THE NARROW GAUGE

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THE NARROW GAUGE RAILWAY SOCIETY

Hon. Secretary
Mike Swift,
47 Birchington Avenue,
Birchencliff, Huddersfield

Hon. Editor
Henry Holdsworth,
76 Tower Lane,
Leeds 12

Hon. Membership Secretary
Ralph Martin,
27 Oakenbank Crescent,
Huddersfield HD5 8LQ
(For renewals & membership enquiries)

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Cover Photo AND FACING PAGE

Two of "Harry's Engines" - See the article by Mr. M. G. Satow.
Ex Darjeeling and Himalaya 796 with Bagnall 2134. Photo M.G. Satow.

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Letters to the Editor

ROGER MARSH - HINCKLEY

One of the more unpleasant activities of N.G.R.S members is 'dropping in' on people 'to see the railway' without prior enquiry.

The fact that people do not go to print to specifically state their disapproval of this sort of invasion does not mean that their's is an 'open house' as some members seem to think.

Last week-end two members assailed the homes of some of my friends to the extent of poking about in the back garden before even knocking the front door.

These friends have always thought that we in the N.G.R.S. "are a funny lot", now they know!

The ignorant behaviour of the few harms us all, so may I suggest a motto for the itinerant enthusiast:-

If you can afford the petrol,
You can afford an S.A.E !

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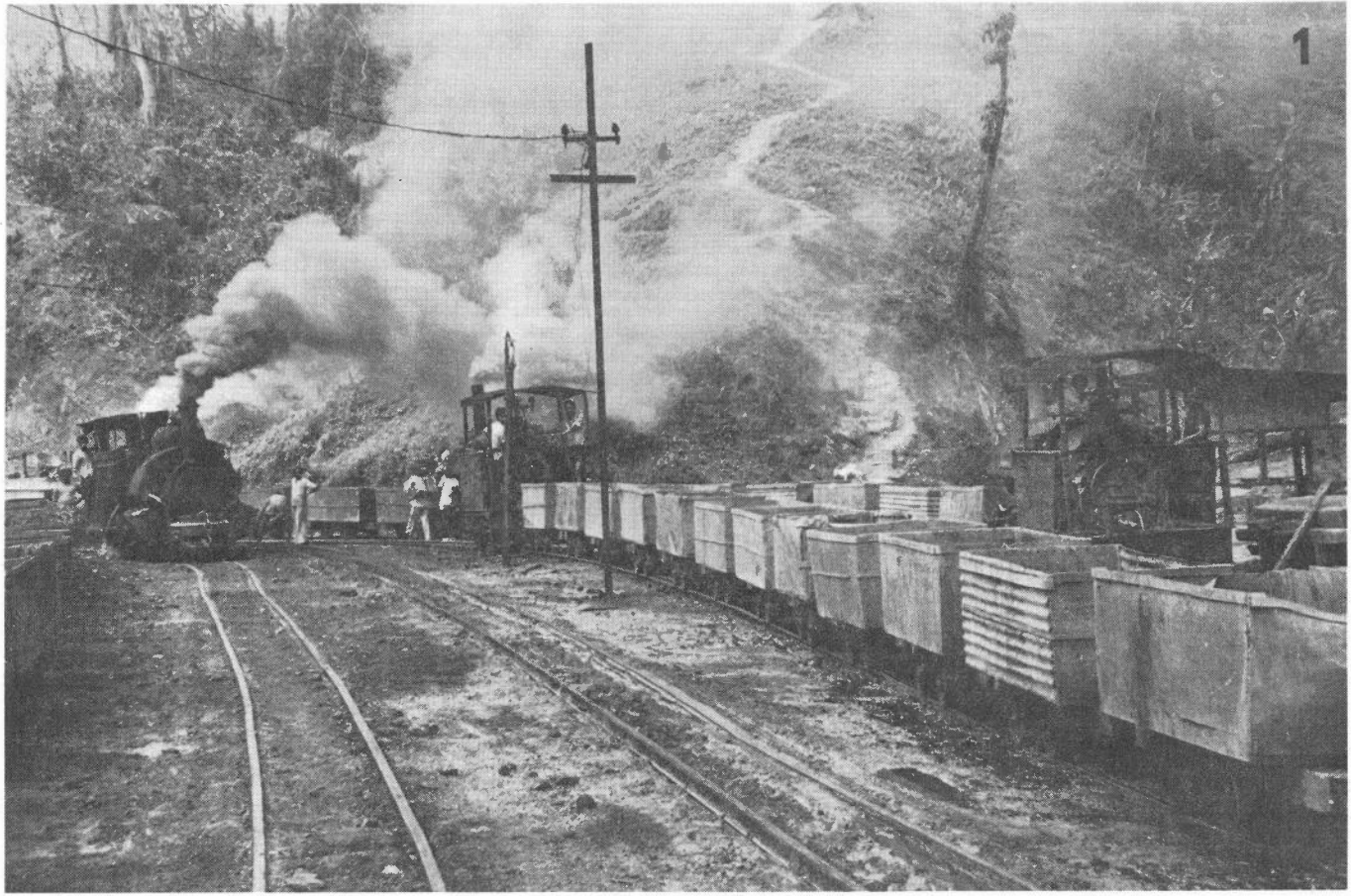
(continued back cover)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HARRY'S ENGINE

M. G. Satow

Once upon a time, (for this is almost a fairy tale), someone said to me at a cocktail party, "You ought to go and see Harry's little engine. It pulls coal out of a hole in the mountain and it runs on steam and he thinks it's very old." This had an air of slight fantasy and I'd never met Harry, who lived some 700 air route miles away, but it was the most stimulating piece of conversation during the evening, so I put it away for future reference. Then I met someone who knew Harry and soon the pricking of my thumbs told me the time had come to stop garnering snippets of information and to go and find out just what went on a latitude 95° 5'E and longitude 27° 18' N. So it was that three weeks later Harry met me at the airport and drove me the sixty miles to his home at Margherita. Now Margherita was named in 1884 'in honour of the Queen of Italy', but it is not, as you might suppose, surrounded by olive groves or vineyards; instead the vista extends over miles of tea gardens and timber forests, bounded by a semicircle of mountains which contain enormous reserves of coal. It is, in fact, in upper Assam tucked away in the north-east corner and only some 20 miles from the Burmese frontier.

Up till now the whole venture had assumed something of a fairy tale quality, but by the time we reached his bungalow, Harry Beattie had filled in the background of how the Assam Railways & Trading Company, of which he is the General Manager, had opened up the communications and developed the wealth and resources of Upper Assam in the late nineteenth century.

Assam was by then developing into a major tea growing area and the main transport link was the Brahmaputra river. But communications inland from the river were almost non-existent and in 1882 the first railway, a single track metre gauge line, was being built from Dibrugarh on the Brahmaputra towards the coalfields, some sixty miles away to the south east near Lekhapani, through the dense jungle of Assam. A few miles before reaching the coalfields the line has to cross the Dehing river and it was here that Roberto Paganini, one of the engineers of the project, established his base and named it Margherita. It was on the 18th day of February, 1884, that the first train reached Margherita, with much festivity and to the music by the Lekhapani Volunteers. The coalfields at Ledo were connected with the outside world; by 1885 the annual output was 75,000 tons and by 1899 it had reached 200,000 tons.

So much for the history; Harry's engine was becoming a reality. My first visit was in April, 1970, and in the few hours I was able to spend there I found not just one or two, but no less than sixteen little locomotives, all either at work or serviceable, hauling coal from the various mines through deep wooded valleys to the metre gauge line a mile or two distant. The mines are almost unique, being upside-down, for the mountains are full of coal which is won by driving tunnels into the base and working the seams upwards.

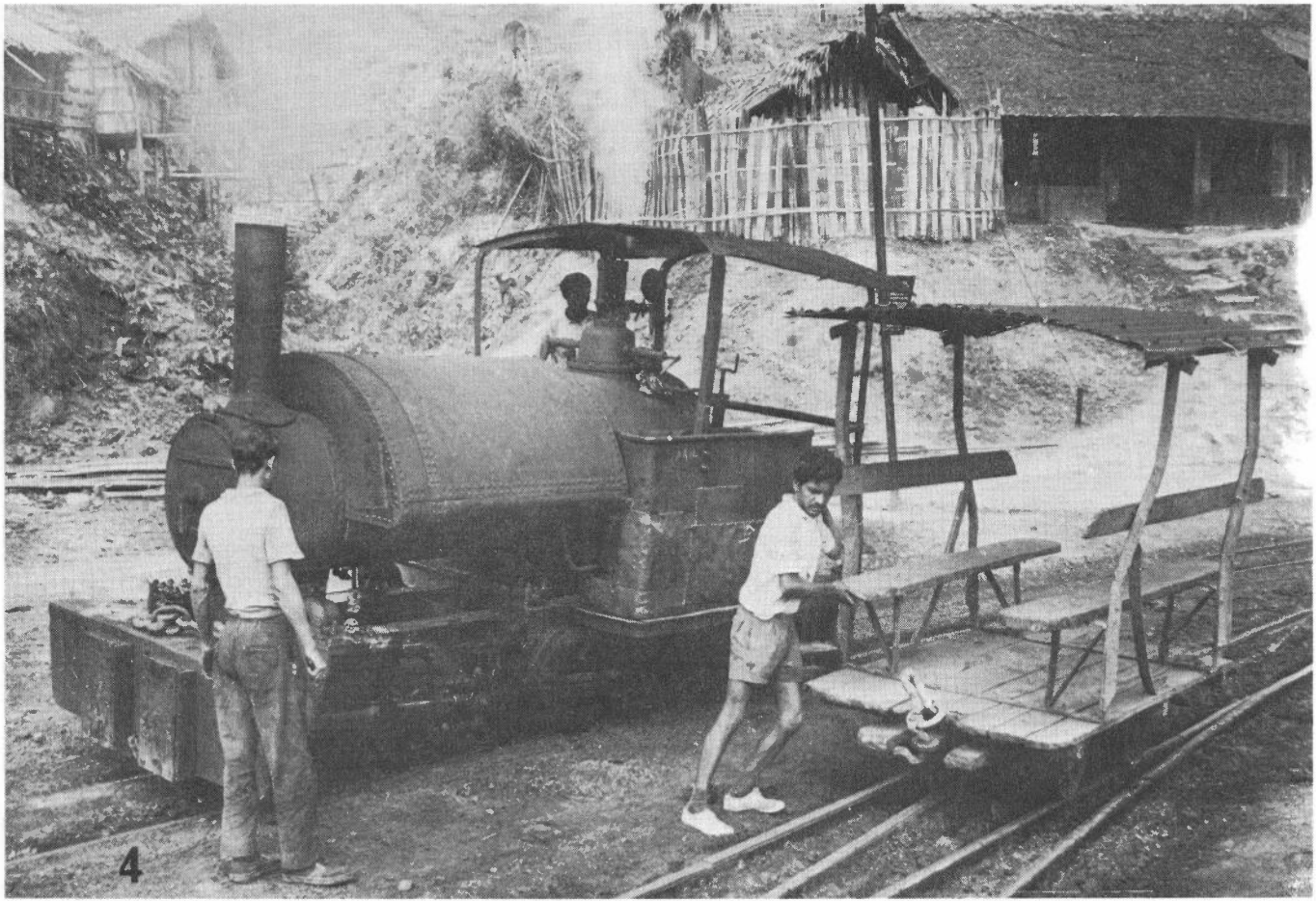

3

Coal tubs are hauled underground to the yards outside the tunnel mouths by rope haulage, but then steam takes over and completes the journey to the railhead. To provide motive power, Bagnalls supplied a total of fifteen of their saddle tanks between 1894 and 1931. Happily, one at least of each batch remains in service though after 73 years No.1506 (HASANG - but now affectionately known as the 'Batcha', which is Hindi for the Baby) is getting a little short in the wind with a boiler derated to 55 psi though a new firebox is to be fitted and the boiler uprated again.

There was no time to collect details on that first visit. I photographed everything in sight, made a quick trip to the mine head at Tipongpani behind DAVID and returned with a resolve to pay a more leisured visit. In October 1970, I again found myself as Harry Beattie's guest for two days and through the courtesy and help of his staff was able to study and identify each engine in detail. The list gives the details of the twelve surviving Bagnalls.

The first pair supplied in 1894 were No.1436 (TIRAP) and 1437 (NAMDANG). They were originally supplied as 0-4-2 ST engines with 5½" x 9" cylinders, outside slide valves and outside Baguley's Patent valve gear. They were fitted with boilers of the Bull Head type with cylindrical fire boxes, as were the subsequent Bagnall engines. No.1436 was scrapped but 1437 is intact and lies in working order at Tirap Khani (mine) wearing a 'modern' replacement saddle tank with flat sides in place of the original half-round Bagnall design. Then came two more, No.1505 (SAIDROW) and 1506 (HASANG), which were similar in design and detail. 1505 has disappeared, but 1506 is lying complete in a shed at Ledo mine.

