THE NARROW GAUGE

No.93

NARROW GAUGE RAILWAY SOCIETY

NARROW GAUGE RAILWAY SOCIETY

Serving the narrow gauge world since 1951

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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.

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No 93 AUTUMN 1981

Cover: A quiet interlude at Port Soderick as No 4 LOCH, bound for Port Erin, waits to cross the Douglas train on a hot August afternoon in 1980. *(M. Swift)*

ISLAND MAGIC

M. Swift

It is some years since winter services were operated by the Isle of Man Railway, but the introduction of "Island Magic Holidays" by Sealink offered an opportunity to spend a few days in Douglas, with the bonus of a rail trip to either Ramsey or Port Erin as part of the package. In addition, this introductory scheme allowed one to take a car at minimal cost, thus enabling some of the island's other natural attractions to be easily visited.

Our previous trips had been in high summer to take advantage of peak traffic, and it seemed quite novel to drive to Heysham in late October and join MANX VIKING for the four-hour voyage to Douglas. The Irish Sea can be daunting even in summer, and so late in the year it was—as expected—quite a lively journey. Fortunately modern car ferries are fitted with stabilisers but suitable preparations are still recommended for inexperienced sailors. Storms a few days earlier had damaged the loading ramp at Douglas, resulting in a long delay before we could drive off the boat. However, this bad start was mellowed by dinner and an evening at the Bridge Inn beside the inner harbour. This homely pub has a fine collection of photographs of old Douglas, island steamers and even some of the Manx Electric Railway.

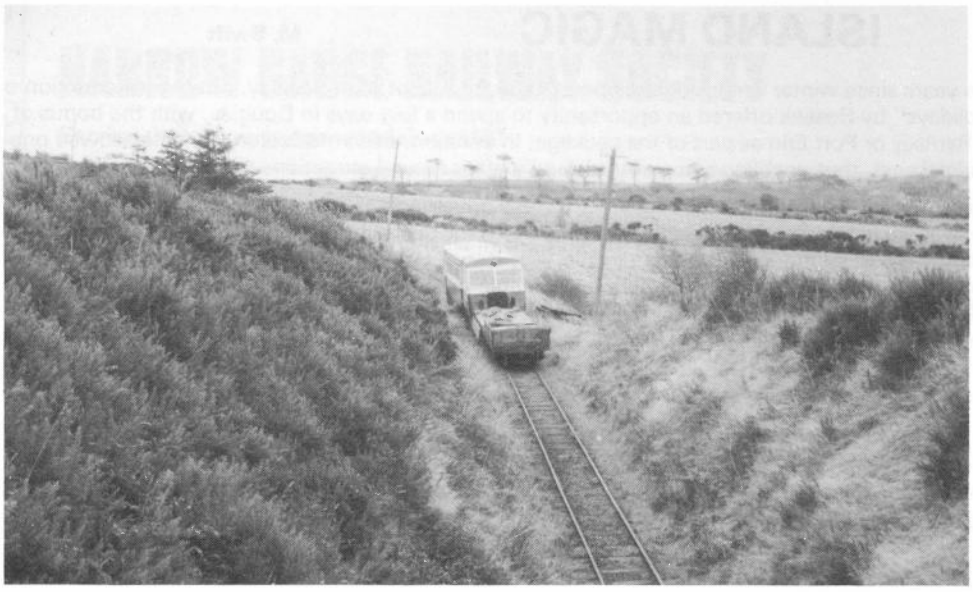
We learnt that a "Shopper's Special" train was operating from Port Erin to Douglas every Friday in October, leaving Port Erin at 09.30 a.m. and returning from Douglas at 2.10 p.m. On the Manx Electric Railway a much more intensive service operated on Mondays to Fridays from 5th October:

Douglas (Derby Castle)	dep.			11.20	1.30 p.m.	4.40
Laxey	dep.	8.45 a.m.	10.35	11.50	2.00	5.10
Ramsey	arr.	9.30	11.20		2.45	
Ramsey	dep.	9.45 a.m.		12.00 noon	3.15	
Laxey	dep.	10.30	12.00 noon	12.40 p.m.	4.00	
Douglas (Derby Castle)	arr.		12.30 p.m.	1.10	4.30	

Buses ran between Douglas Central Bus Station and Derby Castle to connect with the departure and arrival of cars. With all this activity the following day (Friday) promised to be extremely busy!

The morning dawned bright and still, and after breakfast we drove to Port Erin for the morning train. No 11, MAITLAND, smartly turned out as usual, stood on a rake of three carriages, two in the familiar red and cream livery, one in purple and white. Perhaps because schools were on holiday there were 38 passengers when the train left for Douglas, twice the usual number, and including several children. At Port St. Mary workmen were engaged

The maintenance crew stand clear as car 5, on the morning service to Laxey, passes car 9 and a flat wagon at Onchan. *(A.D. Swift)*



Culvert repairs near the old Castletown road bridge occupied railcar 20 and a bogie flat loaded with building materials. *(A.D. Swift)*

in repairs to the station building and tidying up the area. Another passenger joined the train here, and MAITLAND sizzled, whistled, and bustled off over the level crossing in the direction of Castletown. The station here is always an attractive place, and with a carpet of fallen leaves over the platform and track it was even more colourful than usual. An extended halt was made whilst the bearded driver oiled round, and the youthful guard booked tickets for the seven additional passengers. One elderly lady passenger became quite agitated because her friend was hurrying down the road to the station, and seemed likely to be left behind. Of course, the train waited, and when she was safely seated it steamed leisurely away surrounded by billowing clouds of smoke and steam. No passengers joined the train at Ballasalla, where the smartly painted wood and corrugated iron building retains all the character of the rural narrow gauge. Santon station is well away from any group of houses, but was smartened up last winter when the track here was relaid. Railcar 20 sat in the siding here with a bogie flat, later to return to an underline culvert where rebuilding work was in progress. Port Soderick station has completely changed. Last winter the track was relaid, new ballast put down, and the entire station area cleared of the lush undergrowth that encroached almost to the sleeper ends. This was done by men employed under the Isle of Man Government Winter Works scheme to alleviate unemployment. A further programme is planned for the coming winter.

On arrival at Douglas the passengers repaired to the town, and MAITLAND was taken to the shed, where No 12, HUTCHINSON was in steam. This is virtually a new locomotive, with only the frame, wheels and axles and pony truck from the original. The new boiler was supplied by Israel Newton & Sons Ltd, Bradford, and new cylinders cast by the Widnes Foundry & Engineering Co using patterns purchased by the railway when Beyer Peacock closed down. The cab and tanks were made at Douglas, the former being based on a cardboard mock-up to ensure that it looked correct and fitted in well with the large boiler. HUTCHINSON was painted in royal blue, lined out in black and white, and entered traffic in May last.

For most of the season it was based at Port Erin, but returned to Douglas on October 16th in exchange for MAITLAND. Because trains were to be operated this winter steam heating equipment had been fitted to HUTCHINSON, which was scheduled to take the afternoon working back to Port Erin—the first steam heated train for twenty years. By lunchtime it was raining heavily, and the returning passengers were heard to comment with delight that the heating was on again! This operated effectively on the return trip, but its presence was obvious from the clouds issuing from the rear coach.

