

(3) *Control of Storage.*—The special points to which attention should be paid are the situation, quantity of explosive, and construction. The first and second should be governed by the table of distances. As regards the third, two somewhat antagonistic features have to be considered. First, the building should be protected from dangers from without, such as rifle bullets, and should have security against unlawful entry and fire. Second, in the event of an explosion occurring the projection of heavy debris should be minimized; this feature is probably of greater importance in the Dominion than it is in Great Britain, owing to the fact of the large number of frame dwelling houses which are to be found here, whilst they are almost non-existent in the latter country.

The ideal construction for a magazine would be to have a relatively lightly constructed building, surrounded by substantial earth banks, but it is difficult to make this type reasonably secure against unlawful entry and other dangers from without. It must always be remembered, however, that with the system of the authorization of explosives there should be little risk of the explosive igniting spontaneously, and as no operation should be carried on in a magazine the principal danger of explosion comes from causes outside the building. The results of some experiments carried out in Germany were recently published and the conclusion arrived at by the experimenters was, that a certain type of reinforced concrete gave the best result. It was found that with the particular form of construction very little debris was projected when an explosion occurred in the building, as the concrete was so pulverized that the fragments did not carry any great distance. If funds are available, it would be of considerable value to have experiments carried out on similar lines with buildings constructed to suit Canadian requirements.

In Great Britain there is a statutory requirement that every magazine should be fitted with an efficient lightning conductor; there are, however, no suggestions given as to what constitutes such a conductor. As I understand that parts of this country are frequently visited by severe electrical storms, I think the question of protecting magazines from lightning should be considered. I would venture to suggest that the scientific staff of some of the Universities and representatives of the explosives manufacturers should be invited to co-operate with your Department to inquire into the most efficient and economical system of securing the necessary protection. There is a system of storage in Great Britain, which I have not met with in the Dominion, but which might be found of use where the climatic conditions will admit of it. In the rivers Thames and Mersey vessels are moored at places specially selected by the Harbour Authorities, and these vessels are licensed by the Home Office as Magazines. Where there is a considerable water-borne trade, the use of such vessels as distributing centres might prove of advantage.

(4) *Control of Transportation.*—The control of transportation by rail is in the hands of the Railway Commissioners, and the only way in which the proposed legislation will affect this method of transportation will be as regards the quality of the explosive conveyed. I understand that the regulations adopted by the Commissioners are those promulgated by Col. Dunne's bureau in New York. The great value of these regulations has been amply proved, but being a private concern there are not the same facilities for maintaining the standards of quality of the explosives as will be the case when the authorization of explosives is in the hands of the Government.

I understand that at present it is practically impossible to transport legally small quantities of explosive by rail. It is generally certain that this traffic is carried on, probably in passenger trains, and with detonators and blasting explosive packed together. I would venture to suggest, therefore, that your Department should approach the Railway Commissioners, with a view to discussing the question of recognizing and controlling the transportation of small quantities. I may mention that in Great Britain the railway companies have agreed to transport small quantities of explosive in cars loaded with other freight, when packed in a special manner.