Planning Road Widths

Unnecessarily Wide Roads Enhance Cost of Municipal Improvements

The present unscientific system of fixing the alignment of roads is accompanied by an equally unscientific system of fixing road widths. Most roads are too wide and many are too narrow, and those that are too narrow are restricted in width by reason of the law which requires the others to be too wide. It may be claimed that, both in rural and urban territory, a general average of 66 feet is wide enough for all purposes and that no community, even when relatively closely settled, can afford to lay out and pave streets of a greater average width.

The minimum standard in Ontario and elsewhere is 66 feet. This standard applies to the main arterial thoroughfare required to carry heavy traffic and to the short residential street required for the purely domestic needs of a few houses. In many districts acres of macadam, asphalt and concrete laid in a few streets might with advantage be used over twice the length of street now paved. One consequence is that the cost of local improvements in many localities is so great that money is not available for necessary purposes of public sanitation. Another is that the tax burden on the property owners is so heavy that they are proportionably limited in the capital available for making their houses sanitary and durable in construction, and they are compelled to crowd their land with buildings in order to put it to economic use.

But even at this late day, with all the lessons we have had of waste of land and unnecessary expenditure of capital in providing far too wide roads for purely local traffic, there are those who regard any suggestion to make streets narrower than 60 or 66 feet as reactionary. There are few, however, who will deny that it is impracticable, in any community where the density of building is comparatively open, as in Canada, to provide land and make satisfactory roads or streets to a greater average width than 66 feet. What happens is that the land provided for roads or streets, as the law requires, but that few of the roads or streets are ever properly constructed, the reason being that there is too much road surface for the population, even when the land is closely settled. *Excessively wide streets, instead of securing more air space, cause congestion, e.g., in the erection of apartment houses in towns, because without such congestion the frontages could not afford to meet the cost of local improvements.* This is being proved in Canada where the tendency towards the tenement building is being created by the wide street. In the rural districts, although land is plentiful and cheap, it stands to reason that all roads should not be of the same width, and that there should be variation to suit the requirements of traffic.—*Rural Planning and Development.*

Timber Cruising and Land Surveys

Inventory of Ontario Forest Resources Handicapped by Lack of Elementary Data.

Officers of the Commission of Conservation, who have been engaged upon the work of making an inventory of the forest resources of Ontario, have been struck by the lack of reliable information regarding the timber conditions in certain regions which have been opened up by railways for some time and for which it might reasonably be expected that fairly accurate and complete data would be available. There is a notable absence of the results of systematic cruising which could very economically be carried out in conjunction with land surveys. Undoubtedly, progress in the work of cruising timber areas was very severely handicapped during the war by the difficulty of securing the necessary staff.

In view of the frequent inquiries from foreign investors for authentic information respecting the timber and pulpwood resources that are available for exploitation in Eastern Canada, it is essential that the work of making thorough timber cruises and of compiling authentic forest maps be given sufficient staff and funds to ensure immediate and rapid progress. There is little doubt concerning the availability and the eagerness of capital to engage in the development of forest industries—the most urgent need is to make known the situation, character and quantity of the resources that are available for such exploitation. The Commission of Conservation is collecting and collating all of the authentic data that can be obtained in regard to Ontario, but the task is rendered doubly difficult by the fact that over many large and important areas satisfactory cruises have never been made.—*A. V. Gilbert.*

Water Power and Location of Plant

Industrial Supremacy Passing from Coal to Hydro-electric Energy.

The presence of coal has been one of the most important factors determining the industrial expansion of various countries during the past hundred years or so.

This condition is gradually changing through the exhaustion of coal supplies. A recent article by G. H. Ashley, State Geologist of Pennsylvania, emphasizing the necessity of replacing coal by water-power is particularly significant, coming from one who is well able to judge the situation in this great coal state. His statements are of special interest to Canada in view of the prediction that industrial supremacy will, eventually, pass from coal-depleted regions to areas where large water-powers are available. It is even pointed out that one way of keeping the industries where they are in the United States would be by the importation from Canada of enormous quantities of hydro-electric energy available on the St. Lawrence and at Niagara.

