

CONFIDENTIAL

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I have mentioned already the tremendous traffic carried on the five Great Lakes, which reach almost to the heart of this continent. Some of the most striking examples of the influence of transportation on economic development, are to be found here. Thus the preponderant volume is in three raw materials of the steel industry: iron ore (about 100,000,000 tons a year), coal (50,000,000 tons), and limestone (25,000,000 tons). Let us see what water transport has meant to this industry.

A hundred years ago, iron and steel production was small in scale and widely dispersed in both the United States and Canada, based on local ore deposits reduced with charcoal. But new smelting techniques began to emerge towards the end of the nineteenth century, involving large furnaces and the use of coke as a reducing agent. The high-grade ore of the vast Mesabi and other iron ranges near Lake Superior was known, and hundreds of miles away the extensive coal fields of Pennsylvania and Ohio. It was low-cost water transportation that enabled the ore and the limestone to be brought together with coal for economical steel production on a large scale, which began to concentrate in centres around Lake Erie and Chicago. Today this area produces something like 80 per cent of all the steel made in the United States, and on this foundation is also the centre of a vast complex of secondary industries using iron and steel in a great variety of products.

The biggest part of Canada's iron and steel capacity is located in the Great Lakes basin, notably at Hamilton and Sault Ste. Marie, for much the same reasons. There is a considerable Ontario production of iron ore and a several-fold expansion is under way, with both the Steep Rock and Michipicoten mines shipping over a million tons for several years past. Interestingly enough, there is a large exchange of ore across the lakes, for much of the Canadian product is comparatively high grade, best used to "sweeten" lower grades.

I should make it clear that by no means all of the coal movement I mentioned is for the steel industry. Great quantities move up from Lake Erie to the Detroit and St. Clair Rivers and to the three upper lakes for industrial use. A heavy flow also crosses both Lake Erie and Lake Ontario for general consumption in southern Ontario and Quebec, the region we often refer to as Central Canada, which is completely lacking in coal resources. The availability of this water-borne coal has been a major factor in the industrial concentration that has arisen in Central Canada.

Grain from Western Canada and United States is another large item of traffic on the Great Lakes, as much as 15,000,000 tons a year flowing in part to Eastern flour mills and in part to export. Here is a classic example of the never-ending pressure for cheaper and more efficient transportation. For the grain market is one of the most competitive in the world, and I have no need to tell you that the farmer keeps a sharp eye on freight and handling charges. He cannot afford to do otherwise if he hopes to stay in business. One result of this pressure has been the evolution of ever larger and more efficient bulk carriers for the lake trade, the biggest ones today carrying a load of more than 20,000 tons, enough to fill two