

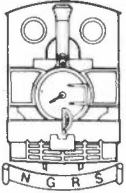


THE NARROW GAUGE

No. 89



NARROW GAUGE RAILWAY SOCIETY



NARROW GAUGE RAILWAY SOCIETY

Serving the narrow gauge world since 1951

SECRETARY : M. Portsmouth, 15 Ham View, Upton-on-Severn, Worcs. WR8 0QE
MEMBERSHIP SECRETARY : P.A. Slater, The Hole in the Wall, Bradley, Ashbourne, Derbys.
TREASURER : J.H. Steele, 32 Thistley Hough, Penkhill, Stoke-on-Trent, ST4 5HU

The Society was founded in 1951 to encourage interest in all forms of narrow gauge rail transport. Members interests cover every aspect of the construction, operation, history and modelling of narrow gauge railways throughout the world. Society members receive this magazine and *Narrow Gauge News*, a bi-monthly review of current events on the narrow gauge scene. An extensive library, locomotive records, and modelling information service are available to members. Meetings and visits are arranged by local areas based in Leeds, Leicester, London, Malvern, Stoke-on-Trent and Warrington. Annual subscription £5.50 due 1st April.

THE NARROW GAUGE

ISSN 0142-5587

EDITOR : M. Swift, 47 Birchington Avenue, Birchencliffe, Huddersfield, HD3 3RD
BACK NUMBER SALES : P.A. Slater, The Hole in the Wall, Bradley, Ashbourne, Derbys.

Published quarterly by the Narrow Gauge Railway Society to record the history and development of narrow gauge rail transport. Our intention is to present a balanced, well illustrated publication, and the Editor welcomes original articles, photographs and drawings for consideration. Articles should preferably be written or typed with double spacing on one side of the paper only. The Editor appreciates a stamped addressed envelope if a reply is required. A range of back numbers, and binders for eight issues are available from the address above.

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Printed by Hadfield Print Services Ltd, Mount Pleasant Street, Ashton-under-Lyne, Lancashire, OL6 9HZ

EDITORIAL

No 89 AUTUMN 1980

Late summer or early autumn are always good times to take a few days holiday, and catch up on visits planned in the spring, but never made. This year was no exception because preparation of "*The Lochaber Narrow Gauge Railway*" occupied much of the spring and early summer, and the weather in high summer certainly gave little encouragement to go away. So most of my holiday has been taken during recent weeks and this issue is, in consequence, a little late.

Encouraged by Roy E. Wright's article in No 86 I returned to the Isle of Man for a few days late in the season, after an absence of sixteen years. During this period the steam railway has lost the Peel and Ramsey lines, but none of its charm, and a couple of days spent between Douglas and Port Erin proved that this section is now in much better condition. It also provided an ample dose of nostalgia. In particular an hour at Port Soderick one hot afternoon, waiting for trains to cross, awakened memories of distant summers in southern Europe, where tree-lined stations were briefly animated by the arrival of shiny, brass-bound locomotives, hauling old-fashioned wooden carriages, and coming to rest in the sun exuding an aroma of steam and hot oil.

A few days in north Wales gave the pleasure of a journey on the Festiniog Railway in the relaxed atmosphere following the bustle of August, and the opportunity to sample the new incline at Llechwedd. Then, at the end of October came the new experience of a journey over the Brecon Mountain Railway, which rates very highly for scenic grandeur. Everything about this new line conveys the care taken in its planning and construction, and I hope to feature it in a future issue.

Cover: *Thessaly railway 2-6-2 tanks leaving Kalambaka in the early morning with the L.C.G.B. special train on 25th April 1980. The spectacular rock formations are peculiar to this region.* (D. Trevor Rowe)

STEAM IN GREECE—1980

D. Trevor Rowe

The Locomotive Club of Great Britain is well known for its continental rail tours, and in recent years has organised steam hauled special trains in many countries. The latest was a most ambitious tour of Greek railways during the week 20-26th April, covering the metre gauge Peloponnesus and Thessaly sections, and the standard gauge between Volos and Salonica, then on to the Yugoslav border at Idomeni. It is some years since regular steam traction ceased in Greece, but, by adding a supplement to the price of the tour, the Club contributed towards the restoration of six locomotives to full working order. Those on the Peloponnesus section were Epsilon-sigma class 2-8-0 number 7721, built by Linke-Hoffman in 1921, and Delta-alpha class 2-8-2 number 7108, one of the familiar "MacArthur" type built by the Vulcan Iron Works, U S A, in 1947. The Thessaly locomotives were a pair of 2-6-2 tanks, numbers 40 and 45, built by Arn Jung in 1951. For the standard gauge a U S Army Transportation Corps 2-8-0 number 525, and a British War Department 2-10-0 number 962 were selected.

All the trains were double-headed, and the leading locomotive was changed from day to day to vary the photographic possibilities. A road coach was provided in order that participants could chase the train over the most scenic sections of line, but apart from this facility there were plenty of "run pasts", giving everyone the opportunity to photograph the locomotives in action.

The tour started from Piraeus and after a brief stop in Athens continued to Corinth, where arrangements had been made for passengers to photograph the train crossing the famous canal bridge. Unfortunately, heavy rain marred this spectacle, and also the repeat performance on the return journey two days later. At Corinth station the train halted for an hour whilst passengers visited the locomotive depot, then proceeded, in better weather, to Diakofto, where another shed visit was followed by a trip over the 75 cm gauge rack railway to Kalavryta. This was made by railcar, but restored, at least externally, was one of the original 0-6-2 tanks outside the depot. The first day ended at Patras, after travelling 230 km (144 miles) on the metre gauge.

The second day gave us the best weather of the whole tour, and after the locomotives exchanged places the train set off at 8.30 am for Pirghos. A break here allowed passengers to visit the extensive dump of withdrawn



On the Peloponnesus section near Argos, with the MacArthur 2-8-2 piloting Linke Hoffman 2-8-0 7721.
(D. Trevor Rowe)

locomotives at the depot, and take a trip over the branch to Olympia in an ancient railcar built in 1937. Kalamata was finally reached almost as darkness was falling, at the end of a further 216 km (135 miles) behind metre gauge steam locomotives.

The third and final day on the Peloponnesus was to be the highlight, with a photo stop at Paradissia—from which the tour took its name “Steam Train to Paradise”—and a climb over the mountains to Tripolis, reaching an altitude of 800m (2,625 ft) at Kaloyerikon pass. All went according to plan, but again heavy rain and mist in the mountains robbed the photographers of some spectacular scenes. Depot visits were made at Tripolis and Mili, but somehow the rusting hulks that I had known as gleaming machines in their heyday looked even less attractive in the rain than they had appeared in brilliant sunshine on the previous day at Pirghos. Athens was finally reached late that evening after a run totalling 327 km (205 miles).

The next day was spent in Athens, and included a visit to the Railway Museum which was established recently. This is of special interest because it contains mostly metre and 75 cm gauge locomotives and stock, and the standard of restoration is very high. Unfortunately the museum is only open to the public on Friday evenings, or by special arrangement. There was the opportunity to visit diesel locomotive depots and the conventional tourist attractions of the city before leaving the following morning for Tithorea, where a large dump of standard gauge locomotives was visited. The “Akropolis Express” was stopped specially to take the party to Paleofarsalos, junction for the metre gauge Thessaly section linking Volos with Kalambaka. Our special train, headed by 2-6-2 tanks 40 and 25, had worked up from Volos in the morning, and after an exciting run punctuated by many photo stops reached Kalambaka, 80 km (50 miles) away, in the evening. On the following day the train returned over the whole line to Volos, a distance of 162 km (101 miles), in perfect weather.

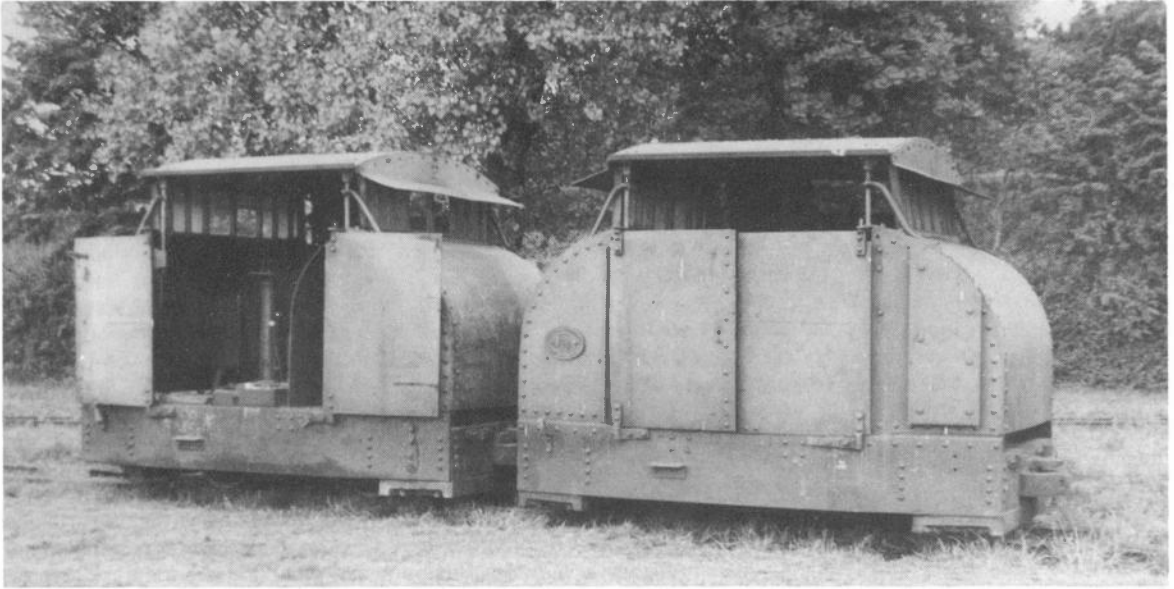
Those who remember the 60 cm gauge line from Volos to Milee will be pleased to know that the mixed gauge track for 60 cm, metre and standard gauge still survives in part, and the three locomotives and some rolling stock still remain in the depot at Volos. There is talk of a tourist operation over part of the old line, though this seems unlikely considering the length of time it has been closed. The last two days were spent travelling north over the standard gauge, and were equally successful. Well over a hundred participated in this tour, and the L C G B are to be congratulated on such an ambitious venture. It is hoped to repeat the tour, possibly with variations, in 1982.



Forty members and friends from the north of England (and north Wales) took part in the visit to Knostrap Sewage Works on July 9th. Ian Jolly, who wrote the accompanying article is in the centre, behind his small son, with Ron Redman, Chairman of the Society, on his left. Eric Cope, founder of the N.G.R.S., is standing (wearing glasses,) on the front of the right hand loco.
(Ian Jolly)

FAREWELL TO KNOSTROP

Ian Jolly



No 1, on the right, and No 2 after running out of fuel. It was a day or two before they could be pushed back into the shed for the last time.
(G. Jenkins)

The Knostrop Sewage Works in Leeds, now operated by the Yorkshire Water Authority, has been the venue for many visits by Society members over the years. The lengthy 1ft 11 ½ in gauge railway serving the works was originally worked by steam locomotives, ran through attractive surroundings and was the home of the last two 40 hp Motor Rail 'protected' Simplex petrol locomotives in industrial service. Use of the railway had declined over the years until it was limited to hauling several skips of rubbish from the screen house, then propelling them up a ramp to be tipped into a road trailer. This operation took place about once a week.

In July 1979 the working loco, a 31 ½ hp Ruston & Hornsby diesel 441944/1960, put a connecting rod through the crankcase and No 2, Motor Rail 1377/1918, had to be put back into service. Starting and running sixty years old petrol engines is far from simple, even ignoring the cost of fuel, and in February 1980 it was decided to cease locomotive haulage. This event could not be allowed to pass without a final visit, and the Yorkshire Water Authority kindly agreed to receive the Society on the evening of July 9th.

There was no certainty that the locomotives would be working, but thanks to the efforts of a fitter and driver No 2 was started up, and the thump of a 6326 cc Dorman petrol engine greeted members as they arrived. Four skips were recovered from beyond a blocked level crossing by tractor, coupled behind No 2, and we had a train! This was photographed from all angles in the fading sunlight, and run up and down for the cine-photographers. I finally persuaded the driver to let me take the controls, gingerly urged No 2 into the locomotive shed, coupled up to No 1, (Motor Rail 1369/1918), and hauled it out into the open air for the first time in years. The track, which had become very shaky, was examined carefully as the two six ton machines lumbered over the rails, but they cleared the points from the shed without incident. The photographers wanted the pair out in the open, but the engine of No 2 coughed, spluttered, carried on for a few yards then died completely. I naturally received the blame for this failure, but examination of the petrol tank revealed that it was empty—the five gallons it had contained had been consumed in just two hours and five minutes with the engine ticking over!

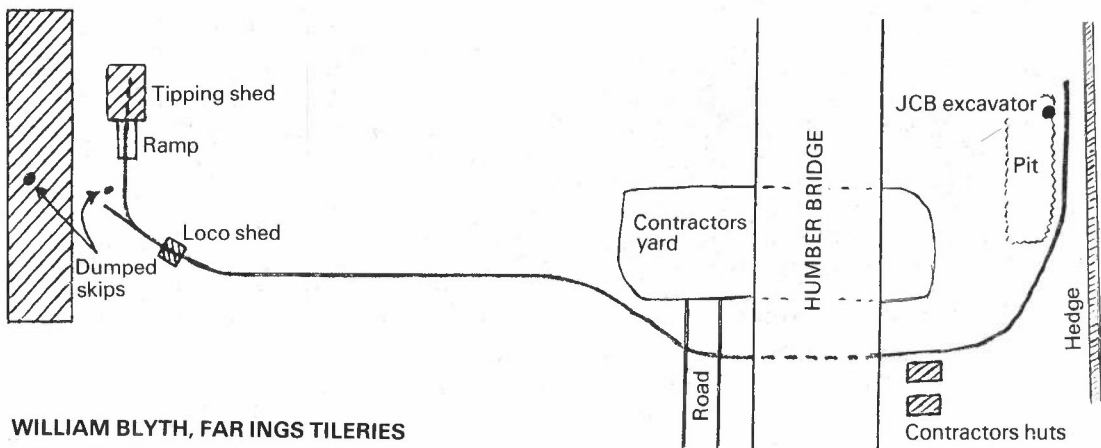
Thus was No 2 driven into retirement to mark the end of an era—the last War Department Light Railway petrol locomotive in virtually original condition had worked for the last time. And what of the future? At one stage it was by no means secure but I alerted the Imperial War Museum and the National Railway Museum, and persuaded them to consider saving these locomotives. Any developments will be reported in *Narrow Gauge News*.

