THE NARROW GAUGE

THE NARROW GAUGE RAILWAY SOCIETY

No. 48 · JULY 1968

THE NARROW GAUGE RAILWAY SOCIETY

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Editorial

Another enjoyable A.G.M. has come and gone and we are all another year older. Our friends in Stoke put on an excellent film show for us after the afternoons business session had ended.

A point made at the A.G.M. was the out-of-pocket expenses borne by members of the Committee and those taking an active part in the affairs of your Society. A letter costs 4d., soon to be 5d. or 6d, but a dozen a week makes a hole in an officials pocket money. Will you excuse the non-acknowledgement of letters which need no reply, and when writing for information etc. from the Records Department etc. enclose a stamp perhaps?

I am delighted to include as this months fold-out supplement two very fine drawings from Douglas Claytons board. These appeared much reduced in the book on the Southwold Railway published by Ian Allen - a second edition of which is now available, another two will appear next issue.

As the holiday season is now upon us I hope you will have fair weather, and a little narrow gauge wherever you get to.

Best wishes. Henry Holdsworth.

Cover Photo

by Ivo Peters.
(entered for the 1968 Photo Competition).

Schull & Skibbereen Light Railway.

4-4-0T - No. 3 'KENNY' PECKETT 1914.
0-4-4T - No. 6 (ex Cork & Muskerry)
Built by Thomas Green 1893.

Contents

No. 48 · JULY 1968

Page		
1	THE FERROCARRIL DE SOLLER (MAJORCA)	John Townsend
6	THE JACOT RAILWAY	Sydney Leleux
10	THE LAST STEAM BUILDER	Sydney Moir
13	'POLAR BEAR' Bagnall 1781 of 1905	Bill Strickland John Townsend
23	EPHRAIM'S SOLUTION (SHAYS)	Sydney Moir
28	FERNILEE RESERVOIR	Alistair Parsons
32	LETTERS TO THE EDITOR	-
Supplement	SOUTHWOLD DRAWINGS	Douglas Clayton

THE FERROCARRIL DE SOLLER
(MAJORCA)

John Townsend Sketch by Jane Townsend

The 3' gauge FC de Soller is very much the premier line of Majorca in every way. The noticeable feature throughout the line is brass which adorns the rolling stock and buildings and all of which looks as if it had only been polished a few moments before. Indeed the whole line is a model of smartness, good maintenance and efficiency whilst at the same time retaining an old-world charm and friendliness, it would have been easy to imagine that the line had just been constructed instead of in 1912, and a return trip can be very much recommended to anybody visiting the Island.

The station at Palma consists of a main line into the single platform, a run-round loop, a two-road carriage shed and several sidings with wagon turntables and a small goods shed.

The timetable which we were given verbally by a guard did not seem to tie in with the actual trains running or with any of the several different timetables about the station. Our impression was that there was a basic time-table of about 4 return trains per day but that this was greatly supplemented by other trains as required, particularly during the peak season.

Upon entering the station we were greeted by Peter Sellers disguised as a Station Master in a very smart blue uniform with gold braid who asked us in English whether we wanted to travel on the line, directed us to the ticket office and then led us to a seat in a composite 1st/2nd class coach. We had hoped to travel first class as the compartments were extremely luxurious but these were unfortunately fully occupied. However we did not feel at all uncomfortable on the slatted wooden seats of the second class.

All the passenger stock is bogie, with wonderful wrought iron balconies and centre connecting gangways. Despite the sash windows and blinds on both sides there was also electric heating under the seats for winter running.

Ours was actually the leading motor coach, for the FC de Soller has been since 1929 a 1200 volt d.c. line and none the less interesting for that. The motor coaches, of which there are four, are equipped with four 120 h.p. Siemens motors and externally have a most pleasing appearance. The wooden coach ends are adorned by two large brass-rimmed lights and surmounted by another on the grey roof end together with a white disk with the coach number. A grey steel fender reaches from beneath the centre buffer and screw coupling with side chains and vacuum fittings down to rail level. Overhead current collection is by two pantographs on each motor coach.

The coach was surprisingly wide inside with plenty of room for two passengers on the high-backed seats topped with a brass rail each side of the gangway. Large circular brass lamps above the gangway give an eerie light in the thirteen tunnels through which the line passes. A small enamel plate on the end wall indicated that 'Asiento preferente para los caballeros mutilados de guerra por la Patria' which we guessed might mean that 'preference should be given to persons wounded in the War for the Fatherland' (No doubt a Spanish speaking member can elaborate on this - to me 'caballeros' was the essential but all too rarely seen notice which meant 'Gents').

The six-coach train was well patronised by locals and holiday-makers and our apprehension as to the journey ahead was not helped by an old peasant woman and her little grand-daughter crossing themselves as the train started. Departure, which was heralded by a small horn blown by the Station Master and by the train hooter again sounding very steam in origin, was through a gate, across a road and then down a centre reserved section of the road past the truncated branch to the FF.CC.de Mallorca, and through the shabby outskirts of Palma.

The line runs almost due north for most of its 17½ miles crossing a north east-south west range of mountains and rising to a level of 1,060 feet above sea level in the process. Because much of the ride is through mountainous, or at least undulating, countryside it is most varied and attractive scenery with frequent terraced groves of oranges and lemons bordering the single line. A small station at Son Sardinia and crossing halt at Apeadero Santa Maria similar to those found throughout the Island are passed through until the main intermediate station at Bunola where there are sidings with a traverser and a rail and sleeper store. This also seems to house the generating plant for the line.

From Bunola the real climb begins into the magnificent mountains, incredibly angular and jagged in shape like those in fairy story books. The line is brilliantly engineered, curving through cuttings and tunnels, and knarled olive trees and great almond orchards (the guide book says there are over ten million almond trees on Majorca but we did not bother to check this!). Two halts are passed at Cambio de Rasante and Pujol d'en Banya and the highest point is reached at 12½ miles from Palma.

As Soller terminus is only 134 feet above sea level the railway has to descend 926 feet in five miles. This is achieved by zig-zagging down the mountainside, at one point turning a horseshoe in a tunnel, and giving the passenger marvellous views both upwards into the mountain peaks and downwards over the town of Soller.

Entry into Soller is through oranges and lemons almost brushing the coach sides and then between the sheds of the Soller tramway on the left and the works and sheds of the railway on the right. A more pleasant station is very difficult to imagine and prospective visitors to the Island might like to note that the Station Hotel between the railway and tramway is included in some of the 'package holidays'.

The station is set at the foot of the mountains above the body of the town and is almost entirely shaded by cool trees which grow between the tracks, on the platform and in the yard. The track is set into the earth and fans out through wagon turntables to a goods shed, and to carriage sheds and a works to the east of the track.

All the passenger stock for the line (we counted ten trailers and four motor coaches) were built in 1929 by Garde y Escoriaza Sociedad Anonima of Zaragoza but some coaches had obviously been slightly rebuilt over the years and in these the brass fittings had unfortunately been replaced by chrome ones.

We were very surprised to see in the works what appeared to be a brand new coach under construction. Certainly the whole of the body was being beautifully built in wood by craftsmen and the underframe looked completely new. In one of the sheds was a Renault track inspection car.

A considerable amount of shunting was carried out at Soller for the railway appears to carry a large tonnage of goods. Altogether we saw 17 vans, 4 flat wagons, 11 coal wagons and a small rail mounted crane. In addition there are three very fine 'furgons', a general purpose bogie vehicle with a guards compartment, a section for goods, a 'retrete' (W.C.) and dog compartment. Under the guards window is the brass letter box and the wagon styles itself FURGON 1 (2 or 3 as the case may be) in big polished brass letters.

Whilst the shunting was being carried out the train was swept through from end to end and we noticed this was also the routine on the arrival of the train at Palma.