The next pair were most unusual; 1556 (TIRAKUR) and 1557 (KOLAPANI), for they were the only ones fitted with inside Stephenson's link motion whilst retaining all the other design features of 1505 and 1506. The previous engines with Baguley valve gear have long crank pins with the connecting rod on the outer end and the valve gear connecting rod between it and the coupling rod. On 1556-7 the valve gear drive is omitted and four eccentrics on the trailing axle operate the link gear which is crowded in behind the middle frame stretcher. From the die block, short rods hung from links, pass through holes in the stretcher onto levers on rocking shafts which pass over the frames to equal pendant levers on the outer ends. These levers are connected direct to the long extended valve spindles which have neither joints nor guides before entering the stuffing boxes. One is left with the feeling that the whole arrangement is unnecessarily cramped and inaccessible and a bit of a compromise particularly as the Baguley gear on the earlier engines has lasted well and is in original form. One of these engines has disappeared and in deference to the owners's records I have recorded 1556 as the survivor although the eccentric rods are clearly stamped 1557! Whichever it is, it exists in working order. These engines were enlarged to 6" x 9" cylinders and 1' - 7½" driving wheels.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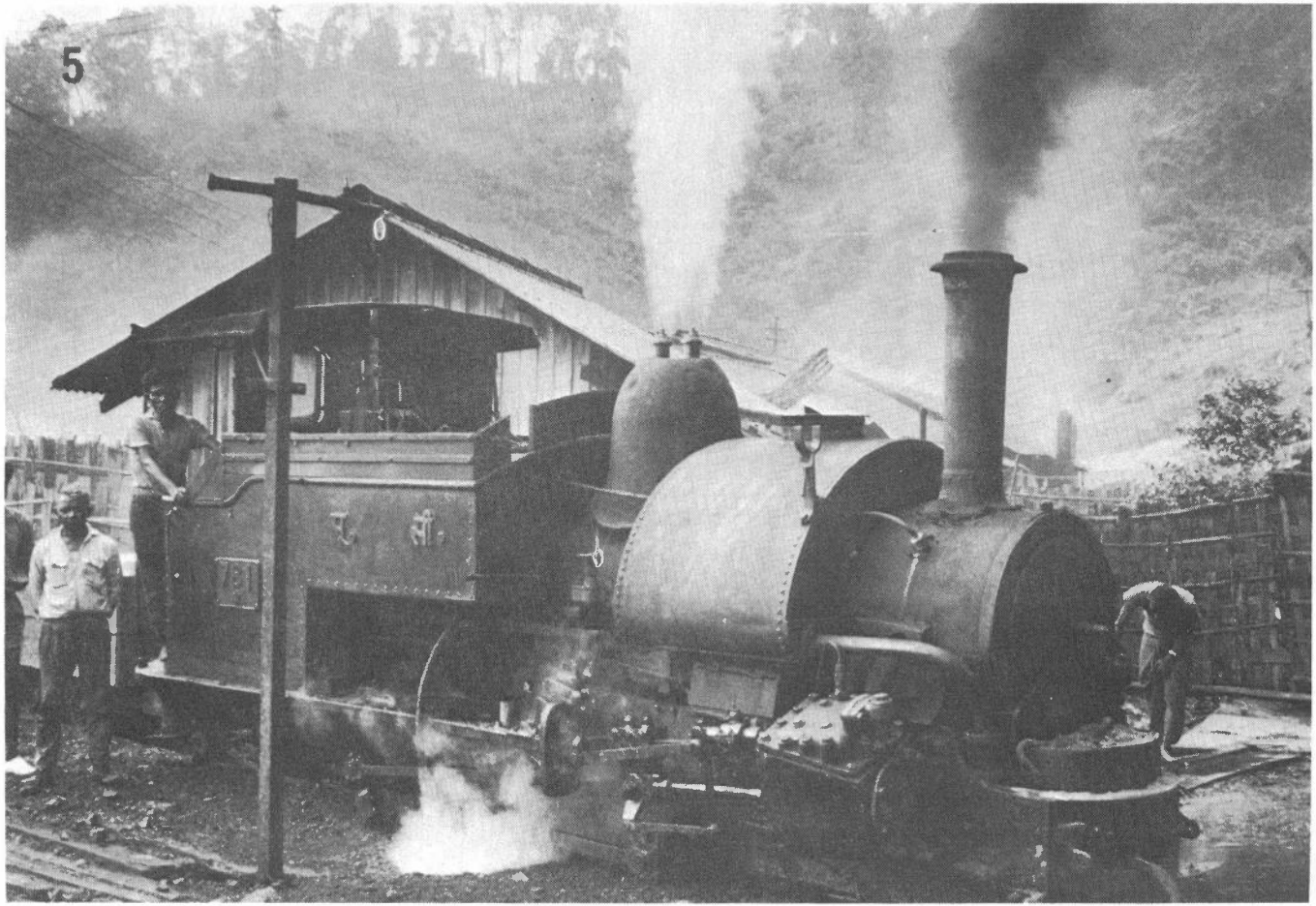
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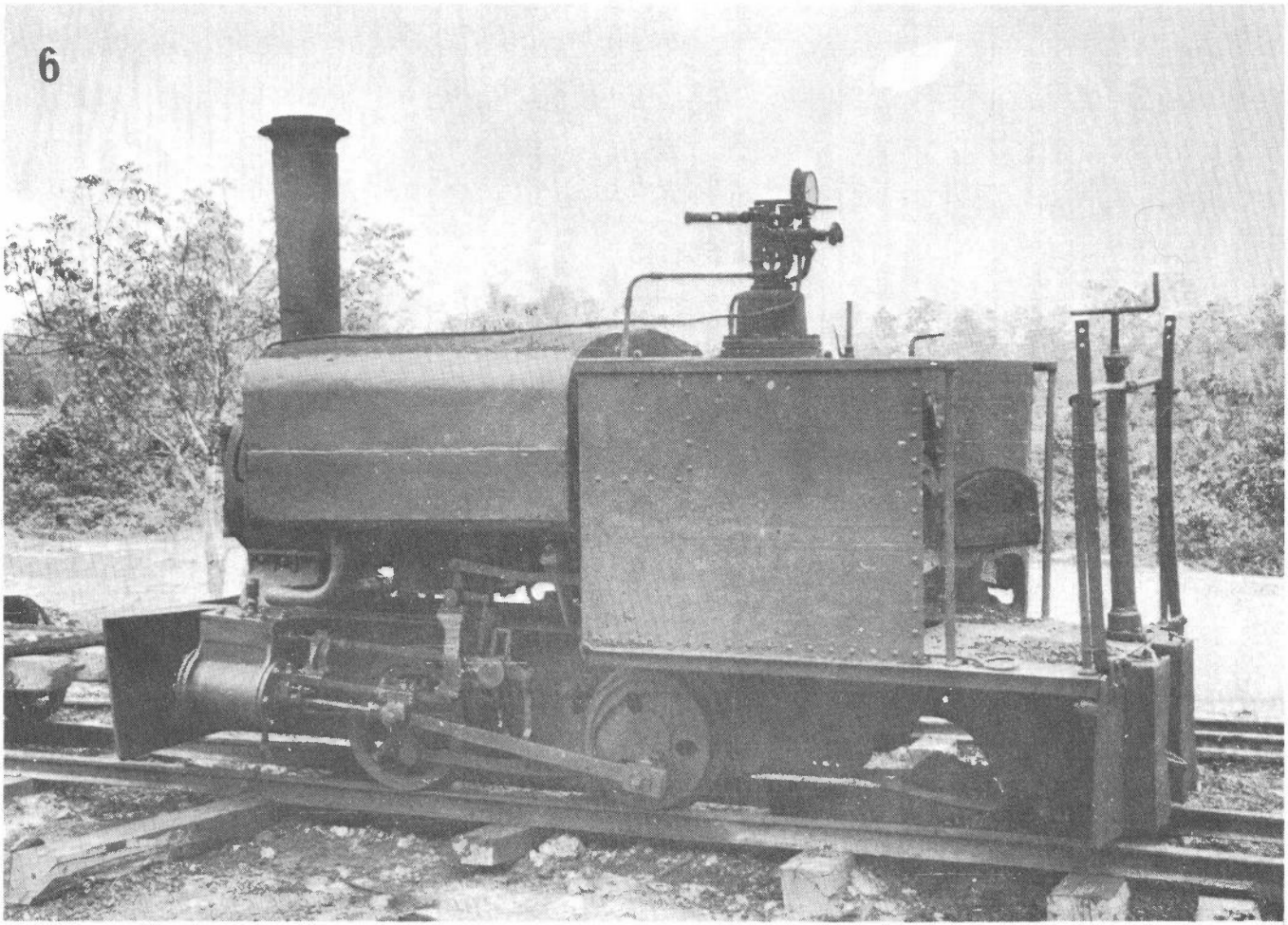
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These six engines mark the end of the nineteenth century and the next batch No.1732 (LHASI JAN), 1733 (RAM RING) and 1962 (NAMCHIK) were delivered between 1904 - 1912. Apart from having a larger boiler, cylinders (7" x 12") and wheels (1' 9½"), they differ from the others in being built as 0-4-0 ST engines and fitted with Bagnall and Price Patent valve gear. Presumably, the trailing trucks of the earlier locos had proved more trouble than they were worth at the modest operating speeds on these lines and the extra adhesive weight was of greater value than any effect of axle loading or riding qualities! These three engines are still in useful service, though the lack of basic symmetry of forward and back gear valve events of the B & P valve gear is borne out by some rather ragged exhaust noises.

The last series were otherwise the same for the standardisation of Walschaerts valve gear and increase in boiler pressure from 140 to 160 psi which was also the pressure for NAMCHIK. SALLY, the last but one of the batch, was exhibited at the 1930 Centenary celebrations of the Liverpool and Manchester Railway before making the long trek by ship and land to her present home.

Apart from the appearance of B & P valve gear after 1903, the disappearance of the well proportioned smoke stacks of the older Baguley designed engines is noticeable. All the engines supplied after 1899 have stubby stovepipe smoke stacks which give a somewhat improvised appearance and a feeling that Bagnalls may have been overstocked with cast iron pipe for a number of years! The only exception is SALLY who wears - I suspect - HASANG's.

All these engines show the inevitable signs of a hard life. Most of the boilers are now derated from their original 160 psi, some to less than half. Only three have fallen by the way and have been cannibalised before disappearing. In spite of this, there seems to be relatively little swapping of parts. 1556 and 7 have got a bit mixed up, TONY now wears DAVID's tank and nameplates and 2100 (the only one not named when delivered, but subsequently christened QUEENIE) has contributed a crosshead to BETTY and has an unnumbered one in its place.

With boiler power diminishing and old age creeping on, the mines embarked on a programme of 'dieselisation' in the mid 1960s. Alas for the planners and forecasters, they turned out to be far beyond the resources of the local maintenance facilities. The substitution of bent nails for split pins is less acceptable to the diesel than the steamer and geared transmissions and ball bearings demand rather more sophisticated treatment than a coupling rod and brasses!

Steam was increasingly having to be raised at short notice to haul recalcitrant diesels out of the way and the twelve surviving Bagnalls have not only had their stay of execution but have been joined by four 'new boys' - none less than 50 years old from the Darjeeling/Himalayan railway.

This additional steam power was purchased in February 1970 and comprises Northeast Frontier locos Nos. 781, 784, 789 and 796. They are standard B Class 0-4-0 ST which carry builder's numbers and dates as follows:-

Old D/H No.	N.F.	SS/NB	Date	Builder
24B	781	4560	1899	Sharp Stewart/Atlas/Glasgow
27B	784	4563	1903	Sharp Stewart/Atlas/Glasgow
34B	789	20638	1914	North British/ ? /Glasgow
43B	796	-	1923	Probably assembled by D/H railway from spare parts at Tindharia Workshop.

The Darjeeling/Himalayan looks after its machinery well, its locomen are addicted to cleaning paint and polishing bright work. Not so the mines; but at least steam is at home amongst them; diesels .....!

Harry is a hospitable chap, and he's pretty tolerant of fanatics who turn up out of the blue. He has a beautiful little model of a 2-cylinder diagonal stationary engine on one side of his fireplace and a copper 'hay stack' boiler on the other. His grandfather, from Glasgow, was an artist in copper to produce this and the daily polishing is a fitting tribute.

And the brickworks at Ledo - the only mechanised one for 1,000 miles is powered by a horizontal single sylinder Marshall steam engine No.23485 of 1923, but this is about the railways - I must stop. If any one would like an introduction.....!

None of this would have been possible but for the kindness and hospitality of Harry Beattie and his wife and the detailed contribution to the record and text by Indra Gogoi, the Chief Engineer, To them and to many others who were so friendly and helpful during my visits, I extend my sincere thanks.