SOUTH HUMBERSIDE TILERIES

Adrian J. Booth

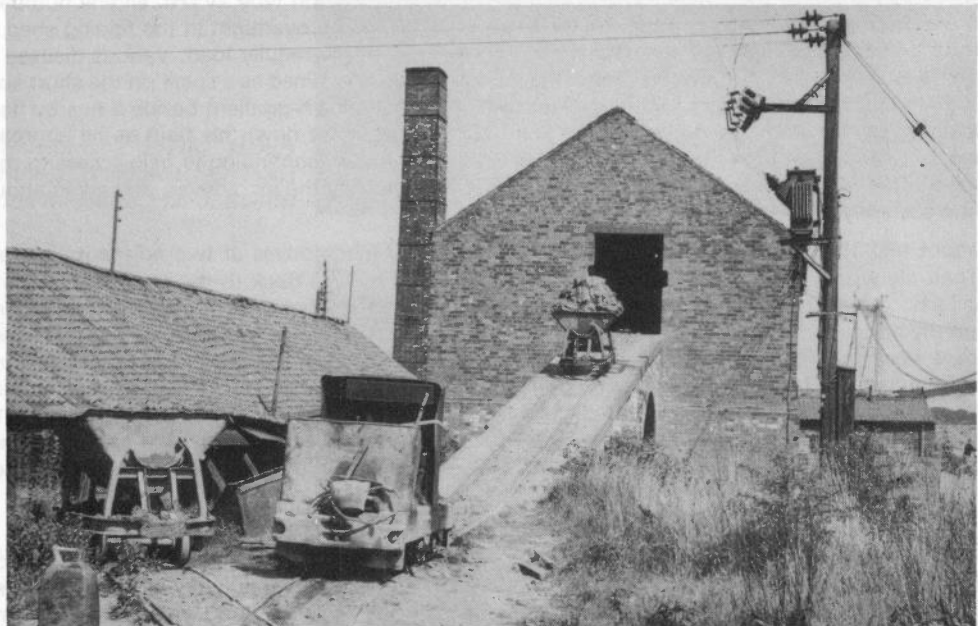
To the industrial railway fraternity the south bank of the Humber is well known for the narrow gauge railways which are in use at the various clay pits. The area abounds in flooded pits which have been worked out and abandoned over the years, but even today these have a fascination of their own. In May 1980, in one pit alone, the nature enthusiast could observe a fine collection of bullrushes, numerous ducks busily swimming around, tadpoles by the thousand milling around the water's edge, a majestic pair of swans, and four geese which noisily flapped out of the water and then circled playfully overhead. But pleasant as the natural scene may be, it is the nearby internal combustion locomotives which are of far more interest to the dedicated gricer.

The Humber Bridge construction has been in the news frequently over the last few years, and an appropriate place to start this short review is consequently at the Far Ings works of Messrs William Blyth, at Barton-on-Humber, (grid reference TA 023234) whose railway is literally in the bridge's shadow. The 2ft gauge system is remarkably simple, but is also very important as it supplies all the clay required for the works' tile production. A cabless 4-wheel diesel locomotive, Ruston & Hornsby 260708 of 1948, is the sole motive power on the line. This green liveried loco, of the maker's class 20DL, is fitted with a type 2VSHL Ruston diesel engine number 260846. Overnight it resides in its shed—of brick construction with a sloping corrugated roof and wooden doors at each end—which is located on the "main line". At the start of the days operations the Ruston emerges from the shed, and collects one Hudson skip which it pulls to the claypit. The track in the works area is typical lightweight type with pre-spaced metal sleepers, but the main line is laid with substantial "bullhead" rail in chairs on wooden sleepers. The line runs through the Humber Bridge contractors' yard, where the heavy track is certainly needed to withstand the passage over it of numerous lorries and other items of plant. Shortly after passing some contractors' huts to the right, the line curves to the left and enters the boggy clay pit area. Here the track reverts to the lightweight rail spiked down on to haphazardly positioned wooden sleepers, roughly laid without ballast. The track ends alongside a shallow flooded pit, where the loco driver dismounts and takes control of the type 3CII JCB digger, which acts as the clay excavator. Clay is loaded into the skip, and when it is full the man redons his loco driver's hat, and the skip is pushed back to the works. Just beyond the loco shed the Ruston pushes the skip up a very slight gradient which really made its driving chains rattle on my visit, to the bottom of a steep concrete ramp which leads up into the tipping shed. The skip is then attached to a wire rope and hauled up the incline, whilst the loco retires beyond the "navvy's boot operated" point which leads to a short spur containing the empty skip. The journey to the pit is repeated, and upon returning 15/20 minutes later the first skip has been emptied and lowered down the ramp by the wire rope. The loco driver positions the empty wagon on the spur, changes the points, and then attaches the second loaded wagon to the rope—and so the process is repeated, on average twenty times per day.



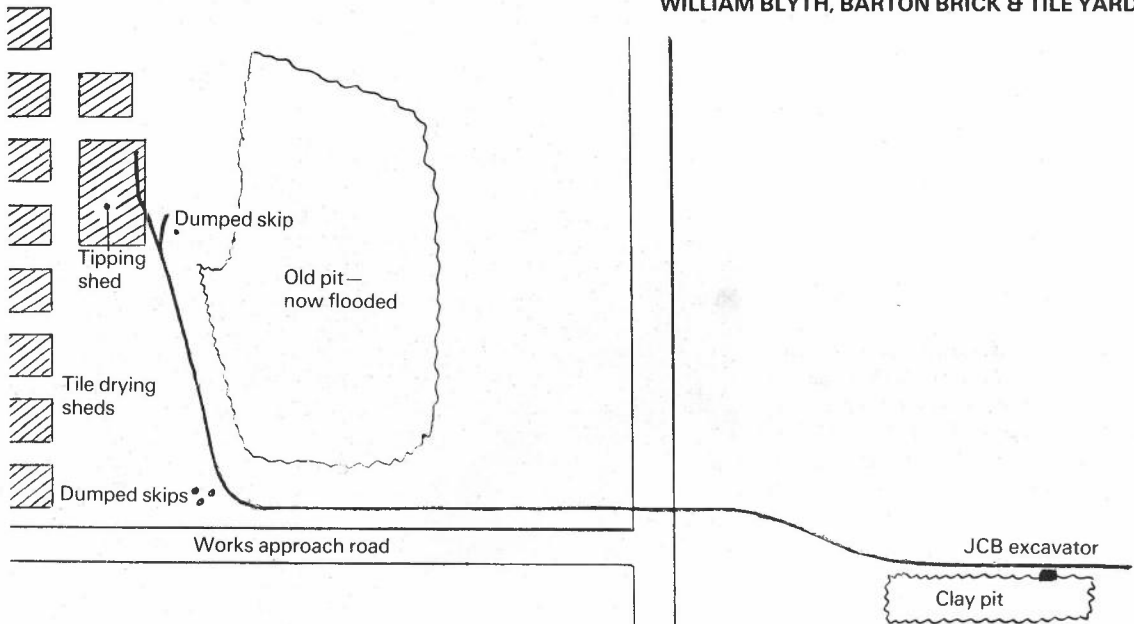


Ruston & Hornsby 260708 sets out from William Blyth's Far Ings Works for the clay pit. The loco shed is just visible on the extreme left of the photograph.
(A.J. Booth)



Ruston & Hornsby 260708 stands at the foot of the ramp, as the full wagon is cable hauled up to the tipping shed.
(A.J. Booth)

WILLIAM BLYTH, BARTON BRICK & TILE YARD

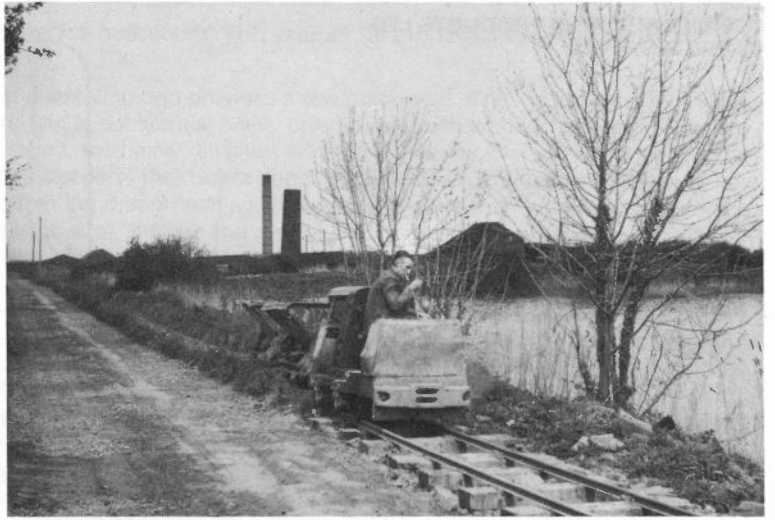


The Barton Brick & Tile Yard at Barton-on-Humber (grid reference TA 038234) is also operated by William Blyth and has a similar 2ft gauge locomotive, Ruston & Hornsby 247182 of 1947, as the sole motive power. This green liveried loco, of the maker's Class 13DL, is fitted with Ruston type 2VTHL engine number 253471. There is no loco shed at this site, but the Ruston is securely locked up overnight in the tipping shed, which is large enough to also accommodate two Hudson skips which form the regular load. Various disused skips are dumped in the undergrowth in the vicinity, and one complete skip is retained as a spare on the short spur beside the tipping shed. The loco operates with two skips, which it hauls down-gradient beside a nearby flooded pit, and then alongside the lengthy works approach road. The driver slows down his train as he approaches the minor road, at which point heavy rail is utilised for the crossing, before continuing to gain access to the clay pit. As at Blyth's other works loading is performed by a JCB, operated by the loco driver, and again about twenty trips are run each day.

Until about mid 1979 Goxhill Building Products Ltd operated locomotives at two adjacent sites at Barrow Haven. Their tile works at grid reference TA 061234 is bounded by The Beck to the east, and to the north by British Rail's Barton-on-Humber to New Holland line, which rises on gradients of 1 in 132 from either direction to an apex on the bridge over the Beck. On my visit of 22nd July 1979 rail traffic had ceased, and two piles of track and sleepers were found beside the flooded pit to the west of the works. Six skips were dumped nearby in the grass with numbers 2, 3, 5, 7, 9, and 11 painted on in white, and all except 5 and 9 carried Hudson plates. The rail system had been replaced by road vehicles which bring clay from the pit to the south of the works to a large stockpile in the yard. An Orenstein & Koppel excavator, in light blue livery, lay disused at the clay pit, where marks indicated that a mechanical digger of the JCB family now does the excavating here. The loco, it later transpired, had been transferred to the company's adjacent works.

Undoubtedly the most interesting tile works in the area is Goxhill's yard at grid reference TA 064238. This was originally operated by Greenwoods Tileries Ltd and is located across the main line railway, and just down the estuary from the previously mentioned works. In July 1979 the regularly working locomotive here was another Ruston & Hornsby, works number 235654 in 1946. This 20DL class machine is fitted with a 2VSHL engine, and is in worn green livery with red undercoat showing through in places. However, towards the end of April 1980 this loco's engine seized up, and on my visit of 9th May 1980, the spare locomotive, Ruston & Hornsby 223692 of 1943 which had been obtained from the adjacent works, had been pressed into service and had been in use daily for about three weeks. This 20DL class machine is fitted with a Ruston size 2VSOL engine number 229699, and has "LOT 107" stencilled on the front in white paint. A third loco, Ruston & Hornsby 175418 of 1936, stands on

The line ahead is clear, and the driver of Ruston & Hornsby 247182 has time to light a cigarette as he travels alongside the approach road to William Blyth's Barton Works, heading for the clay pit. (A.J. Booth)



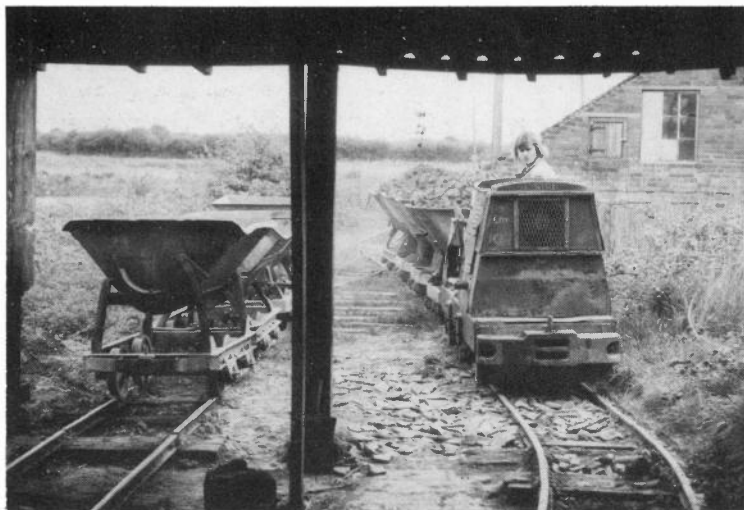
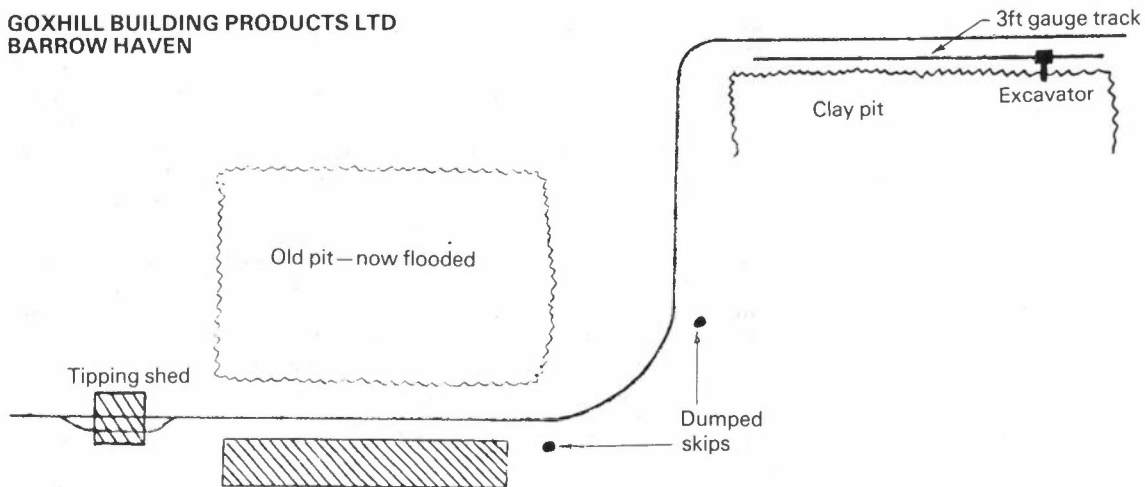
Ruston & Hornsby 247182 stands alongside the JCB digger which loads clay into the two skips. (A.J. Booth)



Ruston & Hornsby 247182 struggles up the final incline into the tipping shed, with a load of freshly excavated clay. (A.J. Booth)



**GOXHILL BUILDING PRODUCTS LTD
BARROW HAVEN**



Ruston 223692 waits patiently at Goxhill Building Products Ltd as the four skips are loaded by the Richter & Pickis bucket excavator. (A.J. Booth)



Ruston 223692 arrives at the tipping shed with four full wagons whilst the empties stand on the left awaiting the return journey to the clay pit. (A.J. Booth)

a short length of isolated track parallel to the top headshunt. This veteran 18/21hp machine is very rusty and it is highly improbable that it will ever work again.