Douglas shed held No 13 KISSACK, No 4 LOCH, and No 10 G.H. WOOD; which had the boiler removed. The boiler from No 11 still awaited a decision on repairs. Railcar 19 was receiving a complete overhaul and repaint,

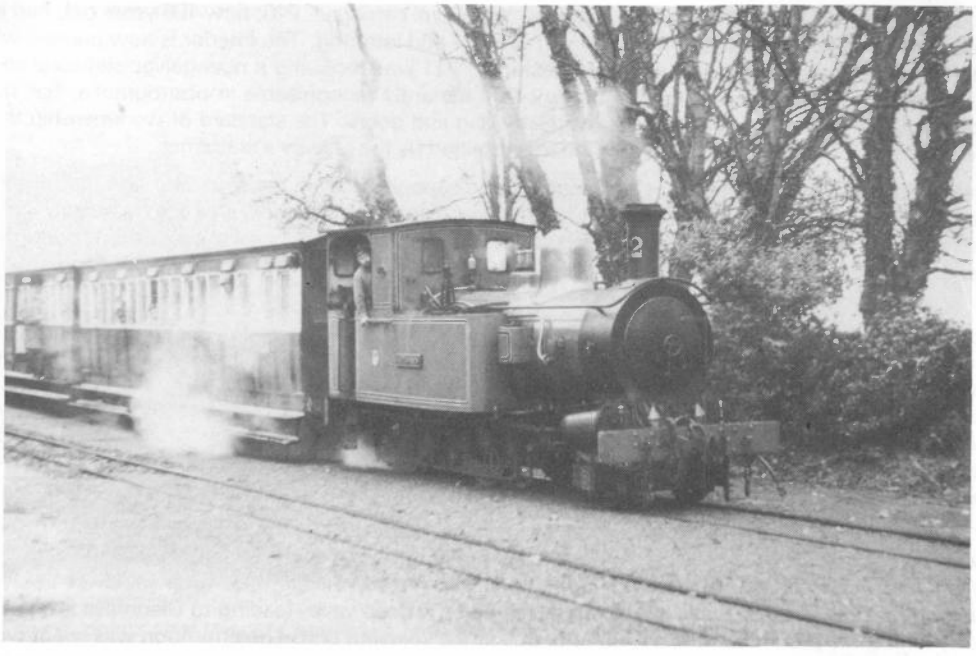
and had lost its number. Major work was in progress on several carriages. F10, now 100 years old, had just been completed in purple lake and white, with gold leaf numbers and lettering. The interior is now painted white over the former varnished woodwork, set off by red cushions. F11 was receiving a new galvanised steel sheet roof. F15, the carriage with the pronounced sag that made it instantly recognisable in photographs, has received a new timber underframe on one side, together with panelling and doors. The standard of workmanship throughout is quite remarkable and reflects on the high standards attained by the railway's craftsmen.

Douglas station presents a less pleasing scene. The disappearance of the Port Erin line platforms and the overall roof has left a bare expanse only partly off-set by renovation of the track, and edging and surfacing of the platform beside the engine release road. The plans for the bus garage and workshop in the former goods yard were rejected by the Government Finance Board, and this seems likely to remain an open parking area for some time.

The following day, Saturday, was perfect—but with no trains operating it was spent examining old lines. I was never fortunate enough to see the Groudle Glen railway in operation, but a walk along the trackbed to the former sea lion pens is always exhilarating. The station and locomotive shed at Lhen Coan have now gone, but remnants of the platform awning still stand. Low walls and the inspection pit mark the site of the shed, the privet hedge which once hid SEA LION now overgrown and wild. The trackbed, covered in fallen leaves, twists through the trees in the best narrow gauge tradition, emerges above the beach, and cuts through heather and bracken to reach the cliffs before turning to run above them to the terminus. Much of the track on this final section remains in place, though some is buried.

A drive over to Foxdale revealed that the former station area has been levelled to form a playing field. The building survives as a store. Several mines dot the hills above the village, and offer much of interest to the industrial archaeologist. Below these mines, on the side of the deep valley leading to Glenmaye is an abandoned slate quarry with three prominent levels leading to tips at the seaward end. The afternoon was spent walking the route of the "Tram Road" from Peel Harbour to the quarry on Corrin's Hill, which provided stone for the breakwater. J.I.C. Boyd in *The Isle of Man Railway* (The Oakwood Press 1962) recounts that this appears on a map

Douglas station now has only one platform with tracks on either side. The buses in the background are parked on the site of the proposed new garage. *(A.D. Swift)*



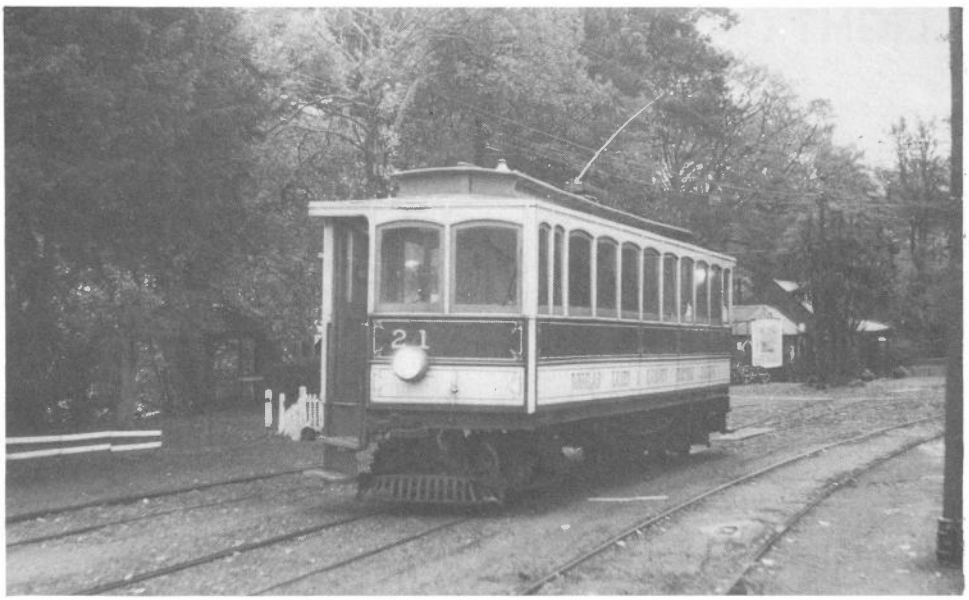
No 12 HUTCHINSON brings the afternoon train to Port Erin into Ballasalla, trailing steam from the train-heating system. *(A.D. Swift)*

surveyed in 1865-68, suggests that the gauge was unlikely to exceed 3ft. and claims it to form one of the finest walks on the island. This is no exaggeration, because the route is readily identifiable from the incline head on the col overlooking the present power station. The trackbed is some 250ft above the sea, either cut from the slope, or built up on rocks dislodged from the cliff surface. Above the quarry, which is more than 100ft below the tram road and on the seaward side of the hill, is the head of an incline down to a loading area somewhat higher than the quarry floor. Wagons laden with stone were clearly raised up this incline by a horse gin. The foundations and circular horse track are remarkably well preserved on a shelf above the incline head.

The Sealink package included a journey by rail, but only two or three special trains had been provided to Port Erin on Friday or Sunday in September and October when more than 50 passengers were booked. If the number was less then a special car was arranged on the Manx Electric Railway to Ramsey.

