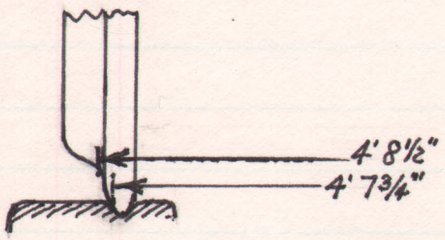
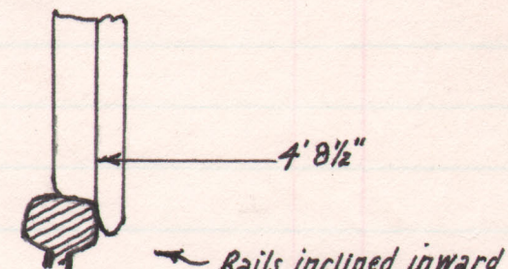
PORTSMOUTH AND GOSPORT PERMANENT WAY PECULIARITIES

Rail connection to the Isle of Wight was at first provided by a tramway direct from the Town Station to Southsea Pier. It has been stated that "through London" carriages were taken through the Portsmouth streets on this Tramway in 1866. If so, they would have been London & Brighton vehicles, almost certainly four-wheelers, from Victoria. Evidence of this possibility lies in the fact that the Landport & Southsea Tramway was connected to the goods yard at the Town, and a slight platform which existed until 1977, provided near the curve into Commercial Road. It is known that the tramway of 1866 stood proud of the street level - and it ran along the crown of the road - until relaid with grooved rails in 1875.

As was proved at Gosport during the 1914-18 War, there was no trouble in running railway wagons of 4' 8½" gauge over street tramways of 4' 7¾". The flanges of the rail wagons ran in the shallow grooves of the standard "box" rails in the streets. A temporary connection was afforded by the London & South Western Railway to the Fareham tram route near the "Bedenham Arms" to convey wagons thence to the R.N.Victualling Yard.



Tramway

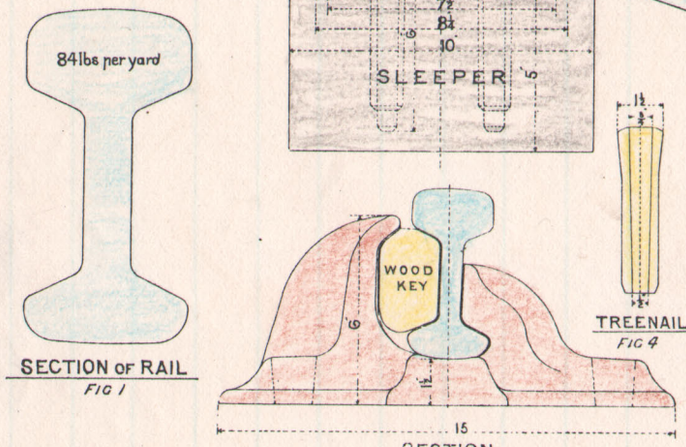


Railway

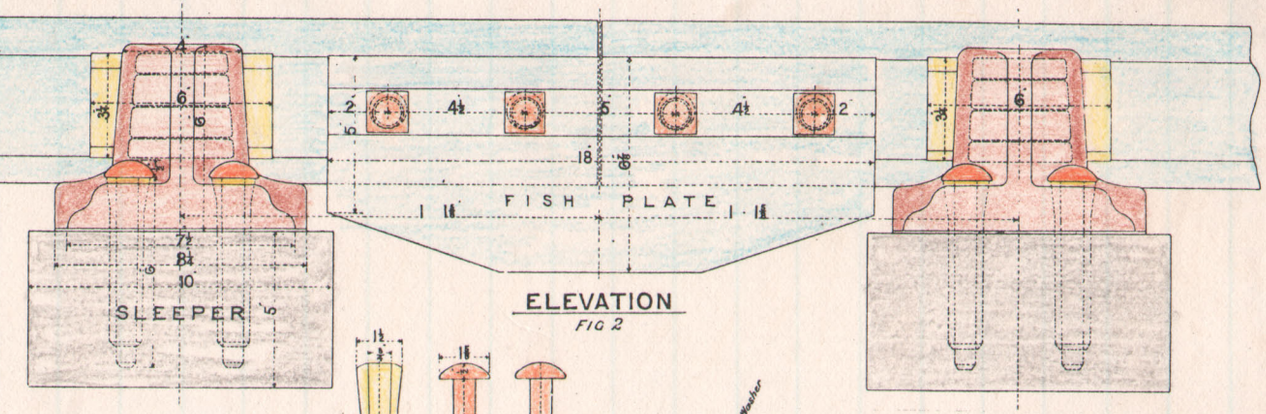
Permanent Way Institution
(Southampton Section) /

L.T.A.Bern.