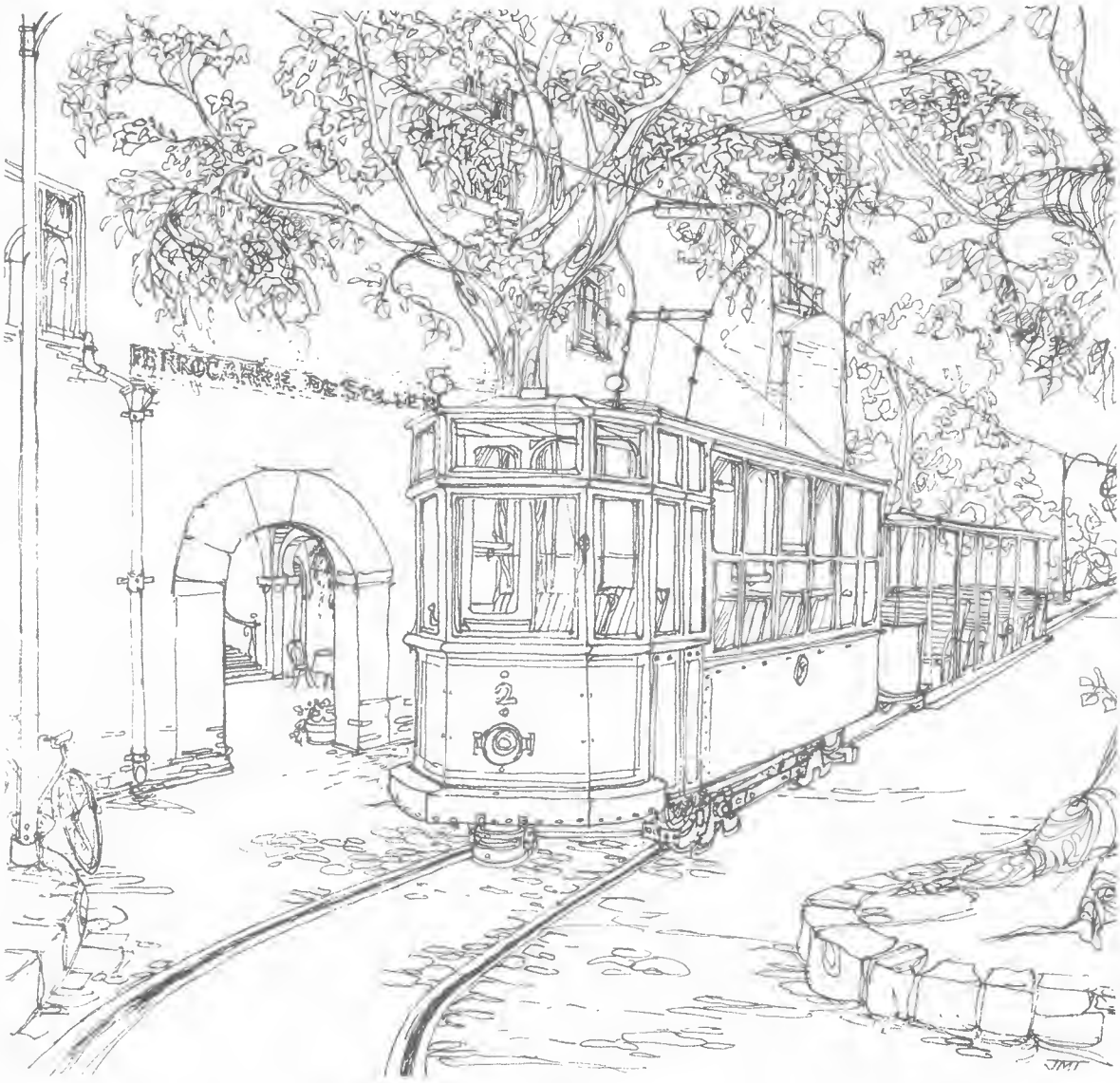
This is therefore very much a railway to be recommended but its offshoot is even more of a delight. This is the -

Tranvias Ferrocarril de Soller

When the FC. de Soller was constructed a government grant was available to lines of over 30 kms. in length. Unfortunately the line from Palma was only 27.1 kms. long so they set to and built the tramway from Soller down to the port at Puerto de Soller 4.9 kms. long.

Consulting the ever valuable guide-book we were advised of this 'Emett-like tram' and our first sight of this confirmed our best suspicions. On the opposite side of the main line to the carriage sheds at Soller is the five road stone shed of the tramway. From this a line dives steeply down past the entrance to the station (the latter is on two levels with a magnificent flight of stone steps leading from the road level and entrance hall up to the platform) and into the centre of the town. As we stood on the platform of the station the red-ochre tram with its two yellow toastrack trailers rattled up the ramp.

In the sheds were the remaining stock of three motor cars and five trailers (all four-wheeled) in a variety of colours from yellow to brown and orange.



Sketch by Jane Townsend

The tram was soon full to overflowing at its stop outside the entrance to the station amid more shady trees and set off down a narrow street to the town square narrowly missing a tree trunk on the way. The square is dominated by the front of a very fine church and is full of cafe front tables, bicycles, Fiat vans, dogs, a big ice-cream stand (to be recommended as much as the tram) and the line itself which dodges in and out of the apparent chaos with passengers jumping on or off the trailers. The descent into the square seems to be frought with danger because of the steep gradient and frequent obstructions. However the motor-car is fitted with air brakes and a conductor on the rear trailer screws down a hand brake on any sections requiring additional braking.

From the station to the square is the only street section apart from a short length inside a dockyard at Puerto de Soller, and from the square the line wraps itself round the corner of a building, passes through a loop adjacent to a market hall, dives across a blind crossing and sets off down a slope between small orange and lemon orchards backing onto houses on either side. During the whole of the ride in Soller the bell on the leading tram clangs continuously.

The trams in use are all the original ones built in 1913 by Carde y Escoriaza of Zaragoza with Brill 21E trucks and Siemens-Schuckert electrical equipment and pick-up is by bow-collector from the two wire 600 volts overhead line supported by steel catenaries unlike those of the FC.de Soller which are mostly concrete.

The trams seem to be particularly well patronised both by locals and tourists and it was often necessary to stand although we used this as an excuse to travel on the driving platform. The 45-50 lbs./yd. rail is nowhere near the condition of that of the FC.de Soller and is considerably overgrown in places. At the foot of the slope from Soller a wooden bridge of doubtful strength crosses an open sewer and enters a small village or suburb of Soller and passed behind the small school.

For much of the rest of the journey the line takes up a roadside position and the use of a bell gives way to a horn. The conductor (or two) walks along the side of the trailers collecting the 6d. fare for the 20 minute journey. There are several passing loops which are presumably brought into use in the height of the season, although with only an hourly service operating for most of the time we were there the one tram was sufficient. Of the seven trailers three are toastracks whilst the others are enclosed. Some of the bodies originally of wood have been replaced by steel.

Puerto de Soller is a delightful resort although I believe it has an air of Blackpool in the peak season. The resort is set on a natural inlet from the sea and the line curves round the length of the bay between the road and beach until a secluded terminal loop set among sand and palms bordering a yachting jetty and cafe fronts.

Here everybody dismounts except for a few scruffy Spanish sailors. The bell clangs and the tram sets off through a barrier into the dockyard. Besides carrying sailors to the yard the tramway also brings supplies and goods, and wagons from the FC.de Soller are attached behind the tram by the side chains.

JACOT RAILWAY

Sydney Leleux

Fifty years ago miniature railways of gauges up to 15" were quite common in the grounds of large houses. Their numbers fell steadily and trend has only been reversed in the last five or six years with the private purchase of large numbers of industrial locomotives, and the construction of private tracks on which to run them. Even so, in size, origins and gauge, these new garden railways do not bear much resemblance to the earlier miniature railways. One modern line that is much more in keeping with former practice is in the garden of Mr. P. H. Jacot on the outskirts of Birmingham.

The 15" gauge track is light FB. rail, either bolted to steel sleepers, or spiked to wooden ones. To simplify construction, points are stubs with pivoted crossings, similar to ones in the Dinorwic and Penrhyn quarries. A single lever operates both ends of the point simultaneously through rodding and cranks. Most points now have separate cast bars similar to the light Penrhyn points. Curves are often very sharp, possibly as little as 12' radius.

The garden is approximately square and slopes gently. The house and workshops where Mr. Jacot carries on his business, are in one corner of the grounds. In 1966 the railway began by the drive and at right angles to it. A single track ran beside the workshop wall then through a gate into the garden. Passing through the gate, the main line then curved sharply to the left, while a siding continued straight on. The main line next curved right, parallel to its original course, and a second siding made a trailing connection. This led into a corner of the workshop where the locomotives were built and which also served as a loco shed. Running through trees, the main line bore slightly to the right then turned sharply left to run along beside the fence. Immediately beyond the curve was a tunnel; a long wooden shed with no ends. After the tunnel the line ran across the end of the lawn on a a gently falling gradient. Another sharp curve brought the track between the lawn and the kitchen garden, and the terminus was in a short curved cutting five or six feet below the level of the drive. At the time of my visit, Mr. Jacot was talking about extending the cutting and so enable the two ends of the line to be joined making a continuous circuit. Since my visit, it has been decided not to complete the circuit. Instead, the drive terminus has been extended to the front door of the house. Also, several sidings have been laid by the workshops, and the tunnel has been taken down.

The locomotives and rolling stock were all built at home by Mr. Jacot's son, Michel. Locomotive No. 1 is basically a trolley fitted with a 4-stroke J.A.P. engine built about 1963. It is painted blue. No. 2 'Redgauntlet' (built 1964) is a much more imposing machine, 6'3½" long, 3'0" wide with 2'6" wheelbase. A 7 HP petrol-paraffin engine is housed inside a louvred

bonnet and a spacious, well equipped cab is provided for the driver. Headlights are fitted front and rear, and the locomotive is equipped with vacuum brake. Livery is maroon and black. On October 28/29, 1967, 'Redgauntlet' ran trials on the R. & E.R. covering about 100 miles. (See Railway Magazine, February 1968, page 124 for a photo).