It was a damp and misty Sunday morning as we drove to Derby Castle, only to see our special leave five minutes earlier than expected! A mild panic subsided when we were able to overtake and flag down the car at Port Jack—much to the driver's surprise. The corner seats above the electric heaters, glowing brightly under their iron filigree covers, were unoccupied so by the time Laxey was reached half an hour later we were warm and comfortable.

A hot lunch beside a blazing fire at the Mines Tavern, one of our favourite spots, increased the feeling of well-being and it was decided that a brisk walk to the harbour was essential to circulate the extra calories. We had half expected to see one of the Civil Aviation Authority railcars out, but of course both were in their small shed beside the Snaefell depot. Our car left promptly at two, and ground up to Minorca, the climb dimming the heaters under our seat. Despite a slight haze the section above the cliffs at Bulgham Bay was still spectacular, and undisturbed by traffic on the adjacent road. Dhoon Glen was deserted but at Ballaglass Glen a goat tethered to a tree stared from the platform shelter as our car swung past. The climb away from Ballaglass opened a vista of autumn colours ranging from dark green to gold. This passed from view at the summit to be replaced by the sight of breakers beneath Maughold Head, marked by the prominent lighthouse. Ramsey soon comes into sight in the distance and as we leave the high ground the fields take on a lusher hue. A halt was made to unlock the



The Sealink special car stands at Laxey while passengers enjoy lunch in the Mines Tavern. (A.D. Swift)

gates guarding the entrance to Ramsey station, finally reached at 2.41 p.m. A stroll to Queen's pier revealed that the "Planet" diesel locomotive and coach were in winter storage, perhaps for good if reports on the doubtful future of this railway are correct. By 3.15 we were back on the car, and climbing away to Belle Vue as the skies began to darken. Rabbits, sensing the approaching night, began to appear in fields beside the line. A brief stop at Laxey allowed the crew to exchange comments on the weather with another member of M.E.R. staff, and it was almost dark when we reached Derby Castle on time at 4.35 p.m., after removing a car from the track to enter the station.

The return voyage to Heysham was much smoother than the outward trip, but docking problems caused some delay. Even so we reached home before midnight, at the end of a remarkably full three days. The introduction of new car ferries on the routes from Heysham and Liverpool have certainly improved access to the island, and the more enlightened approach towards offering short breaks out of the main season must help the economy. However, recession on the mainland has affected those areas which provided most visitors, and it was no surprise to learn that long stay visitors were 20% down, and day visitors 35% down on the totals for 1980. Traffic on the M.E.R. was also 20% down, but the steam railway and Snaefell only 12% down. We often forget that the island—and particularly the transport system—depends on visitors and subsidies from the Manx Government. The total population is similar to towns like Carlisle or Basingstoke. Could these afford to run a steam railway and electric tramway?

The Manx General Election to elect Members of the House of Keys was to be held in November. This might lead to a changed attitude towards financing rail transport, and it would be unrealistic to expect this to be maintained indefinately whatever the cost. We must, however, hope that reasonable funds will continue to be made available by the Government, that the value of the systems continues to be recognised and, most important, that the number of visitors remains at a high level. Most of the character of the traditional narrow gauge railway and tramway still survives in the island, and is totally different from most of the preserved railways on the mainland. On every visit I am reminded of the surviving Irish lines 35 years ago, a flavour that embraces all that is special about the narrow gauge. If you haven't sampled it for a while, do it now—you won't be disappointed.

The considerable assistance given by Mr. G. Warhurst, Assistant Operations Supt. Isle of Man Railways is gratefully acknowledged. *Steam Railway News*, Mr A.B. Beard of the Isle of Man Steam Railway Supporters' Association Ltd, and Mr A.M. Goodwyn, Editor of *Mann-Tram*, journal of the Manx Electric Railway Society have also provided information.

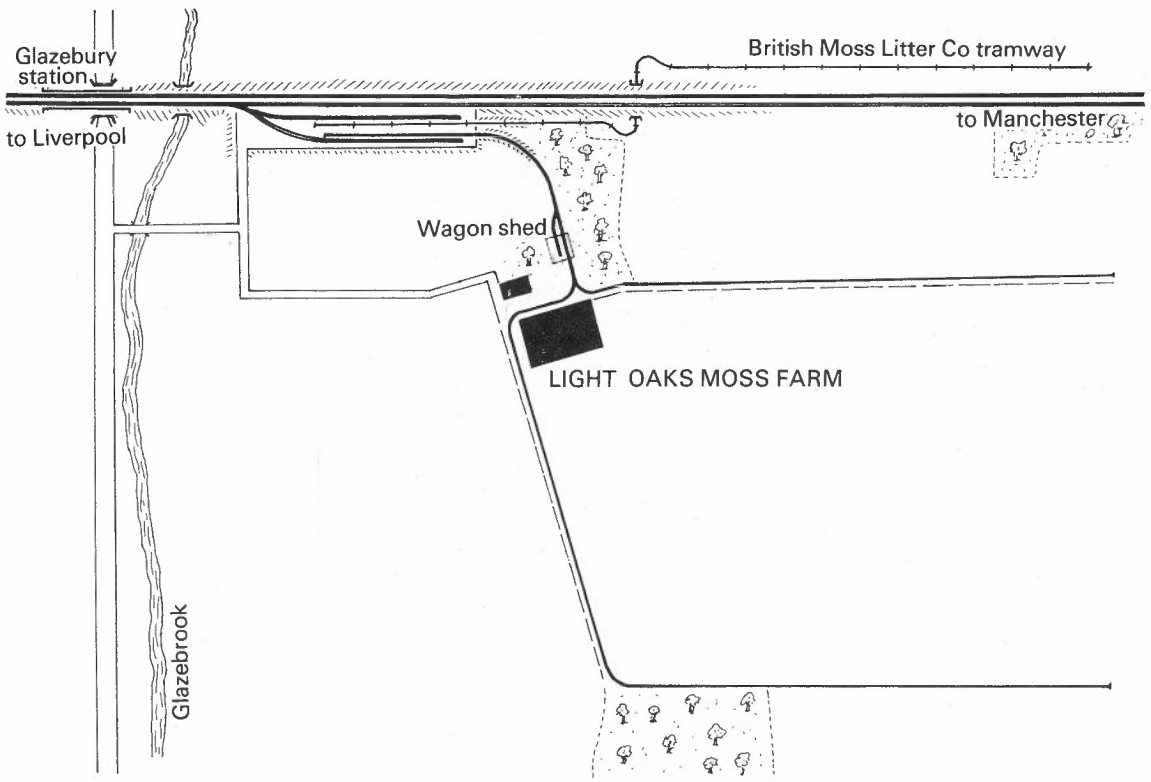
LIGHT OAKS MOSS FARM TRAMWAY

from the N.G.R.S. Library

In the Victoria era, before the widespread development of municipal sewage systems, the removal and disposal of "nightsoil" was a major task in the growing cities. Manchester and Salford developed very rapidly and were bounded on the west by the infamous Chat Moss which presented so many problems to the builders of the Liverpool & Manchester Railway. Parts of the moss were taken over for agriculture and, provided that the area could be drained and properly treated, produced excellent crops which found a ready market in the city. Nightsoil was an ideal material for treating and fertilising the moss. It was collected from the privies by carts each night—hence the name—and transported out of the city by either train or canal barge for disposal on the moss. Manchester Corporation had an extensive 2ft 6in gauge system to distribute the nightsoil by trains hauled by steam locomotives, but the Light Oaks Moss railway was much less impressive.