BAGNALL NUMBER	ORIGINAL NAME	ASSAM BOILER REGISTRATION NUMBER	VALVE GEAR	DATE	LOCATION	NOTES
1436	TIRAP		B	1894		Missing
1437	NAMDANG	A1038	B	1894	TKM	1, 6, 9.
1505	SAIDROW		B	1897		Missing 10.
1506	HASANG	A 885	B	1897	LM	6, 10.
1556	TIRAKUR	A1039	S	1899	LB	2, 6, 9.
1557	KOLAPANI		S	1899		Missing 3.
1732	LHASI JAN	A 878	BP	1904	TMU	
1733	RAM RING		BP	1904	TKM	7.
1962	NAMCHIK	A1309	BP	1912	LB	
2100	QUEENIE	A 879	W	1919	LM	8.
2131	JOAN	A 882	W	1924	TM	
2132	TONY	A 883	W	1924	TM	4.
2134	DAVID	A 877	W	1924	TM	5.
2447	SALLY	A1243	W	1930	TM	11.
2448	BETTY	A1255	W	1931	TKM	

All engines O-4-O ST, Bull Head boiler, o/c and valves.

NOTES: NUMBERS and NAMES underlined indicate plates correctly in position.

1 Now has slab sided tank replacing original round top tank.

2 Now has valve gear and parts from 1557.

3 Cannibalised and scrapped.

4 Now ears DAVID name plates.

5 Now called GITA. No plates.

6 Originally O-4-2. Trailing trucks now removed.

7 Original boiler (A 879) removed 1968. New boiler (Bagnall No.6110/1) fitted 1968. 'A' number not yet allocated.

8 Original boiler (A 881) scrapped 1970. Boiler ex RAM RING (A 879) repaired and fitted.

9 New boiler (Bagnall order 3130, 23/1/26) supplied.

10 New boiler (Bagnall order 411 7/1911) supplied.

11 Suspect wearing smokestack from 1506 which is being rebuilt. Only post 1900 engine with pre 1900 smokestack in place of stovepipe.

ABBREVIATIONS:

Details overleaf.

B	Baguleys (link).
S	Inside Stephensons with rocking shafts to outside cyl. and valves.
BP	Bagnall & Price
W	Walschaerts.
TKM	TIRAP KHANI MINE.
TM	TIPONGPANI MINE.
TMU	TIPONGPANI MINE (UPPER LEVEL).
LM	LEDO MINE.
LB	LEDO BRICKWORKS.

PHOTOGRAPHS by the Author

No. 1. Sally (1) (Bagnall 2447) and David (Bagnall 2134) get on with the chores.
Ex D-11 796 tries to look important.

No. 2. Ex D-H 796.pretends to be Goliath. David (Bagnall 2134) is not impressed.
See front cover please.

No. 3. A quick trip to ... Tripongpani behind David. (Bagnall 2134)

No. 4. Uniclass passenger rake is marshalled behind 2134 for return special

No. 5. Ex D-H 781 (Sharp Stewart 4560) with 161 pounds on the gauge.

No. 6. 1437 - HAMDANG - off duty. (Smokestack encased in patchwork - new slab sided tank and discarded pony truck).

Harecraig Quarry

Chris Down (1967)

Everyone should go to Harecraig, not just railway enthusiasts. It would given them a better idea of work at the turn of the century than half a dozen text books. It's the sort of place grandfathers describe and nephews smile politely and think that they're making it all up. For Harecraig is the only large scale site I have yet seen where narrow gauge reigns supreme in the manner of fifty years ago. The whole place runs on rails!

In order to explain, I'd better say that Harecraig is a stone quarry, owned by the Northumberland County Council, and can be found beside the A1 road about ten miles north of Morpeth where a small group of offices, a wooden tipping stage and a line of V skips announces the presence of a narrow gauge railway. An enquiry at the office produces willing permission to go and see the place, and usually elicits the information that the quarry is about $2\frac{1}{2}$ miles away and the quickest way to get there is by road. Quickest, maybe, but not the most interesting.

The railway here dates from about 1920 when the council acquired some war-surplus rails and locomotives and ~~alid~~ laid a railway from the stone quarry up to a stone processing plant that was built beside the A1. The quarry produced road metalling, and it is likely that it was in operation prior to the First World War, though possibly not under NCC ownership. But in order to quarry and transport the large amounts of stone anticipated, a railway was laid, as was usual in those days.

The railway was 2ft Oin gauge and laid with light prefabricated rail. To work it, at least two (and probably three) Motor Rail "Simplex" petrol locomotives were used, along with some early Hudson V skips with elaborately curved trunnions. One or two bodies from these can still be seen in the quarry, but the rolling stock today consists of the later type of Hudson 'Rugga' skips. The early Motor Rails, too, were replaced by more powerful locomotives and the stock now consists of six four-wheeled Hudson-Hunslet diesels, plus 'bow-framed' Motor Rail 1217 still with its 2 cylinder Dorman petrol engine. This latter does not now venture out onto the main line but is used daily to push-start the Hunslets. Of the Hunslets, No.1 and No.2 have 30HP McLaren-Ricardo engines and work the heavy trains on the main line. The others, No.3 - 6, are more modern (1944 rather than 1941) but have Ailsa Craig engines of about 20HP. There are usually two of these at work each day, shunting in the quarry. The other two remain in the loco shed and repair shop, one under repair and the other spare.


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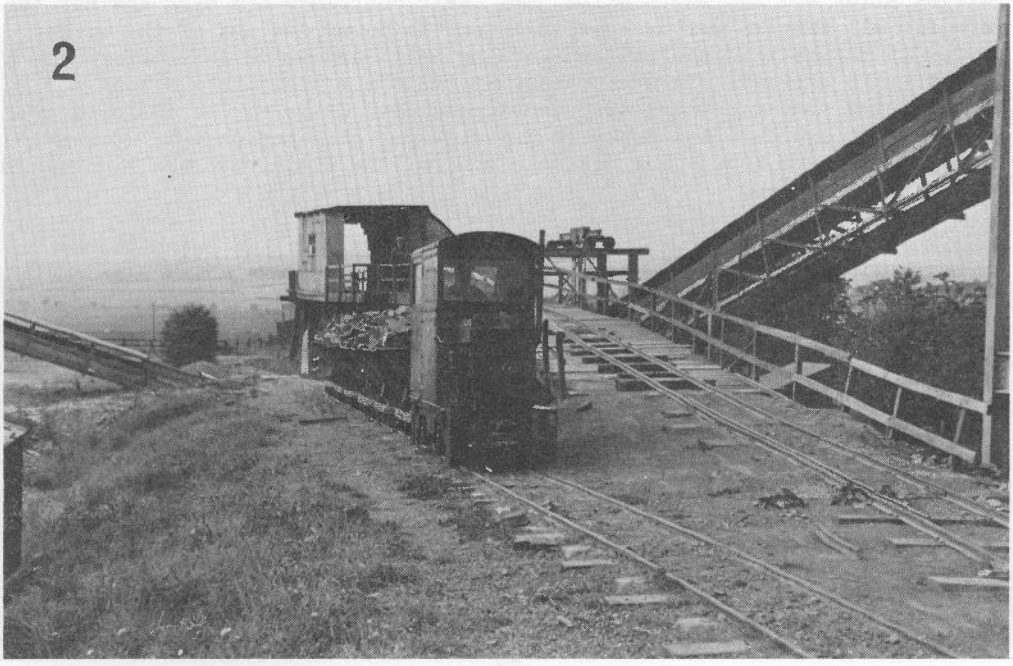
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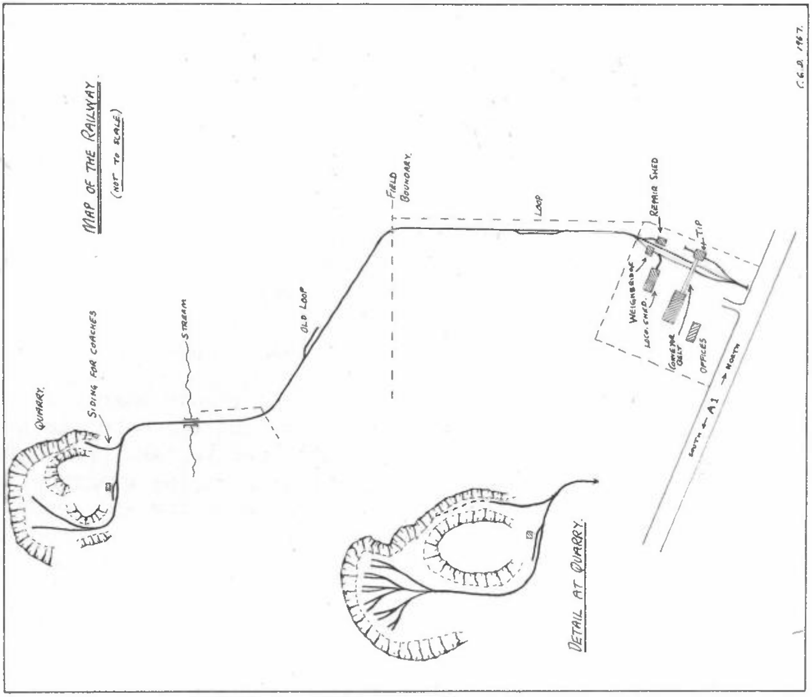
So let's describe the shed area, and then go for a trip down to the quarry. The tipping dock is an elevated wooden affair and the locos have quite a job to move the wagons up the gradient to it. There are two sidings, one to the loco shed and the other to the repair shop. There is also a weightbridge; each full skip is tagged with the number of the quarryman who filled it and each skip is weighed in order to find the weight of stone, the quarrymen being paid according to this. There will usually be one of the large Hunslets at this end, picking up a train of empties. This varies in length, depending on the number of empty wagons available and some times a loco may go back to the quarry with none. When the second main line loco has arrived, the empties can be sent back to the quarry. What usually happens is that the first loco to arrive picks up all the empties (about 10) and the second will follow it back to the quarry with either one or two empties or 'light engine'. Incoming trains though consist of six wagons, holding a total of 14-15 tons of stone. Any more would probably defeat the loco on the steep gradient up to the works.

The locos are cab-fitted (in the climate of the Northumberland moors, they have to be!) and it can be a tight squeeze to find room therein. But the drivers are a friendly lot who don't mind the company and gladly make room for a passenger. In fact, I once travelled down with three quarrymen as well, festooned inside and outside the cab.

As soon as we move off, you realise that it's going to be a noisy ride. Although well-maintained the loco's engine vibrates excessively, the cab rattles a lot and the empty skips jerk their couplings and bash against the loco for all they're worth, especially on the downgrade out of the works yard. It may be that the tip was working well, and we've left before the second train arrived. In such cases, we shunt our train into a loop, thoughtfully placed against such contingencies. Or we may be followed by a light engine, which often looks in grave danger of catching up. On this gradient, we have to use the brake to control the train, but the light engine has no such worries!

The line at first runs beside the hedge-rows until we reach the bottom of the hill when, crossing a cattle grid, the line levels off for a straight run across a field. Here the driver accelerates, making the noise even worse, and the skips buck madly about on the lightly-laid track. There are occasional signs of a derailment; a heap of stones and perhaps the skip as well, lying beside the line. After a while, we cross another cattle grid and the line curves to the right a little, to run downhill through a small wood. The driver applies the brake again here and until we've crossed a small girder bridge over a stream, when he speeds up again to surmount the gradient on the other side of the valley. Curving to the left now, we enter the quarry area. There is a siding here which once led to a working face and the siding is still used to stable the man-riding coaches. These are three 'covered wagons', metal roofed and canvas sides, which were built on old skip frames to take the quarry men to and from work. The coaches are left here during the day to be 'out of the way'.


MAP OF THE RAILWAY.
(NOT TO SCALE)
QUARRY.
SIDING FOR COACHES
STREAM
OLD LOOP
FIELD BOUNDARY.
LOOP
REPAIR SHED
TIP
WEIGHBRIDGE
LOCO. SHED.
CONVEYOR BELT
OFFICES
SOUTH ← A1 → NORTH
DETAIL AT QUARRY.
C.G.D. 1967.

The train now proceeds more slowly and we wind through a rocky cutting and into the quarry proper. This is undoubtedly the most amazing place. One gets used, perhaps, to a quarry with road vehicles in it and even to one with a tipping dock for rail traffic, but not here. Now you see why two locos are required for shunting. At least a dozen sidings fan out ahead, with the same number again disused, each runi ng up a very steep gradient to end at right angles to the working faces. At the end of each siding there is a quarryman's 'place'; except for blasting in the morning, all work is done by hand. Large blocks of stone have to be split by hammers and wedges, then lifted into the skips. Twice in the space of an hour I noticed men who had to stop work while loose stone buried their working places. As soon as these minor falls ceased, one of the little Hunslets would spring into action and rush a couple of skips to the spot. The quarryman would then fill these with the fallen rubbish before he could resume digging the good quality stone.

The quarry shunters have two jobs. One is to remove wagons as they are filled and bring empties to each man as required, and the other is to marshall full wagons into a train for the 'big' loco to take back. And the little locos are kept busy. To see them dashing about the quarry, the driver's mate leaping on and off changing points, coupling and uncoupling wagons and spragging empties for the quarrymen with a lump of stone or old rail is something that I have seen neither in Britain or on the Continent. I suppose there <u>are</u> other places like this, but I'd like to know where. The photographs, I'm afraid, cannot really convey the feeling of this busy set-up - it has to be seen to be believed.