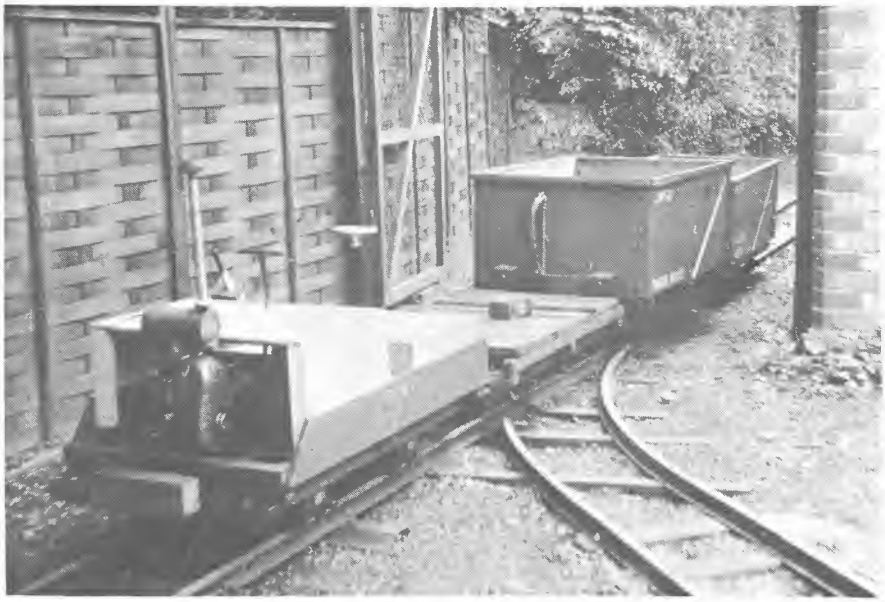
At the time of my visit there were three wagons; a simple flat and two more elaborate opens. No. 1 could just haul the flat with two passengers. Of the open wagons, one was fitted with vacuum brake and the other piped. Both were painted medium green. The body of No. 5 (brake fitted) was 4'4" by 3' by 2' and No. 4 was similar but not so deep. Additional stock has since been obtained and in February 1968 the line possessed the following stock:-

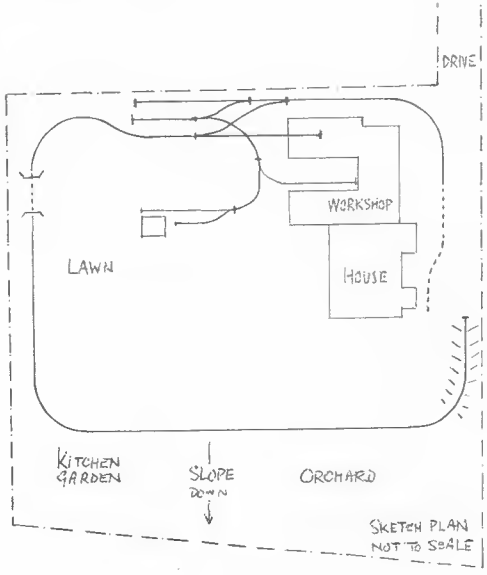
LOCOS:
No. 1 4 wheeled petrol trolley. Built about 1963. Retired through old age.
No. 2 'REDGAUNTLET' 4w petrol-paraffin. Built Jacot Railway 1964.
No. 3 Lister petrol loco No. 10180 ex Coventry Corporation sewage works, Finham, per Dennis Bates, Canley. Formerly 2' gauge. Converted to 15" and completely overhauled.

WAGONS:
1, 2, 3, built J.R. - scrapped.
4, open wagon built J.R. vacuum piped.
5, " " " " " braked.
6, Hudson side tipper.
7, Fire clay tub ex John Knowles regauged to 15".
8, Brick " " " " " " " "
9, Flat Wagon " " " " " " "
10, " " ex Samuel Evers Ltd., Fire clay Prods., Cradley Heath. Regauged to 15". This was 11¾" gauge, but is as large as one of the green wagons!
11, Gypsum mine tub ex S. Heaselden Ltd., Cropwell Bishop Mine, Notts. Regauged 15". Formerly 1'10".
12a/b, Flat wagons from Sir Arthur Heywood's DOVELEYS Railway nr. Denstone. These were built about 1867 for the original 9" gauge line at Doveleys, the Heywood family home, and were regauged to 15", and used the Doveleys Railway when that line was converted by Sir Arthur to 15" gauge (in the late 1890's?)
14, Heywood brake car. Ex R.H.D.R. Ex Eaton Railway. Vacuum fitted E.R. No. 32 of 1895.

As a visitor, I was given a pale blue Special Train Souvenir Complimentary Ticket. Smaller type proclaimed that passengers travel at their own risk. On the back was the statement "This railway is lubricated with Jacot grease nipples". This is a concrete reminder of a very pleasant summer evening spent riding back and forth on a fascinating railway. Intending visitors should make an appointment to see the line.

I am grateful to Mr. M. Jacot for details of the changes on the railway, and for permission to print this description.




DRIVE
WORKSHOP
HOUSE
LAWN
KITCHEN GARDEN
SLOPE DOWN
ORCHARD
SKETCH PLAN NOT TO SCALE

THE LAST STEAM BUILDER IN U.S.A.

Sydney Moir

By all accounts, if you want an American-built steam locomotive there is now just one firm you can approach .. Crown Metal Products, of Wyano, Penna. Primarily, they are builders of Amusement Park trains - "REAL STEAM RAILROADS PLEASE THE RIDERS AND MAKE MONEY FOR THE OWNERS. CHILDREN LOVE THE PUFF AND WHISTLE OF A STEAM LOCOMOTIVE: ADULTS DO TOO AND THEY USUALLY PROVIDE 60% OR MORE OF THE RIDERS" - but are also prepared to quote for the construction of 4'8½" gauge locomotives.

Photo 1:

'LITTLE TOOT' is Crown's idea of an Amusement Park loco on 24" gauge track. She is by no means a baby .. nineteen feet overall length, six-six to the top of the stack, 1,100 lbs. T.E., and an all-up weight of 8,000 lbs. Price? If you want one, it'll set you back $12,375.

Photo 2:

When you get to a loco this size, you are dealing with LOCOS! She's a thirty-six inch gauge job, whose vital statistics include two-foot drivers, a twenty-five ton weight and a price-tag of 45,000 dollars. Her two-man crew roll her along the right-of-way of Space City, Huntsville, Alabam. This is Amusement Park Railroading in a big way!

(Photographs by courtesy of Crown Metal Products).

SAND HUTTON LIGHT RAILWAY

A wonderful little book prepared by the N.G.R.S. - 68 pages, 13 superb photos and 3 pages of maps and drawings.

Special price to members 6s. 6d. + 6d. post. We are down to below 100 copies now, it is a MUST for every narrow gauge enthusiast, from Barrie McFarlane, 55 Thornhill Avenue, Patcham, Brighton 6 (BNI 8RG).


1865
LITTLE TOOT

POLAR BEAR

BAGNALL 1781 of 1905

Drawing Bill Strickland Information John Townsend

In talking about 'PETER' in the last issue of the Narrow Gauge it was relatively easy to find plenty to put on record about the history of the locomotive particularly, paradoxically, since it last worked and I have a large file of correspondence relating to its subsequent journeys and preservation. 'POLAR BEAR' has not been so co-operative to the writer, however, in that apart from being built, sent to the Isle of Man, working there for nearly 50 years and then being transported to the Brockham Museum there is not much that can be said.

To start at the beginning, however, the two foot gauge Groudle Glen Railway was constructed in 1896 to meet the increasing demands of the 'Glen industry' in the Isle of Man and was opened with Bagnall 2-4-0T 'SEA LION' (Works No. 1484). It was soon found that an additional locomotive would be necessary and accordingly 'POLAR BEAR' was ordered in March 1905 (Works No. 1781) from Bagnalls and cost £355 F.O.B. Liverpool. It was delivered some time in 1906 and presumably put into service quickly as traffic on the line was heavy at that time.

Unlike the Baguley gear of the first locomotive 'POLAR BEAR' was fitted with Bagnall-Price gear and was a slightly larger locomotive having driving wheels of 1'3¼" and cylinders of 5" x 7½" as opposed to the 1'2" and 4½" x 7½" respectively of 'SEA LION'. With a coupled wheelbase of 2'6", total wheelbase of 5'0" and height of only just over 6'0" this is certainly a diminutive locomotive even by narrow gauge standards. The driver cum fireman had no room to stand but was provided with a well between the frames for his feet (cunningly designed to collect the maximum amount of coal from the adjacent bunker) and a small wooden seat in the corner of the cab. From his diagonal position the driver was easily able to reach all the well-positioned controls and to tend the fire.

To maintain the pressure of 140 p.s.i. could not have been an easy task over the sharply curved and steeply graded line with a grate area of only 2.4 sq.ft. and total heating surface of 59 sq.ft. The fuel capacity was 4.75 cu.ft. and that of water 60 galls.

By 1929 a new boiler was necessary and was ordered in the December. This was delivered on the 12th March, 1930 together with a steel firebox and tubes at a cost of £171 F.O.B. Liverpool. This second boiler did well to keep the locomotive going until 1962 as it must have been in dreadful condition by then. Some of the tubes taken out at Brockham were corroded right through for a distance of several inches and the smokebox was paper thin in many places.

It was for this reason that the decision was taken by the Museum to re-tube completely and to fit a new smokebox and firebox. Accordingly the old smokebox was chiselled off and firebox withdrawn (the boiler is of the marine type and thus the firebox can easily be pulled out once the securing rivets round the firebox ring have been drilled or burnt out).

Over the years the locomotive has been seen in several different liveries and styles of painting and now that the brass spectacle surrounds have been removed three distinct colours of yellow, green and red can be seen. In the early 1950's the engine appeared in plain green with the name in capital letters on the tank sides. In 1954/5 black lining edged in white was added but the name disappeared and in 1961/2 the renowned 'fairground' livery of red tanks and cab, blue boiler and smokebox, black footplate and the yellow name in script lettering was daubed on in a very unprofessional manner.

