CHAPTER LXI.

NABURN RAILWAY BRIDGE, &c.

Journeying along the river, we are soon at the side of the land which it is proposed to utilise as the sewage farm for the city, in connection with the great scheme of drainage now under the consideration of the Corporation. It is proposed to lay intercepting sewers at the south-eastern boundary of the city, at such a depth as to pick up all the existing or newly-made sewers, and to convey the sewage from them to a pumping station to be erected not far from the old church of St. Oswald's at Fulford. The sewage will then be raised into iron mains, and conveyed to the sewage field, where extensive and somewhat costly works are to be erected, to deal with it. The several works are estimated to cost a little over one hundred thousand pounds; but, judging from past experience and the fact that large works in York have generally cost considerably more than the estimates, it would be unwise to accept this figure, and may be, it is impossible to fix the cost of this undertaking. In normal times twenty-two million gallons of sewage will have to be dealt with every twenty-four hours, but machinery is to be put down to deal with three times that quantity, so as to meet emergencies arising out of floods; the sewage is to be subjected to a process of chemical precipitation, and the effluent then allowed to pass direct into the river. Objections however have been already taken to the site, and action has been, and will yet be made, to the establishment of the proposed works at this point of the river. It is urged by those making the objection that however effective the effort may be which shall be made to destroy the deleterious outcome of the sewage, there will still be danger to the

village of Naburn, which is at no great distance from the proposed farm, and more especially if any of the villagers take up their water for domestic purposes from the river. The curving of the river at this point will bring the farm and the village into close proximity, and will always create an undesirable sense of insecurity. This fear will damage existing property, and prevent the development of the village, and with a view to avoid litigation a proposal has been made to convey the sewage in its crude state below Naburn Lock, but the proposal has not yet commended itself to the judgment of the York Corporation or their officers.

A windmill formerly stood in a field near to the railway bridge, but it has long since disappeared, leaving its name to the field as evidence of its past existence. The introduction of steam into mills for grinding corn has superseded the windmill with its uncertainty of working, and is fast superseding the less uncertain but cumbersome watermill. Formerly York was belted with this useful and somewhat picturesque structure. One of them stood at Holgate, and three on the Mount, one on Bishopthorpe-road, one near Clifford's Tower, and another nearer to New Walk-terrace; one in Heslington-road, and another in Heslington Field; one on Heworth-road, and one on Malton-road, another on Huntington-road, and one near the end of Clarence-street, one in Burton-lane, and others round the city, but at a little distance away. Some of these stood on wooden framework, and looked insecure, but others on brick buildings or foundations, somewhat akin in shape to the old-fashioned bee-hive. Very few of these mills survive, and the days of the survivors are numbered.

In a little time we are passing under a substantial and massive structure called

"the Naburn Bridge," erected by the North-Eastern Railway Company, chiefly for the use of the trains running between York and London by the Great Northern Railway Company; and the trains running between York and Hull by way of Selby by the North-Eastern Railway Company. The bridge has the effect of shortening the distance from York to London, and of getting rid of the numerous junctions between York and Doncaster, by way of Knottingley, and all the delays and dangers which these junctions involved. After years of anxious thought, out of which many proposals came, the plans for the present bridge were adopted, and specifications and details agreed upon. The contracts were let in the autumn of 1866, but the work was not commenced for some little time afterwards. Still, it was hoped that the erection would be finished by the end of 1869, but the works and the necessary inspections, reports, &c., were not completed until the end of the year 1870, and the bridge was opened for public traffic on the second of January, 1871. The late Mr T. E. Harrison, was the engineer charged with the building of the bridge, and Mr A. Harrison acted as resident engineer, during the time of such construction. Messrs T. Nelson and Company, of York; Messrs Pease and Hutchinson, of Darlington; and Messrs Armstrong and Company, of Newcastle, were the contractors for the several sections of work necessary to the bridge, and when the work was completed it was in every sense satisfactory. The structure is of a very interesting and effective character, and displays great skill both in design and execution. There are two spans over the river, one moveable, the other fixed; the moveable portion is composed of swing girders with a span of 176 feet in length, working on a roller path in the centre of the span, and the

fixed portion of the bridge has girders of 107 feet in length. Each of the spans has two main girders, whose distance apart from outside to outside, is 28 feet 9 inches; and between these girders, the railway is carried by cross girders, at an average of 5 feet 4 inches centres to centres. The swing span has been constructed, so that it may be opened whenever necessary for the river traffic, and vessels of large tonnage or in full sail can pass through. The swing span is worked by hydraulic power on a roller path beneath it, whose mean diameter is thirty feet, and which is supported by eight cast iron columns, each five feet in diameter. In the centre of these eight columns there is another and larger column, which is seven feet in diameter; in this pillar the accumulator is placed on which the bridge pivots. These columns are driven to a great depth into the river bed, and filled in with massive brick work; they are surrounded by an ornamental cast iron casing, inside of which are placed the engine necessary for working the bridge and hydraulic turning gear. On the top of the bridge, and above the way of the trains, an outlook cabin is erected, it is carried over the main girders immediately above the stationary engine used to work the hydraulic gear, and the starting and reversing levers necessary to the opening and shutting of the bridge are worked in this cabin. To prevent the possibility of accidents occurring on either the railway or river, the signals are all interlocked with the gearing of the bridge; the signal lamps are all lighted with gas, for the making of which small gas works have been erected behind the village station, about one hundred and fifty yards away from the bridge. There is a resident gas maker, with gas house, storing tanks, and other necessaries; and reservoirs for storing gas are connected with the out-