In due course, the full train is made up and our loco backs onto it for the return journey. With a full load, it's mostly first gear work except for the level stretch across the field, and when the train starts to climb the gradient back to the works it is much quicker to walk. Not that one does; instead, you hang on to the end, making the most of an experience that may not be available for much longer.

<u>Postscript</u>

Inevitably there has been talk of substituting road for rail traffic here. In 1966, lorries were said to have been on order, and I got the same story in 1968. Perhaps closure will soon come, for the proposals do seem to get more concrete each year, and a road has now been built into the quarry. If and when it comes, closure will mean the end of one of the most remarkable and fascinating systems that it has been my privilege to see in action.

<u>Note</u> (H.R.O. Nov. 1969)

Since receiving this article we regrettably learn that the forecast closure was effected in May 1969.

T. W. Ward of Sheffield acquired all 7 locos, rolling stock and trackwork for scrap.

Track subsequently lifted and replaced by road transport.

All photos by C. G. Down on 25th August 1967.

1. No.1 pulls a loaded train up to the works. No.2 can be seen behind it with another loaded train.

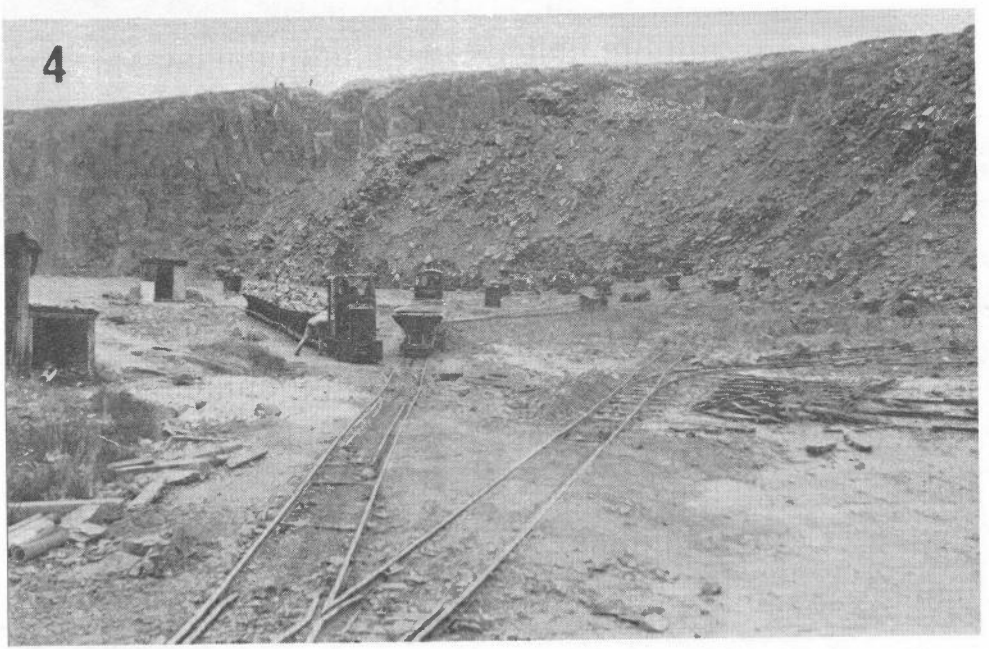
2. After weighing, No.1 pulls the skips up the gradient before reversing them up to the tip.

3. No.1 crossing the bridge with a train of empties.

4. A general view of the quarry.

5. Shunting in the quarry - (1). No. 4 propels two empties up to a working 'place'.

6. Shunting in the quarry - (2). Main-line loco No.2 assists the quarry shunter No.4 with a train of ten empty wagons, while No. 1 waits on a set of full skips. No.5 can also be seen behind No.2's train.

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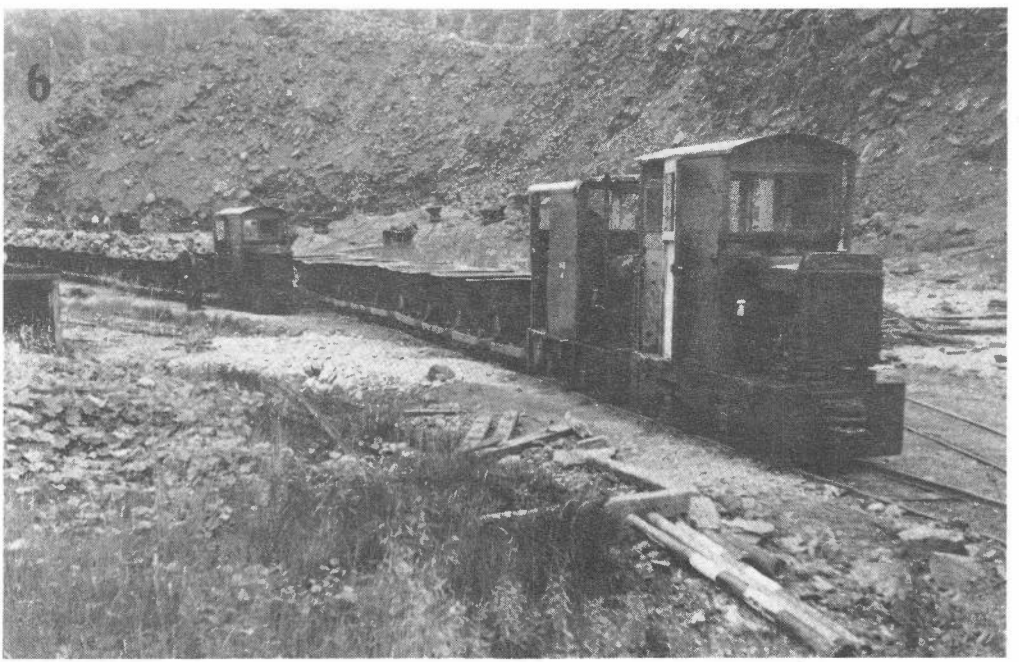
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MESRAIL 14

Rodney Weaver

Another famous name faded from the railway scene in September 1970 when the Drewry Car Co. went into voluntary liquidation. As narrow-gauge railcars have seldom featured in these pages it would seem an appropriate tribute to devote a little space to one of their more unusual products - the 2'6" gauge ambulances supplied to the military railways in Mesopotania during 1917 under order Mesrail 14.

Mesrail 14 covered nineteen ambulances, the design of which was based on an earlier, unspecified vehicle (possibly a horse-drawn field ambulance), to supplement six similar vehicles then under construction at the Bengal Nagpur Railway workshops on chassis supplied by Drewry in November/December 1916. The order was placed on 20th. November 1916 and confirmed on 22nd. December. The first nine cars were handed over on 29th. March 1917 and delivery was completed on 1st. June. Like all Drewry cars between 1911 and 1930 they were actually built by Baguley Cars Ltd. (later Baguley (Engineers) Ltd.) of Burton-upon-Trent.

The cars were built on standard B-type chassis as used for hundreds of more orthodox (and a few more unorthodox) railcars over the years. The frame length was 16' and the wheelbase 7', the light cast wheels being 24" diameter. Power was provided by a Baguley petrol engine, a four-cylinder unit of 90mm bore x 130mm stroke rated at 20 h.p. There was a three-speed gearbox, and a reverse box, one axle only being driven by a roller chain from the latter. At 1000 r.p.m. the gears gave speeds of 5.9, 13 and 21.1 m.p.h. in either direction, maximum speed being around 35 m.p.h.. Testing was very thorough: the engine completed six hours running before installation, including at least two hours at full power; the chassis was run for five hours at full throttle on a set of friction rollers and the complete car was subjected to load and gradient climbing trials in the works yard before delivery.

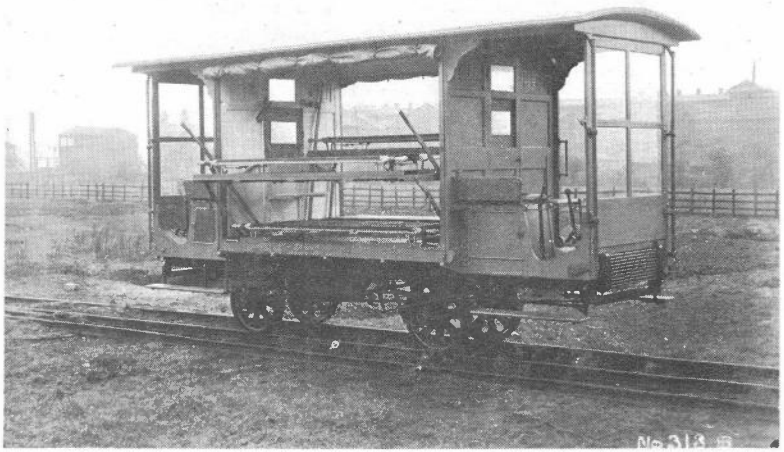
The body comprised two driving platforms with a stretcher compartment between them. Two stretchers could be carried on either side of the car, one resting on top of a folded canvas seat that formed the floor and the other carried on an upper platform that could be swung out and down on a form of parallel motion. Alternatively both stretchers and the upper platform could be removed and the canvas seat erected, when six walking cases could be accommodated. Between the stretchers was a corridor and seat for the attendant, access to which was gained by a door at one end of the car. The car could thus carry four stretcher cases, two stretcher and six walking cases or twelve walking cases as required. With four stretchers, driver and attendant the car weighed 2t.7cwt. 3qtr.. The operation of the cars was demonstrated at Burton by members of Baguley's staff, probably on March 29th. 1917, when the accompanying photographs were taken. Buster Keaton would have been proud to produce some of the deadpan expressions!

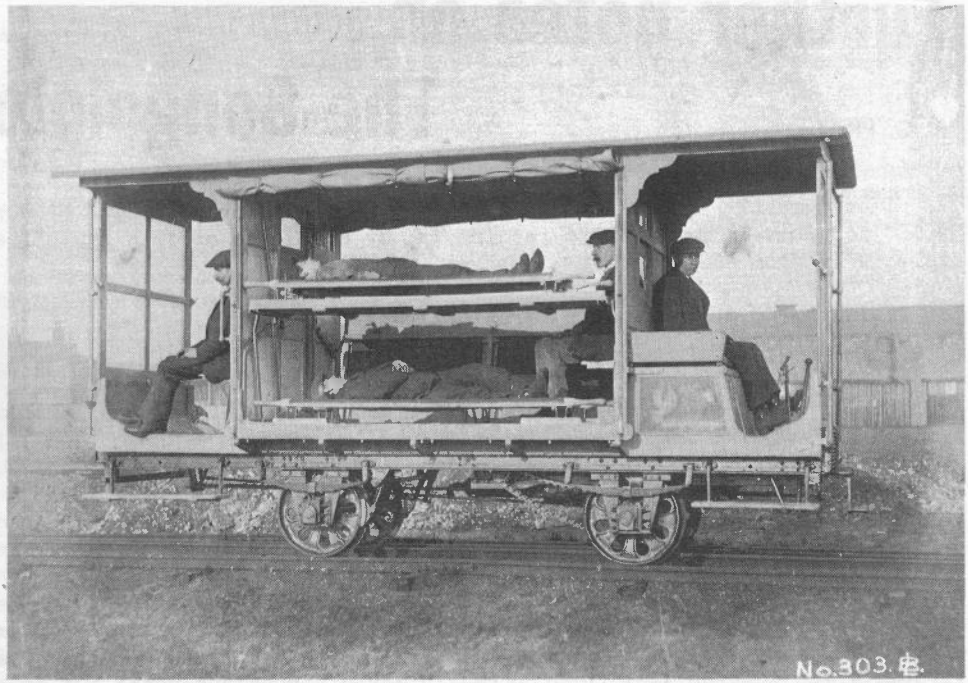
In service the sides of the cars were normally covered by canvas screens bearing the Red Cross insignia, the rest of the vehicle being painted khaki. The operation of these cars seems to have escaped notice by historians, but in the Drewry archives is a superb photograph (unfortunately not good enough to reproduce) of six ambulance, two standard Drewry cars and two Hudson well-tanks standing in a row somewhere in the desert. Doubtless they were the inspiration for somewhat similar cars supplied to South America and Burma during the 1920's. One of the Burma cars, No. 1248 of 1922, was still in service with its original engine at the beginning of 1970. But these were not the most unusual Drewry cars in Mesopotania, for a few years later there appeared a batch of armed B-type cars, each sporting two machine gun turrets. These must, however, wait until a later article .....

Delivery details of Mesrail 14:-

Car Nos. 921-939 inclusive, ordered from Baguley Cars Ltd. 21.11.1916.