The system at this latter works is most interesting and provides a rewarding visit. The loco pushes four skips to the clay pit along a 2ft gauge main line laid in substantial heavy chaired rail, with wooden sleepers. Near the curve, where numerous old skips are dumped, the heavy rail gives way to Jubilee track which is laid so roughly along the top of randomly spaced wooden sleepers, that only a super optimist or experienced gricer would not forecast disaster—particularly on the hairpin bend approaching the excavator! The train unflinchingly negotiates the line however, and stops short of the excavator, prior to the rake of skips being hand-propelled into position for loading. Bolted on to the bottom corner of the excavator is a hinged wishbone shaped piece of metal which slots in position over the skip's frame, so that as the excavator moves along its 3ft gauge parallel track it pulls the skip along with it, to facilitate loading without spillage. These operations are a sight to behold, as the bucket excavator operates along the most uneven bent track imaginable, with chains and cogs operating loudly, and exhaust fumes pouring out! The excavator has the number "No. 1184" carried on cast plates on each side of the cab, and two worksplates which read "The 'Ricanpick' Excavator. Richter & Pickis, Engineers, London. E.C.3". It has a two-cylinder Lister diesel engine, with belt drive and bevel gears, and 13 chain mounted buckets. When all four skips are filled, the loco is again attached and gingerly negotiates the temporary track before regaining the main line to the works. At the tipping shed the four full wagons are left, and the loco negotiates the headshunt before reversing on to the adjacent track where four empties have been hand-propelled after unloading. The loco gone, another man tips the contents of the four skips into the mixer and the clay continues by conveyor belt to the processing plant. He then pushes the empties—two at a time—to the headshunt, and the rake is positioned under the canopy forming the tipping shed to await collection. The majority of the skips in use here were identified as being manufactured by Hudson of Leeds, but two Howard of Bedford frame and wheels were dumped beside a drying shed, and one axle and wheels only with "Thorp" on it was located in the undergrowth.

Sadly, the rail system's days were numbered at the latter location, for a drag line was scheduled to be operative before the end of 1980, to stockpile clay in the yard for transfer by dumper truck. It is unlikely that all will be lost to the enthusiast however, for the rail equipment may find a buyer in William Blyths, or alternatively the locos might be preserved.

This article was prepared following visits in July 1979 and 9th May 1980, and the photographs were all taken on the latter visit.

'Cement Works at Irthlingborough': In the quarries the stone is roughly broken up by hammers into blocks suitable for packing into narrow gauge trucks. Lines of narrow gauge railway are employed for the purpose of transporting the limestone to a position near the works, which are some 500 to 600 yards away, and the trains of trucks are hauled by what is an almost perfect copy of a main line locomotive engine in miniature. Rope haulage used to be employed, but recently resort has been had to this locomotive, with, we gather, satisfactory results. The stone is not taken at once into the works, but is allowed some time to "weather", this process removing the soft material which forms the natural setting of the stone in the quarry. *(The Engineer. July 10, 1908).*

(This 2ft gauge railway at the Premier Portland Cement Co. Ltd. was worked by LITTLE TICH, a four coupled saddle tank built by the Glasgow Railway Engineering Co. in 1897.)

'The L. & N.W.R. and Crewe Works': The various parts of the works are connected by a railway 4ft 8½in. gauge, and there is, in addition, a narrow gauge line, 18in gauge, traversing nearly every part, and of a total length of about 5 miles. The latter is worked by small locomotives and handy low wheeled trollies for moving materials. *(The Engineer Supplement Dec. 11, 1908)*

PORTABLE Railway and Tip Trucks. If you wish to Buy, Hire or Sell good Secondhand, communicate with G.A. Bateman, Woking, who has one of the largest stocks in the country, and buys for cash. Telegrams, "Bateman, Woking. (*"The Surveyor and Municipal and County Engineer"*, June 23rd., 1911. *Is anything known of this Surrey firm of light railway equipment dealers?*).

MARGARETS & MERCEDES

A history of the 6in x 9in cylinder Bagnall narrow gauge locomotives

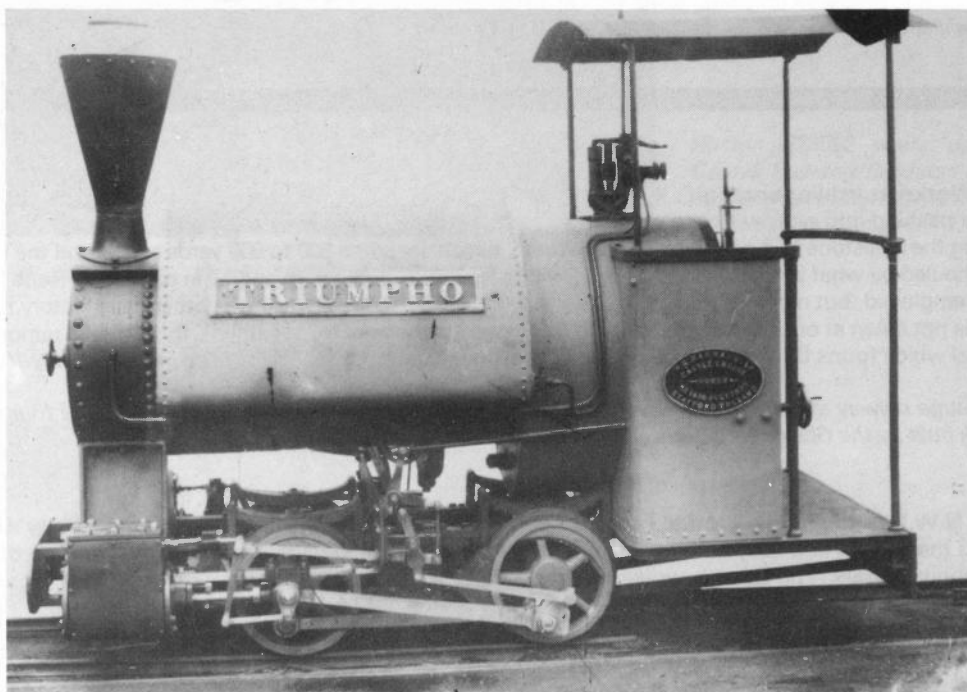
Allan C. Baker

Perhaps no locomotive more characterised the firm and products of W.G. Bagnall Ltd, of the Castle Engine Works, Stafford, than the small 6in and 7in cylinder four coupled saddle tanks with circular fireboxes, that in their 6in form variously went under the code names "Margaret" and "Mercedes". This article is an attempt to trace their lineage, and to describe the development of the 6in version between its introduction in 1893, and the final examples, which appeared in 1937. The 171 locomotives are all individually listed in Appendix One and Two.

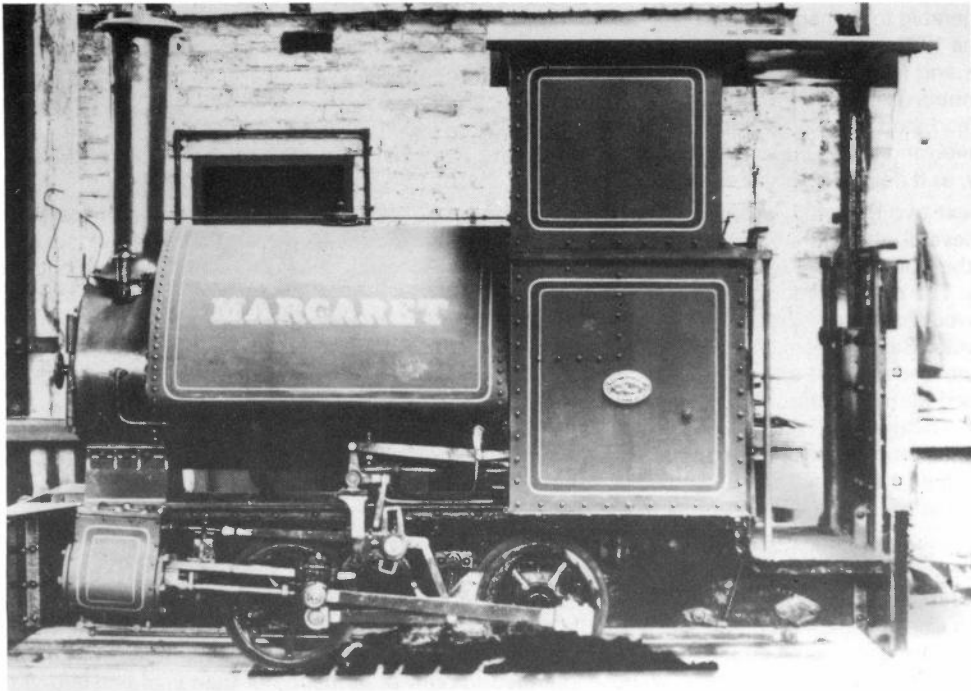
In 1891 Ernest Edwin Baguley joined Bagnall's design team from R & W Hawthorn Leslie & Co Ltd, of Newcastle-upon-Tyne, where he had served his time as an apprentice engineer. He proceeded to completely reorganize Bagnall's on the lines of his former employer, and in many ways this can only have been for the better. The certain similarity between later Bagnall and Hawthorn Leslie locomotives, particularly the standard gauge four coupled saddle tank, can be fairly credited to Baguley.

William Gordon Bagnall, who always went by his second christian name, was somewhat of a character and local celebrity; indeed he became as much involved with local affairs as with his own works and was a much liked and respected townsman. Unfortunately however, he was by no means perfect with his works organisation, and in particular documentation, and for this reason we find Bagnall's older records almost non-existent. Since about 1885-6 he had been assisted on the practical side of his business by Samuel Thomas Price who, as the works increased in size, became designated Works Manager.

Baguley received the title Chief Draughtsman, and one of his first tasks was to design a small narrow gauge contractor's type locomotive that would also be useful for work on plantations and the like. This was a section of the market in which Bagnall's already specialized, and held a fair share. Baguley's idea was to consolidate this position by designing and offering a simple, robust locomotive to replace the heterogeneous collection of designs previously offered. Bagnall liked to build a different locomotive for almost every purpose, very interesting to the historian, but not so good for those who had to design and build them, let alone those carrying out maintenance



The prototype, works number 1416/1893. Note the Walscheart's valve gear with screw reverse, bar frames and wooden nameplate. (collection A.C. Baker/T.D.A. Civil)



MARGARET, 1445/1894, photographed prior to delivery to the Llechwedd Slate Quarries, had Baguley valve gear and the footplate lowered to reduce the overall height.

(collection A. C. Baker/T.D.A. Civil)

and ordering spares. Unfortunately, in so doing he ended the use of the inverted saddle tank, so long a hall-mark of the Castle Engine Works; though he was undoubtedly right in making this change.

The first such locomotive appeared in 1893, carrying works number 1416. This design was destined to carry Bagnall's name to the four corners of the globe, but was alien to anything that had gone before. It was a 2ft gauge four coupled, outside cylinder locomotive with bar frames, Walschaert's valve gear and a circular steel firebox. This latter feature was a complete breakaway from tradition in the locomotive world; perhaps a little of Baguley's marine experience with Hawthorn Leslie was coming into play? However it was destined to become very popular at Stafford, usually going under the colloquial name of the "bull-head" type. Its advantages were simplicity of construction, and therefore lower cost. Its disadvantages were the care needed in both fuel selection and firing, a restricted ashpan, and a longer period to raise steam when compared with conventional types. In contemporary literature and the technical journals of the day this type of locomotive was claimed to have been developed to counteract the large inroads being made by the American and Continental builders into a formerly secure British market. These countries were said to be building cheap locomotives of inferior construction. Bagnall locomotives embodying these new design features could be competitive in price, yet fully in line with the extremely good name claimed by the British locomotive builders.