The land was purchased by John Knowles about 1870, and some cultivation may have been carried out before the farm buildings were erected in 1881. The main line from Manchester to Liverpool passed the farm, and in a Deed of Sale from John Knowles to the London & North Western Railway dated 22nd March 1880 land was sold to enable the Railway to construct a goods yard to the east of Glazebury station, the vendor having the right to make and maintain a tramway on the Railway Company's land.

In 1885 the tramway must have been in full operation because it was mentioned in *The Industries of Leigh & District,* a reprint of a series of articles in the *Leigh & District Chronicle.* The article on Chat Moss describes the developments which were then taking place at Light Oaks Moss Farm:
'A tram line is laid from the railway throughout the estate by which means everything is conveyed. While it is also used to carry the produce from the farm to the sidings—Mr Taylor has simply used as manure nightsoil from the Salford Corporation the turf or peat seemingly being admirably suited to it'. (Mr Paul Taylor was the first tenant of the farm).



This wagon lay derelict on the route of the tramway into the fields in September 1958. *(M. Swift)*

A second tramway was brought into the siding in 1889. This ran on railway land parallel to the farm tramway, then turned north under the main line to the Moss Litter Charcoal & Manure Company's works. A supplementary agreement was made with the British Moss Litter Co in 1889. The tramway lasted only until 1922, when it was lifted.

The tramway to Light Oaks Moss Farm was 2ft 6in gauge, laid with flat bottom rails of about 20 lb/yd in 12ft lengths spiked to wooden sleepers. It commenced alongside a standard gauge siding, passed through a gate marking the boundary of the Railway Company's land, and followed a gently sloping embankment down to the level of the moss. On entering the farm area the line passed through a storage shed with a siding for spare wagons, and reached the farm access road. Here the tracks divided, one turning east to run parallel to the main line. the other following a route around the buildings and alongside a roadway before turning east to serve the fields. It is likely that some temporary tracks were laid in the fields from time to time.

There were about eight wagons on the tramway. These had 4in by 4 ½ in oak solebars 6ft 10in long, extending beyond the body to form dumb buffers. The body was about 5ft 6in long by 4ft wide with fixed ends and drop sides. and could hold about 30 cwt of potatoes. Four iron wheels with straight spokes were carried on axles running in inside plain bearings set at 3ft 2in centres. After loading at the siding, wagons would be pushed down the slope to the moss and collected by a horse for haulage over the tramway.

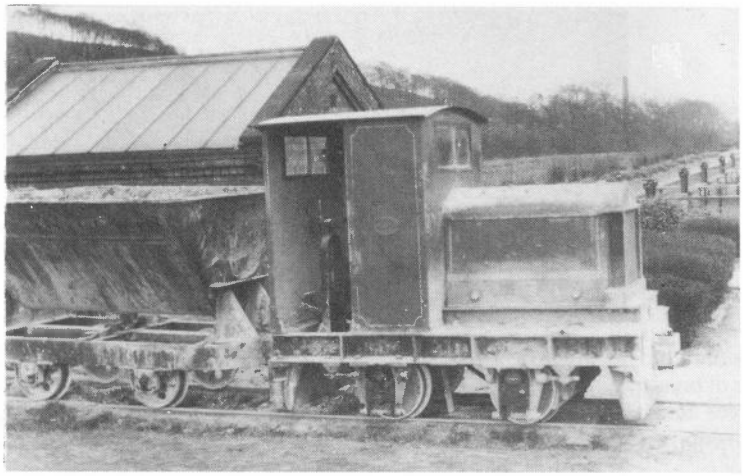
The line was in regular use until about 1947, being last used for bringing potatoes from the fields to storage clamps beside the farm. In the mid 1930s a trip was operated on the tramway for a group from the village and their train consisited of three or four wagons hauled by a horse. Someone took a cine film of this trip, but it is not thought to have survived.

In 1949 the estate was sold and the rails serving the fields were lifted between then and 1956. The section between the goods yard and wagon shed was not completely removed and some rails remained in place, but very overgrown, as late as 1978. In 1958 two derelict wagons survived, but these gradually fell to pieces and have now completely disappeared.

The assistance of Mr George Booth, who now farms Light Oaks Moss, Mr D. Ayres, District Civil Engineer, British Railways, Manchester, and Mike Swift for their help in researching this tramway is gratefully acknowledged.

NORTH BIERLEY SEWAGE WORKS

A.J. Booth

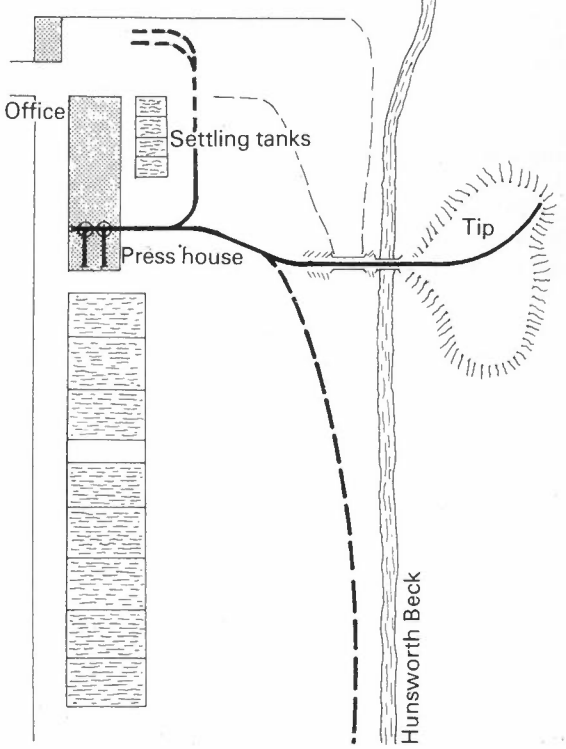


"Planet" petrol locomotive outside the press house, April 1958.(M. Swift)

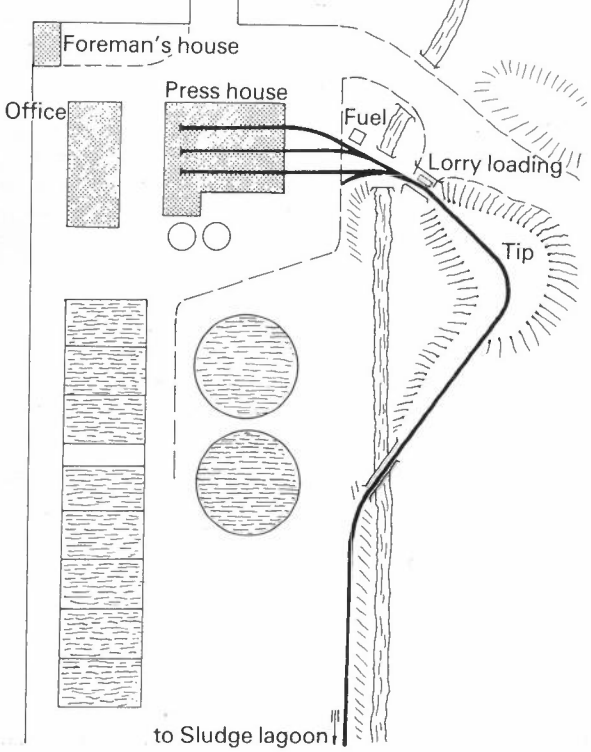
The narrow gauge railway was once an adjunct to the majority of sewage treatment works, but in recent years the introduction of new processes has led to the disappearance of many systems. Comparatively few survived major reconstruction schemes, but the railway at North Bierley not only survived, but was modernised at the same time as the works.