LONDON BRIGHTON & SOUTH COAST RAILWAY



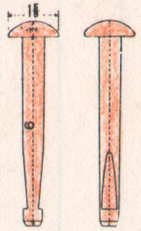
SECTION OF RAIL
FIG 1



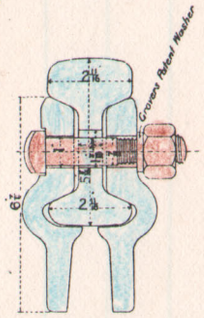
ELEVATION
FIG 2

SECTION
FIG 3

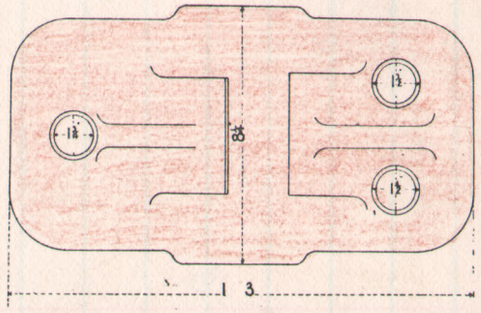
TREENAIL
FIG 4



SPIKE
FIG 5



SECTION OF RAIL & FISH PLATES
FIG 6



PLAN
FIG 7

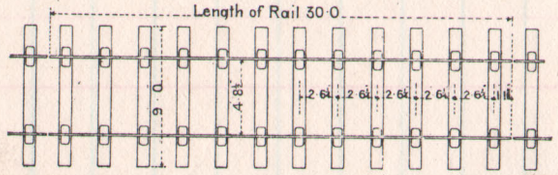
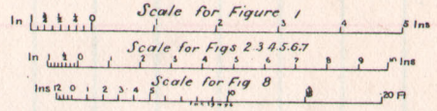