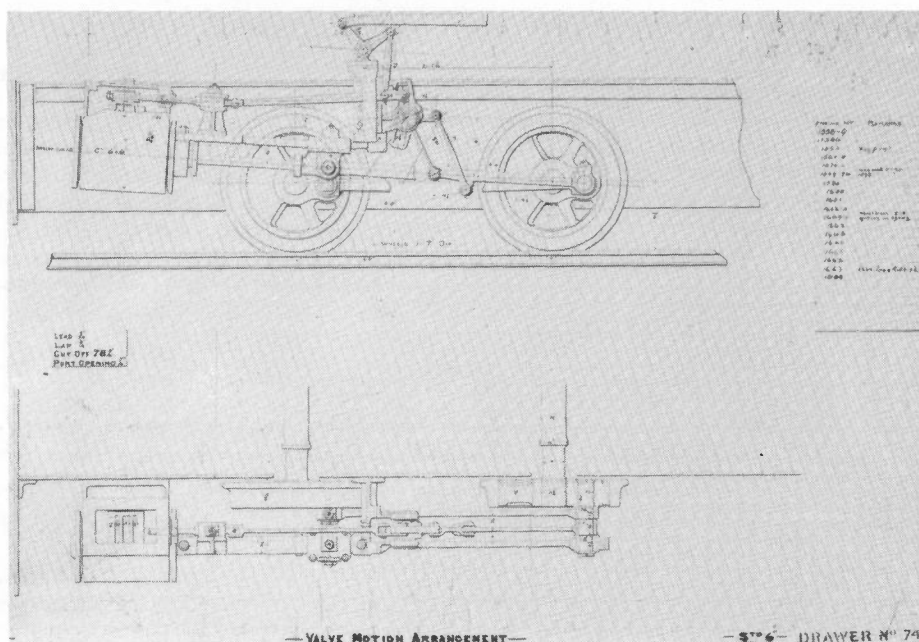
Works number 1416, originally laid down for stock on August 16th, 1892, was photographed carrying the name TRIUMPHO, and after extensive tests in the works yard was eventually sold, in July 1893, to one W. Barrington, and left the works carrying the designation F R S No 2. Unfortunately, the destination is not known, or how successful it proved in service. A further interesting detail of this locomotive was a screw actuated reverse mechanism.

Some deficiencies were presumably detected in the prototype at either construction or testing stages, and the design was modified by Baguley before any others were built: Bar frames were discarded in favour of conventional plate frames. It is difficult to see why this type was used in the first place, and even more so to see them replaced after only one try. Any experience in service, apart from the original works tests, cannot possibly have filtered back to the Castle Engine Works before the next engines were laid down. Walschaert's valve gear gave way to one of Baguley's own design, similar in principle to the former, but eliminating the return arm, which

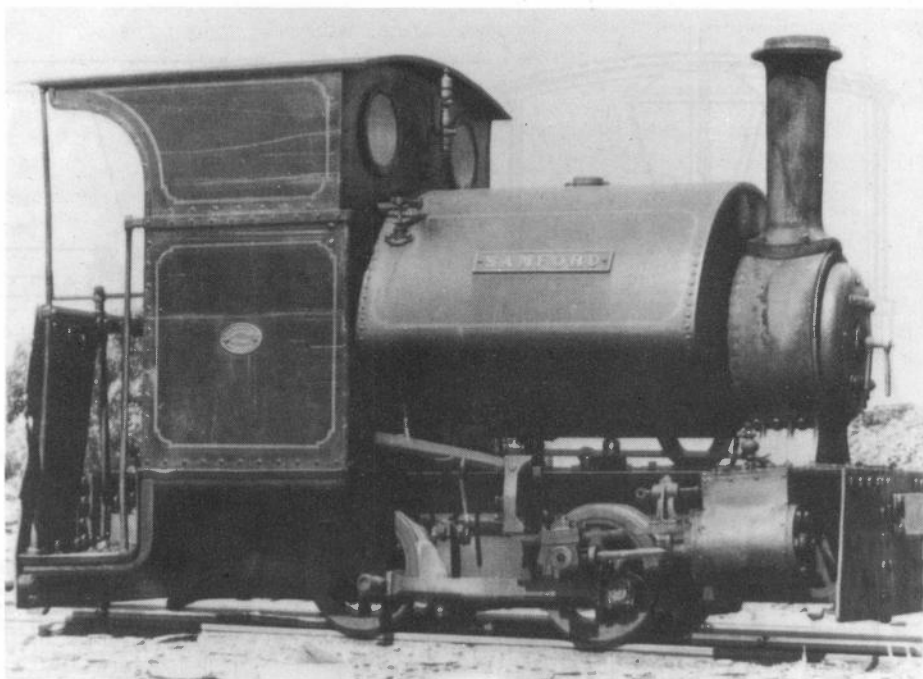
was vulnerable to damage by trackside obstructions. This gear, known as Baguley Valve Gear, was patented on 12th June 1893—patent number 11469—and became popular with Bagnall's during the period that Baguley was in office, and for a few years after. It is of the rocking link type like Walschaerts as opposed to a radial motion. All the motion is obtained from the crank pin, but by an ingenious arrangement of levers and eccentric pivots the lap and lead, and actual valve travel are obtained separately, and the lap and lead remain constant irrespective of valve travel, and hence cut-off. This is of course, the fundamental reason for the popularity of Walschaert's gear allowing, as it does, expansive working.

The next two locomotives set the pattern for the future. (The 7in × 12in cylinder locomotives were similar as well as several other variations with 5½in, 6½in or 7½in cylinders.) As the first of them, works number 1429, carried the name MARGARET this virtually became the accepted class designation in catalogues and other literature. The circular fireboxes were of steel in most cases, together with the tubes, and the whole firebox could be removed from the boiler, provided that the tubes were first extracted, by the simple expedient of removing a few rivets. Ramsbottom safety valves were mounted on the dome above the firebox, and two injectors were fitted; one under either side of the saddle tank. However, there were a few examples fitted with a crosshead driven feed pump, and most of those built after works number 1880 had back-head mounted combination type injectors. The basic construction was the same irrespective of gauge, and the most obvious pointer to the gauge was the smokebox saddle, normally a casting which varied in size and shape, and was sometimes supplemented by packing pieces to suit frame width. Some locomotives had a dropped rear end to reduce the overall height, whilst others were of the 0-4-2 wheel arrangement to improve riding and permit a larger bunker.

Sanding when fitted was by gravity, with sandboxes or single sandbox mounted on the front of the saddle tanks alongside the smokebox. Later examples, after the introduction of the backhead type injectors, had the boxes situated under the tanks in the former injector position. Various types of cab were used ranging from only waist high side sheets, through four pillars and a canopy, often a double canopy for hot climates, to a fully closed in structure for use in cold countries. One locomotive, works number 1518, sported full length motion skirts in addition to a spark arrestor. Several of those intended to burn solid fuel other than coal had large racks on the tank top to give additional capacity, and this usually necessiated a square sided tank with a flat top. Works numbers 1572-3/ 1593 and 1890 were known to have this design. From works number 1889 onwards inside steam pipes, integral with the saddle casting, gave way to outside pipes and the last few engines had a large inspection cover on the underside of the boiler barrel to comply with Indian boiler regulations.



Arrangement of the standard Baguley valve gear.
(collection A. C. Baker/T.D.A. Civil)

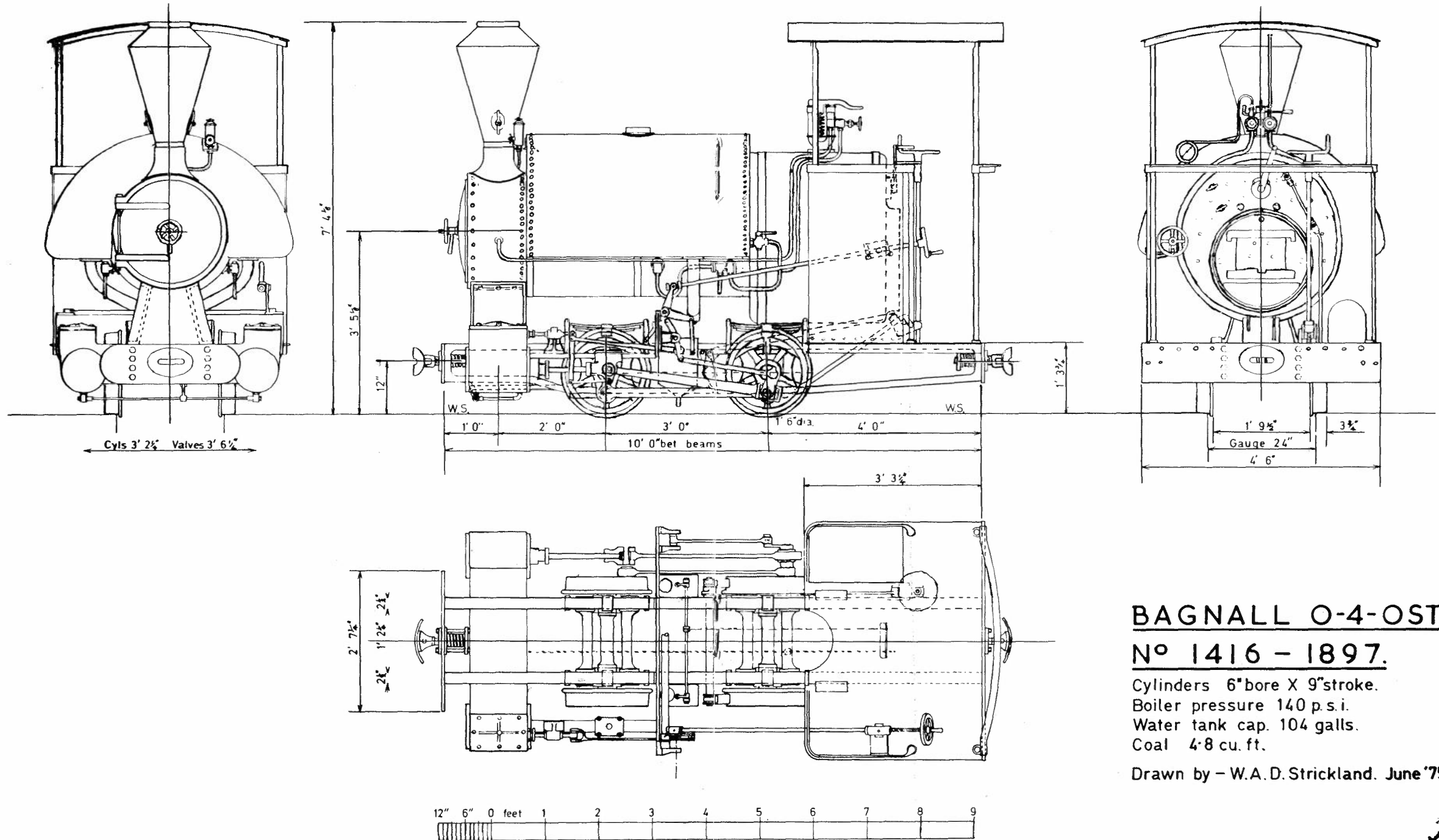


SANFORD, 1571/1900, lying out of use at Penrhyn Quarries about 1952. Note the very low cab floor. The Baguley valve gear had been dismantled, and four years later the frame and cab were converted into a brake van for use on the Penrhyn Railway. (collection A. C. Baker/T.D.A. Civil)

E. E. Baguley left Bagnall's in 1901, (he eventually set up his own business building locomotives in Burton-on-Trent; this still flourishes there today,) and was replaced as Chief Draughtsman by William Sydney Edwards, who came from the nearby Kerr Stuart works at Stoke-on-Trent. However, in 1903 W.G. Bagnall himself, together with his Works Manager S. T. Price had patented a further valve gear, known as Bagnall-Price Valve Gear, under patent number 11832 dated 23rd May 1903. It replaced Baguley gear, and was first applied to a 6in locomotive, works number 1724, in that same year. It was exclusively used on the 6in locomotives for a number of years, but for reasons that are not now apparent, these reverted to Walschaert's gear with works number 2042 of 1918 and, with the exception of works number 2051, this remained standard until the end.

Bagnall-Price gear was evolved to avoid paying royalties on the Baguley patent and yet still retain its good points, notably the absence of the Walschaert's return arm. As events turned out it was to have a far wider application, being used on locomotives of all shapes and sizes, including the smaller standard gauge machines, and until the end of steam production at Stafford in the mid 1950s. Again, it derived its motion from two separate points: an eccentric, usually between the frames, and a combining lever coupled to the connecting rod in the vicinity of the crosshead. The eccentric gave the main valve travel via an oscillating bush in the motion bracket and link, whilst the combining lever gave the lap and lead motion.

Almost coincident with the introduction of Bagnall-Price valve gear the class name for the 6in locomotive changed from MARGARET to MERCEDES, indeed works number 1730 of 1904 carried that name, along with 1765 and 1846 later. One feature of these small Bagnall locomotives, together with the 7in engines too, was the fact that they were very often laid down to a stock order, usually six in number. Manufacture of the basic parts would take place but variable parts like frame stretchers and axles, and final assembly would await a firm order. In this way the gauge could be made to suit customer's requirements. An exception to this rule were 2ft gauge locomotives, a few of which were usually erected almost completely because of the popularity of this gauge. From Appendix One readers will be able to pick out the batches of six by their numerical sequence and actual order dates.



BAGNALL 0-4-OST.

Nº 1416 - 1897.

Cylinders 6" bore X 9" stroke.

Boiler pressure 140 p.s.i.

Water tank cap. 104 galls.

Coal 4.8 cu. ft.

Drawn by - W.A.D. Strickland. June '75.

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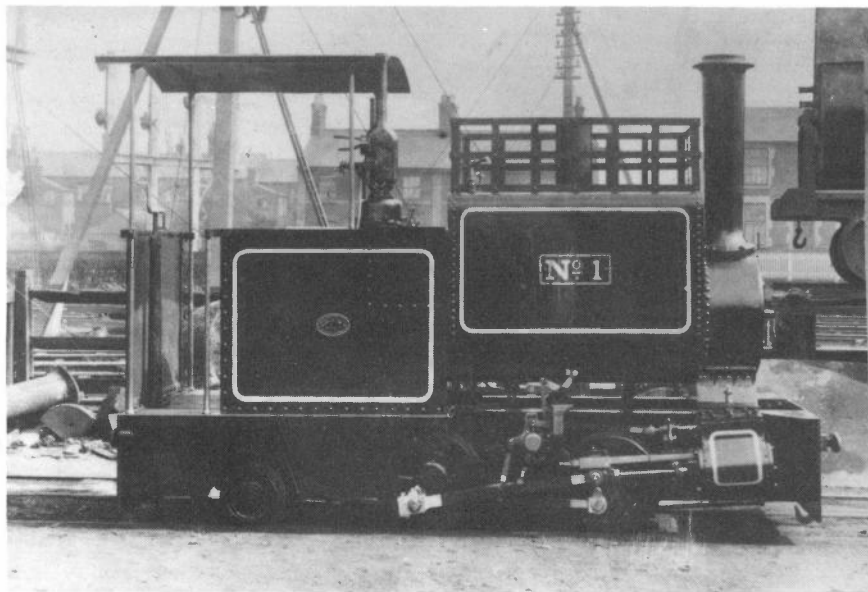
W.A.D. Strickland
June '75

Mention must now be made of one further valve gear variation. Works numbers 1556-7 ordered by the Assam Railways & Trading Co for use at their coal mines at Margherita, in Eastern Assam, were fitted with Stephenson's link motion. This was the one and only time this gear was used on any of the standard Bagnall circular firebox locomotives, and is all the more unusual because both previous and successive orders for this customer had the normal Bagnall gears. In the case of these two locomotives an inside arrangement of eccentrics and links was utilized, with rocking shafts, mounted above frame level, to drive conventional slide valves on top of the cylinders. Many of the locomotives supplied to this customer have only recently been discovered still working in Upper Assam and were described in *The Narrow Gauge*, No 56, February 1971. All of those built as 0-4-2 have been converted to 0-4-0 wheel arrangement by the simple expedient of removing the trailing truck complete; this has the effect of giving them a distinct rear-end sag!