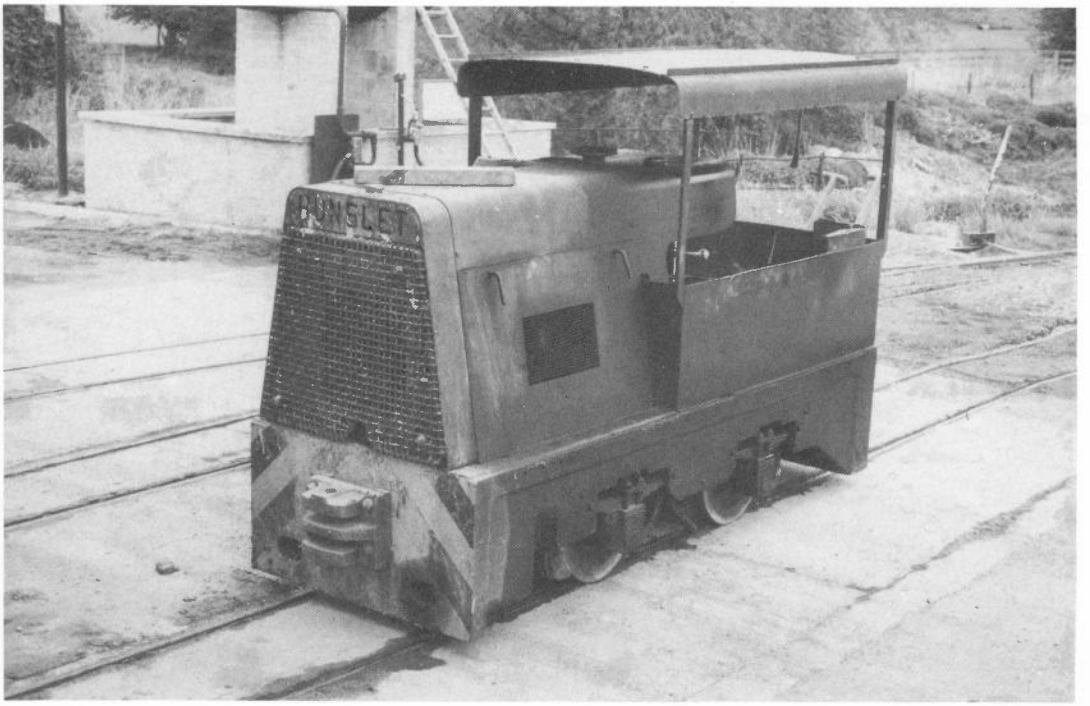
North Bierley Sewage Works treats effluent from the southern part of the city of Bradford, which drains into Hunsworth Beck, a tributary of the River Calder. It is located in the village of Oakenshaw, was originally built in 1880, and passed to Bradford Corporation in 1899. Some partial reconstruction took place in 1903 but it was in 1934 that major extensions were commenced. Formally opened on 7th October 1936, these set the pattern of operation for the next thirty years.

Track layout in 1958



Present track layout





The Hunslet on the apron outside the new press house, April 1979. *(A.J. Booth)*

It is not known when the 2ft gauge railway was laid down, but it was probably part of the 1934-36 extensions. Certainly this coincided with the arrival of the first locomotive, ordered by the City of Bradford Sewage Department, Esholt, from Motor Rail Ltd, Bedford. Works number 5458 was one of the maker's standard 2½ ton machines, fitted with a 20/35 hp Dorman type 4MRX petrol engine. It was delivered to North Bierley on 11th July 1935 and for the next eighteen years had sole charge of the traffic, handling tip wagons of sludge from the filter presses to either the loading dock or tip at the remote end of the works. It was finally replaced in 1953 by a second four-wheel petrol locomotive, this time built by F.C. Hibberd & Co Ltd, Park Royal, London. "Planet" 3627 of 1953 had the luxury of a cab, but was otherwise one of the manufacturer's traditional designs. When it was placed in service the earlier "Simplex" was despatched to Eshalt, and may have worked from time to time on temporary lines at this works, but in October 1957 lay out of use beside the boiler house. It was later stored and in fact returned to North Bierley for a period about 1972. However, the following year it was back at Esholt, being later dismantled and finally scrapped about 1975.

Another change of motive power occurred in September 1961 when the "Planet" was replaced by another Motor Rail, and sent to Esholt for storage. Its replacement (works number 8959 of 1944) was another 2½ ton machine generally similar to the original, but with plate frames and powered by a 20/28 hp Dorman type 2DWD diesel engine, thus departing from the former petrol driven locomotives. It was originally ordered by the Ship Canal Sand Co Ltd, Mount Vernon Sand Quarries, Weaste, Salford, for 1ft 9in gauge track, and despatched from Bedford on the 16th September 1944. Bradford Corporation purchased it earlier in 1961 from Crowley Russell & Co Ltd, contractors, and it spent some time in the workshops at Esholt prior to being sent to North Bierley. The gauge was converted to 2ft at some time between leaving Weaste and arriving at North Bierley. This locomotive remained in sole charge until 1974, when a new Hunslet was delivered, but has since been retained as a spare, stored in the open beyond the tipping point.

The increasing load on the works necessitated further extensions by the late 1960s, and the opportunity was taken to bring the equipment into line with modern developments. Replacement of the old filter press house, a

Unloading filter cake from the Firth Bros. skips onto the tip. April 1979. *(A.J. Booth)*

low, cramped building with short loading sidings reached by turntables requiring each wagon to be manhandled into position for loading, was a major part of the scheme. The new building is spacious, with three parallel tracks on the ground floor. The apron in front of the doorway was paved, and the tracks join together here, then cross Hunsworth Beck by a bridge to reach the sludge tip. A line some 600 yds long had originally followed the beck to a remote tip and sludge lagoon, but was derelict and partly lifted by the 1950s. This was reinstated in the early 1970s, requiring a substantial girder bridge across the beck. Portable track with steel sleepers was used, but some timber sleepers were installed where the formation was soft.

A new locomotive was delivered by The Hunslet Engine Co Ltd, Leeds (works number 7195 of 1974). One of their standard four-wheel type, this is powered by a Perkins type 4.203 diesel engine developing 39 hp. A pillar cab is fitted, complete with a bell hanging at the back, and the locomotive is painted dark green with black and yellow chevrons on the buffer beams. This particular locomotive was the last of the design to be built, since the engine is now rated at more than 50 hp and is used in the later 52 hp diesel-hydraulic type supplied to the NCB.

In 1958 at least six Hudson side tipping skips were in use, but were sent to Esholt and replaced by new and slightly larger skips supplied by Firth Brothers Ltd, Scissett, Huddersfield to suit the new press house. These have since been modified by the addition of wooden boards to increase the capacity, and fitted with safety chains to prevent over-tipping. These are still in use and a couple of spare skip frames also remain, one a very heavy type with "Spoorijzer, Delft" axleboxes.

The railway works five days a week and operations are relatively simple. Three trains, each of four skips, are positioned beneath the press house by the Hunslet. Filter cake drops down chutes into the wagons and, when full, these are hauled out to either the tipping bay, where the load is tipped into a lorry below, or a little further along the line to a tip. The empty wagons are then returned to the press house and the process is repeated with the next full set. The track to the far end of the works is apparently long disused and overgrown in places.