Nos. 921/3/4/5/6/8/9/31/5	delivered	29.3.1917
Nos. 927/30/3/6/9	delivered	17.5.1917
No. 934	delivered	31.5.1917
Nos. 922/32/7/8	delivered	1.6.1917

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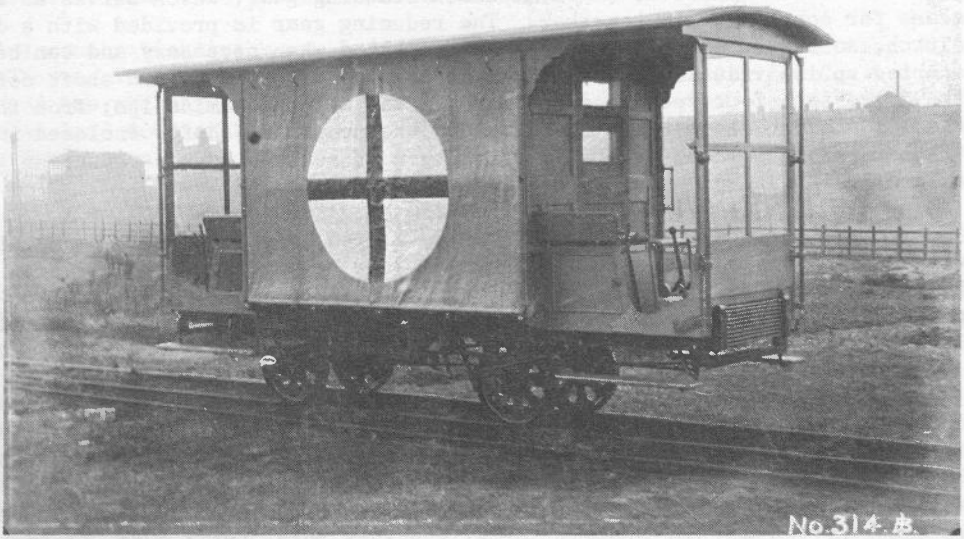
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Further notes on The Songolole

R. G. PRATT

I was greatly interested in Mr. Sydney Moir's article in "THE NARROW GAUGE" for July as previous to reading it, my knowledge of this system came exclusively from the following sources:

THINKING IT OUT, a book by Archibald Williams.

COMMERCIAL MOTOR for 26th September 1922.

MOTOR TRANSPORT for 12th May, 1924.

THE LOCOMOTIVE for 14th December 1929.

Archibald Williams only devotes two pages - to generalities for the most part but illustrates the paraffin tractor used in the Canada Junction experiments. There is also a diagram.

THE COMMERCIAL MOTOR on the other hand, has a long article under the heading IMPORTANT DEVELOPMENTS IN ROADRAIL TRANSPORT, and this refers, among other things, to the "Stronach-Dutton System". This system seems to have been virtually the same as that constructed in South Africa but using two specially built 50-hp petrol tractors by Guy Motors Ltd. These the account describes thus:- "The tractors at present in use are of 50-hp being provided with 25-hp engines, the drive from each of which is taken through a standard clutch and short cardan shaft to a silent-chain reducing gear, which serves as a means for coupling them together. The reducing gear is provided with a dog clutch, so that the engines can be disconnected when necessary and can be started up individually. From the reducing gear a short cardan shaft conveys the drive to a four-speed-and-reverse gearbox situated amidships; from this gearbox a short shaft takes the drive to the propeller shaft, enclosed in a tubular torque member, the final drive being through a double-reduction gear axle of the bevel-and-spur type."

"Other forms of tractor are being developed, and several steam machines with Sentinel type engines and boilers are now being constructed by Wm. Beardmore & Co.Ltd., whilst a lighter petrol tractor of 25-hp., of which is practically a modification of the standard 2-ton Guy lorry, is being built by Guy Motors Ltd."

The account then deals with Roadrail systems in active operation or in course of construction at that time, (1922). It first refers to the first track laid in Johannesburg and goes on:- "After two and a half years' work the rubber tyres of the tractors were in good condition, being worn about half an inch only all round." How they got this information in 1922, when the line in South Africa was not opened, formally at any rate, until 19th. September 1924, poses something of a mystery.

"As a result of successful tests with a Roadrail track of 14 miles in Uganda, the remainder of a length of 50 miles is now being completed, and Sir Edward Northey, the Governor of British East Africa, recently stated that the cost would work out at under £1,200 per mile."

"Three tractors are employed by the Spanish Government in the prosecution of its campaign in Spanish Morocco. These tractors have now been used for a considerable time and have proved of the utmost value for conveying stores and troops from the railhead to the advance base. In one case the track was cut by the Moors in the hope that the tractor would be captured, but this merely left the rails and took to the road and thus evaded capture."

"In Scotland there is already one line in active operation and another in course of construction. MacDonald Greenlees Williams (Distillers) Ltd. have for some time been experiencing great difficulty in connection with the transport of whisky between their Stronachie Distillery and Milnathort, in Kinross. Two steam tractors were employed on the work, but the roads were so cut up that they had become quagmires ..... and in despair the company turned for help to Roadrails Ltd. Three miles of Roadrail track were then laid and use made of two miles of comparatively good road, the tractors running first on the road and hauling road trailers, and then on the rails, when the trailers were unloaded by crane, the whisky being swung on to the rail trucks." This latter reference leads me to doubt that this firm was using the roadrail method of the kind we are dealing with here. The next reference must also, I fear, be regarded with equal doubt: "A very important section of Roadrail line has now been commenced in Sutherland, connecting Lairg with Inchard. The line will have a length of approximately 62 miles and is being built with the idea of developing this portion of the country."

A demonstration track was laid down outside Melbourne in conjunction with the Melbourne Trust and in South Africa, the British South African Co. purchased the exclusive right to use the system in Rhodesia. In 1922, a trial track was laid down at Wembley on ground then being developed for the British Empire Exhibition. This line included curves of 35-ft. radius and loops of 50-ft and 75-ft. radius with a gradient of 1 in 14½ on the 50-ft radius. It must have been for demonstrating on this track that the Guy 50-hp tractors already mentioned were built.

Three good illustrations accompany an article headed:"THE DUTTON ROAD-RAIL TRACTOR" in 'MOTOR TRANSPORT' of 12th. May, 1924. This confines itself to the South African venture. It is interesting to note in this account that South African Railways had, in 1919, ordered twelve Foden steam tractors built with special short wheelbase and running on solid rubber tyres. It could well be that at that time, when as Mr. Moir says, Dutton was writing articles and demonstrating his theory, South African Railways may very well have had under consideration, some dual purpose for these Foden tractors. Comment is also made that coal in Johannesburg was then 10/- to 12/- a ton with petrol 2/6 a gal. and parrafin proportionate, with, in inland areas a price in some cases of 3/8.

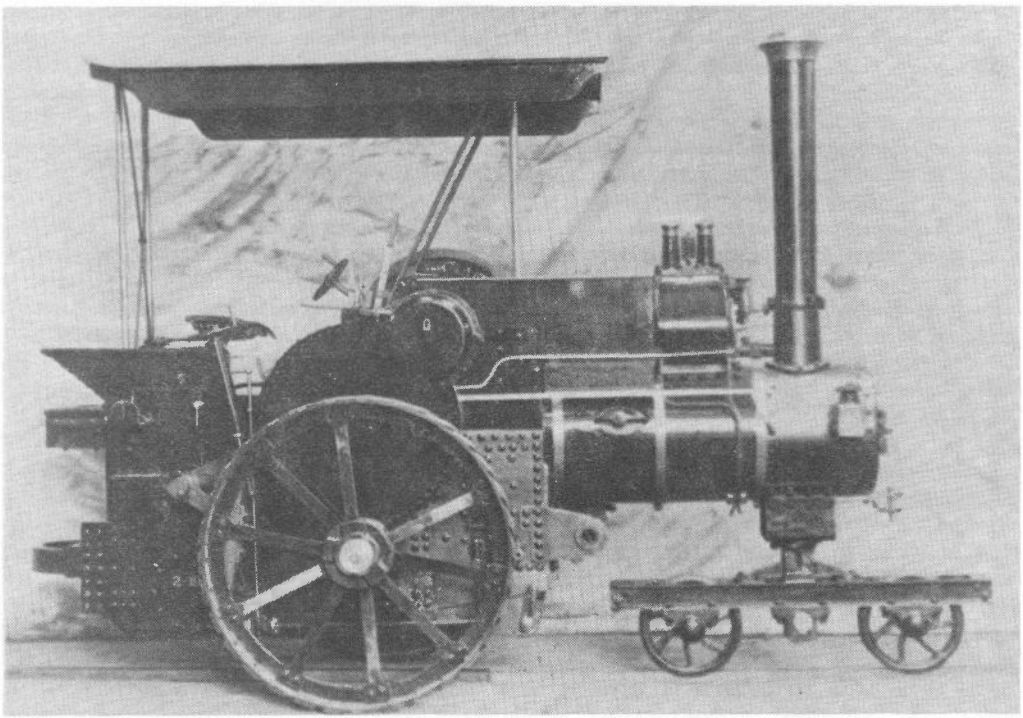
So now we come to the very short reference in 'The Locomotive' of 14th. December, 1929 under the heading "ROAD RAIL TRACTION" which refers to a Paper by a Mr. J. C. Stopani Stuart read at a meeting of the Institution of Locomotive Engineers in Glasgow the previous month. In this, reference is made to the system being in use at that time in Kenya Colony, as well as in South Africa. An accompanying illustration is a photograph of what I presume to be the Wm. Beardmore - Sentinel machine referred to by the Commercial Motor but nowhere is Dutton's name mentioned!

This almost concludes my observations but I will leave readers with a problem I should very much like to see solved. With this article appears a photograph of a steam tractor of about 3-tons, made by Messrs Wallis & Steevens of Basingstoke. Instead of front wheels, it has a bogie with flanged wheels, in the manner of the Dutton system. All the firm can tell us is that it was done to the order of the Crown Agents for the Colonies. Now, can anyone add anything to this?

R. G. PRATT.

ACKNOWLEDGEMENT

To the Library of the Road Locomotive Society.
and to the Special Portfolio Section of this
same Society.



JOHN FOWLER & CO. LEEDS LTD.

We continue our batch of works photographs by courtesy of Mr. R.G.Pratt of Minehead with another 5 loco's, if you have any information on any of these the Editor would be very pleased to hear from you.

Photo No.13

Works No. 16130 0-4-0 Side Tank. No other information. for NSWGR (for gg work) 10" x 14"

Photo No.14

Works No. 16202 0-4-0 WT with Tender 16248.
One of two for Indian Native State Railway
with 7" x 12" cylinders.
Note Theatre Royal Leeds Pantomime Poster 'Aladdin'.

Photo No.15

Works No. 16204 0-6-0 Well Tank.

Photo No.16

Works No. 16210 0-6-0 Side Tank. 2'9 for India Forestry Dept., Gorakhpur 8½" x 12" 2'0"

Photo No.17

Works No. 16254 0-4-0 Well Tank.
for Estate in Kenya, 5½"x10" cylinders. for Longonot Ltd., Kenya
Motion had side sheets ~~filled~~ filled when running.

TONY BARLOW-HAWKES BAY, NEW ZEALAND

Regarding the Fowler photos No.8, this is a loco of a batch built for the N.Z. Public Works Dept., Nos.15906 - 13 in 1921, the history of 15909 or P.W.D. No.535, is that in 1922 it went to work on the construction of the connecting railway between the Auckland and Whongorie section and in 1930 it was moved to the construction of the South Island Main Trunk between Blenheim and Warpara, it was sold in 1935 to the Addison Corporation.

A sister engine 15912 is still in working order as it was the first loco to belong to the Dunedon branch of the N.Z.R.L.S. and is still to be seen puffing along the Ocean Beach Railway.

Weight in working order	7.5 tons
Heating surface firebox	20 sq. ft.
" " tubes	117 sq. ft.
Grate area	4 sq. ft.
Cylinders dia.	7 ins.
stroke	12 ins.
Wheels dia.	1 ft. 10 ins.
Working pressure	180 lbs. sq.ins.
Tractine effort at 80% pressure	3850 lbs.

I got most of this information out of the book "Steam locomotives of the N.Z. Public Works Department" by Peter F. Dyer.

* * * * * * * * * *

JACK SHENNAN - PERTH

As a new member I have just received my first ever copy of "The Narrow Gauge" No.54, and am very happy with it, specially like the international flavour of the journal.

