Canons Marsh Goods Shed

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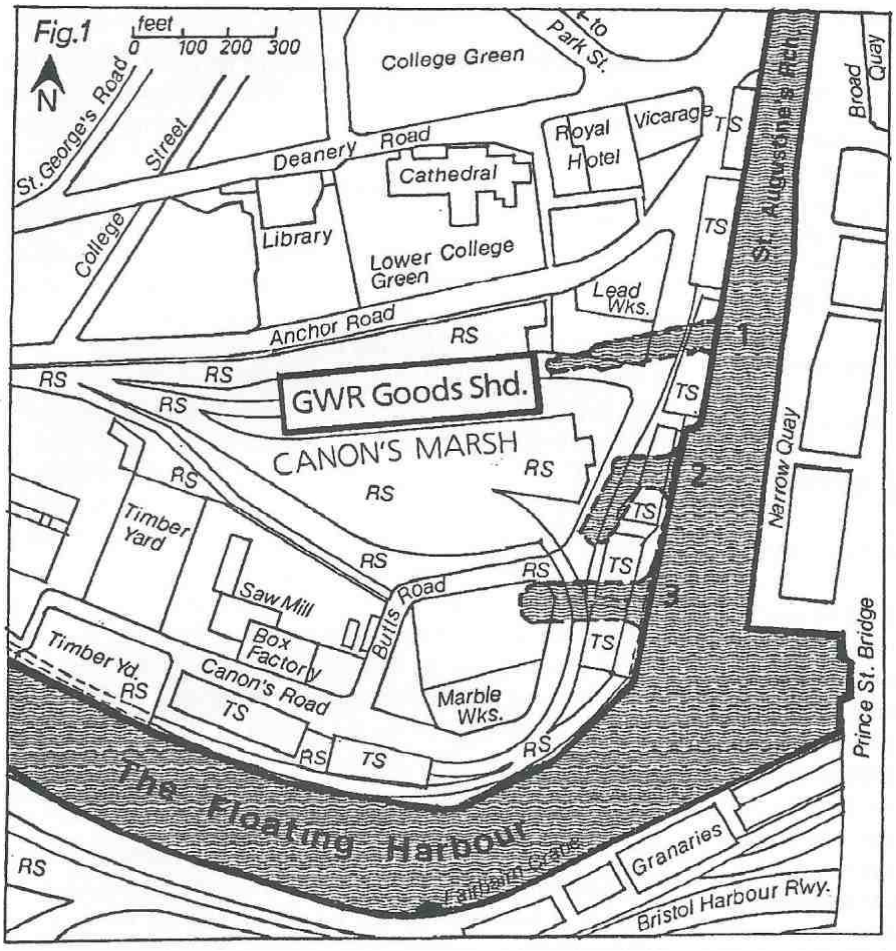
In the second half of the nineteenth century, freight services in and around Bristol had become a significant factor in the financial affairs of the Great Western Railway, whilst the Bristol Docks Committee was actively encouraging railway participation in the movement of goods to and from the Floating Harbour.

In 1866 and 1868, two Acts of Parliament allowed for the construction of wharves in the vicinity of the present site of the Fairbairn Crane, while the GWR in conjunction with Bristol Corporation conceived the Bristol Harbour Railway, running from Temple Meads to the new wharves by means of tunnelling under St Mary Redcliffe churchyard and crossing the junction lock to Bathurst Basin. In 1875, this line was extended to Wapping Wharf and, in 1900, the Docks Committee approved construction of wharves on the other side of the Floating Harbour at Canons Marsh. This prompted the GWR to plan another railhead at Canon's Marsh and to negotiate with the Corporation for means of incorporating it with the main London, Bristol and Exeter line. The Ashton Swing Bridge resulted, being opened to traffic in October 1906. At the same time the GWR had been busy building a goods station and warehouse at Canons Marsh which came into operation simultaneously.

Adjacent to the new Canons Marsh sidings and wharves, the new building of reinforced concrete and steel was some 450ft long, 133ft wide and 35ft high, with its corrugated iron roof fitted with the latest Rendle's Patent Glazing. With railway track now circumnavigating the Floating Harbour, the Canons Marsh Goods Shed became an important focal point in the commercial life of the Docks and was fitted out accordingly. It had eight electric cranes, three 1½ ton electric hoists and the building accommodated four sets of rails with 20ft wide roadways for horse-drawn vehicles between them. It was, technically, a most impressive building which served the docks well until rail closure in 1965. Now, looking decidedly bedraggled and somewhat of an anachronism, its future is problematic amidst a world of high-tech banking buildings and grandiose schemes for the upgrading of the docks' area.



This map, incorporating features from OS Sheet LXXV.4, 1918 and Richard Tombs' Plan of Bristol Docks, c1790, shows from the former the vast expanse of railway sidings (marked RS) and eight separate goods trans-shipment sheds (marked TS) in the vicinity of Canons Marsh Goods Shed early in the 20th century.
The positions are added of three pre-Floating Harbour docks:
1. Mr Tombs' Dock, 2. Mr Treat's Dock and 3. one of two socalled Mud Docks.
All these would have adversely affected ground stability in Canons Marsh. As there were twelve named docks adjacent to the Floating Harbour marked in Tombs' map there may well have been more in other periods of time.

Notwithstanding what it was, and may become, it is worth recording some of the difficulties in the erection of a building designed to accept floor loadings of up to six cwts per sq ft, without permanent deflection on what was literally a 'marsh'. As was understated by the structural engineer at the time:

> *Owing to a portion of the site being formerly a timber dock,* (see Fig 1), *the bearing power of the ground is of extremely doubtful quantity.*

For this reason, it was decided to employ reinforced concrete foundations, supported on piles of the same material. 274 piles, varying in sectional area from 12 to 14in were driven into the ground to an average depth of 35ft below eventual rail level. These were positioned in 74 groups of two and six piles, and driven into the marsh by means of 2 ton 'monkey' with a drop of 4ft operating at some thirty blows per minute, the top of each pile being protected by a cast steel cap filled with saw-

dust. The tops of each group of piles were then connected by reinforced concrete column bases and each base connected to its neighbour by means of a reinforced concrete beam. Thus, the entire floor area became a completely framed structure which then supported a 5in thick concrete slab, reinforced in the usual way with longitudinal and transverse bars. After the building had been erected, the floor was tested by applying loads of up to 112 tons 11 cwts, (equal to 6 cwts per sq ft) over a period of eleven days. Testing for a permissible deflection of 0.54in over a 27ft span, it was actually measured and recorded at only 0.086in.

For the record, the concrete used was made with granite chippings and Pennant stone, the proportions being one part of Portland cement to four parts of aggregate for the columns, and one part of Portland cement to five parts of aggregate for the beams, floor and roof slabs. The builder was Samuel Robertson of 28-30, Pennywell Road, Easton, Bristol.

In 1954, some forty-eight years after Canons Marsh shed had been completed an investigating team, comprising members of the Building Research Station headed by Dr Stanley Hamilton, and the Cement and Concrete Association headed by A.G. Bray, selected a nationwide sample of early reinforced concrete buildings. The aim was to report on durability of materials and construction after nearly half a century of maintenance-free service. The Canons Marsh shed was included. The team there found a small amount of cracking and 'spalling' on beams and exposed surfaces which they concluded had been the result of mechanical movement. As the shed when full could accommodate up to 96 wagons, such operational damage seems to have been manifestly possible. They mentioned that no repairs had been carried out to the structure at all, except that external roofing felt had been replaced. Their report seems a fitting epitaph to the design and workmanship of the men who constructed the earliest reinforced concrete building remaining intact in the Bristol area.