For the sake of completeness we must now briefly consider the 5 ½ in × 9 in cylinder variant, of which only five were built. Baguley-valve gear was used on them all together with a steel circular firebox and steel tubes. These locomotives, all of the 0-4-2 wheel arrangement, usually went under the code word "Pekoe-Tip", and were almost identical to the 6 in × 9 in locomotives. This title was also used to describe the 6 in 0-4-2 locomotives in some catalogues and descriptive material. For convenience I have listed them separately in Appendix Two:

All these locomotives had hand brakes, simple hydrostatic cylinder lubricators and varying drawgear to suit customers requirements. Of course, in actual service numerous modifications were carried out by the owners; some for the better perhaps, but many clearly for the worst! Like all industrial locomotives ill treatment was their habitual lot and like all steam locomotives this they were able to stand in almost unlimited quantities, a true tribute to the men who designed and built them. As an example of their longevity Michael Satow wrote two years ago: ". the two Bagnalls, 1437/1894 and 1557/1899 which I described in *The Narrow Gauge* No 56, and scheduled for preservation in the Rail Transport Museum, New Dehli, cannot now be released by the owners. The reason is that both have been reboilered and returned to service following a decision not to convert to diesel traction—for the second time. However, 1506, which is similar to 1437 though three years younger, has been offered and accepted as a substitute. Disappointing as this may be for the Museum, what better reason could there be than that these locomotives may yet reach their century in steam. Being unique, 1557 remains on the list for the Museum, if and when it ever retires!"

In conclusion I would like to thank my co-author in *Bagnalls of Stafford*, T.D. Allen Civil for his assistance together with Andy Forret of G E C Traction Ltd, as successors to W.G. Bagnall Ltd, along with those who have allowed the use of their photographs and drawings to illustrate this article.



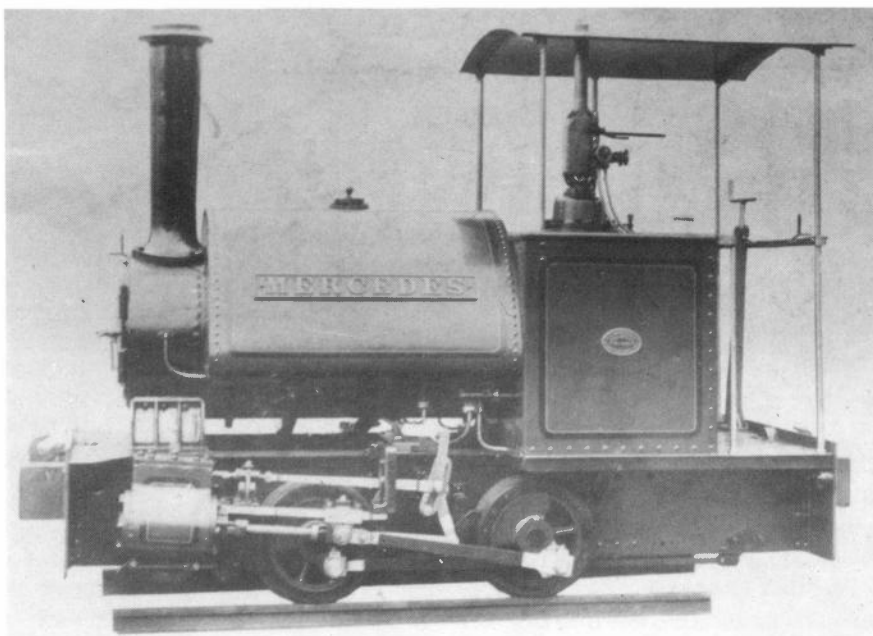
*No 1, 1572/1899, for the Crown Agents for the Colonies was fitted with a square saddle tank, wood rack, Baguley valve gear and trailing truck.
(collection A.C. Baker/T.D.A. Civil)*

Appendix One: List of Locomotives

<i>Works number</i>	<i>Order date</i>	<i>Delivery date</i>	<i>Gauge</i>	<i>Name</i>	<i>Cost each</i>	<i>Customer (as new)</i>	<i>Notes</i>
1416	1/8/1892	7/1893	2'0"	F R S No 2	£330	W. Barrington, for export	(1)
1429	1/12/1893	10/1894	1'8"	MARGARET	£315	Essington Farm Colliery Co, near Wolverhampton	(2)
1430	1/12/1893	2/1895	2'0¾"	SLAVE	£280	S. Smith, Shipley Colliery, Derbyshire	
1445	3/12/1894	10/1895	1'11 5/8"	MARGARET	£320	J.W. Greaves & Son, Llechwedd Slate Quarries	
1446	3/12/1894	2/1896	2'1"	MOUNTAINEER	£312	Hurst Nelson & Co, for Newcastle Whinstone Granite Co	
1456	7/5/1895	6/1895	4'0"	ANNIE	£325	George Talbot	
1457	21/11/1895	1/1896	4'0"	No 2	£325	George Talbot	
1462-65	7/6/1895	10/1895	1'8"	No1-No5	£375	William Jones & Co, London for Lewis Jones & Co	(3)
1476	23/11/1895	/1896	1'11 5/8"	SANTO ANTONIO	£339	F. Mills for Companhia Lupton, Usina Santo Antonio, Aloguas	
1477-79	23/11/1895	5-6/1896	3'0"	No15-No17	£325	Glasgow Iron & Steel Co, Wishaw I & S Works	(4)
1487	5/3/1896	11/1896	2'0"	CLIFFE	£325	Cliffe Hill Granite Co Ltd	(5)
1488	5/3/1896	4/1897	2'0¾"	JUBILEE 1897	£340	Darwen & Mostyn Iron Co., Darwen Furnaces, Lancashire	
1489	5/3/1896	4/1897	2'0"	THELMA	£330	Queenborough Cement Co, Queenborough, Kent	
1507	8/3/1897	7/1897	1'11 5/8"	TIMBO REAL No 1	£370	Hurst Nelson & Co, for export (thought to be Brazil)	
1508	8/3/1897	11/1897	2'0"	BEATRICE	£370	Oppenheimer Freres, Japanese Military Railways	
1509	8/3/1897	11/1897	2'0"	LOUISE	£370	Oppenheimer Freres, Japanese Military Railways	
1510	8/3/1897	9/1897	2'3"	HAFAN	£336	Plynlimon & Hafan Tramway Co, Talybont	
1512	30/6/1897	8/1897	2'5 ½"	KNORRING	£356	Axel Von Knorring, Finland	(6)
1515	1/8/1897	5/1898	1'11 5/8"	O C E J A No1	£324	Carlos Yensen	
1516	1/8/1897	8/1898	3'0"		£385	Morrison & Mason, contractor	(4)
1517	1/8/1897	11/1898	2'0"	MARY	£360	J.W. Davis, Pouk Hill Quarry, Bentley Moor, Walsall	
1518	1/8/1897	9/1898	2'3"	THE SCOTCHMAN	£375	John Shaw Ltd	(7)
1538-39	30/3/1898	7/1898	2'5 ½"		£371	Axel Von Knorring, Finland	(6)
1552	1/8/1898	/1899	2'6"	SLGR No 3	?	Crown Agents for Sierra Leone Government Railway	
1553	1/8/1898	11/1898	2'9"	IRIS	£375	Gas Light & Coke Co, Bromley by Bow Works	
1554	29/8/1898	12/1898	2'7"	LLANDOUGH	£395	D. Thomas & Son, Llandough, Glamorgan	
1555	29/8/1898	2/1899	2'0"	SUSAN	£385	Queenborough Cement Co, Queenborough, Kent	
1556-57	3/9/1898	4/1899	2'0"	TARAKUSI and KOLAPANI	£439	Assam Railway & Trading Co, Margherita, Assam	(25)
1558	7/9/1898	1/1899	2'6"	ROBERT	£425	R.W. Fitzmaurice & Co, Hailstone Granite Quarry, Rowley Regis	(8)
1566	16/12/1898	12/1899	3'0"	MARPLE	£390	Enoch Tempest, contractor, Oakdene reservoir construction	(4)
1568	1/1/1899	9/1899	1'11 5/8"	DOROTHY	£355	J.W. Greaves & Son, Llechwedd Slate Quarries, Blaenau Ffestiniog	
1569	1/1/1899	12/1899	1'11 5/8"	SNOWDON	£375	Oakeley Slate Quarries Ltd, Blaenau Ffestiniog	
1570	1/1/1899	12/1899	1'11 5/8"	JEANNE	£380	J.W. Van Der Elst	
1571	1/1/1899	6/1900	1'11 5/8"	SANFORD	£370	Owen Isaac & Owen for Maenofferen Slate Quarries, Blaenau Ffestiniog	
1572-73	1/1/1899	8-10/1899	2'6"	No1-No2	£423	Crown Agents for the Colonies	(9)
1589	26/10/1899	5/1900	2'0"	EDITH	£350	Cliffe Hill Granite Co Ltd, Markfield, Leicestershire	

Notes:

- (1) First loco of type. Bar frames and Walschaert's valve gear. Photographed carrying name TRIUMPHO
- (2) First of the production locos. Baguley valve gear
- (3) 0-4-2 with copper firebox and brass tubes
- (4) Copper firebox and brass tubes
- (5) Steel Firebox and brass tubes
- (6) 0-4-2
- (7) Iron firebox and steel tubes
- (8) Boiler with normal locomotive pattern firebox in copper, brass tubes
- (9) 0-4-2 with square saddle tank with timber rack
- (25) 0-4-2 with inside Stephenson's motion and rocking shafts



*MERCEDES, 1730/1904, was one of the later standard designs with Bagnall-Price valve gear.
(collection A.C. Baker/T.D.A. Civil)*

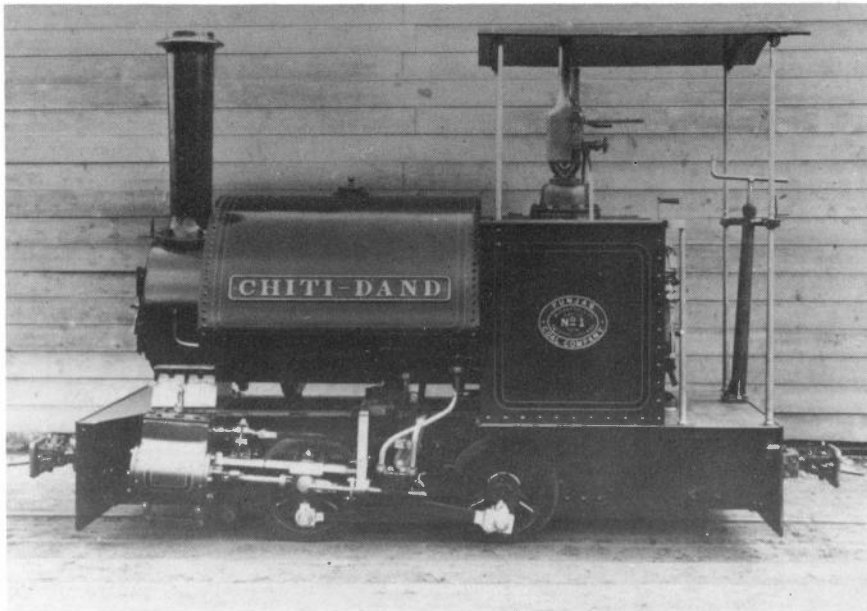
1763	5/8/1905	8/1905	Metre	ANORGA	£320	J. Miller & Co, Liverpool for Cuba	
1764	4/9/1905	9/1905	1'10"	No 3	£340	Presta Block A Ltd, for Ariston Gold Mines, Gold Coast	(12)
1765	1/7/1906	7/1906	2'0"	MERCEDES	£320	J. Buggins & Co, for Birmingham Tame & Rea District Drainage Board, Minworth	
1766	12/9/1906	1/1907	1'11 5/8"	SKINNER	£362	Maenofferen Slate Quarries Co, Blaenau Ffestiniog	
1788-89	5/10/1905	12/1905	Metre	ASHLYNS and SHENSTONE	£340	William Cooper & Nephews, for Argentina	
1791	28/8/1905	6/1906	1'10"	No 4	£350	Presta Block A Ltd, for Ariston Gold Mines, Gold Coast	(12)
1793-4	21/5/1906	6/1906	1'7 11/16"	RUBIA No1 and No2	£330	Adolpho T. Simpson, for export	
1795	24/5/1906	8/1906	1'10"	No 5	£350	Presta Block A Ltd, for Ariston Gold Mines, Gold Coast	(12)
1796	11/7/1906	10/1906	2'5 1/2"	—	£345	Rosing Brothers & Co, for Spain	
1801	19/9/1906	3/1907	2'6"	—	£390	Mussabini & Co, contractors, Melbourne, Australia	
1802	5/12/1906	12/1906	2'0"	C.B.No 3	£362	C. & H. Barlow, Finedon Ironstone Quarry, Northants	
1803	14/12/1906	2/1907	2'6"	—	£390	J.J. Niven & Co, London for A.L. Seifert & Co, Shannon, New Zealand	
1804	15/1/1907	3/1907	1'10"	No 6	£355	Presta Block A Ltd, for Ariston Gold Mines, Gold Coast	
1805	2/2/1907	4/1907	1'7 11/16"	URSULA	£347	Sim & Coventry Ltd, agents, Liverpool for export	
1806	4/7/1907	8/1907	1'10"	No 7	£355	Presta Block A Ltd, for Ariston Gold Mines, Gold Coast	
1846	1/7/1907	10/1907	2'9 1/2"	MERCEDES	£330	Adolpho T. Simpson, for export	
1847	20/7/1907	10/1907	1'5 11/16"	DEMASIA Sn BENITO No 1	£330	Adolpho T. Simpson, for export	
1848	2/8/1907	11/1907	1'8"	HORSESHOE	£375	Mussabini & Co, contractors, Melbourne, Australia	(13)
1849	7/10/1907	12/1907	1'7 11/16"	RUBIA No 4	£340	Adolpho T. Simpson, for export	
1850-51	15/10/1907	12/1907	1'6"	DEMASIA Sn BENITO and No 7	£350	J. Pollock & Sons, for export	