I would like to thank the Yorkshire Water Authority for allowing a visit to the works, and also Messrs. M.P. Burgoyne, D.H. Townsley, M. Swift and W.K. Williams for providing information.

THE MITTELGEBIRGSBAHN THEN AND NOW

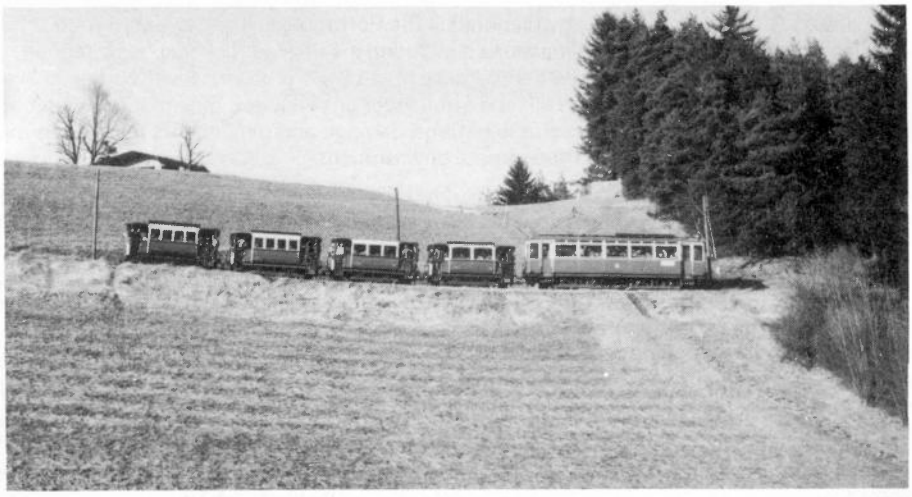
Klaus Matzka

One of Austria's most beautiful tram routes is surely Innsbruck's line 6, the so-called Mittelsgebirgsbahn. Originally built as a steam-worked metre gauge railway in 1900 it climbs through spectacular rural scenery from Innsbruck (altitude 589 m) to Igls (860 m), a holiday and ski resort to the south on the slopes of the Mittelgebirge, a distance of 8.3 km. The line was electrified in 1936 and taken over by the Innsbrucker Verkehrsbetriebe IVB) in 1941.

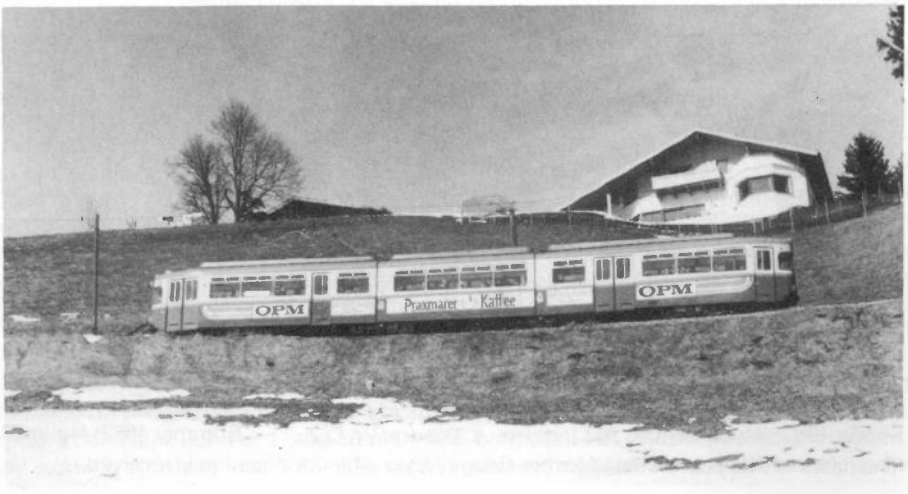
Some years ago the line was threatened with closure, but fortunately later came the decision to keep and modernise the line. The first step in these improvements took place on the 19th February 1981, when the voltage was reduced from the original level of 1200V to 800V, and the double-articulated car 87 took over the service. This is a mixture of second-hand cars, the end sections from Hagan, the centre section from Bielefeld.

The next step toward improving the service came in summer when line 6 was extended through the city and main station to the northern terminus of line 1 at Hungerberg. The frequency, originally hourly, was increased to 45 minutes. More of the double-articulated cars are to come, both for line 6, and for the modernisation of the Stubaitalbahn in 1982, presently still running with the original motor cars built in 1904-05.

The old cars, motor cars 2, 3 and 4, and tiny four-wheel trailers will partly be kept for special workings, partly offered to museum lines.



Car 2 with a string of trailers near Muhltalsee halt in February 1976. (Klaus Matzka)



IVB 87 at the same location as the earlier photograph in February 1981. (Klaus Matzka)

50 YEARS OF THE BENGUELA RAILWAY

The Society was represented at the opening, on July 30th, of a most unusual exhibition on the Benguela Railway at the North Western Museum of Science & Industry, Manchester. This commemorated the 50th anniversary of the opening for international traffic from the Belgian Congo (now Zaire) to the port of Lobito on the west coast of Angola. From July 1931 it formed not only an important outlet for the mines of the interior, but also the first link in a continuous 3ft 6in gauge route across southern Africa to the Indian Ocean.

A joint venture by the Museum and the British Overseas Railways Historical Society, the exhibition was devoted primarily to a remarkable collection of photographs and documents from a variety of sources. The autocratic-looking figure of Robert Williams, the Scottish engineer responsible for developing the Katanga copper mines and securing a concession to build the railway, is seen fronting a group at the first board meeting in Lisbon in 1902. By the terms of the concession the route from Lobito had to follow the coast to Benguela, then strike inland on a route already planned by the Portuguese. This section through the San Pedro Pass proved difficult to build, very costly, and because it included a 1 in 16½ rack incline, a serious restriction on operations. Views of the construction work gave some indication of the problems involved here, and scenes at Lobito, where there were originally no facilities at all, show the ingenuity required to land railway equipment from ship to shore. Even when the line was opened pictures of flood damage and derailments testified to the hazards of maintaining regular services in a hostile and often remote environment.

The workshops at Nova Lisboa (now Huambo) were well illustrated, including several pictures of the first Garratts, the 10A class delivered in sections from Manchester being erected and tested in steam before entering traffic. A large coloured arrangement drawing of this class formed the centrepiece of the drawing collection. This also included drawings of classic carriages by The Metropolitan Carriage, Wagon & Finance Co. Ltd., Saltley, especially the superb Restaurant Cars built in 1928 for the opening of the line to the Congo border. The restaurant car service on the C.F.B. was recognised for years as one of the best in Africa.

Important events were also covered. Baldwin 4-8-0 number 252 appeared decked in flags at the head of the first through train from Lobito to Luao on 3rd June 1929. The same train was again shown under a triumphal arch at Calli, renamed Robert Williams, with 10A Garratt 304 in charge. More recent pictures recorded work on the deviation which eliminated the rack section in 1948, and the Cubal Variant opened in 1974 to permit complete closure of the mountain section. Some of the flavour of the railway and its surroundings is captured in a remarkable series of water-colour paintings prepared by Edwin Lambert.