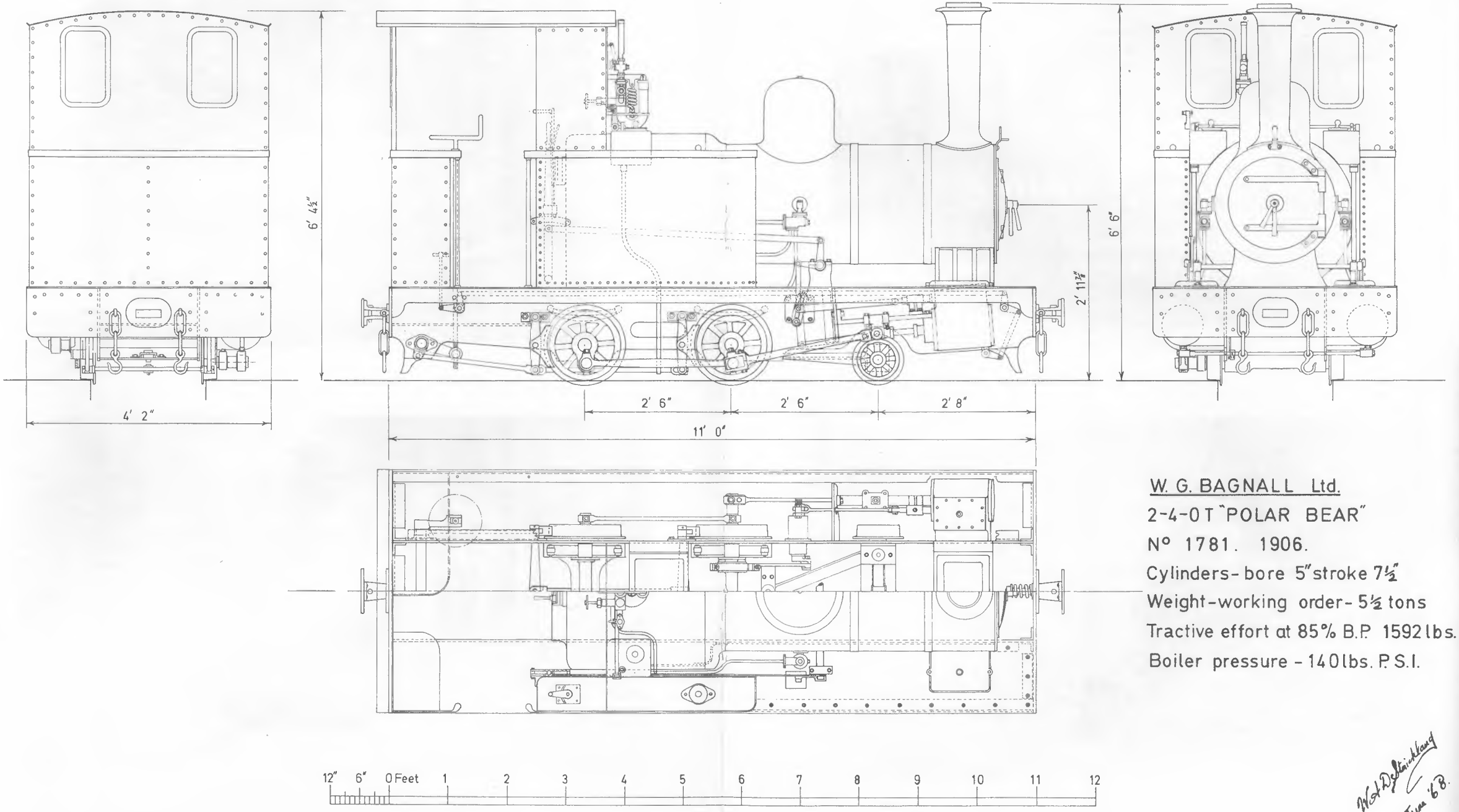
1962 was the last running season of the Groudle Glen Railway and after that the railway and rolling stock suffered more and more damage from vandals and storms and within four years all the coaches were extensively wrecked, the locomotives stripped of brass and copper and the shed demolished by fallen trees. Despite the appalling state of the line it was a surprise, to say the least, for the Museum to be offered the entire railway and stock for the princely sum of £50 towards the end of 1966. A number of ideas were considered to save as much of the stock as possible but a change in the ownership of the Glen and railway meanwhile meant that only 'POLAR·BEAR' was now available for sale.

On May 20th last year three members of the Association journeyed to the Isle of Man with a Land Rover and towed 'POLAR BEAR' for most of the length of the line to a point where it was crossed by a farm track. At this point a bulldozer was used to drag the locomotive off the track and up the steep lane to a place where it could be winched onto a low-loader. Such spares as could be found and enough 'ironware' to reconstruct one coach were loaded into the Land Rover for the return journey. Full details of the transport were given in the Nov. 1967 and Jan. 1968 issues of Brockham News.

Following delivery on June 3rd, 1967 the locomotive was rapidly reduced to component parts and much careful work has since been carried out on the motion, frames and valve gear. These are now rebushed and repaired where necessary, re-assembled and painted except for the rods which are being kept as polished steel. The new smokebox has already been supplied and delivery of the firebox and tubes is expected shortly. If the latter arrive as expected it is hoped to have the locomotive fully restored and in steam before the end of the year. The only item which will possibly not be in position will be the brass dome. This has long since disappeared and the provision of a new one may be expensive and difficult unless a suitable contact can be established with an appropriate manufacturer. The livery will be the green and black and white lining and maroon frames.

A more general article on the Groudle Glen Railway by Ken Hartley appeared in the Narrow Gauge No. 36 but in general not much information about the working of the railway or dates of operation seems to be recorded and I should always be pleased to receive any additional details which other members may be able to supply.


Polar Bear



W. G. BAGNALL Ltd.

2-4-0 T "POLAR BEAR"

N° 1781. 1906.

Cylinders - bore 5" stroke 7½"

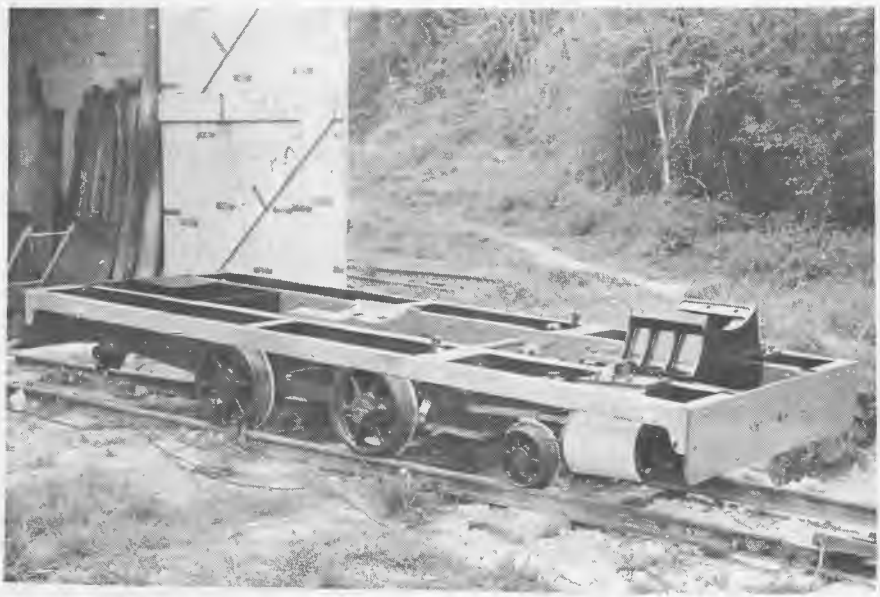
Weight - working order - 5½ tons

Tractive effort at 85% B.P. 1592 lbs.

Boiler pressure - 140 lbs. P.S.I.

W. H. D. Strickland
June '68.


POLAR BEAR



THEY DO IT DIFFERENTLY

"DOWN UNDER"

Drawing Sydney Moir Photos Leslie G. Poole

Like the railways in South Africa, the systems in Australia faced the business of transporting narrow-gauge locomotives over broad-gauge rails when repair was necessary. (Their gauges were 2'6" and 5'3", while those of the South Africans were 2'0" and 3'6"). Whereas the South Africans merely laid a couple of rails on the wooden floor of a broad-gauge flat truck and ran the defective narrow-gauger aboard, the Aussies went to the trouble of stripping the leading and trailing trucks from their 2-6-2 and setting the locomotive up on broad gauge bogies!

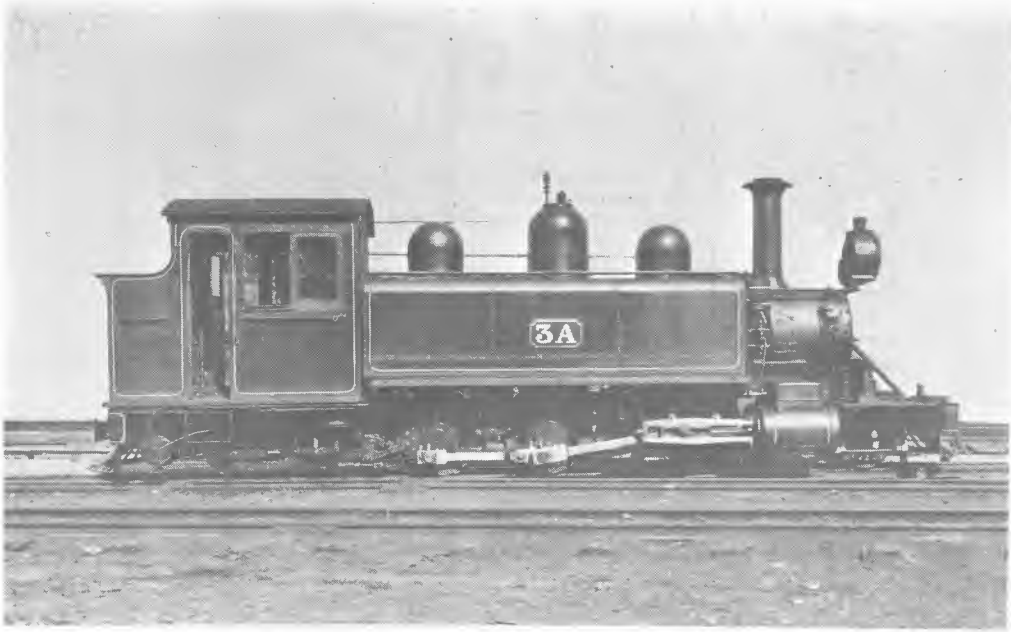
The first photo was taken at Moe around 1912. No. 1 was Baldwin-built, with 13" x 18" cylinders, 36" driving wheels and an empty weight of 27 tons 18 cwt. No. 2 was of similar proportions, but a Vauclain Compound: the 9" x 18" high-pressure cylinders were mounted as the lower portion of an integral pair with the 15" x 18" low pressure. Both Nos. 1 and No. 2 were supplied in 1898. Two years later, the Victorian Railways built themselves Nos. 3 and 4, copying Nos. 1 and 2. Apparently the compounds were none too popular for though the V.R. built another thirteen engines to the same design between 1901 and 1916, all were simples.