FIG 8



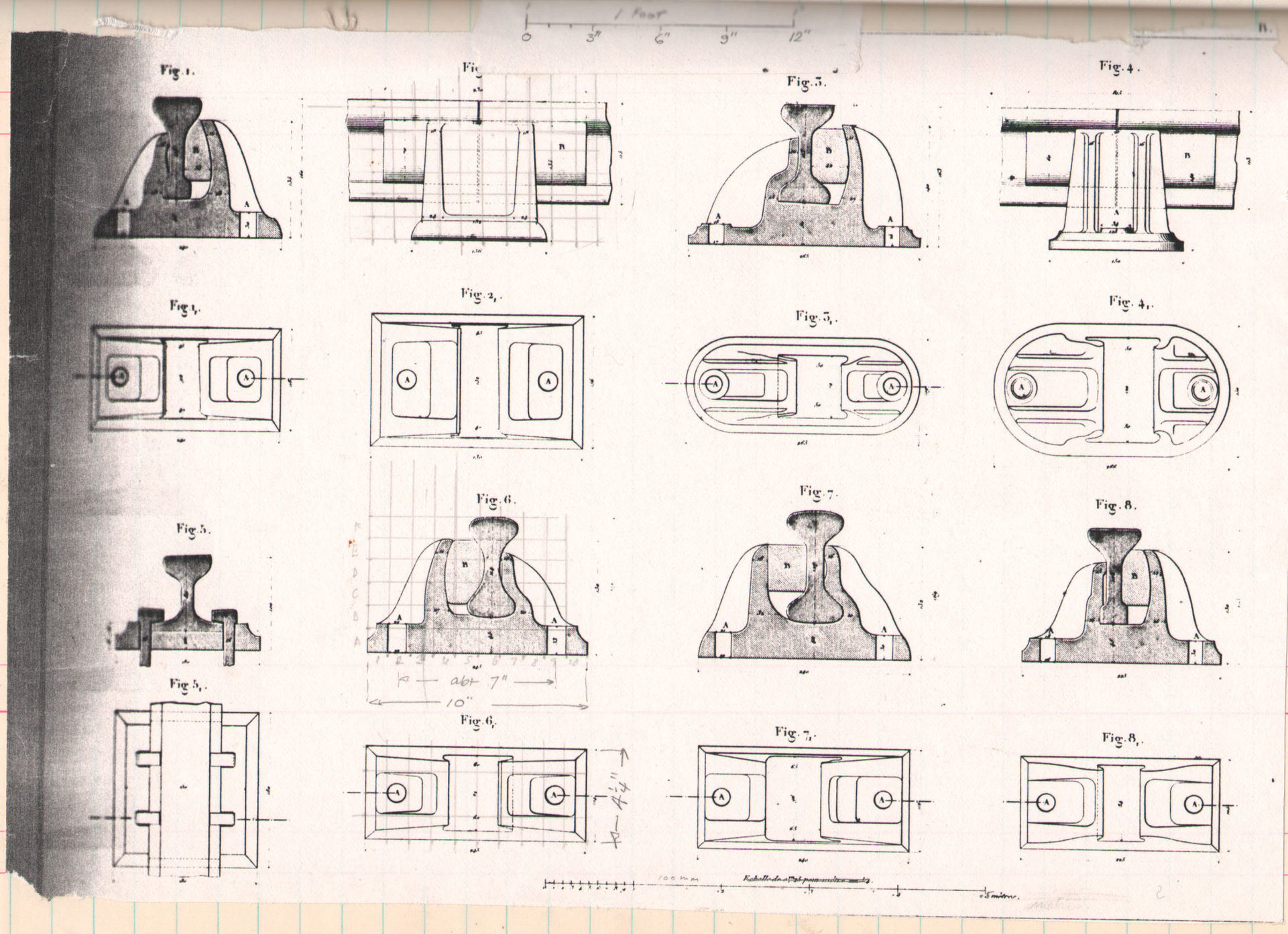


Fig. 1.
Fig. 2.
Fig. 3.
Fig. 4.
Fig. 1.
Fig. 2.
Fig. 3.
Fig. 4.
Fig. 5.
Fig. 6.
Fig. 7.
Fig. 8.
Fig. 5.
Fig. 6.
Fig. 7.
Fig. 8.
1 Foot
0
3"
6"
9"
12"
abt 7"
10"
4 1/4"

Iron LMS Miscellaneous.

Iron plates Outram 1795

"Outram Way" — Tramway? eh?

Tickhall & Oakthorpe Tramway - stone blocks

L plates 3' long.

Iron Jessop — flanged wheel? 1789

5'0" — 3½ = 4'8½ = 2 X 1¾" Jessops?

Steel

Ebbw Vale Iron Co 1857 rolled steel rails

Robert M Mushet Bessemer

Midland - Derby 1857 - Mushet credited to repurchase in 1867 from MR Engr JS Crossley 'put used again'

LNWR 21' Chalk Farm Bridge 2/5/62

C/F Iron rails

taken up in 1865 - even that had been repaired 16 X

wear just as 1½"

Locomotives of the LSWR Part I (Wm Jacomb appointed 6/7/1870 – Stroud able to retain (Bd June 1870 – Brotherton & Grace) crowd rails – very few

August 1848 The fireman of the "Gem" engine fell off the footplate and was killed. The uneven track at Woking was said to be the cause of severe shaking.

775 at Redlynch.

26 December 1852 Chapman Jn. Engineman Bate fireman Cleaves for derailment of "Falcon" and "Ruby" and train. Train travelling slowly for P.W. works but one 'one rail' had not been connected by fishplate to the next.

2 Sept 1874 2.10 Wloo – Exeter Express derailed near Esher. Guard had failed to set out usual ~~signal~~ whites (30 mph) or red (20 mph) danger flags for track repairs. (+ arrangements to prosecute engine driver)

3 June 1884 4.33 from Salisbury on W. Moors line. 2 engines + train derailed (one engine seriously (No 240) and debris fouled track. P.W. badgered to lay heavier lines up to standard.

1877 Whimpey 127 "Goliath" derailed on P.W. Works – hauled out by horses from adjacent farms
~~727 goods derailed on P.W. Work~~ – hauled out by forces from adjacent farms and Exeter, 80 men.

1849 Stops for London from Exeter? Dorchester.

1859 { Nos 101/2/4/5 Lined out by T. Brassey for Ballasting (Also Salis-Exeter 1875-7 engine went to 20 pounds)
Continuous web wrecked Lined through track depressions at Crewkerne etc.

Five 6 coupled (0-6-0) from New Elms 1845 – caused trouble (13'5" wheelbase) – sideways derailment from tyres, back rails.