Regarding the photos of the Fowler locomotives, I have little information on two of them -

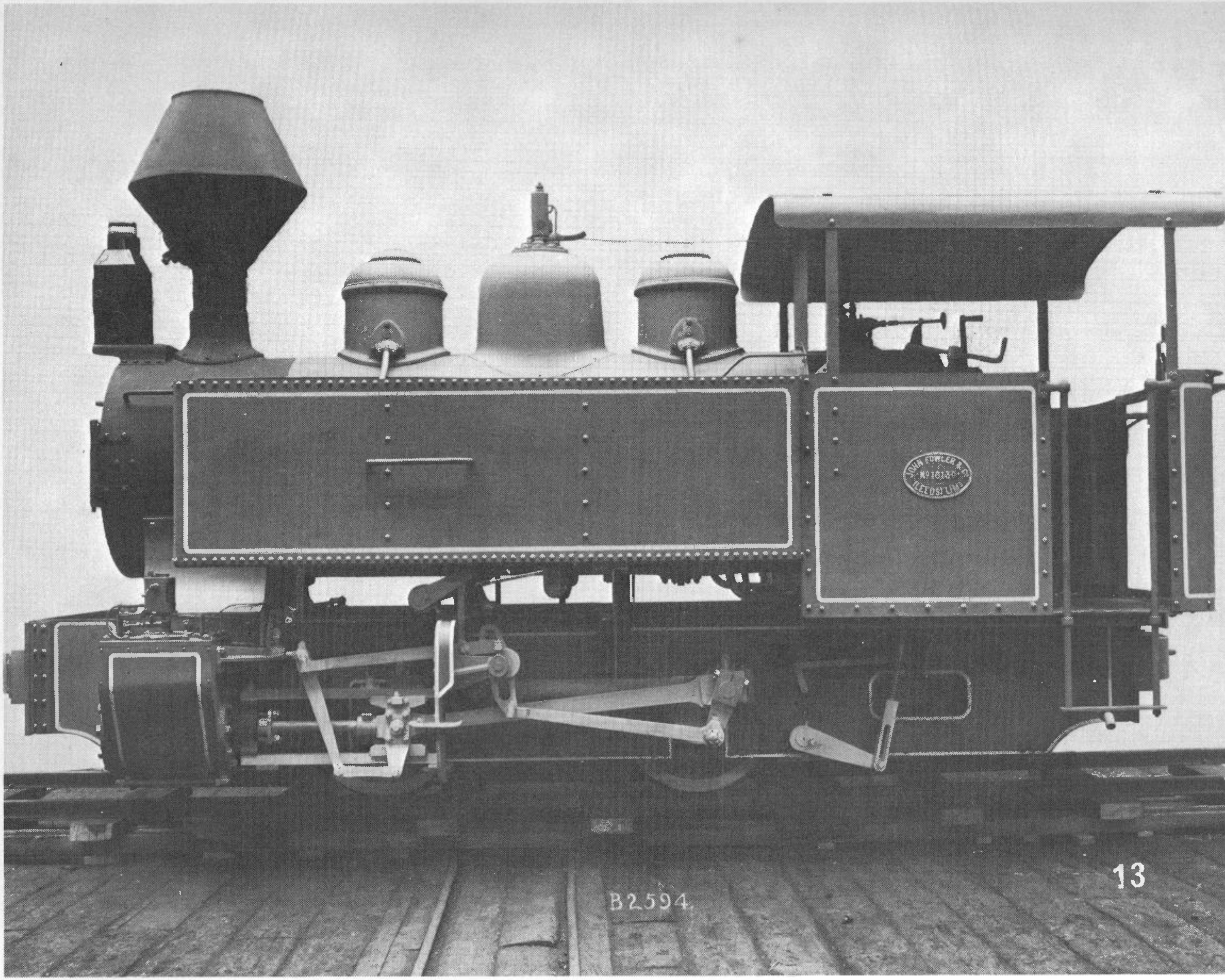
No. 7365 of 1894 went to Bingera Sugar Mill in Queensland, was named "Rose". No.10992 of 1907 went to the Colonial Sugar Refineries Lambasa Mill system on Fiji, their No.3. After going into service this engine was given a four wheeled tender. In the thirties was rebuilt with new boiler having Belpaire firebox and a steam dome in normal position with two pop safety valves on top. New also at this time was a large sand box on top of boiler between stack and steam dome, electric lights, and a bogie tender.

Now while we are on Fowlers, one little point, No.11944 described as in 0-6-2 appears to be an 0-8-0, that surely is a long coupling rod with crank right behind the cab step.

And now if you will pardon one Tasmanian asking after another, can anyone tell me what has happened to the first Beyer-Garratt, I know she went to the Festiniog quite some time ago, but since then, nothing. Hope she is being well looked after.

Thank you again for a most interesting publication.

* * * * * * * * *



JOHN FOWLER & Co
(LEEDS) LIMd
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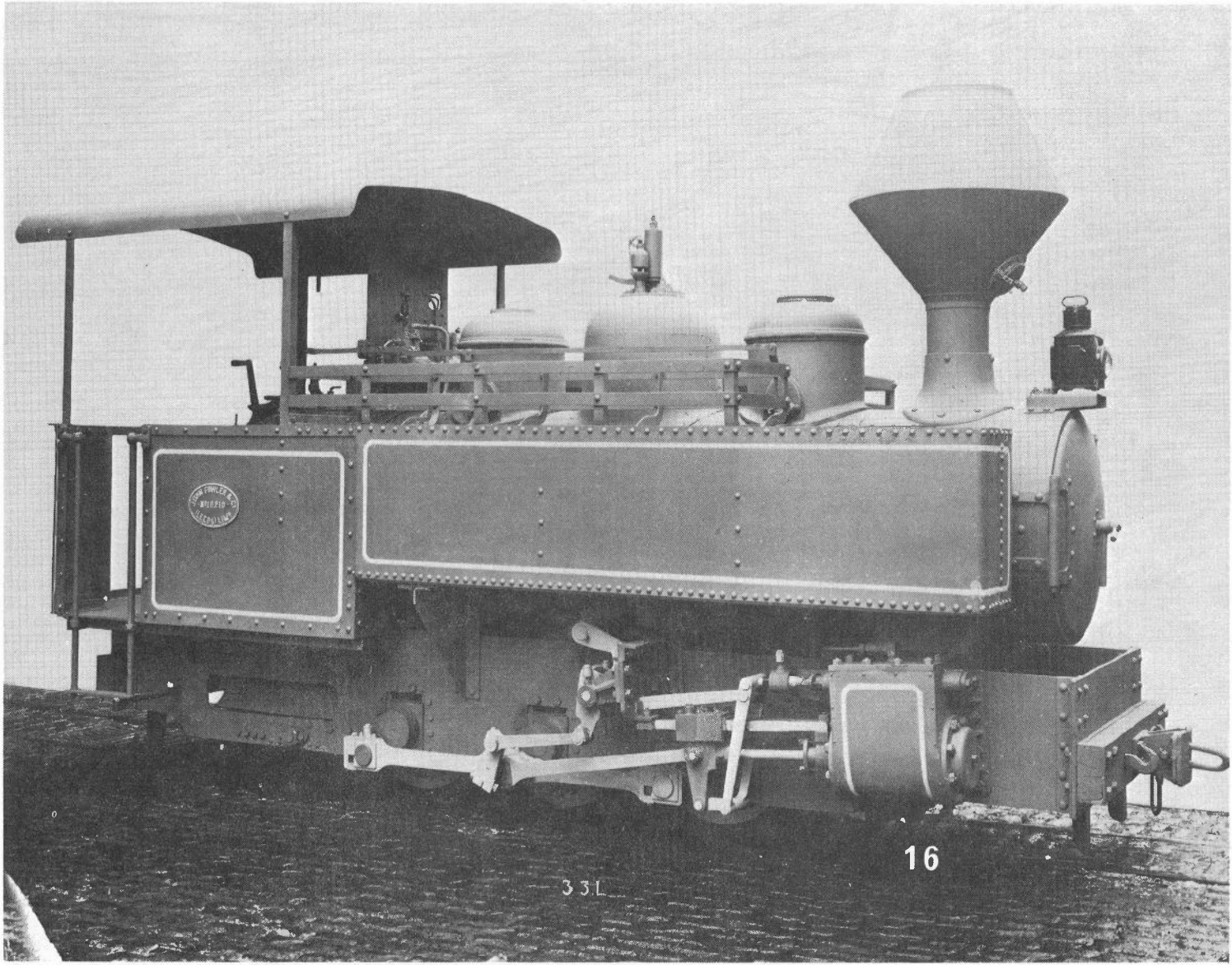
ROYAL
ALADDIN
14
B.2600


26L
15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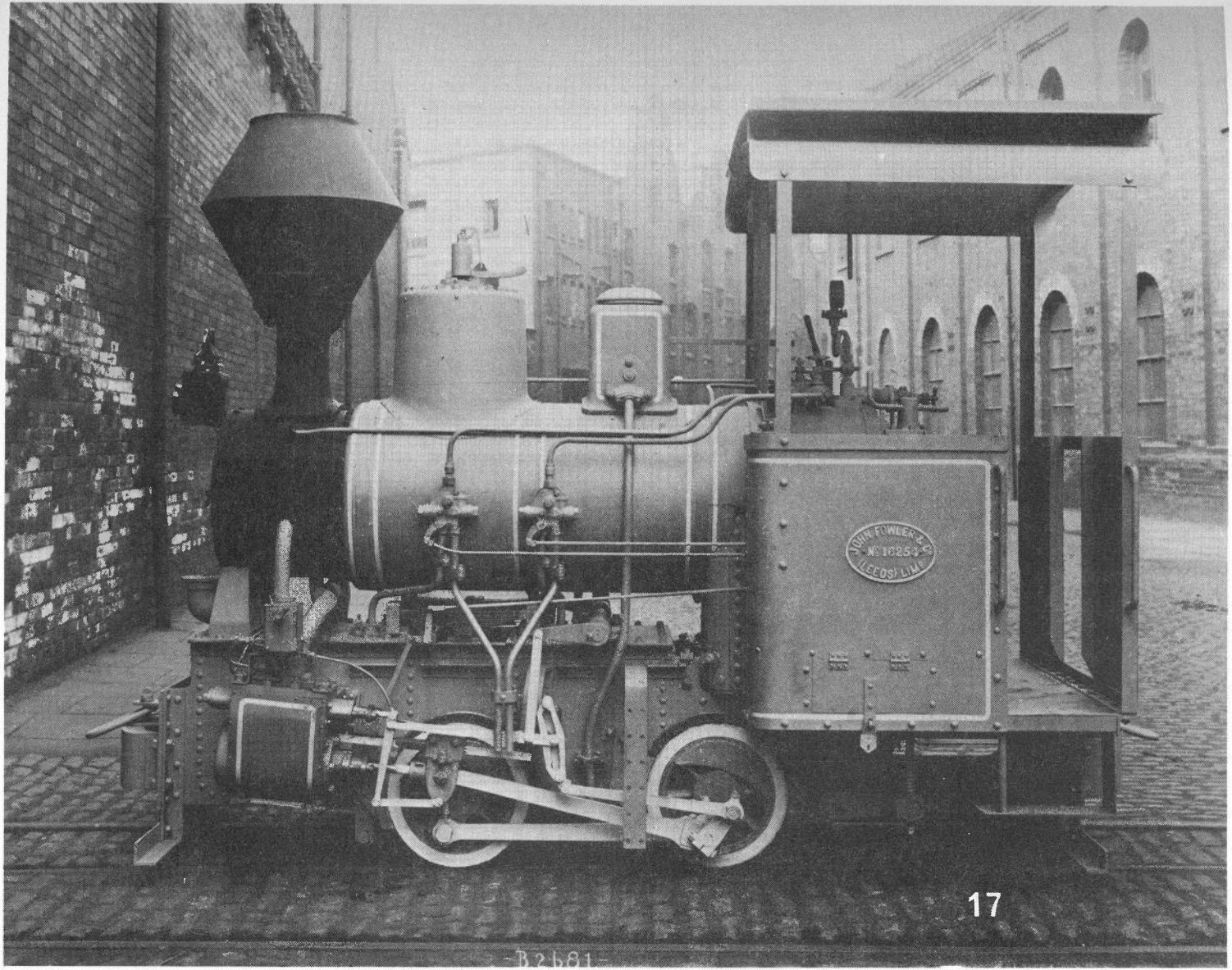


-B2681-

D-T's IN THE DESERT

Sydney Moir

The Locomotives and Ccaches of the Eisenbahn Swakopmund - Windhuk

The Atlantic coastline of South West Africa is rimmed with dunes, something like twelve miles in width, followed by dry and desolate country, rising as one moves inland. It was through this that the first public carrier in German South West was driven, built by the Engineer Corps of the German Army, men who brought with them the type of track and locomotive in military use.

During the construction period - which stretched from 1897 until 1902 - the slowly advancing track carried both "Zwillinge" and "Illinge" at the head of construction trains. The "Twins" were double-engines: two 0-6-0 side-tanks, one without a footplate and with a low cab-roof, the other with a footplate extended to serve both engines and with a cab-roof high enough to pass over that of the engine permanently coupled to it. Double-engines had been tried out before, but the German Army seemed to have standardised them. The "Singles" were similar 0-6-0 tanks, duplicates of the Zwillinge in everything but the possession of a second half .. many were the remnants of twins that had come to grief.

Owing to water difficulties, it was necessary to attach water tanks .. which carried bagged fuel on their top-plates .. when working out on the main line. Not only that, but Zwillinge were coupled to Zwillinge, so that a double-headed train would, in fact, have four engines, while photos exist showing Zwillinge-Illinge combinations, with a water-tank between. Theoretically, the individual units were 40 h.p., but the Zwillinge proved too weak to haul anything like a load up the grades of the Khan Gorge. Accordingly, two eight-coupled side-tanks, another German Army type, were sent out to act as banking engines in the Gorge.