POLAR BEAR PHOTOGRAPHS

1.	GROUDLE	31.8.62.	Dr. R.Preston Hendry.
2.	GROUDLE	7.7.61.	Mike Bishop.
3 & 4.	Editor's collection, detail unknown.		
5.	BROCKHAM	3.6.67.	John Townsend.
6.	BRCCKHAM	May 68.	Tony Deller.

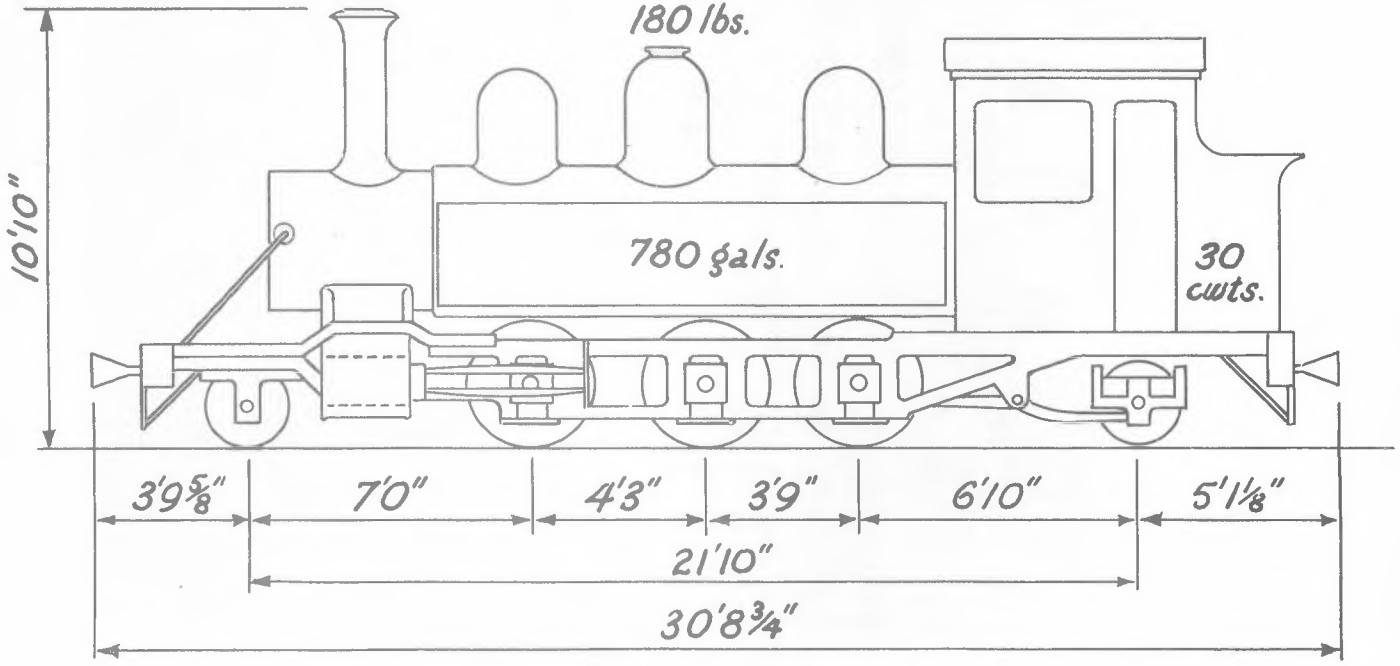
DRAWINGS

Large prints at a scale of 1" to foot - price 5/- plus 6d postage, from:- Colin Wilson, 32 Crown Road, Portislade, Sussex.


3A


1A

CLASS NA, 2'6" GAUGE, VICTORIAN GOVT. RLYS.



EPHRAIMS SOLUTION

Sydney Moir *Photos from the collection of H. T. Crittenden*

One of the biggest headaches for the American lumberman during the eighties was the business of keeping his locomotives on the rails. Rod-drive engines, lightly laid tracks located to follow the timber and with no regard for the principles of laying a railway - all combined into a problem. Lumberman Ephraim Shay was no exception, only, being of an inventive turn of mind, he came up with a solution.

The first Shay-designed engines resembled nothing so much as a bogie flat-wagon with a vertical boiler, a twin cylinder vertical engine and fuel and water containers mounted on it, and a strange array of rods and gears between and around the one side of the bogies. The rods were actually shafts, fitted with universal joints and sliding sections, connecting the vertical engine to the gears mounted on the outer ends of the axles. Shay had, at one stroke done away with the long rigid wheelbase and the track-pounding propensity of the conventional locomotive.

The Shays were gawky, awkward looking things. But they worked! They stayed on the track, for the wheelbase of the bogie was so short as to be able to get round the tightest curve, while the flexibility of the two-truck idea took care of vertical misalignment. The tracks themselves no longer disintegrated, for the smooth torque of the high-speed engine put no strain on the rails: the geared drive enabled a Shay to pull greater loads, though at a lower speed. It has been said that a Shay running at six miles an hour makes the same sort of noise as a conventional engine doing its sixty!

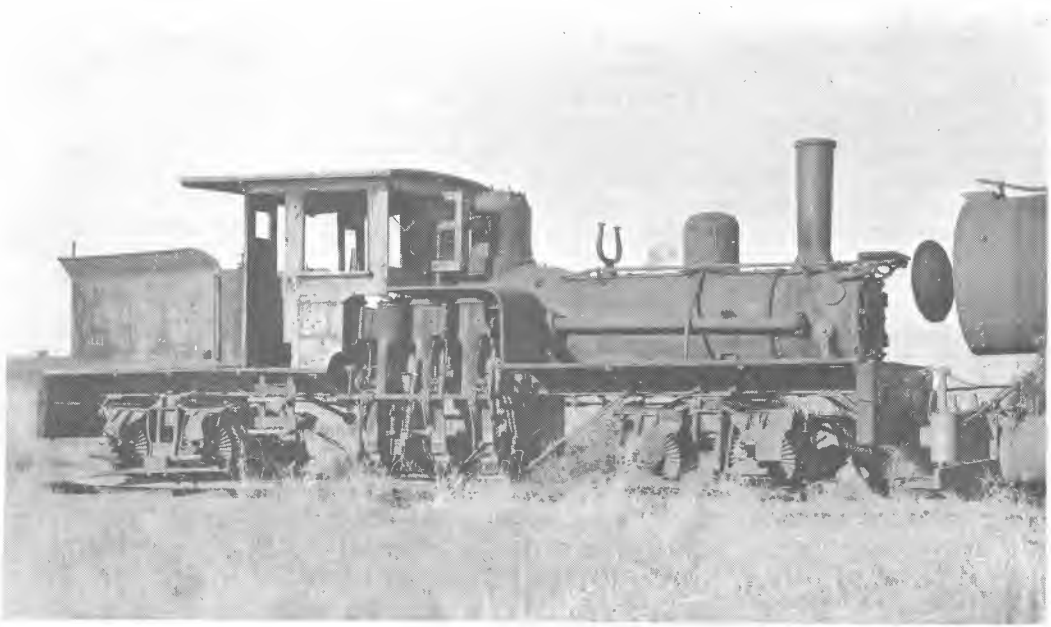
Soon the number of cylinders was increased to three, and the drive became smoother than ever. The boiler was changed from vertical to horizontal, going by way of a 'boot' boiler that included a bit of each design. The trussed wooden underframe was replaced by a steel girder frame, while the bunker and tank were combined into one unit, to ride behind the cab.

Shays appeared on logging roads all over the States: Shays took their places on any line that had steep grades and tight curves to be negotiated. Some railways specialised in Shays, while others used a mixture of both Shays and rod-drive engines. One or two of the broad-gauge lines took to using Shays for shunting, owing to their ability to work easily into private sidings and warehouse lines.

Down in Colorado, the two-foot gauge Gilpin Tramway started out with two light Shays: later, when they were no longer able to handle the rising tonnage, both were sold to the Silver City, Pinos Altos & Mogollon R.R. in Mexico, the work now being handled by heavier engines. Nos. 1 and 2 were only twelve tons all-up weight, with 2'0" driving wheels powered by two 7" x 7" cylinders. They had been built in 1887 and 1888 respectively, and kept the line going until 1890, when No. 3 was bought. Nos. 3, 4 and 5 were all powered by 8" x 8" cylinders, which gave them the edge over their elder brethren .. No. 4 did not appear until 1900, and No. 5 arrived two years later.