Fishpeates mentioned in accident 19/5/1847 – employees had loosened a number; "Leads" derailed at Winchester.

No 114 "Frome" (2-2-2). Based at Weymouth for several years and had a driver named Alexander Nutbrown, who was quite a character, and has several pages of anecdotes in the LSW Accidents and Misdemeanours book entirely devoted to himself. Apparently, he actively disliked the GWR and anyone connected with them. This was especially so after he had partaken of refreshments at a public-house when he would generally refuse to move his engine, and by keeping everyone else from the footplate quickly brought all traffic to a standstill until the police arrived. Eventually he was persuaded by very civil engineers to move his engine, allowing all passengers to board a GWR train and then allowing us Westerners to finish the station until his own engine could be repaired and driven away.

Engine Ashes – sidings only (hard burned) – pitting and corrosion of rails
popular for "keeping down dust"

Slag Ballast (cold blast – clean, hard, bonds, drains well) not hot blast
USED IN NORTH – open top furnaces

Gravel – grit (got into journals of axle boxes) – got hard under sleepers
dusty (cost did too) (see Weaved Packing)

Broken stone "stone" Granite/Limestone sharp edges and corners.
(used by LSWR – Meeden) "cleaner"

Sleepers 8' 11" or 9' 0" x 5" sawn or heart side Memel or Danzig fir creosoted.
Riga Redwood Scotch Fir/Larch
(soft) BALTIC REDWOOD

Timbers (Pitch pine or Oregon Pine (split easily) 12"x5" (instead of 10"x5") NB Sleepers were common once!!

Rails Bessemer Steel Acid tail Breaks 8 tons 50 tons/sq in Crossings/manganese steel
Carbon (0.4%)

BH Chairs – allowed wider sleeper spacing (than FB) wider bearing base.
(Spiral fastenings). BH chairs – compulsory at Common crossings.

Spike 7/8" diam. – slightly tapered – round → compressed fibres of timber

Trenail – oak (hydraulicly pressed to size?) – no hollow.
Hollow trenail + spike

Keys: oak (white) Teak 7"
"Joint chairs" – 5" (cf 82mm 3¼"?)

Fishplates flat – rolled 18" long 1" thick 23 – 36 lbs

Clip plate (double headed rails only?)  Check rails 1¾" gap.

Bolts Square heads

Worn rails – bent cold

1 in 8 BoT flattened cycle diamond crossing – hence ordering of 6' in some cases.

No 2L chairs in 1911? – no adzed out underside

Beater Packing / Shovel Packing

Drain rodding

Oiling fishplates

Fouling bar – broke electric circuit controlling electric lock

Outram 1800

The President elect of the PWI J.W. Jacomb-Hood Esq. M. Inst. CE Chief Engineer LSWR on 4 January 1911:

"First, what can be done to put an end to the needless loss of our brother workers on the track that goes on yearly? And, secondly, What can be done to ensure that capital invested in these great undertakings secures a proper return?"

100,000 on the track then! (Cost of £60,000)

"Creep" - load - which rail? Much discussed - direction of train

1½" flangeway clearance Excl.

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93 chairs on one Sunday with 130 men. Metropolitan Ry (Harris)

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24 men chairing sleepers
30 lengthmen opening out } Thurs & Fri.

12 hours: ½hr breakfast/40 min dinner Sunday
TSR = 15 mph.

Men allowed to travel one way in Co's time (Met R) and oatmeal water!

only ones talked on Sunday?

Jafered keys (not yet in 1911)

"Joints"

Foreman Platelayer

Round checks 3/16 / Thos Crossley (200 by 1911) / manganese crossings

Transition Junction.

45' rails - number of men to handle easier

Fish keys bolt thro both

LOCKE'S RAIL (DH 62lb)

1835 G.J.R.

The track was laid with Locke's double-headed rails, forerunners of the bullhead, keyed into chairs and set either on stone blocks or kyanised crossed sleepers. 'Kyanising', named after its inventor Dr. Kyan, was a ~~preservative~~ process for preserving wood by saturating it in a strong solution of bichloride of mercury. It was superceded by creosote about 1840. In its original form Locke's rail had a weight of 62lb per yard; the idea of the dumb-~~bell~~ shape was to allow the rail to be turned over in its chair so that both ~~heads~~ heads could be used, but this proved impractible as the lower side suffered indentation. However its design showed it superior to ~~others~~ most of its rivals.