These 0-8-0 tanks were listed as Type D-t .. the D standing for four coupled axles in the Continental notation ... but were not the 0-8-0 shown in Peter Halton's drawing in the Jubilee Issue, but an earlier and smaller type. They were a foot or so shorter on the wheelbase: used saturated instead of superheated steam: carried 175 lbs. pressure instead of 215: and had thirty-seven gallons less water in the side-tanks .. which were short, completely unlike the full-length type carried by the Great War engines.

Once the railway had been completed and handed over to the Civil Administration, it was necessary to add to the fleet of locomotives, for not all were left on the line. More Zwillinge, listed as Type 2xCt, and Illinge (which were plain Ct), were brought out, and the number of Dt was added to. Orenstein & Koppel, Jung, and Krauss were the makers of the Dt's, supplying extra locos over the years until the total stood at twenty.

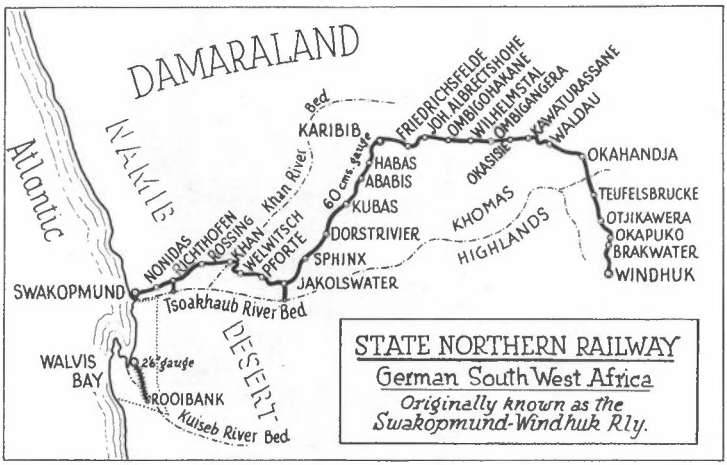
Fifteen were in active service, with the others standing by or out of service for one reason or another. Of the forty-one 0-6-0x0-6-0 Twins, twenty-five were stored, nine were held in reserve and only seven were in daily use. Which, considering the difficulties of simultaneously controlling two locomotives, was a blessing for the crews!

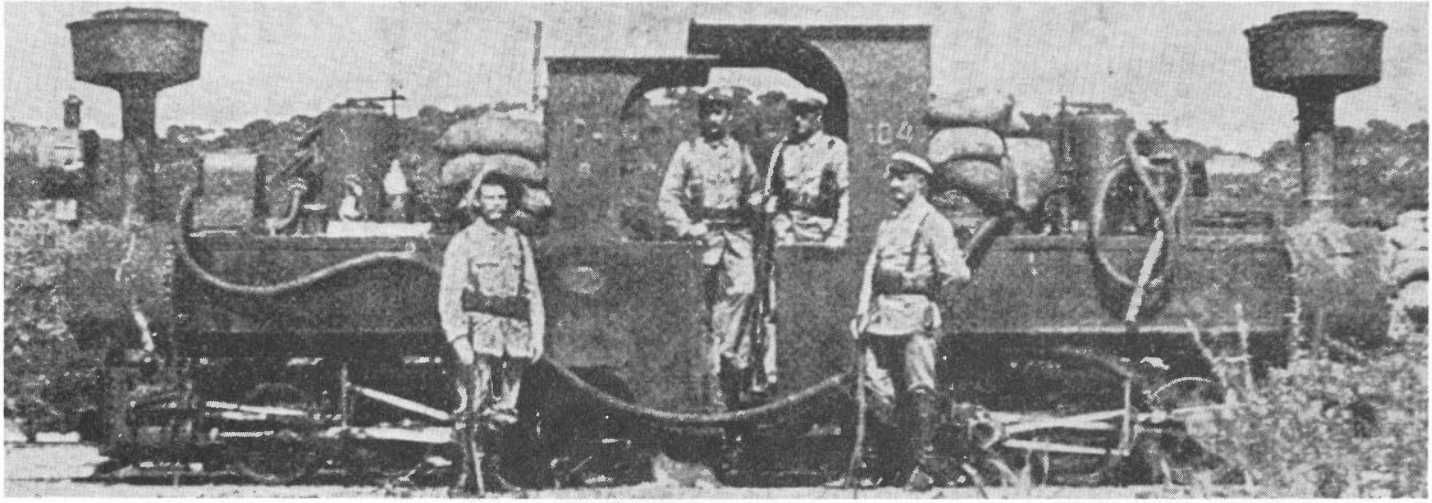
Passengers who were man enough to embark on the 382 km. two-day journey from coast to capital (with an overnight stop at Karibib) were hauled in little drop-framed coaches strongly reminiscent of a tramcar. Since everything track, locos and coaches was of the smallest and lightest of construction, the drop-frame was most likely adopted to lower the outline of the coach and so prevent untoward derailment due to wind pressure. The drawing given here was worked up from a few measurements and a handful of photos: nothing is guaranteed and it is given for what it is worth.

Though the 1st Class passenger coaches were built by Hamburger Maschinenfabrik it was Waggonbarik Gebruder Hoffman & Co., who supplied a somewaht longer version for use as a Business Car. This was divided into four compartments - saloon, kitchen, lavatory, and baggage compartment: eventually it was taken over by the Otavi Railway, modified, and used as their No. 2 Business Car. In that form it survived to come into South African Railways ownership, then being reclassified as SWNG II .. and finally was rebuilt, minus end-balconies, as Trainmens Caboose SW2.

Most of the locomotives were either scrapped by the German authorities or disappeared from sight during the Great War: there were only seven 1st. Class coaches all told and no record remains of their fate.

Windhuk, the inland terminus of the 60cm. Eisenbahn Swakopmund - Windhuk, now holds what surely must be the sole remaining relic of the line.. for there the S.A.R. have preseved a single unit, No. 154A of one of the Zwillinge.

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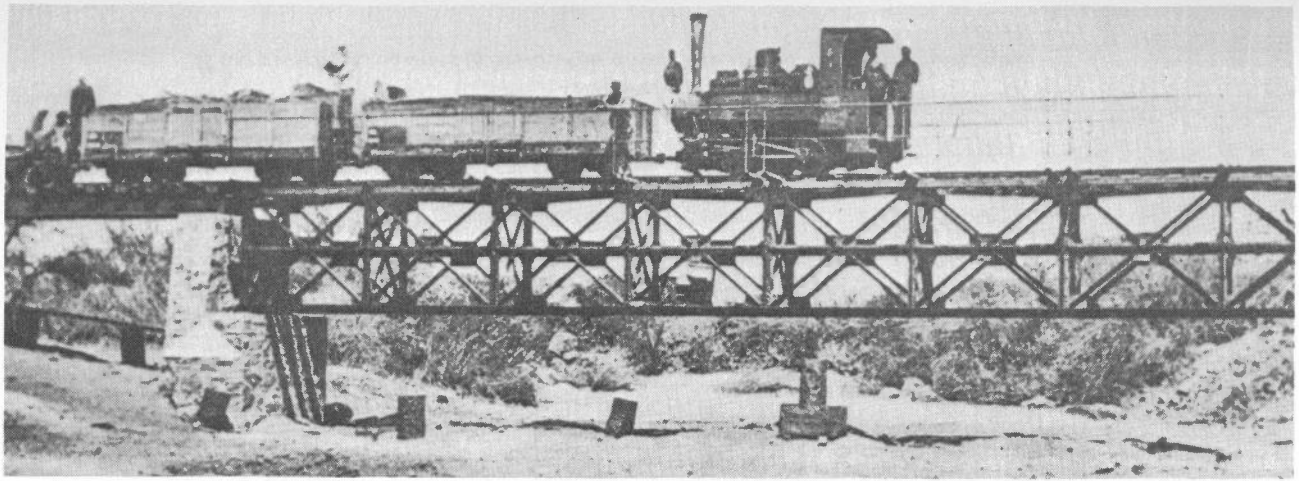


Photo 2 (above)

A single-unit, or Illing. This is a 'portion' of a twin .. the two marks on the cab-side prove it, for the upper one is the number of the twin locomotive, while the lower is the A or B designation of the individual unit. The dry area beneath the bridge is a South African river.

Photo 1 (opposite)

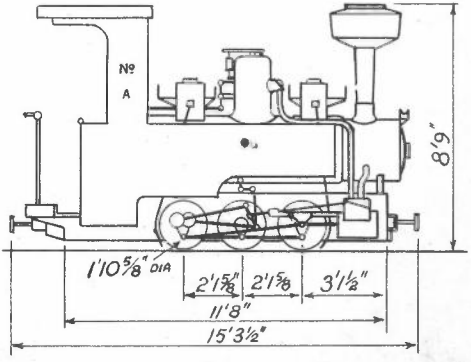
Zwilling No. 184. The units are A, with the high roof, and B, with the low roof. The bags piled across the boiler contain spare fuel, either coal or briquettes: supplies were also carried on top of the water-truck when such was being hauled. This particular locomotive must have been fitted with a water-lifter or a steam-driven pump, the hose draped round the two units being used to reach an off-track water-hole.

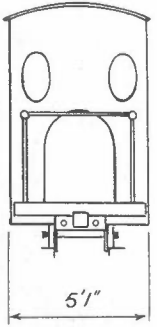
German South-West Africa

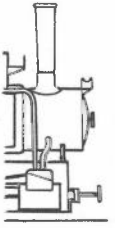
STATE NORTHERN RLY.

LOCOMOTIVE Nº 154 A

TYPE C.T.







STACK AS MODIFIED AB'T 1922

TRACTIVE EFFORT at 50%: 2,150 lbs.
WORKING WEIGHT: 16,500 lbs.
COAL CAPACITY: 525 lbs.
WATER CAPACITY: 107 gals.
STEAM PRESSURE: 215 lbs. sq. ins.

GRATE AREA: 3·23 SQ. FT.
HEATING SURFACE:
FIREBOX - 13·00 SQ. FT.
TUBES - 140·74 SQ. FT.
BETWEEN TUBEPLATES: 7'2 7/16"

This locomotive saw service under S.A.R. control, and when withdrawn in 1944 was railed to the Transvaal and placed in the South African Railway's Museum at Kaalfontein.

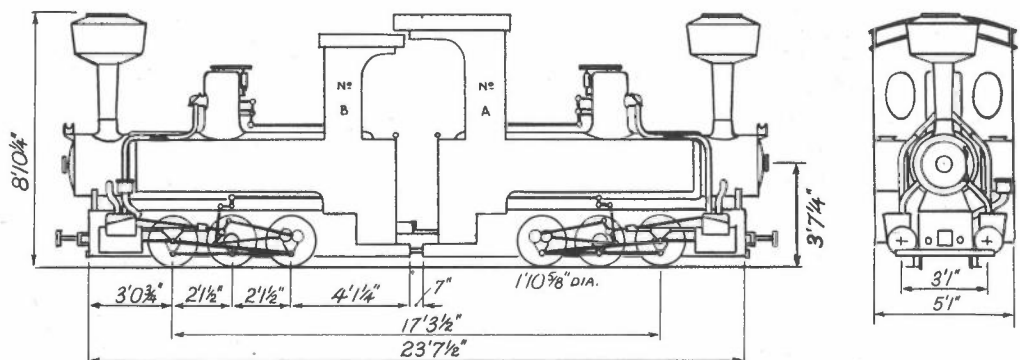
It has since been returned to South West Africa and is now preserved at Windhoek

German South-West Africa

STATE NORTHERN RLY.

"BACK-TO-BACK" ARTICULATED LOCOS.

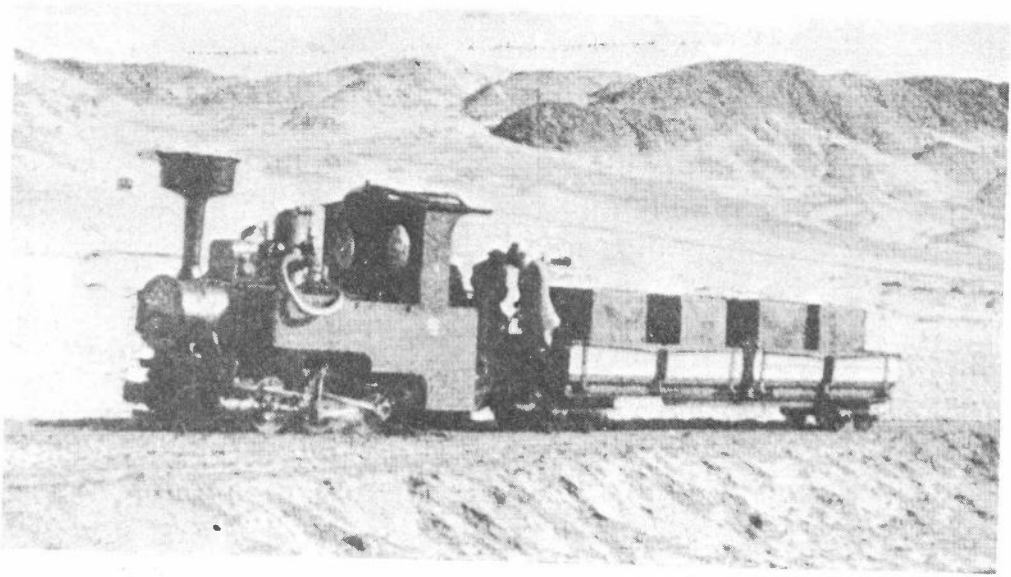
TYPE 2×C.T.



