

worked by steam or compressed air, now put a different face upon the industry. Four of these companies sustained annual outputs of from three three to eight thousand tons each, and the total yearly production rose to nearly thirty thousand tons. Transportation from the mines to the river bank was performed by means of tramways, and barges and steamboats were placed upon the Lievres River. A branch line was built by the Canadian Pacific Railway to the landing place of the barges at Buckingham, and by these means cheap transit was afforded to the ship at Montreal. The mines in Templeton, Wakefield and Hull avail of barge freight on the Ottawa River at equally low rates, so that the transport from the pit mouth to the ship's side has not usually exceeded \$3 per ton, and has sometimes been as low as \$2 per ton.

The greater portion of the phosphate production of Canada has been latterly obtained from Ottawa County, mainly from the vicinity of the Lievres River. In this region the mineral has been found in occasional large bunches or else occurring in irregular streaks through a mass of rock, so that by the process of quarrying with steam drills a great amount of rock can be moved from which more or less phosphate can be obtained. In Ontario the deposits are often found in distinct veins in the midst of barren rock, and it is usually found more profitable to work by hand drilling in a smaller compass than is possible with machinery; and though the output may be smaller by this method, there is a greater probability of the persistence of the seams. These veins have, in some cases, been traced for upwards of a mile and are found to be continuous in depth as far as explored. The deepest workings so far have been to a depth of 200 feet in Ontario, and 650 feet in Ottawa County. But though persistent in depth, the width of the seam is very variable. Dr. Hunt says, "The thickness of the bedded masses of apatite may be said to vary from one foot to three or four feet, though not unfrequently expanding to eight or ten feet, or more; and sometimes contracting to a few inches, the same layer being subject to considerable variations." When the vein narrows there is often found to