The opening ceremony was performed by Dr. V.M. Wadsworth, London Manager of the Benguela Railway, who referred to the bold idea which Williams conceived to develop a direct route from Europe to central Africa. Despite political changes the railway remained vital to the future of Angola and its neighbours, and it was for this reason that the Company, which still owned 90% of the property, had continued to develop its capacity. However, although the railway is nominally open throughout, in practice it is still subject to regular disruption by UNITA attacks. Substantial loans have recently been negotiated to rehabilitate the railway and provide new equipment. Further main line diesel locomotives and shunters were to be ordered, and additional rolling stock. Relations with the Government of Angola were excellent, and internal traffic promised to increase as the country developed.

A booklet *The Lobito Route* (8in by 11in, 12pp., 11 photographs, 1 map, card covers) briefly describes the history of the Benguela Railway, and is obtainable from the North Western Museum of Science & Industry, 97 Grosvenor Street, Manchester M1 7HF, price 70p or 95p by post.

This exhibition will be presented at a number of other locations during 1982, and the following are already arranged: November 1982: Institute of Contemporary Arts, Nash House, The Mall, London, S.W.1. Spring 1982: Africa Centre, 38 King Street, London W.C.2. Summer 1982: National Railway Museum, York. The dates will be published in *Narrow Gauge News* when notification is received.

BENGUELA JOURNEY

A.E. Durrant

Early one Sunday morning 22, a veteran 6 class 4-6-0, shunts the goods yard at Benguela. (A.E. Durrant)

The Caminho de Ferro de Benguela (CFB) is a classic railway in the finest British style. In *The Narrow Gauge* No. 78 (Winter 1978) Geoff Moore recounted its history and locomotive development, and this account is therefore devoted to operations on part of the system in April 1974 when business took me to Lobito. The CFB headquarters are conveniently situated between the station and the Terminus Hotel, owned and operated by the railway. The dining room opens straight onto the beach, so that between the arrival and departure of the infrequent trains, one may be pleasantly occupied with a cold beer or even a hot bikini girl, although, incredibly for Portuguese territory, the bar closed from 3 pm to about 6 pm, in the exasperating British tradition!

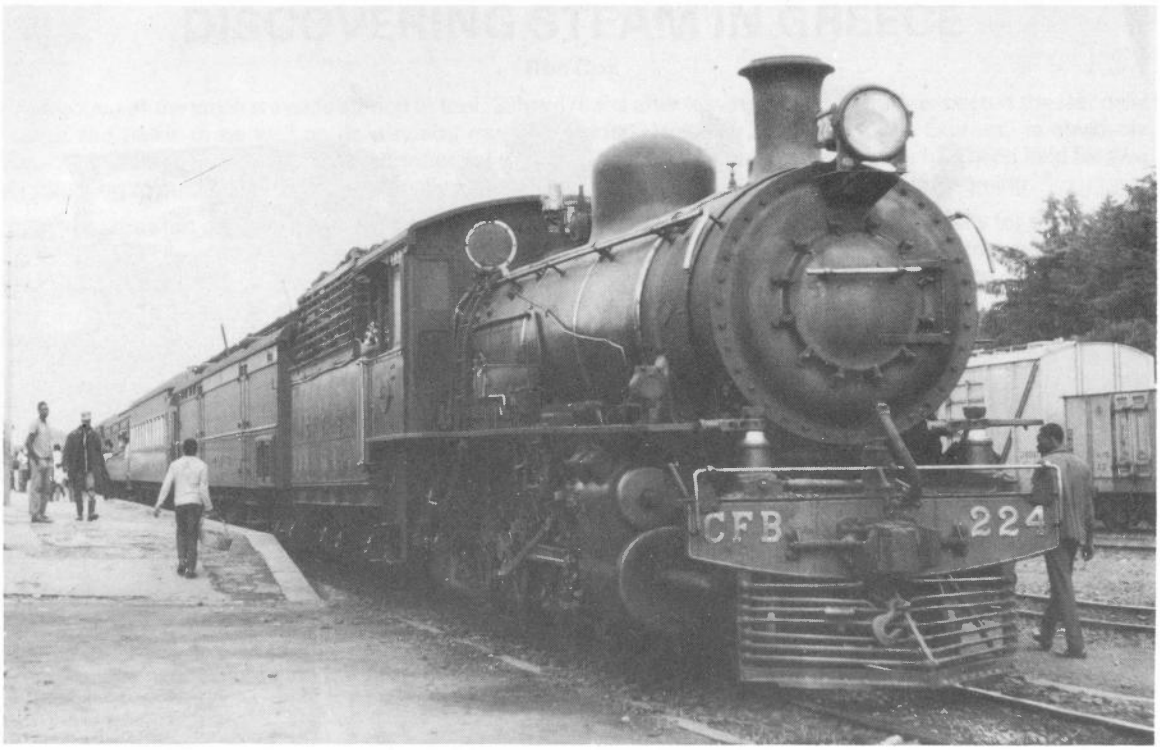
Main line passenger trains left Lobito four days a week, Mons and Fris to Texeira da Sousa, Weds & Sats to Silva Porto, with corresponding return workings, these being full passenger trains with 1st, 2nd and 3rd class accommodation and dining cars. There was also a daily "Recoveiro", probably some form of mixed train, 2nd & 3rd class only and no dining car. Along the coastal stretch between Lobito and Benguela was a local service, known as a "tramway", although a train of delightful open balcony stock hauled by a modern 4-8-2 is not the usual thought evoked by the term. These pseudo trams ran thrice daily, with an extra working on Saturdays, and a short trip Lobito—Catumbela—Lobito on weekdays.

We arrived in Lobito late Saturday afternoon. In the far distance, from my hotel window, could be seen shapes of steam locomotives silhouetted against a shed—but no apparent action. With our local agents we occupied the evening viewing the town from the hillside behind, consuming an excellent dinner at the Terminus Hotel, and then exploring some of the neighbouring bars, where the attractive "hostesses" were undoubtedly more interested in serving cuckoldry than cuckoo beer! Sunday morning dawned fine and clear, and glancing out from my window, there were those steam shapes in perfect lighting conditions, so I dressed, grabbed my camera gear, and hailed a taxi, whose driver amazingly understood my instructions to proceed to the locomotive depot ("deposito"). Outside, in perfect light, were 0-6-0 tank number 1, and an old 4-6-0, both dead but evidently useable. In steam, and gleaming in the early morning sunshine was 4-8-0 203, replete with red wheels, brass boiler bands, and a general air of an engine about to do something.

The driver moved 203 to a better photographic position, and then told me that it was going to take a passenger local to Benguela and back, so I decided to go too. Arriving at the station I found the whole railway exuding a British colonial atmosphere of half a century ago. Lobito terminus has one main and one island platford, and is devoid of all but the most basic of facilities—no refreshment room, for instance, but was neat and tidy. At the bufferstop end 0-4-0 saddle tank number 01, GENERAL MACHADO was stuffed and mounted, and at the main platform stood the Benguela local, composed of wooden open balcony stock painted in a passable imitation of Great Western chocolate and cream livery. First class fare for the 33km journey was about 80c return, and the upper class coach (Metropolitan-Cammell, vintage 1924) brought up the rear of the train. 203, built by North British in 1925, was one year younger. Once inside, wooden framed droplights, louvres, and mosquito screens were lowered, giving a good view of the dispatcher, topped with a white solar topee, who gave us the rightaway. With a blast from her gloriously toned chime whistle, 203 eased out past the docks, accelerating slowly with cylinder cocks open and lightly handled regulator. Few people were on board at the terminus, but at Compao (Compound) station we filled up with numerous locals. After this stop, running was brisker, and at Catumbela we crossed the opposing local, hauled by 4-8-2 403.

