without the use of puddle. On the opposite side of the navigation a new bank, 10 feet in width at the top, with an inner, or water slope of 2 to 1, and an outer slope of 1½ to 1, was formed from side cutting. In the centre of this bank there was a puddle wall 6 feet in width. By these means the navigation had been widened, so as to allow of a lay-bye for barges along the whole length, and thus to afford available water frontage to a large area of land.

The stop-gates at Pond Lane were constructed in order to allow the water to be drawn off at Old Ford Locks, without incurring the expense of a dam. They were 22 feet in width, and the cill was laid at the level of 7 feet 11 inches below the Lee Bridge headmark. Their construction was very similar to that of the Old Ford Locks, except that the cast-iron pointing cill formed nearly a square nosing to a brick cill.

A steam dredging machine was employed for deepening the river, the average cost of raising material being from tenpence to elevenpence per cubic yard, according to the weight, including a "lead" of 1½ mile and allowing for wear and tear of machinery.

The total cost of the works was about £22,000, which amount included £4,000 for land, and £2,000 for plant, now being used on works higher up the river. They were designed and executed by Mr. Beardmore, M. Inst. C.E., assisted by the Author, without the intervention of a contractor.

In the second part of the paper, it was argued, that canals were still extensively useful, as a means of conveyance, and that they might be rendered more so, by combination with railways. The returns of the Grand Junction Canal Company, which had to contend with the formidable opposition of the London and North Western Railway Company, gave an actual increase from 1840 to 1856, of 262,942 tons per annum, or 28½ per cent.; although this was liable to fluctuation from year to year, the average of each quinquennial period, showed that the increase had been gradual and progressive. This result was in some degree due to a considerable reduction in the tolls, and also to the development of the resources of the