transferred into the cars by hand. This disadvantage can be reduced though by the use of a number of wheeled platforms such as are in use at the St. Louis terminal previously described.

Again, taking the use of electric storage battery trucks, they are able to overcome this difficulty of the telphers, but on the other hand, they have the disadvantage of requiring a great deal of platform space on which to make their necessary movements, which space might be advantageously used for storage purposes in the case of a telpher system. Another disadvantage of motor trucks is that in order to handle a large business it would require more motor trucks than telphers on account of the fact that the truck has to wait for the unloading and loading up, whereas the telpher carrier picks up or deposits its load and continues its journey to take another load, and it is continually doing efficient work. For this reason it does not seem as though the motor truck could be so efficient as a telpher system, as it can hardly be conducive to economy to have an expensive piece of machinery lying idle for some length of time. Possibly this difficulty can be overcome by the use of trailers, or with small platforms or removable bodies to the trucks. This is a development which no doubt will soon be put into practice.

In designing a freight terminal engineers should take great care to consider the question of mechanical handling of freight. Even if there is no intention of making such an installation immediately, provision should be made for the future handling of a growing business by mechanical means, by looking into the subject and ascertaining what method is most suitable to the particular conditions and requirements of the terminal in question and, if necessary, making such alterations to their design that will enable the necessary machinery to be installed when the business at the terminal warrants the additional expense.

The following table gives a few figures which have been gathered from various sources and which are of use in figuring on the design of a freight terminal:—

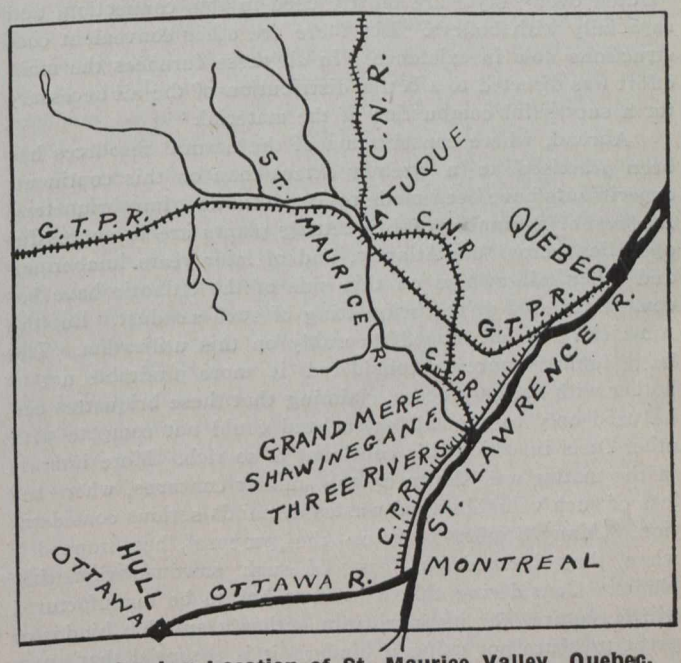
Average load on hand truck	225 lbs.
Average trucker's speed (per minute)	125 ft.
Average tonnage in a car (varying in different localities)	10 to 20
Average cubic feet in a car	1,200
Average width of drays	6 ft. 3 in.
Maximum width of drays	8 ft. 6 in.
Minimum width of drays	5 ft. 0 in.
Average length of drays and teams	20 ft. 0 in.
Maximum length of drays and teams	34 ft. 0 in.
Minimum length of drays and teams	13 ft. 0 in.
Average speed of telphers (per minute)	600 ft.
Maximum speed of telphers (per minute)	1,500 ft.
Average speed of motor trucks (per hour)	6 miles
Maximum speed of motor trucks (per hour)	10 miles

In conclusion the writer wishes to express his indebtedness to Mr. John A. Droege, superintendent of the New York, New Haven and Hartford Railroad for his kind permission to use his book "Freight Terminals and Trains" from which many of the diagrams and data contained in this article were obtained. and to the Sprague Electric Company, of New York, for the illustration of the St. Louis terminal of the Missouri, Kansas and Texas Company.

A concrete bowstring roof truss is a feature of the recently constructed Belleville Theatre in Paris, France. The truss has a clear span of 69 ft. and an overall height of about 15 ft. The top chord approximates a parabola and is connected with the bottom member by six vertical suspenders, spaced about 10 in. on centres.

ST. MAURICE VALLEY FOREST PROTECTIVE ASSOCIATION.

One of the most significant gatherings held in Montreal was the annual meeting of the St. Maurice Forest Protective Association held recently at the Place Viger Hotel. This organization, which is just one year old, marks the beginning of a new era in forest protection. Hitherto the matter of protecting the forests has been one between the individual limit holder and the government. In this field the advantages of co-operation are very great, but until the formation of the St. Maurice Association every lumberman battled with the fires on his own limits as best he could. A year ago the limit holders in this valley, seeing the waste and inefficiency of individual effort, got together and formed an association. They appointed a general manager who took charge of all the fire rangers and directed them as one army, posting every man where he could be of the greatest advantage. The association, which controls an area one hundred and sixty miles



Map Showing Location of St. Maurice Valley, Quebec.

long with an average width of one hundred miles, embracing in all seven million acres, taxed itself one-quarter of a cent per acre, and to the $17,500 thus raised the government of Quebec added $3,000. With this money there were opened or re-opened 525 miles of pack trails, there were purchased canoes, axes, shovels, tents, and gasoline motors for railway patrol, and a beginning made in erecting telephone lines and in connecting these with existing telephone systems. The result was that 97 incipient fires were promptly extinguished and the association came through the year with practically no loss. This year it is proposed to extend the trails, to connect up the telephone lines and to erect lookout stations from which watchmen may send out warnings to headquarters so that a sufficient force of men may be sent promptly to put out the fire. The officers for the first year were: President, Mr. Alexander MacLaurin, of Montreal; vice-president, Mr. W. R. Brown, of Berlin, N.H., and La Tuque, Que.; manager, Mr. H. Sorgius, of Three Rivers. Owing to the illness of Mr. MacLaurin which has necessitated a trip to the south, and the occupation of Mr. Brown with other features, these gentlemen (though both are enthusiastic over the work) retired and the new officers elected were: President, Joseph Dalton, Three Rivers; vice-president, S. L. de