(10) First locomotive of class with Bagnall-Price valve gear. Returned by original customer and resold 4/11/1903 to Blackbrook Colliery Co Ltd, Glamorgan

(11) Wood burner

(12) Fitted with crosshead driven duplex feed pump and one injector

(13) Thought to have been despatched to the same destination as 1878. Copper firebox and brass tubes



CHITI-DAND, 1875/1911 was one of the later standard locomotives with 6in cylinders, Bagnall-Price valve gear and crosshead driven feed pump. The special builders plate incorporates the owners name—“Punjab Coal Company No 1”.
(collection A. C. Baker/T. D. A. Civil)

1875	6/4/1908	1908	2'0"	CHITI-DAND	Punjab Coal Co, India	(12)
1876	26/7/1911	1911	2'0"	WADALA	Punjab Coal Co, India	(12)
1877	26/4/1909	5/1911	2'6"	MAGNET II	F. R. Thompstone & Sons, Bosley Mill, Cheshire	(12)
1878	11/2/1910	1911	1'8"	HORSESHOE II	A. G. Kidston & Co, Golden Horseshoe Estates Ltd, Kalgoorlie, Australia	
1879	5/10/1910	1911	2'6"	NIVENCO	J. J. Niven & Co, Gisborne Council, Gentle Annie Quarry, New Zealand	
1880	26/9/1911	1911	Metre	CEARA	R. Singlehurst & Co, Liverpool for H. S. Tregonning, Brazil	(14)
1889	10/5/1911	1911?	3'0"	No 1	Judkins Ltd, Tuttle Hill Granite Quarries, Nuneaton	
1890	15/6/1911	1911	2'6"	PAMPINO	A. Trugeda & Co, for export	(15)
1891	10/6/1912	1912	2'0"	FORWARD	J. Buggins & Co, for Birmingham Tame & Rea Dist. Drainage Board	
1934	7/11/1912	1913	3'0"	No 2	Judkins Ltd, Tuttle Hill Granite Quarries, Nuneaton	
1986-7	9/6/1913	1913	2'5½"	SAN-LUIS No 1 and JOSEFA No 1	Gortazar & Goyarrola for Mexico	(4)
1998	3/11/1913	1914	2'6"	PORTSEA	Portsea Island Gas Co, Portsmouth	(12)
1999	15/11/1913	3/1915	2'5½"	BEGONA	Gortazar & Goyarrola (but to LNWR, see footnote)	(16)
2035	13/3/1915	/1915	2'0"	KOEDOESHOEK FOREST RAILWAY No 2	Mark Wilson Ltd, for Koedoeshoek Forest Railway, Japan	(17)
2036	4/7/1915	1915	2'6"	NORTH SEA	Portsea Island Gas Co, Portsmouth	(12)
2037	29/7/1915	1915	2'0"	—	Liverpool Gas Co, Garston Gas Works	
2042	21/9/1917	1918	2'0"	HENLOW	Ministry of Munitions, Air Board, Uxbridge, London	(18)
2043	21/9/1917	1918	2'0"	KIDBROOKE	Ministry of Munitions, Air Board, Kidbrooke, London	
2044	21/9/1917	1918	2'0"	FILTON	Ministry of Munitions, Air Board, Filton, Gloucestershire	
2045-8	14/1/1918	1918	2'0"	—	Ministry of Munitions, Air Board	(19)
2049	14/1/1918	1918	2'0"	—	Ministry of Munitions, Air Board, Filton, Gloucestershire	
2050	14/1/1918	1918	2'0"	KIDBROOKE	Ministry of Munitions, Air Board, Kidbrooke, London	
2051	27/8/1915	7/1916	2'0"	KUTHALA	Punjab Coal Co, Karachie, India	(20)

2053	25/7/1916	1916	3'6"	THE MIGHTY ATOM		Callenders Cables Construction Co Ltd, Erith, Kent
2069-74	30/1/1918	1918	2'0"	—		Ministry of Munitions, Air Board (21)
2075-80	12/5/1918	1918	2'0"	—		Ministry of Munitions, Air Board (22)
2087-8	30/8/1918	1919	2'0"	No 1, No 2.		Birmingham Tame & Rea District Drainage Board, Minworth, Warwicks
2089	15/2/1919	4/1919	2'6"	—		Partington Iron & Steel Co, Wakeley Ironstone Pits, Northants
2090	15/4/1919	4/1919	2'0"	PIXIE		Pilton Ironstone Co, Pilton Quarries, Rutland I
2091	14/8/1919	1919	1'11 1/2"	WENDY		Votty & Bowydd Slate Co Ltd, Blaenau Ffestiniog
2092-95	6/9/1919	1919	2'0"	LEON, JOB, CHARLES and JACQUES		Elias Wild & Son Ltd, for France
2096	17/3/1920	7/1920	Metre	—		Felber Jucker & Co, for export
2097	25/5/1920	7/1920	2'0"	ANGELITA	£1250	Aldopho T. Simpson, Bilbao for Jose Goenaga, Palamos Harbour Spain
2098	25/5/1920	1920	2'6"	—		Blair Campbell & McLean Ltd, for India (23)
2144	26/5/1920	1920	2'6"	—		Blair Campbell & McLean Ltd, for India (23)
2145	15/3/1920	1921	2'0"	—		Mac Kinlay & Co, for Rogers Jennings & Co, Port Elizabeth, Sundays River Irrigation Scheme, South Africa
2146	29/7/1922	1922	2'6"	GARGALHEIRAS		C.H. Walker & Co, for export
2147	29/5/1924	22/7/1924	2'0"	—	£510	Miller & Allen Ltd, for Sunger Besi Mines Ltd, Malaya
2148	4/11/1924	10/11/1924	2'0"	—	£550	Kaye & Co Ltd, Southam Cement Works, Warwicks
2149	20/2/1925	3/4/1925	2'0"	CAPSTAN	£500	British Standard Cement Co Ltd, Rainham Works, Kent
2260	27/4/1925	2/7/1925	2'0"	—	£529	Miller & Allen Ltd, for Sunger Besi Mines Ltd, Malaya
2261	4/1/1927	7/3/1927	1'11 5/8"	—	£500	Bearlein & Sons Ltd, agents, Manchester for export
2262	6/2/1927	30/3/1927	2'6"	CAPSTAN II	£515	British Standard Cement Co Ltd, Rainham Works, Kent
2341	4/2/1928	11/4/1928	2'0"	—	£590	Kirkwood Coates & Co, for export (24)
2408	9/9/1929	6/3/1930	2'0"	—	£550	Miller & Allen Ltd, for Sunger Besi Mines Ltd, Malaya
2409	6/12/1929	21/3/1930	3'0"	—	£550	Brown Douglas & Co, for Briandale Coal Co, New Zealand
2414	3/2/1930	22/3/1930	2'0"	—	£550	Sir John Norton Griffiths & Co, for Egypt
2512	19/1/1934	31/3/1934	1'10"	FRANCIS ALLEN	£575	Ariston Gold Mines Ltd, Gold Coast
2584-5	12/7/1937	1937	2'6"	No 1, No 2		North Western Railway, India for Dhilwan Creosoting Plant

(14) Fitted with motion covers

(15) Copper tubes, square saddle tank and timber rack

(16) Original order cancelled. Ordered by LNWR Engineers Dept 13/3/1915 for 2'6" gauge, with name KITCHENER

(17) Firebox 3" longer than normal

(18) First loco with Walscheart's valve gear, (except 1416) subsequently standard

(19) Some may never have been to M of M. Subsequently delivered to:

2045 Oakeley Slate Quarries, Blaenau Ffestiniog, EILEEN 2047 Holborough Cement Co Ltd, Snodland, Kent No 1

2046 For sale at C.S.D. Bilsland Drive, Glasgow, 4/1920. 2048 Alfred Hickman Ltd, Bilston, Staffordshire, BILSTON
Later Alfred Hickman Ltd.

(20) Fitted with crosshead driven duplex feed pump and one injector. Bagnall-Price valve gear

(21) Some may never have been delivered to M of M. Subsequent owners were:

2069 Queenborough Cement Co, Queenborough, Kent

2070 For sale at C.S.D. Neasden 5/1920. Later Bradley (London) Ltd, for export?

2071 For sale as 2070. Later Cliffe Hill Granite Co Ltd, Markfield, Leicestershire

2072 For sale at C.S.D. Newbury 5/1920. Later British East Africa Fibre Industrial Co Ltd.

2073 For sale at Royal Arsenal, Woolwich 5/1920. Later Holborough Cement Co Ltd, Snodland, Kent, No 2

2074 British East Africa Fibre Industrial Co Ltd.

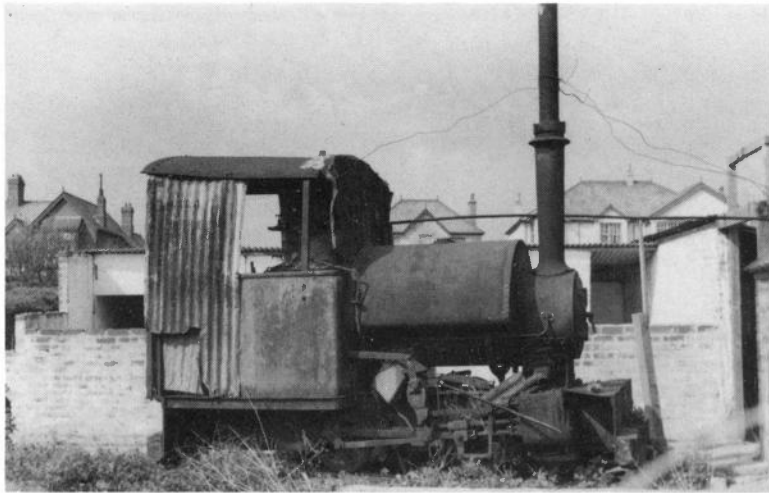
(22) Some may never have been delivered to M of M, but are thought to have been sold by Thornton & Co, agents, Swansea. Subsequent owners were:

2075 Liverpool Gas Co, Garston Gas Works, No 7 2078 Aberthaw & District Water Board, Glamorgan, IVYDENE

2076 Thornton & Co, agent, Swansea 2079 Ham River Grit Co Ltd, Ham Pits, Surrey

2077 Cliffe Hill Granite Co Ltd, Markfield, Leicestershire, MABEL 2080 Thornton & Co, agent, Swansea, later Sir Alfred McAlpine

(23) Oil burner (24) Spark arrestor, tropical cab, copper firebox and brass tubes



When its work as a locomotive was over, 2078/1918 survived for many years supplying steam to a pig potato boiler at Rhoose, Glamorgan.

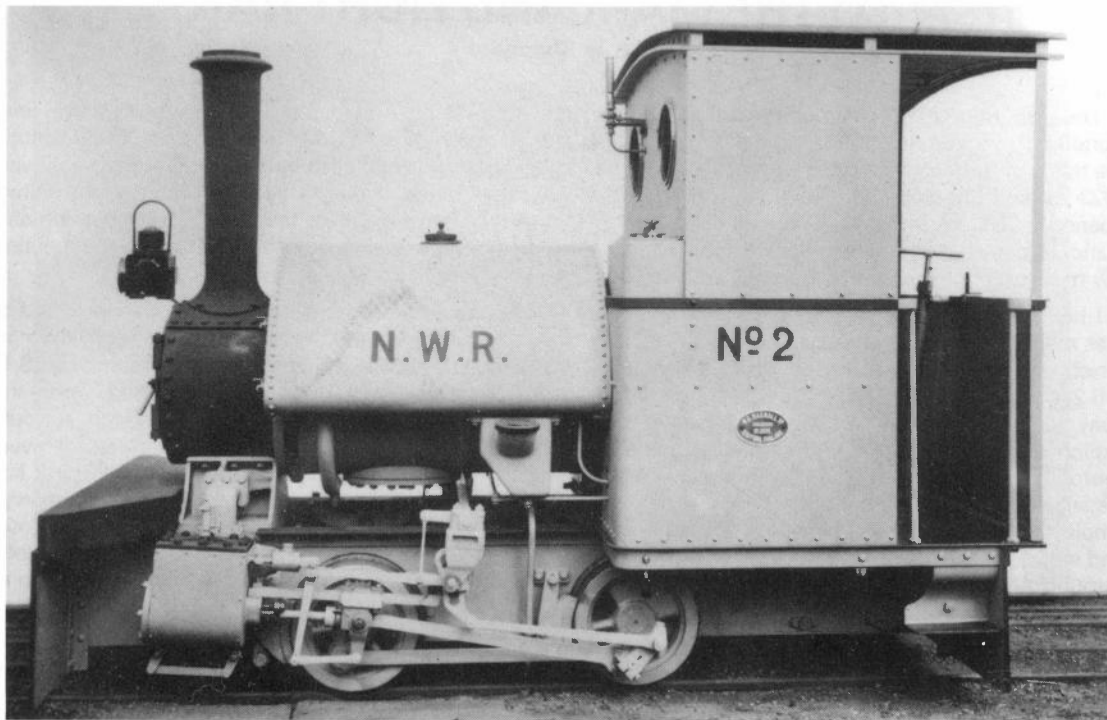
(F. Jones)

Appendix Two: List of Locomotives (0-4-2T 5½" × 9")

Works number	Order date	Delivery date	Gauge	Name	Cost	Customer (as new)	Notes
1436-37	18/6/1894	9/1894	2'0"	TIRAP and NAMDANG	£327	Assam Railways & Trading Co, Margherita, Assam	
1438	18/6/1894	9/1894	2'0"	PEKOE TIP	£327	Jokai Assam Tea Co. Assam, India	
1486	5/3/1896	9/1896	2'0"	DASSIE	£350	African Saltpetre Co. Namaqualand, South Africa	Brass tubes
1505-06	9/3/1897	6/1897	2'0"	SAIDROW and HASANG	£337	Assam Railways & Trading Co. Margherita, Assam.	

