiled for the Underwriters' Bureau of New England, is of wide interest in Canada, in view of the extent to which Canadian fire underwriters are interested in the munitions industry—an interest that is not likely to cease until the close of the war at all events. The New England report summarises conditions of special interest to underwriters, resulting from the extreme industrial activity among this class of plants, as follows:

(1) Prolonged hours of labor, night work, etc., have increased the period of action of the active special or manufacturing hazards.

(2) A tendency towards uncleanness has been created or enhanced by long hours of labor, the difficulty of obtaining satisfactory help, the increased congestion of equipment and material, and above all by the failure of superintendents through pressure of other business to give proper and routine attention to matters of housekeeping.

(3) The introduction into established risks of new manufacturing or special hazards and processes. In some cases there has been failure to protect these in a satisfactory and permanent manner on the assumption that they were of a temporary character. In other cases there has been failure to realize the true nature of the hazard involved and an ignorance of established methods of protection.

(4) The introduction of the hazards of construction in the building of extensions to existing structures. This feature assumes a prominent place in a consideration of a sprinklered risk, where the protection of the whole plant may be virtually set at naught by reason of failure to equip new portions promptly. The time required to equip new portions has been greatly increased by reason of the pressure put upon sprinkler companies and the general delay in obtaining materials.

(5) Strikes and other evidences of unsettled labor conditions have had a bearing upon the fire risk.

MORAL HAZARD.

(6) Failure to produce, under war orders, goods acceptable to inspectors of the foreign governments, has resulted in accumulations of rejected products which represent heavy losses to the manufacturers. This condition suggests the question of moral hazard.

(7) Incendiarism springing from a desire to cripple plants producing goods is a subject given much attention in newspapers. While there have been incendiary fires in "war order" plants in New England, it would seem that they have resulted from the individual efforts of misguided men. There is certainly little evidence to show that any well studied, intelligent or organized effort has been made to cripple factories by violence, in this section of the country, at least, but there are indications that financial means have been tried to limit or embarrass the efforts of certain munitions plants.

(8) Another question of moral hazard has been raised by the visualization of conditions which may exist, when the war demand ceases, in those plants equipped particularly for "war business." This point raises a most interesting economic problem. There are a number of concerns which have built and partially equipped large plants for the production of munitions, but which have not yet produced

appreciable quantities of acceptable goods. If the war should cease within a year these concerns might find themselves in critical condition. Established plants manufacturing munitions as a side line may feel a period of depression during the readjustment which must follow the war, but in most cases this should not affect them seriously.

The value, in times of peace, of equipment installed for the manufacture of munitions varies with each individual case. In a general way it may be said that machinery, that is, lathes, presses, etc., are of permanent value, while large quantities of dies, tools, patterns and gauges will be of slight value when the war demand ceases. The cost of the latter may be considered as an expense of manufacture rather than as a capital charge against a business. In certain instances, however, the value lost in investing in such dies, patterns and gauges will be very large and these cases will be found in those newly established munition plants which were late in getting into the field and the net volume of whose total product is small.

EFFECT OF REJECTIONS.

(9) The manufacture of shell parts has been attended by heavy losses on account of large quantities of product being rejected by purchasers' inspectors. Manufacturers failed to realize early the degree of precision required. The steady rise in the cost of labor and material and the loss in rejected product has robbed the war business of much of its seeming profit. The sentiment amongst most of the smaller manufacturers is that the "game has not been worth the candle" though as the demand continues early losses are being forgotten.

Shell parts are rejected for a great variety of defects, many of which may be corrected. Even in successful plants preliminary rejections have been made as high as 40 per cent. while corrections have reduced final rejections to 1 per cent. or less. In brass work the value of scrap is so great that rejected product or partly completed work is quickly disposed of. In steel work on projectile cases accumulation of rejected product is more likely. In either case the product is not so susceptible to injury by fire or water that the temptation to burn is as great as with other and more susceptible kinds of war material. The defects also are more subject to correction. Much rejected material has found a market with lesser nations, not at war, perhaps some of those at the south. It is in most cases difficult to ascertain what material has been rejected and what has not. It would be even more difficult to ascertain this after a fire. The writer feels that danger in moral hazard is more to be feared among textile and leather workers than among the metal workers, in the consideration of rejected material. Munitions stored at other points than in factory store houses or buildings where they are made should be investigated as to their real value, as rejected product has been sold in some cases to speculators.

MANUFACTURERS' LIFE.

The Manufacturers' Life announces that for the first six months of 1916 its income from all sources increased \$264,430 or 13 per cent. over the corresponding period of 1915 and its expenditure of all kinds increased only \$18,335 or 1½ per cent. The expense ratio has been further decreased, while death claims during the period, including all war losses, were 40 per cent. less than provided for.