Oddly enough, when the line was pulled up, the three engines were not scrapped but put into storage, and it was not until 1938 .. twenty-one years later .. that they were broken up.

The two-truck Shay developed into the three-truck type, in which a short tender was articulated to the locomotive's frame, the wheels beneath being connected to the driving shaft. It is a three-cylinder three-truck Shay (though a broad-gauge one) that holds the record for size and weight, for it was a 160-ton monster with a tractive force of 74,400 lbs.




GILPIN.

The short tender of the three-trucker grew in length and size and another truck was placed beneath it, giving four powered bogies in all. As far as is known, no examples of either the three-truck or four-truck Shays ever worked on the narrow gauge, being confined entirely to the 4'8½" lines. And, it is very doubtful if any example of the Shay design survives at the present time on either the two-foot or three-foot gauge.

Photo 1:

Gilpin Railroad's .. and note the title had been altered from the original 'Tramway' .. Nos. 3, 4 and 5 were all alike. Here is No. 4, her working life over, parked on a side track to rot and rust. Though the engines are recorded as being all alike, their weights varied slightly one to the other.

Photo 2:

No. 1 of the Gilpin Tramway, a 24-inch line in Gilpin County Colorado. She was the Company's first engine .. don't let the '181' on the sand-dome fool you, for it was actually the builder's number. This little engine headed trains of ore-cars, bringing silver ore down the twenty miles of twisting one-in-twenty-five to the smelters at Black Hawk. She and her sister engine, No. 2, became too light for the work, and were finally sold to the Silver City line. (LIMA Machine Works, August 1887).

Photo 3:

Like the Gilpin, the Silver City found the Shays could do all that was asked of them. Also like the Gilpin, they increased the fleet, adding bigger and better Shays. Here is one of the later additions - No. 5 - shown on her way to the junk man, after the line closed down. This picture is of interest for two reasons: firstly, it shows the "blank" side of a Shay .. most photos were taken of the right hand side, so as to show the cylinders and drive-shafts .. and secondly, for the method of bracing her on the broad-gauge flat truck.

Photo 4:

The fact that the cylinders of a Shay were hung on the side involved off-setting the boiler in order to balance the weight. This shot of Silver City No. 4 gives a good idea of this sideways displacement .. even though the crew did insist on getting into the picture.

THE FERNILEE RESERVOIR JOB

Part I

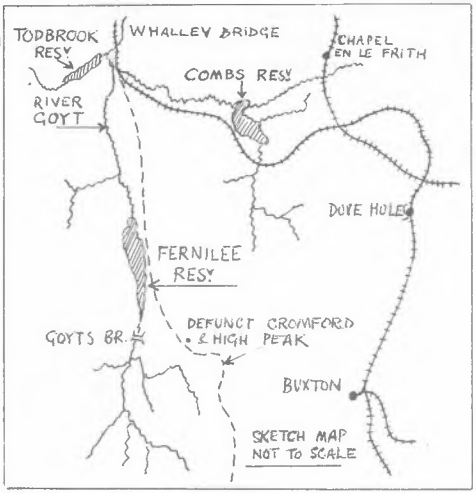
Alistair S. R. Parsons

The title refers to the locos used on the construction of Fernilee Reservoir, Derbyshire, or is it Cheshire, in the years 1923-36. The contractors for this job were Lehane McKenzie and Shand, a firm well known to railway enthusiasts for their employment of locomotives on their large contracts. The reservoir was built in the Goyt Valley, near Errwood Hall, about a couple of miles from The Cat and Fiddle Inn on the main Buxton-Macclesfield road. The other end of the reservoir is about two miles from Whaley Bridge.

The reservoir is well hidden in the Goyt Valley, to the north west lies Combs reservoir, and Whaley Bridge lies almost due north. Apart from the faint noise of traffic on the main Buxton-Whaley Bridge road, little disturbs the almost unbroken silence except shrieking Peewits and grazing sheep. About forty years ago, or so, things were different, the silence was abruptly shattered by the arrival of contractors and their plant. Construction began in earnest and the valley resounded to the din of construction work. This job took them ten years to complete, as no doubt the construction of Fernilee reservoir was quite a large undertaking.

Up to the 1930's it was quite common for contractors on large jobs, such as the Fernilee reservoir one, to employ numerous locomotives, much rolling stock and gangs of workmen. In those days there were few, if any, of the modern earth moving equipment, which are used today. On these large jobs there was really no alternative but for the contractor to employ locomotives with trains of wagons, usually of tipping variety, and gangs of workmen with picks and shovels. The earth and rocks would be loosened by the workmen and loaded into the wagons, probably by a crane, whence the trains of spoil would be run to the dam site. At the dam site the wagons would tip their loads of spoil to form the dam. The whole scene was one of bustle and the workmen scurried about like busy ants.

Not only were the works of a large contract, such as the Fernilee job interesting in itself, but, to an enthusiast, the contractors locomotives and how they were moved from time to time from place to place interesting too. Indeed contractors locomotives were fairly often moved from place to place, as soon as one job was completed the locomotives were moved to another job. However, the question remains: "How were these locos transfered from one site to another?



There are two means whereby locomotives can be transported. One is by rail and the other by road. Transport of locomotives by road is almost self-explanatory. Until the 1930's it was quite common for a low loader trailer to be pulled by a steam traction engine or more commonly by a steam road locomotive, (e.g. Foden 5 ton steam tractor).

If a contractors loco had to be moved a long distance, it was often sent by rail. It would run up a ramp on which temporary rails were laid on to a well wagon for transit by rail. If, however, a crane happened to be handy then it would be used to hoist the locos on board a railway wagon.

In those days if a locomotive had to be moved only a short distance it was often run under its own steam. The locos would be steamed and run to the end of its metals on one site, a gang of workmen would unfasten two lengths of track behind the loco and carry these lengths of rail to the front of the loco and lay them there. The loco would move to the end of these rails, and the rails behind would then be lifted. This method of transferring locos was a costly one both in time and labour. Not only was it a very time consuming practice, involving a large gang of workmen but it was also rather tedious.

Though that method was fairly easy on level ground, it was very difficult to employ in hilly country, where naturally reservoirs are invariably built. Where a loco had to be moved up a hill by the above method then it was quite common for a team of horses (10 pairs and a leader) to haul the loco up the hill and to restrain its descent when descending a hill. Unfortunately, it is doubtful if this event was ever photographed, which is a pity. It is now part of social and economic history, from which the writer considers the study of locomotives and railways cannot be divorced. That is, to say the railway historian, or enthusiast should not be over concerned with writing about his

subject whilst paying but scant regard to the raison d'etre for the existence of a railway. For example, the locos employed on the Fernilee reservoir job were employed obviously just for the job in hand and were the most economic means of carrying out the contract.

When the Fernilee reservoir was first being constructed it is probable that the locomotives used on this job were brought by rail to Whaley Bridge and then moved up to the dam site on temporary rails, as above described, laid on the highway.

Later locomotives used on the Fernilee job were probably brought in by road on a low loader. For the enthusiast Fernilee reservoir would have been a very interesting project. Photographs of the work of the locos used there are hard to come by, firstly, the dam site was pretty remote in the days before regular rural transport, secondly, in pre-war years railway enthusiasts with or without cameras, were considered odd people, and often enthusiasts were unwelcome on such sites as Fernilee.

The most interesting part of the story as far as the enthusiasts are concerned, are the locos which were used at Fernilee. There were at least two 2 foot gauge locos and fifteen 3 foot gauge locos used in the work.

The two 2 foot gauge locos were a Bagnall 0-4-OST and a Kerr Stuart 0-4-OST. Firstly the Bagnall loco. It was built in 1918, makers no. 2080. It was sold new to E. Thornton & Co., but it is not known where it was delivered. It is to be presumed the loco was in Thornton's hands in the years 1918-23. It is thought Bagnall 2080/18 was the contractors loco on the Welsh Highland Railway when it was extended from Bedlegelert - Portmadoc in 1922-3. The loco was named "B" when used at Fernilee until 1936, and later passed into the hands of W. Twigg, dealer, Matlock, Derbyshire about 1946. It was dismantled by June 1947, though its boiler lay in the yard for some years, and finally disappeared about 1953. However, little else is known about its career.

The other 2 foot gauge loco used at Fernilee was the better known of the two. It was built by Kerr Stuart & Co. in 1918, makers no. 3114 and was an 0-4-OT of the Wren Class, having outside cylinders motion and Hackworth valve gear. It was sold new to the Ministry of Munitions, Driffield, Yorkshire. Presumably the loco was there from 1918 for a few years. Then it was sold to Cardiff Waterworks. Later it was used at Fernilee until about 1936, where it was named "2". It is thought to have been sold to Richard Baillie, contractor to the Derwent Valley Board, for use on Baillie's job - the construction of the Ladybower reservoir in the years 1936-46. However, it was not at Ladybower on the 29th November 1938, nor was there any sign of 2 foot gauge track or rolling stock in evidence on the site there. If the loco was used at Ladybower it would be interesting to find out when. It is said that the loco (KS3114/18) went to the L.M.S. (Rly or Lehane, McKenzie & Shand) Markeaton Park sewer scheme, Derby. About 1944 this loco passed into the hands of W. Twigg. In 1945 Mr. P. Beard of Mill Farm, Brockamin, Worcestershire, bought the loco with the intention of using it to heat chicken coops. However, Mr. Beard did not use it for this purpose, so the loco lanquished in dereliction until 1961 when it was rescued

for preservation. The loco is now in magnificent condition having been fully restored to working order by its present owner. The loco is one of very few Kerr Stuart locomotives preserved in private hands.