The results of tests which Locke carried out at Edge Hill on May 12 and 13 1835 are still available as a report ~~of~~ under the title Experiments on the Strength of Malleable Iron. (BTHR*) Seven types of rail were used, of which his own, referred to as the 62lb. parallel rail, was the heaviest. The tests involved running a carriage loaded with an enormous weight of 18 Tons, over rails at 2½ miles per hour and inspecting for bending and fracture. The Grand Junction rails, at 84lb per yard, were even heavier than the first form.

From "Britains First Trunk Line"
Norman W. Webster
(Adams & Dart) 1972.

See Henry Tuck
Railway Shareholder's Manual; or the practical guide to the Railways of Great Britain, completed, in progress, and projected, forming an entire Railway Synopsis, indespensible to all interested in railway 'locomotion'.

* or Kew?

George and Robert Stephenson had favoured single stone blocks on which to mount their rails, an astoundingly complicated system which brought an immense number of problems, including those of fixing the rails to the blocks, levelling, and maintaining the correct gauge in the absence of cross-ties. The principal reason for using stone blocks was that it was deemed to form a true 'permanent way' as distinct from the temporary light railways laid down by contractors in the course of construction. Robert Stephenson was using blocks on his London & Birmingham line, then being built (1835)

Locke, perferring simple, effective and economic methods, was disposed towards the use of wooden sleepers rather than blocks, but it is probable that his training under Stephenson militated against abandoning the traditional method of laying track. The Grand Junction was originally laid on sleepers with the thought that this was a temporary measure which would eventually give way to the extensive use of blocks. In preparing the line ditches were made for taking off the surface water and then a stratum of sand, gravel or ashes was laid over it spread to the thickness of a foot where stone blocks were used, but thicker where wooden sleepers were employed. The blocks or sleepers were then laid and carefully adjusted to the correct level and another stratum of ballast laid over them; thus only the tops of the rails were visible and little was seen of the underlying sleepers or blocks, a feature which may be observed in prints of the period. This final covering was said to retain the line firmly in position; in any event the system as a whole give a firm dry bed for the railway and was easily maintained.

It must have been apparent that the wooden sleepers gave greater resiliance than the blocks, providing a smoother travel than either Stephenson's road or Brunel's complicated baulked track on the Great Western...

That part of the GJR, with its effective construction and smooth riding, was therefore still not favoured by the majority of railway engineers, although the merits of sleepers would soon become apparent. Locke used them when he came to be engineer to the London & Southampton, and its riders were favourably impressed by the agreeable running compared with that of the London & Birmingham and Great Western. In due course Locke's Keyed rails and cross sleepers would relegate stone blocks and piled track to the same limbo

L & SWR (Wilshaw 1842)

The whole width of land is about 23 yards, including hedge and ditch on each side, but exclusive of slopes, which increase the width in proportion to the height of embankments or depth of cuttings. The gauge is 4 feet 8½ inches; the intermediate space 6 feet 5 inches *; and each side-space *4 feet 7 inches wide. The rails are chiefly of the double parallel form, of 63 lbs, and 73 lbs. to the yard respectively, set in chairs, and secured thereto with compressed wooden keys. Those for intermediate chairs are each 4 inches long, and measure in cross section 2 7/8 inches by 1 3/8 inches; those for the joints being 6 inches long and measuring 2 3/8 inches by 2 inches. The former are worth 9£ (£); and the latter 10£ (£) a thousand. The chairs are spiked down to cross sleepers throughout, which are 9 feet long, and have ~~a~~ scantling of 10 inches by 4½ inches. Many of the sleepers are of beech, and the whole are Kyanized. The value of these sleepers ~~are~~ is about 3s 6d. each, exclusive of kyanizing. During the progess of the works five tanks for preparing the timbers by Kyan's process were fixed at Warren's Farm, near Popham. Each tank was 30 feet long, 5 feet 6 inches deep, and 10 feet wide, and of sufficient capacity for 300 sleepers at one time. The sleepers ~~were~~ remained in the solution for six or seven days together. Six men were constantly engaged at this operation. Transverse gullies are formed from the middle of each way to carry off the water into the side-drains, as in the Birmingham, and other principal lines, where cross sleepers are used.

The ballasting is chiefly gravel. The fencing consists of posts with three, and in some parts four rails. The side drains are chiefly open throughout the works.

* 'Running edge' measurements