Appendix Three: Leading dimensions

	1	2	3	4	5	6	7	8	9	10
Cylinders (2) dia. × stroke	6" × 9"	6" × 9"	5½" × 9"	6" × 9"	6" × 9"	6" × 9"	6" × 9"	6" × 9"	6" × 9"	6" × 9"
Wheel dia-coupled	1'6"	1'6"	1'6"	1'6"	1'6"	1'6 7/8"	1'6 7/8"	2'0"	1'8"	2'0"
-trailing	—	—	1'0"	—	1'0"	—	1'0"	—	—	—
Wheelbase-coupled	3'0"	3'0"	3'0"	4'0"	3'0"	3'0"	3'0"	3'3"	3'0"	3'0"
-total	—	—	6'0"	—	6'0"	—	6'0"	—	—	—
Tank capacity (galls.)	104	104	104	104	104	104	104	104	104	104
Bunker capacity (cu. ft.)	5	5	7	5	7	5	7	5	5	5
Heating surface-tubes (sq. ft.)	64	80	80	80	80	80	80	80	80	80
-firebox (sq. ft.)	9.77	9.77	9.77	9.77	9.8	9.8	9.8	9.8	9.8	9.8
-total (sq. ft.)	73.77	89.77	89.77	89.77	89.8	89.8	89.8	89.8	89.8	89.8
Grate area (sq. ft.)	3.28	3.28	3.28	3.28	3.28	3.28	3.28	3.28	3.28	3.28
Boiler pressure (lb/sq. in.)	140	140	140	140	140	140	140	140	140	140
Weight in working order (tons-cwt)	5-10	5-5	6-4	5-5	6-4	5-5	6-4	5-5	5-5	5-5
Tractive effort										
at 85% B.P. (lb.)	2142	2142	1900	2142	2142	2029	2029	1606	1927	1606
1: 1416		4: 1456-7				7: 1512				
2: 1429-30, 1445-6, 1476-9, 1487-9		5: 1462-5				8: 1515				
3: 1436-8, 1486, 1505-6		6: 1507-10, 1662, 1668, 1724-31, 1753-5				9: 1516-7		10: 1518		



Last of the type, No 2 was delivered to the North Western Railway of India in 1937. (collection M. Swift)

11	12	13	14	15	16	17	18	19	20	Approximate leading dimensions for all engines were:—
6" x 9"	6" x 9"	6" x 9"	6" x 9"	6" x 9"	6" x 9"	6" x 9"	6" x 9"	6" x 9"	6" x 9"	Length over frame plates 11'4"
1'6 7/8"	1'7"	1'7"	1'7"	1'6 7/8"	1'7"	1'7"	1'7"	1'7"	1'7"	Overall width 5'5 3/4"
1'0"	—	1'0"	—	—	—	—	—	—	—	Overall height 8'3 1/2"
3'0"	3'0"	3'0"	2'9"	3'0"	3'0"	3'6"	3'0"	3'6"	3'0"	(excluding, of course, the cut-down versions)
6'0"	—	6'0"	—	—	—	—	—	—	—	No 3mm injectors, where fitted, were used, or a 2 1/2" x 1 1/2" x 3" duplex pump
104	104	104	104	104	104	104	104	104	104	The boilers generally had 39 tubes 1 3/4" dia x 12s.w.g x 4'7 3/8" long
7	5	7	5	9	5	6	6	40 galls*	5	
80	80	80	80	80	80	80	80	80	85.25	
9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	12.25	
89.8	89.8	89.8	89.8	89.8	89.8	89.8	89.8	89.8	97.50	
3.28	3.28	3.28	3.28	3.28	3.28	3.28	3.9	3.25	3.0	
140	140	140	140	140	150	150	150	150	140	
6-4	5-5	6-4	5-5	5-5	5-5	5-5	5-5	7-2	5-5	
2029	2029	2029	2029	2029	2165	2165	2165	2165	2029	

11: 1538-9

12: 1552-5 1566, 1568-71, 1589-94, 1630-3, 1642-3, 1659-60, 1763-6, 1788-9, 1791, 1801-6, 1875-80, 1889-91, 1934, 1986-7, 1998-9, 2051

13: 1556-7, 1661, 1572-3

14: 1640-1

16: 1793-6, 1846-51, 2035-7

17: 2042-50, 2053, 2069-80, 2087-98, 2144-9, 2260-2, 2341, 2408-9, 2414

15: 1756

18: 2512

19: 2584-5 *Oil capacity

20: 1558 (normal type loco boiler)

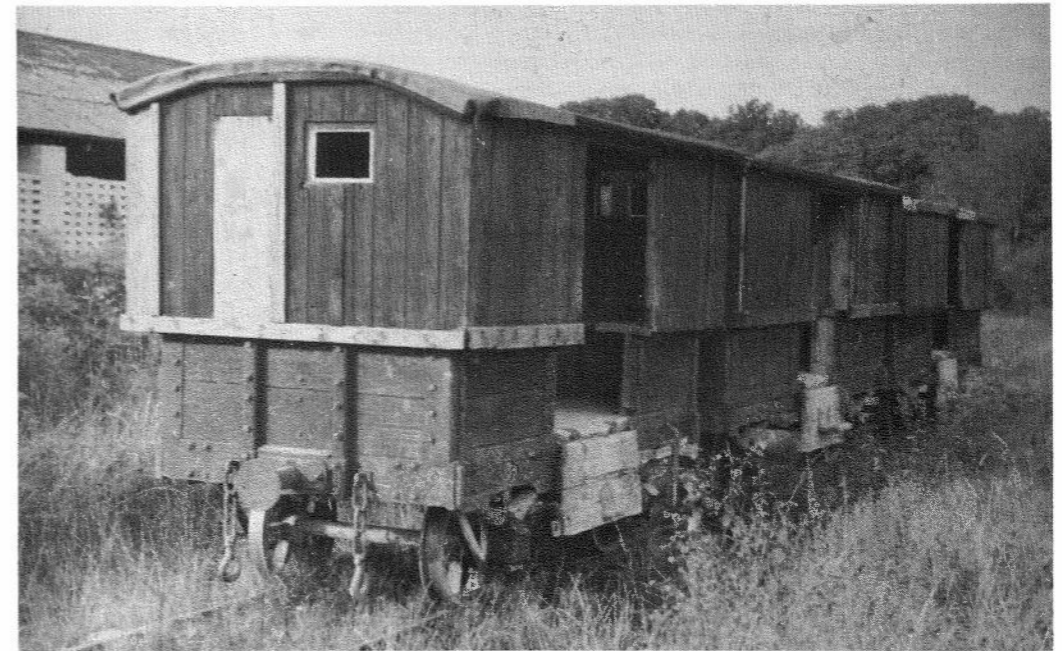
VISIT TO THE MARLAND LIGHT RAILWAY

E. R. Shepherd

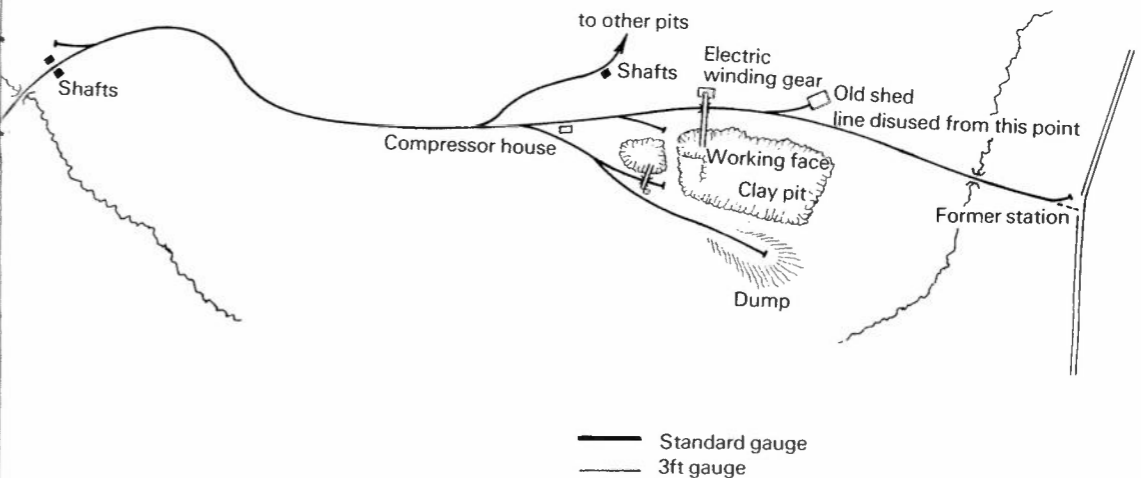
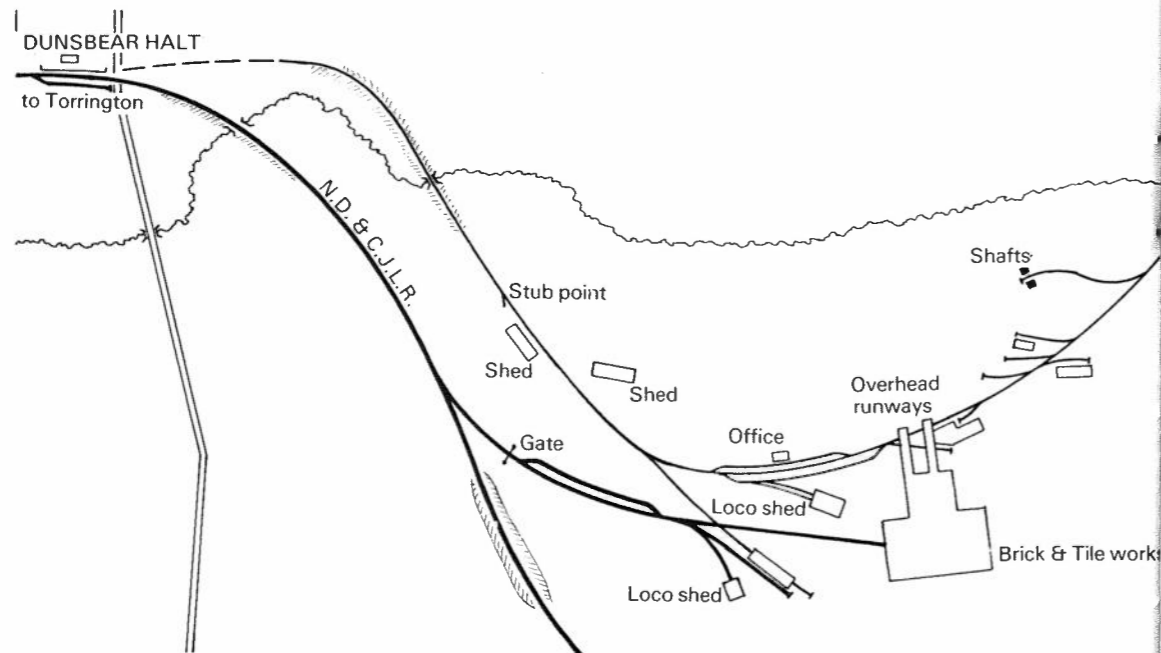
The year was 1942, and my parents and I were spending a wartime holiday at Hatherleigh, in west Devon. Conditions were austere, and public transport sparse, but it was possible to travel locally in unhurried fashion by the trains of the North Devon & Cornwall Junction Light Railway. This had been built by the Southern Railway in 1923-25, and the first 4½ miles from Torrington followed the course of the 3ft gauge Marland Light Railway, opened in 1880 to convey clay from Marland Brick & Clay Works to the main line railway. With the coming of the standard gauge, sidings were constructed from the new line into the clay processing works, but the remaining 2½ miles of 3ft gauge track continued to serve the numerous mines in the area.

I had previously written to the North Devon Clay Co Ltd, requesting permission to visit this line, and this was readily given. Accordingly, one day in late July we walked through the fields from Hatherleigh, on a path which led to the station nearly two miles away. The trains were almost invariably composed of a former L B S C R 0-6-2 tank and a converted L S W R railmotor coach, and we travelled up to Dunsbear Halt on the 11.13am train. Leaving my mother comfortably ensconced in the waiting shelter with her knitting, my father and I set out to explore. It was here that the standard gauge curved away from the original line, and as we followed a footpath leading towards the clay works we realised that this was the course of the 3ft gauge. After a short distance we reached the end of the remaining track, and here stood one of the roofed wagons used for conveying employees. The rails were shiny, and obviously used regularly, whilst a patch of oil indicated where locomotives had stood—no doubt waiting to collect workmen arriving from Torrington on the N D & C J R. The track led us through a wood, over a bridge crossing the little River Mere, and past a siding with a stub point connection into the works area.

We made ourselves known to the management, and were given permission to wander around as we wished, so naturally started by investigating the narrow gauge locomotive shed. Inside, but not in steam, was one of the four coupled Fletcher Jennings locomotives, in green livery, with a plate on the cabside: "Rebuilt by Hodges Bros. Exeter 1914". This was presumably MERTON, but I do not recall seeing a nameplate. It was facing towards Torrington. A second similar locomotive was shunting wagons a short distance down the line, and on enquiry the driver said that he would be going down to the pits at about a quarter to two.