There were quite a number of 3 foot gauge locomotives used at Fernilee around the dam site. There were fifteen locomotives used here, many of which were kept in a large loco shed near the actual dam site. These locomotives were of five types viz - two Haig Class Kerr Stuart 0-6-0T's, two Manning Wardle 0-4-0ST's, four Hudswell Clark 0-4-0ST's, three Bagnall 0-4-0ST's, one Hunslet 0-4-0ST, two Orenstein & Kappel 0-4-0T's, and one Ducroo & Brauns 0-4-0T. Also one Bagnall 0-6-0ST named "Burton" is supposed to have worked there at Fernilee. Its history is as follows: Bagnall 0-6-0ST, makers no. 1669 of 1900, was sold new to the contractor Enoch Tempest, for use on his Walshaw Dean contract. Whilst on the Walshaw Dean job the loco was named "Tenacity". It had 6" x 9" cylinders and was a few feet longer than the standard Bagnall type of 0-4-0ST. The additional length is accounted for by the fact that it was intended as Mr. Tempest's inspection engine on the Walshaw Dean job, the cab was designed to contain an upholstered seat. Whether it was so used the writer does not know. On completion of the Walshaw Dean the loco "Tenacity" was sold about 1910 to the Abertilley District Water Board. In 1928 the loco by now named "Burton" found its way into the hands of Lehane, McKenzie & Shand who had acquired it. They used "Burton" on their Gorgle Reservoir contract, near Hebden Bridge, for Halifax Corporation. In 1934 "Burton" was in Shand's yard at Darley Dale, Derbyshire, and was there for some time. It is possible that "Burton" worked at Fernilee, but no information has come forth to prove it. About 1937-38 "Burton" was sold to Adams, Newport, and was later scrapped.

The only Hunslet locomotive used at Fernilee was an 0-4-0ST named "Brownhill". It was built in 1903, makers no. 832, and was sold new to T.S. Dixon, contractor to the Co. Donegal Railway, in December 1903, for use on construction of the line to Ballyshannon. The loco was named "Coolmore" after one of the villages near where the line ran. By the end of the summer of 1905 the work was almost complete. After completion of this contract the loco was sold to McAlpine's the contractors in 1907. For the next few years it was in the hands of McAlpine's who presumably used it on various jobs. From 1914-25 the loco was used on construction works for Hurstwood reservoir for Burnley Corporation. It was then acquired about 1925, by Lehane McKenzie & Shand, who used it at Fernilee until 1936. During the second world war the loco (by now called "Brownhill") was evidently used by Balfour Beatty in the Orkneys at Scapa. Spares for "Brownhill" were sent to Balfour Beatty (for Lehane, McKenzie & Shand) at Scapa in May 1943 and October 1943. "Brownhill" was presumably used on work in connection with the building of the Churchill Barriers - to provide a safe (from enemy) anchorage for the British Fleet in Scapa Flow. The loco "Brownhill" was next seen after the war in the yard of W. Twigg, dealer, Matlock, Derbyshire. Presumably "Brownhill" was scrapped not long after, about 1950.

To be continued next issue.

Letters to the Editor

From - BILL STRICKLAND S.O.S. - S.O.S.

Adrian Garners drawing of the "double barrel shotgun" - LISTOWEL and BALLYBUNNIAN loco is almost ready.

Can I appeal for any information - repeat ANY - on the rolling stock so that a complete train can be modelled.

You won't get anything narrower than a mono-rail - I suppose its the narrowest - anyhow any help members can give Adrian will be very much appreciated.

Bill's address - 55 Whitestile Road - Brentford.

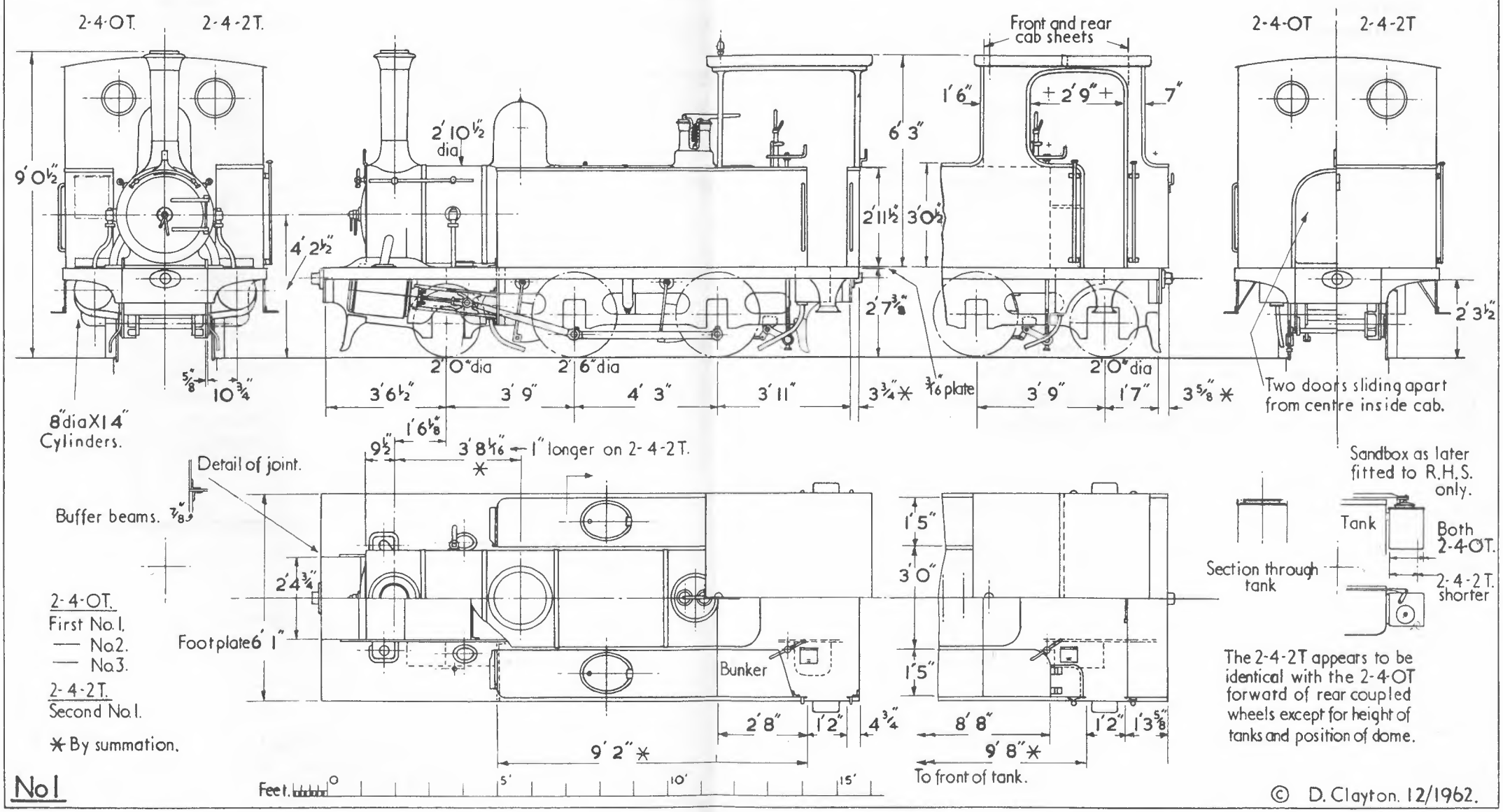
From - M. PITTS, STOURBRIDGE

I enclose a photograph which may be of some interest, but unfortunately there is not much I can write about the subject.

It depicts the most northerly rail track in use in the British Isles, and is situated on Cullivoe pier at the north end of the island of Yell in Shetland. It is used for conveying bulk goods landed by the North Isles steamer to the mainland for loading on to lorries. It is of 2'6" gauge and is about fifty yards in length. There is one small hand trolley which is just visible on the right of the photograph.

There are still some remains of a 2'6" system in the island of Unst, the most northerly of the Shetland group. This line formerly connected a talc quarry with the pier at Baltasound, the main port of the island. It has been disused for many years, and few traces remain apart from some track embedded in the concrete surface of the pier at Baltasound. There is some evidence of pointwork, but I was unable to obtain any information locally. Talc is still quarried in Unst, but the particular quarry served by this line has long since closed, and all haulage from existing quarries is by road.

Southwold Railway



2-4-OT.
First No.1.
— No.2.
— No.3.

2-4-2T.
Second No.1.