TRACTIVE EFFORT at 50%: 2,150 lbs. GRATE AREA: 3·6 SQ. FT.

BOILER PRESS.: 215 LBS. SQ. INS. HEATING SURF.: 153·9 SQ. FT.

BOTH UNITS { COAL: 1,000 lbs. WATER: 214 GALLONS.
WEIGHT IN WORKING ORDER: 14 TONS 1·5 CWT.



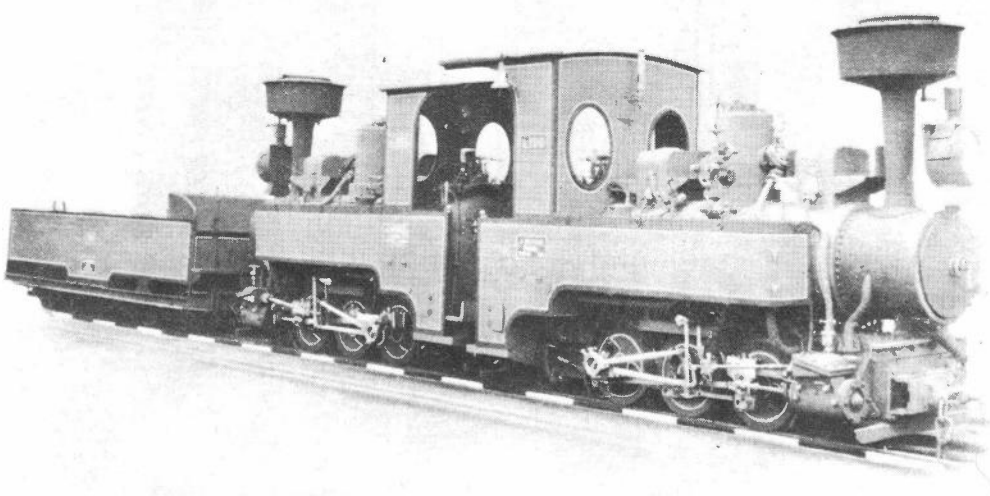


Photo 3

A portion of a Zwilling with a water-truck. It is not know whether the water in the rectangular tanks constituted a load, or was merely to supply the locomotive. In this case, the hose carried is neatly coiled up on the cab roof.

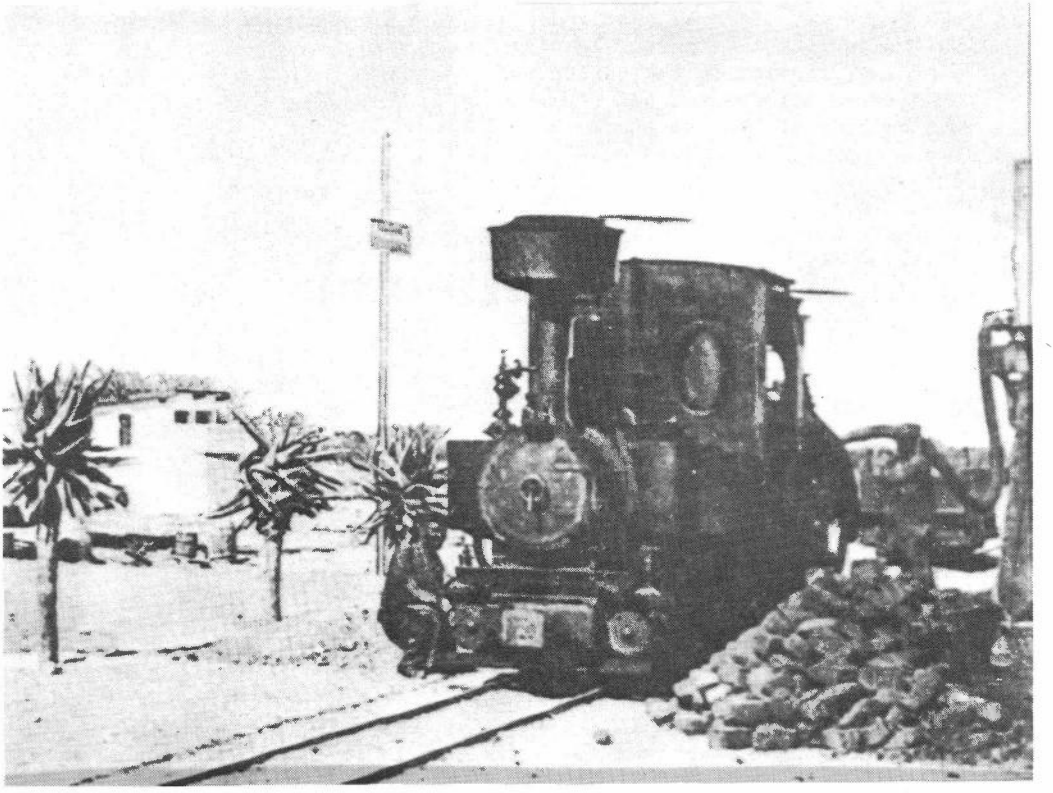
No acknowledgement can be made with regard to these photographs, for most have been copied from old German books, written during the 1900 - 1910 period.

Photo 4 Courtesy of R.N.R.
Borsig 600 mm. Twin loco with water tender.
Oldest equipment of German Railway Brigade.

Photo 5

A Zwilling being coaled. In this case, the fuel is briquettes .. shipped, like all other fuel, from Germany. The damper-lids were not a feature of all locomotives, even when both units had the same type of stack.

More Drawings next issue —



LETTERS to the EDITOR

JEFF LANHAM - ZAMBIA

No.52 November 1969, P.36, The DFB 0-8-0T should be at KIMYA MAKINAVE INDUSTRISI, Ankara, Turkey. Photo taken in 1958.

No.51 July 1969, P.5, Sidney Moirs letter. The impression I was trying to give re. the 0-6-6-0T at Toury Pithiviers Tramway was that I thought that they must have done the modifications at Pithivier, witness the many mods., on the other locos., but I would not dare to be dogmatic since the WDLR used some 4-6-0T's by BLW, modified to run without their side tanks and carrying their water supply on a bogie waggon drawn behind as a tender. The evidence for this is in photos at the Imperial War Museum, London. Obviously if the WDLR could do it one way then the FGAR could do it the other.

Turning back to the Ex. DFB 0-8-0T's., the Sena Sugar Estates, Luabo and Marromeu, Mozambique both used this type in quite good numbers. I was only able to visit Marromeu last year but found all the DFB's considerable trouble of arranging a trip to this part of the companies operations. However the following points may be of interest.

1. All cabs modified by removal of rear plate to waist line. Some have had the front part removed also and replaced with a simple rectangular piece extending from cab to roof leaving ample room on each side to reach the wood fuel carried on the boiler and tank tops.
2. Sand boxes all removed and replaced by hand sanding from a box carried on the outside of the cab at the back.
3. Tanks replaced by welded models without the characteristic 'dip' at the front.
4. Mechanical, rear Klein-Lindner axle replaced by a rigid axle and the flange removed from the third pair of wheels. Equivalent flexibility of a 2-6-0T.
5. All dust bins gone, peculiar since the small 'Fowlers' still sport their 'Yankee' spark arresters.

* * * * * * * * *

ALLAN BAKER - NEWCASTLE, STAFFS

Have just read with interest the latest Narrow Gauge No.55 - there are one or two points here that may be of interest to readers.

a) Sidney Leleux's letter 'The 2'6" gauge Bagnall' he mentions belonging to Anglo Iranian Oil Co., would be one of two Nos. 2824/5 ordered 1944 and delivered 1945 to Anglo Iranian Oil Co., Iran. They were 0-6-2 PTs with outside cyls. 10 x 15" 2'6½" dia. driving wheels, 6'0" fixed wheelbase fitted with steel firebox and steel tubes and oil fired.

b) Jeff Lanham's article on Angola. The two Bagnalls he mentions on the C.F. Amboim are 2637/8 ordered 7/1940 delivered 1941, Ordered by The Engineering Co., of Portugal Amboim, West Africa. They have 13 x 16" cyls. 2'6" dia. driving wheels and a 9'0" fixed wheelbase. Fitted with Copper fire box and brass tubes.

JOHN FORSHAW - KYLE

Further to my article "Miniature Steam by Bassett Lawke" in Magazine No.~~53~~ 54, ~~March~~ 1970. Infact, I deliberately confined myself to the 15" gauge 'Little Giant' type and derivatives, only. Bassett-Lowke built other types of locos., in 15" gauge as well as a variety of steam locos., in other miniature gauges but I don't know much about these other than what is readily available in various books and in any case I thought my article was quite long enough as it was! I also noticethat I said - third para., inside back cover of N.G.54 - 'So far as I know, the foregoing covers all the 4-4-2 engines built by Bassett-Lowke.....' What I meant, of course, was 'all the 15" gauge 4-4-2 engines of the 'Little Giant' types. There are one or two other similar comments, e.g. the end of the same para., which might be misconstrued and they should all be read in the context of the limits I have indicated above.

Regarding Sydney Leleux's request for information about an 0-8-0T preserved at Aketi; I can't tell him anything about the loco., but he may not be aware that Aketi is the starting point of the Vicicongo Railway (Societe des Chemins de Fer Vicinaux du Congo). This is a 60 cm gauge system serving the north east part of the Cogo and is probably the biggest system of this gauge in the world with a total of about 520 route miles.

I presume the preserved loco used to work on the line - perhaps it was their first. Once again, very little seems to have been published about this railway. There is a brief description of it in 'Railways of Southern Africa' by John R. Day (page 137) and according to this there were 29 steam locos in 1960, plus ten main-line diesels and five diesel shunters. A wood-burning 2-8-2 loco. is illustrated. The railway is now said to be completely diselised.

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ERIC TONKS - SOUTH YARDLEY

I read with interest the notes by Ken Hartley in issue 55 of the "NARROW GAUGE". The "Potato Railways" receive occasional scant mention in the railway press but it seems pretty clear that no one has any extensive knowledge of them; and now it is probably too late to learn very much, particularly as the places where they existed are all dead flat and earth-works nil. But, for the record, I give a few of my fragments.

1. On a tour in 1948, I noted the line at Littleworth, terminating at an elevated roadside tipping dock, across the road from the railway station. Presumably the line in to the station yard had been lifted, and the line used latterly for loading lorries. The track was quite rusty and had clearly been unused for quite a time.

2. There was a lengthy line terminating at the intriguinely named Engine House three miles south of Whittlesea. On my visit the line had gone; the "Engine House" appeared to house a pumping engine.

3. IRS records, culled from Motor Rail files, give two locomotives supplied to A.H. Worth;

(a) 5852 supplied in 1933 to Fleet - presumably for working on the line mentioned by Ken Hartley.

(b) 5883 of 1935 delivered to Great Hasse Farm, Soham. This is about 3 miles from Soham. The loco could have worked to a roadside loading dock but we have no knowledge of this, and no track is shown on current maps. Both locos are 20/8 HP type.

It is a pity we have so little knowledge of these railways - but possibly local enquiries might bring something to light.

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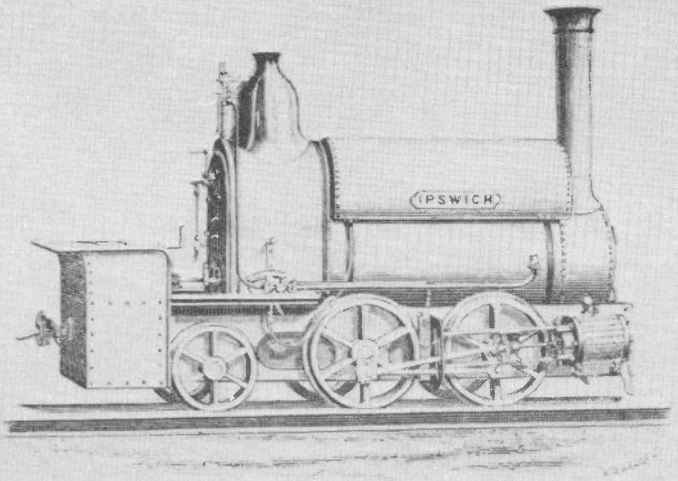
LOCOMOTIVE ENGINES.



The above woodcut is from a photo of a small Engine, which will be found useful for a variety of purposes.

Though weighing only 4 to 5 tons in working order, it is equal to the work of several horses.

Diameter of Wheels, 1' 9"; four wheels coupled.

Diameter of Cylinders, 6½".

Gauge, 2' 0" to 3' 6".

Speed with light loads 15 miles an hour.

These Engines have done good service on Sugar Estates and in Mining.

Price of one Engine, £545.

Price of six Engines, £470 each.