Three of the "passenger wagons" standing at Peters Marland in 1966. Bench seats were fitted, supported on top of the wagon sides, which accounts for the overhang. (M.J. Messenger)

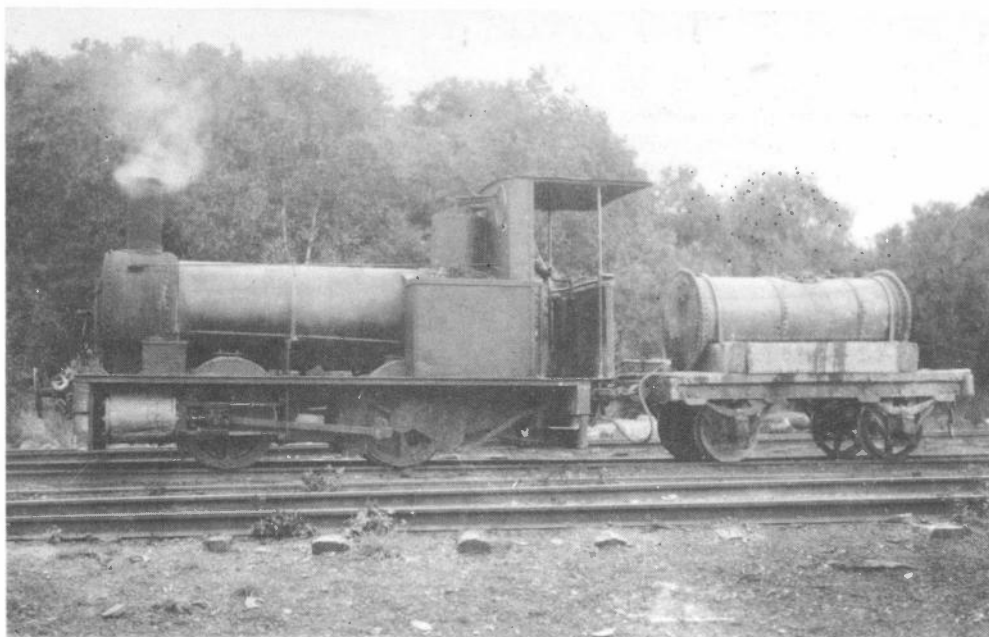


We walked back to Dynsbear Halt for a picnic lunch, noting the standard gauge sidings on the way, which were being worked by the rebuilt Black Hawthorn 0-4-0 saddle tank MERSEY. Returning to the narrow gauge at 1.45 pm, we found the locomotive again, standing near the works. I have no record of a name or builders plate being visible, and cannot therefore identify which of the two remaining Fletcher Jennings locomotives this was, but photographic evidence suggests that it was works number 129, built in 1873. We were invited by the driver to climb aboard, not in the cab, but at the rear of the tender, where we stood holding onto the handrail fixed to the buffer beam, facing the line ahead. Both engines had these improvised tenders—simply wooden flat wagons which originally carried the saddle tanks removed from the locomotives so as not to strain the flimsy timber trestle viaduct on the original line into Torrington. In time the saddle tanks were replaced by circular, rivetted tanks on the same type of frame.

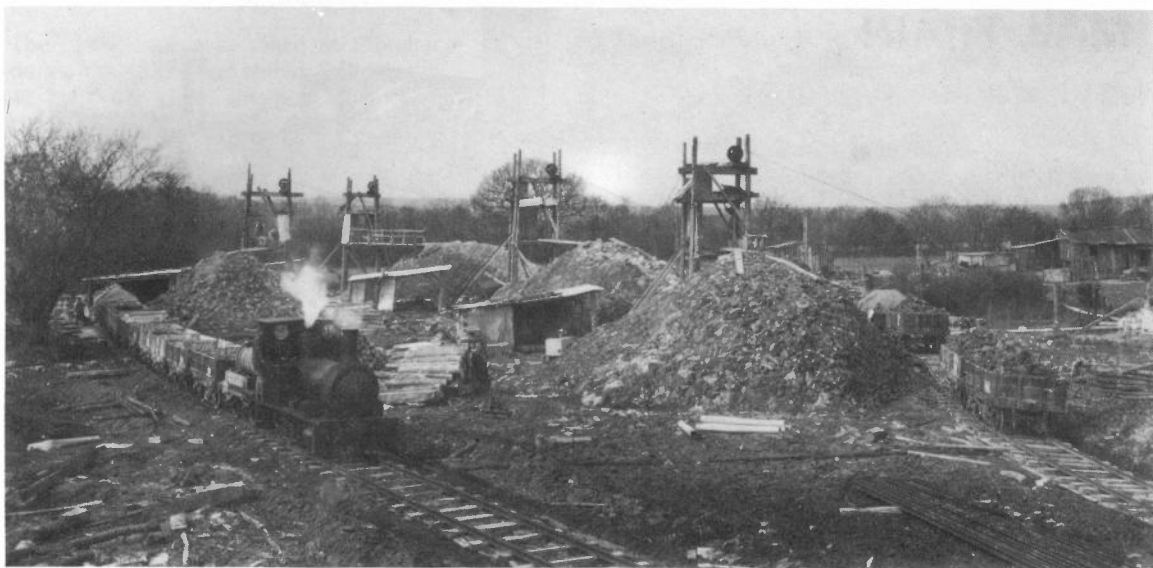
We started off with the locomotive in reverse, propelling four wagons in front of us. On reaching a loop, we ran round the wagons, and restarted towards the pits. After travelling for some distance we came upon two wagons standing on the line, coupled up to them and continued our journey with the locomotive now in the middle of the train.

The track was in quite good order, and from time to time we passed shafts to the ball clay mines, and presently also a junction where a branch led off towards the north east. Ahead we could see an open pit to the right of the line, and the train stopped here to allow the two wagons in front to be uncoupled. We alighted, the driver said that he would return in about an hour, and reversed back down the line, propelling the four remaining wagons, presumably for another shaft. In a nearby siding we noted two more of the "passenger wagons" fitted with roofs.

The ball clay was being cut by hand from the face in an open pit, and loaded into a small truck. This was winched up an incline by an electric hoist, and tipped into the 3ft gauge wagons standing on the line below the incline head. Beyond the pit was a siding leading to a shed, and here we discovered what I noted at the time as "... the remains of a loco, possibly an 0-6-0T". As most accounts now record that the three six-coupled engines were scrapped in 1925, this seems unlikely, and perhaps it was parts of the third Fletcher Jennings 0-4-0. Certainly no other narrow gauge engines were seen on that day, and the driver stated that there were now only two



Fletcher Jennings 139/1873, complete with an improvised tender, in the works yard at Peters Marland in September 1934. (B.D. Stoyel)



Marland clay workings. In the centre are shaft heads serving the underground workings, and one of the 0-4-0s is about to resume shunting operations.
(E. A. Holwill)

engines. A few yards beyond this shed the line became derelict, but we were told that it continued to the road from Petrockstow to Merton, where there was formerly a "station" to which supplies for local farmers were delivered from Torrington in the days before the N D & C J L R was constructed.

At about 3 pm the locomotive reappeared, propelling four wagons. The full wagons were placed on the siding leading to the shed, and the locomotive then retired to the beginning of the disused line whilst the wagons were shunted back onto the main line by hand. The train was then drawn forward, the empty wagons were uncoupled by the loading point from the pit, and we resumed our places on the tender. Starting off once more, with the four full wagons ahead, produced a hail of smuts from the chimney of our locomotive, an effect which we had escaped on the outward trip, being in front of the engine. However, it all added atmosphere! We shunted the two passenger wagons out onto the main line, left them there, and thanked our driver for the ride.

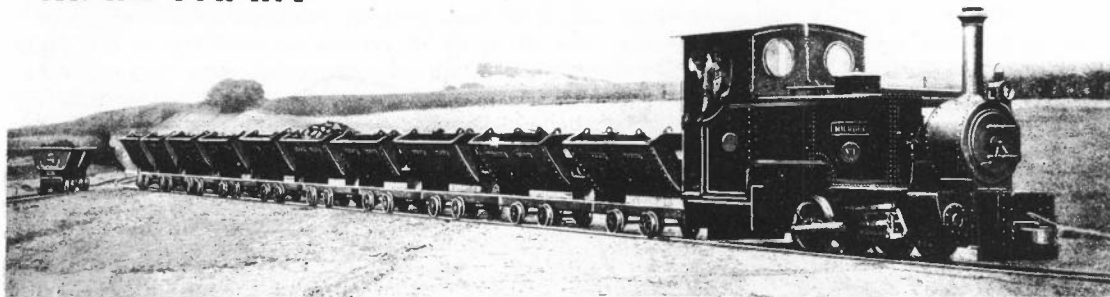
So ended an unusual, but very enjoyable trip on the narrow gauge, and my father and I walked back to Dunsbear Halt, wiping the worst of the smuts from our faces, to where my mother was still industriously knitting. The 4.48 pm train presently carried us in leisurely fashion back to Hatherleigh, to round off a most memorable day.

Later in this holiday I visited the "station" beside the Merton road, and found that the disused line petered out in a flat area just inside a gate beside the road. There were no buffer stops but wagon 76 was standing at the end of the line and appeared to be fulfilling that function.

I only wish that I could have taken some photographs of these now - vanished scenes, but in 1942 cameras were viewed with suspicion, and in any case film was unobtainable in those wartime days. Fortunately, others have kindly provided the accompanying illustrations which capture some of the unique character of this line.

SOUTHWOLD RY :- Mr. W.G. Jackson, who has been in charge of the rolling stock of this line since its opening, is retiring very shortly. Previous to taking charge at Southwold, Mr. Jackson went to the Far East for Messrs. Ransomes & Rapier, to erect the engines for the Woosung Ry., the first railway in China. This line was taken up and the whole of the stock was lost in the wreck of the steamer taking it to Formosa. Mr. J.R. Belcher, of the Loco Dept. of the Selsey Tramway, succeeds Mr. Jackson. (*"The Locomotive Magazine"*, April 15th, 1916).

MAIL TRAIN



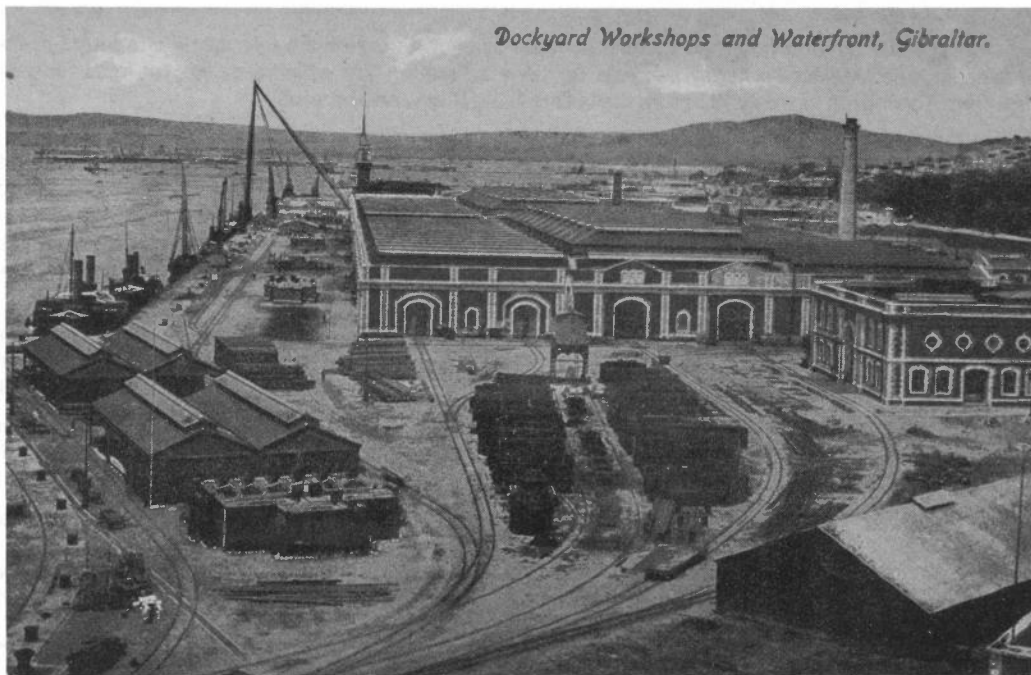
“CALPE”

I visited Gibraltar on holiday last spring, when the harbour appeared very quiet. I enquired about the metre gauge tracks within the Dockyard (all the track outside was, of course, lifted quite a few years ago), and was informed that work on lifting all the remaining track had started several weeks earlier. However, because the metals are buried almost to the running surface in tramway fashion it was proving a slow, hard job.

The 60cm gauge line in the tunnel straight through The Rock to near Sandy Bay is no longer used. I was able to look right through this tunnel, but despite electric lamps in the roof I could not see whether the track—also laid in tramway style—was lifted, or merely covered by the general accumulation of muck and rubbish.

SELBY, YORKS.

KEN HARTLEY



I enclose this postcard showing the Dockyard Workshops on the quayside behind the New Mole at Gibraltar, which may be of interest in connection with Mr Hartley's recent article. It shows the track layout quite clearly, but may not be suitable for reproduction. I do not know when it was published, but it would certainly be before the 1914-18 War.

EDGWARE, MIDDX.

E.D. CHAMBERS

The photograph was taken at Gibraltar during the 1930's and shows E.P. 64, the 45 hp 0-4-0 petrol engined locomotive built by Baguley (Engineers) Ltd, at Burton-on-Trent in 1928. (works number 1698). A works photograph appears in *Baguley Locomotives 1914-31* p.61 by Rodney Weaver (Industrial Railway Society, 1975), and makes an interesting comparison. The man sitting in the cab is my grandfather.

JOHN DE HAVILLAND
TONBRIDGE, KENT



THE HARLECH TRAMWAY

My father and I visited this site by permission of the Royal St David's Golf Club in March 1980, and easily traced the route shown on Mr Clayton's map. The level crossing gates by Quarry Cottage are still there, but not used, and there is no sign of wicket gates. The hut by the railway is built of slate blocks with slated roof, and might have been a waiting shelter. A very low embankment can be seen crossing the practice ground, rough and 18th fairway, but then becomes hard to follow over broken ground. The prominent embankment photographed by Mr Chambers is still there, followed by a shallow cutting and low embankment. The route then disappears for a few yards under the 15th tee, and ends on a low embankment at the foot of the steep sand dunes behind the beach.

The trackbed is built up with quarry waste on top of sand, and can be found even where the ground is broken by looking at excavations, rabbit holes and footpaths where there is no grass. It was quite a surprise to find so much still there after ninety years.

HUDDERSFIELD, YORKS.

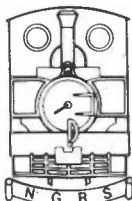
ADAM D. SWIFT

A WAGON AT WINDERMERE

This postcard shows the tramway, probably 2ft gauge, used for coaling steamers at Lakeside, on Windermere, referred to by Peter Holmes in No 86. From the style I suggest that the photograph was taken around 1910.

E.D. CHAMBERS
EDGWARE, MIDDX.





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