Mr. Ashley holds that: "The industrial East has maintained its supremacy because of cheap fuel and nearness to markets. Because of cheap fuel Pittsburgh afford to haul iron ore from Minnesota. It does not take a seer nor even a scientist to point out that, if our present increased use of power continues, a generation will see the exhaustion of cheap fuel in the East."

"A review of the field to-day shows that, in several of the districts, practically all of the thick coal has been mined out, while in others it is possible to count the years to the time when the supply will be gone. It may be argued that, as the cost of coal increases, the manufacturing interests of the East will turn to water-power. That argument leads to the question of the adequacy of the water-power of that region to take over the burden now carried by coal."

"In addition to the powers within the boundaries of the northeastern United States, there are large powers to the north in Canada. The St. Lawrence below the international boundary is estimated to have a potential horse-power of nearly 1,500,000, and the two provinces of Quebec and Ontario have been estimated to have a maximum of 6,000,000 h.p. each, including that from Niagara and the St. Lawrence. Already 125,000 h.p. is imported into New York from Ontario, and a small amount is imported into New England. If all of the Canadian water-powers were developed and Canada would allow the exportation of, say, one-half the power, or 6,000,000 h.p., it is probable that the northeastern corner of the United States could look forward to an ultimate utilization of not less than 10,000,000 to 12,000,000 water horse-power."

It need hardly be pointed out that the benefits accruing to Canada from the exportation of 6,000,000 horse-power would be relatively negligible. *One large manufacturing plant using, say, 1,200 h.p., would employ more men than the water-power plants generating 6,000,000 h.p.*

Mica And Its Uses

Its Heat-resisting Qualities Render it an Effective Insulator and Lubricant

Mica is one of the most useful minerals, the production and distribution of which is little known. Of the many varieties, only three are of commercial importance, and of these but two are available in any quantity—the muscovite, or white mica, and the phlogopite, an amber mica. The latter is the most important of the Canadian micas.

India is the largest producer of mica, providing over fifty per cent of the world's supply. Canada produces about 25 per cent, and the United States and other countries the remainder.

In Canada, mica occurs pretty generally. The most productive areas are situated along the lower St. Lawrence below Quebec, north of the Ottawa near Mattawa, and in the townships of Burgess in Leeds county, Lanark in Lanark county, and Loughborough in Frontenac county, also in a few areas in British Columbia. The production of 1919 was valued at $273,305.

Mica mining is attended with many difficulties. For successful exploitation it is essential that the miners be experienced in the mining of this material, and be familiar with the special conditions and problems it presents. Many good mica deposits have been abandoned on account of the lack of experience of the operators.

The general run of mine mica is of a small size. A very small percentage produces sheets of 4 x 6-inch surface, while fully fifty per cent will cut to 1 x 3 inch sheets only. Fortunately, a process of cementing the small sheets enables the building up of larger surfaces. This product is known as "micanite" or "mica board" and is mostly used in the electrical industry for insulation. Mica is largely used in the manufacture of boiler and steam pipe covering, its insulating properties exceeding by far that of any other known substance. Comparative tests have demonstated that the loss of heat from bare pipes has been reduced by 90 per cent when the pipes were enclosed in mica covering.

Owing to its resistance to shock mica is used for spectacles or goggles worn by workmen in industries where flying chips or sparks endanger the eyes, and in observing processes of melting and fusing in furnaces. The small pieces of mica, formerly wasted, are now used for various purposes. When ground fine in oil, mica forms a valuable lubricant, especially for shafting or journal boxes on locomotives or railway cars. Ground mica, when mixed with a flux, is also used in giving to wall-paper and other substances a silvery effect.

So many uses are being found for mica that what was formerly an industry with a very large proportion of waste, is now one in which the material is almost completely utilized.

Hardening Concrete

Experiments by the United States Bureau of Standards to develop a method of accelerating the hardening of concrete, especially when it is to be used in wet or damp situations, have shown that 4 per cent of calcium chloride added to the mixing water increases the strength of concrete at the age of one day 100 per cent or more. In some cases in two days the strength equalled 75 per cent or more of that normally attained in one month.