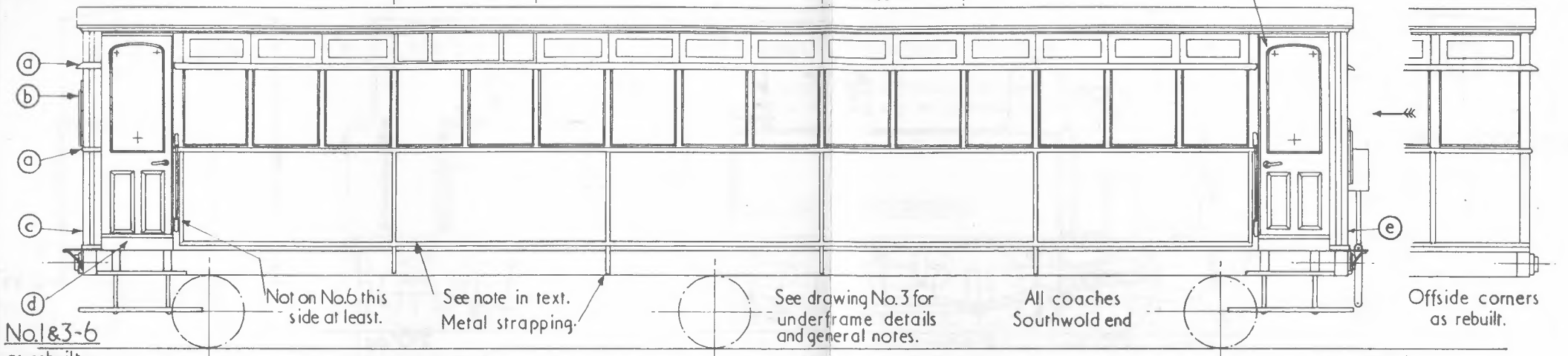
* By summation.

The 2-4-2T appears to be identical with the 2-4-OT forward of rear coupled wheels except for height of tanks and position of dome.

No1

Southwold Railway

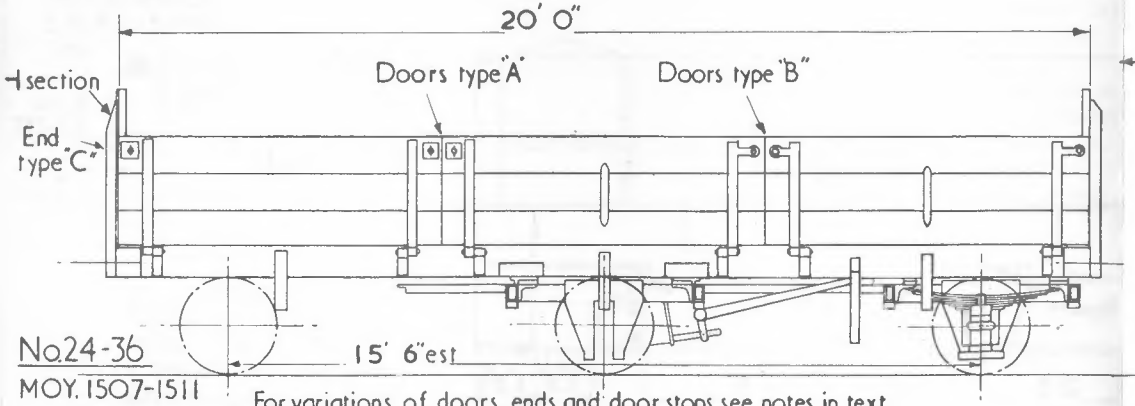
ⓐ No.6 only, as shown here.
ⓑ Height of end hand rails No.3, 5 & 6.



No.1&3-6 as rebuilt.

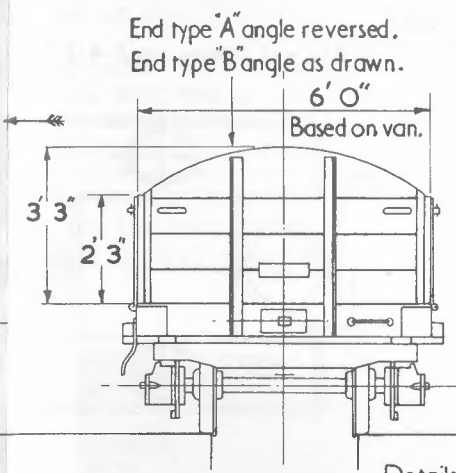
ⓒ Panel height No.3&5
ⓓ On No.6 this height slightly less.
ⓔ Panel height No.1&4. No.6 unknown.
ⓕ Moulding over joints No.4 only.
ⓖ Lamp bracket possibly on No.1&6 only Southwold end.

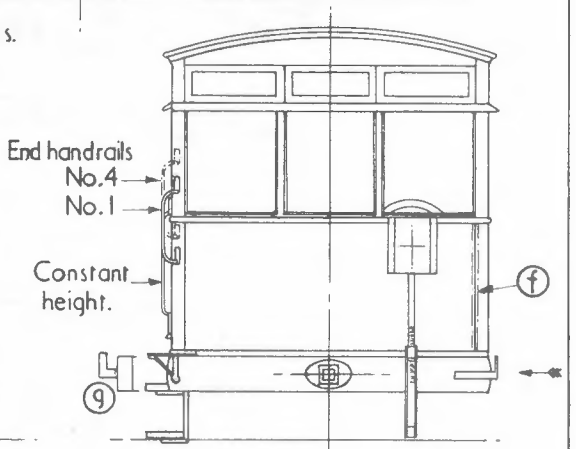
Notes "a" to "f" apply both sides or ends.



No.24-36
MOY. 1507-1511

For variations of doors, ends and door stops see notes in text.





Details of brake end No.1 only, arrangement unknown for other braked coaches but see notes in text.

Feet. 0 5 10 15 20

No.4

Letters to the Editor

From IVAN STEPHENSON, MORLEY

Referring to 'Voyage of Discovery' in issue 47, I notice the listing of a Baldwin loco on page 22 reputed to be BLW 5071 of 1918, with a footnote querying the number, etc.

A works number of 5071 would place the loco in the 1880's; I suggest this is the loco's United States Army number. This would make the loco a 2.6.2T of BLW class 10/12/D5, works No. 46620 of October 1917, the same class and type as 46261 (U.S.A. 5006) mentioned in the article.

From - PETER EXCELL, LONDON N.20

Shortly after reading Chris Downs article in NG 45, I purchased a copy of the London Transport Publication "Sixty years of the Bakerloo" (good value at 2/6).

The frontispiece shows a poster issued at the turn of the century, showing progress on the construction of the Baker Street and Waterloo Railway, the centrepiece is a 2 ft. gauge overhead wire electric loco resembling that on page 11 in Mr. Downs article.

The Bakerloo was constructed by Perry & Co. of Bow, tunnelling commenced in February 1899 and was completed in 1904. C.D. is certain that the photo of the Lower Halstow loco was taken in 1900 or 1901 and so it is unlikely to be the same. The substantial end sheeting carrying the works plate on the Halstow loco is missing on the Tube loco.

It appears therefore that these two are a standard design of Messrs. A. Hurst, Dewsbury, yet it is strange that no other loco by this builder or to this design is known. Perhaps some reader can throw some light on the origin of these interesting little locos or their builder.

From - JACK STEEL, GUISELEY

I was very interested in the article on 'MICROBE' in NG 46 (Jan. 68) and I wonder if I can throw any light on the final fate of this engine.

I can remember the loco at Stourton early 1925, about the same time Whittakers had a quarry in Pollard Lane, Newlay (Nr. Leeds) immediately above the canal bridge. The quarry later worked by A. & R. Briggs is now filled in and is a sports field. When tramcars ran to Guiseley from Leeds, from the top deck you could just see a loco identical to 'Microbe' working in Pollard Lane Quarry; the buses which replaced the trams in October 1934 were not quite as high and I never saw the loco again.

When the N.G.R.S. was formed I recalled the loco at Newlay and went along and interviewed three of the oldest employees, "Oh aye, there certainly was an "ingin" and it fell down the tip."

So I feel 'Microbe' committed suicide in 1934.

Incidentally, as A. & R. Briggs were working the quarry at that time Eric Cope went along to their Tinshill quarry where they said they had two locos. After a tremendous effort a mountain of scrap was demolished to reveal two very dead Simplex; the Manager was not amused when he found Eric was not a customer!! However, he talked his way out of that and finished up being shown the Gas plant where the firm still made its own gas for the gas engines, that in early 1950's.

On another subject, I have finished reading "Main Line over Shap" by David Joy. On page 48 is mentioned gunpowder being brought to Milnthorpe from Gatebeck Powder Mills near Endmoor, over a narrow gauge horse-drawn railway. There were several fatal accidents before railway and works were closed some thirty years ago. Do we know anything of this line?

From - ALLAN C. BAKER, NEWCASTLE (Staffs.)

A couple of points on the article on 'PETER' WB 2067/1917. "She" was built as a 3'0" gauge engine for the Ministry of Munitions but the order was cancelled and the engine left on Bagnalls hands. When the Cliffe Hill order was received in November 1918, 2067 was converted to 2'0" gauge and delivered to Cliffe Hill in 12/1918 the remaining parts, i.e. cylinders, wheels, frames and axles, etc. were used in the next 3'0" gauge 0.4.0ST of a similar type to be built - No. 2214/1923 - 'DOT' for Charles Abell Ltd., Hartshill Granite Quarries which was made to order No. 4548 and cost £550. One account also states that WB 2067/ was delivered to the Ministry of Munitions and returned to Bagnalls in August 1922, rebuilt and then delivered to Cliffe Hill.

The two photographs of Bagnalls 2081 and 2584 also raise a query. The top engine given in the magazine as 2081 is in fact 2058/1917, 'C.T.S. No. 1" new to W.D. Timber Supply Dept. and later at the Consett Iron Co.s Butsfield limestone quarry (the official Bagnall photo gives 2081 in error although she was an identical engine). The bottom photo is 2585 not 2584 one of two delivered in 1937 to the 2'6" gauge Dhiluon Creosoting Plant on the North Western Railway of India, they were oil burners.