By the time Benguela was reached, it was extremely hot, and the short walk across the turning triangle to the shed had me dripping with perspiration. In my halting Portuguese, I asked the foreman if I could photograph the engines, to which he replied "Ah, Inglezi!" Evidently only mad dogs and Englishmen venture out in the Benguela heat! Various locomotives were soon lined up for photography, following which I walked up the road to the nearest bar for some much needed "Cuca" beer.

Changing engines at Benguela. Garratt 364 has just arrived from Nova Lisboa, and 4-8-2 402 waits to take the train forward to Lobito. *(A.E. Durrant)*



An up-country passenger train in the charge of wood burning 4-8-0 number 224 waits to leave Nova Lisboa. *(A.E. Durrant)*

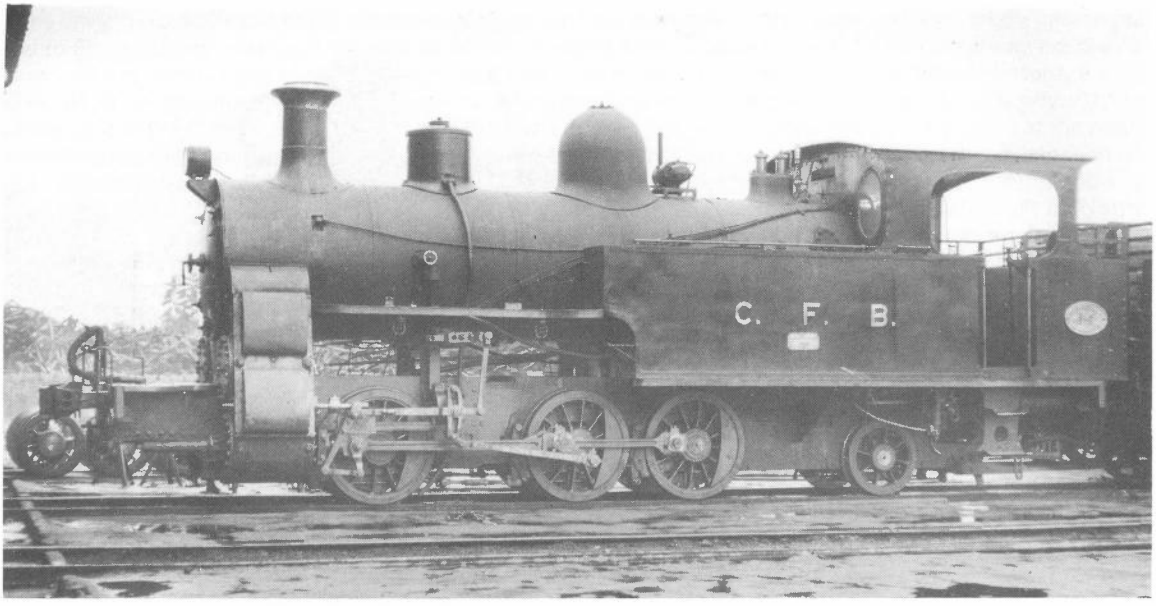
The coastal section to Benguela was worked by 9A 4-8-0 and 11th class 4-8-2, with 6th class 4-6-0's for shunting here and at Lobito, where 0-6-0 tank number 1 was also in service. From Benguela up the escarpment to Cubal, most freight was diesel, with some freight and all passenger trains hauled by the oil burning 10D Garratts. East of Cubal, traffic was entirely steam worked by a variety of Garratts. Many trains on this section are run as "Duplas"— one Garratt at the head end and another cut in half way.

A couple of days later, I boarded the main line train to Nova Lisboa, this being of equal character to the Benguela local but superior in furnishings. 4-8-2 402 headed the consist, and again the first class was at the rear, with the dining car immediately ahead. A quite spirited run was made to Benguela, where crowds of people thronged the platform. At the front, hordes of Africans crammed themselves and their possessions into the third class carriages, and I battled my way through the melée to see our 4-8-2 replaced by an oil-burning Garratt 364.

Right away, and for a few miles the Garratt sped across the coastal plain before turning up into the hills just as dusk fell. With my head out of the window I enjoyed the sight and sound of the train slowing down as the gradient steepened. with the sharp yet soft crackle of the Garratt's Kylchap exhaust wandering in and out of synchronisatin in the manner so typical of the breed. while the train snaked round ever more tortuous curves. All this time, I was conscious of a delicious smell of wood smoke and roasting meat drifting back to tickle the palate until suddenly it dawned upon me — the dining car was a wood burner!

At 7 pm, a handbell summoned the diners, and to the sound of squealing flanges I crossed the rocking threshold into one of the most delightful dining cars I have ever experienced. George Pullman and Monsieur Nagelmackers could not, between them, have conceived a more elegant means of eating on the run. The panelling was inlaid and polished wood, fittings were a rococo design of chromium plated brass, and ranged from luggage racks to a gadget for holding glasses and bottles upright whilst traversing sharp curves. Chairs were movable, with green leather padding on frames having CFB carved into the wood, and polished fans rotated under the clerestory roof.

Like the rest of the train, the diner had full drop windows, enabling me to peer out and see the Garratt's blunt



CFB 14, one of four former rack and adhesion engines now used for shunting the workshops at Nova Lisboa. The blanked off cylinders which formerly powered the rack pinions can be seen above the existing cylinders. *(A.E. Durrant)*

nose silhouetted against its own headlight, to watch the mysterious hillsides glide slowly by, devoid of visible life save the occasional feeble flicker from an African's fire. The open windows also let in swarms of insects, which clustered round the lamps without becoming a nuisance below. Food was excellent, as was the bottle of vinho verde which washed it down, and I retired to bed in a very contented frame of mind, with wheels clicking below, and chime whistles punctuating the syncopated exhaust beat ahead. Undoubtably there have been train trips equally enjoyable in my travels round the world, but all are now defunct or dieselised, and I thought that for sheer character combined with comfort, a trip on the Benguela Railway was probably unbeatable.

In the middle of the night, at Cubal, our Garratt was exchanged for another of the same class for the run to Nova Lisboa, and as dawn broke I awoke to the hissing of steam as we stopped beside the Garratt of a westbound freight. While passengers churned around below, the chime whistle bellowed and she was off—"chacha-chacha-chacha-chacha". Bogie wagons passed by with ever increasing speed then suddenly, under a great volcano of sparks, a wood-burning Garratt thrashed by, cut into the middle of the train. More "Duplas" were passed, even the odd "Simple" (a single engined train) and what with breakfast in the diner, Nova Lisboa was reached all too soon.

Nova Lisboa is the focal point of the whole railway, and apart from having the mechanical workshops, was then an important division point where all trains changed engines. All the early poppet valve Garratts were allocated here, and other Garratts either worked in or were stationed there. A number of 9A and 9C 4-8-0's were to be seen—they performed all the shunting and also some main line work. The 0-6-2 tanks formerly used on the rack section had had their cogwheel drive removed, although the blanked off cylinders which drove this mechanism remained as mute evidence of their former mountain climbing role. Small four wheeled tenders had been attached, and they shunted the railway workshops.

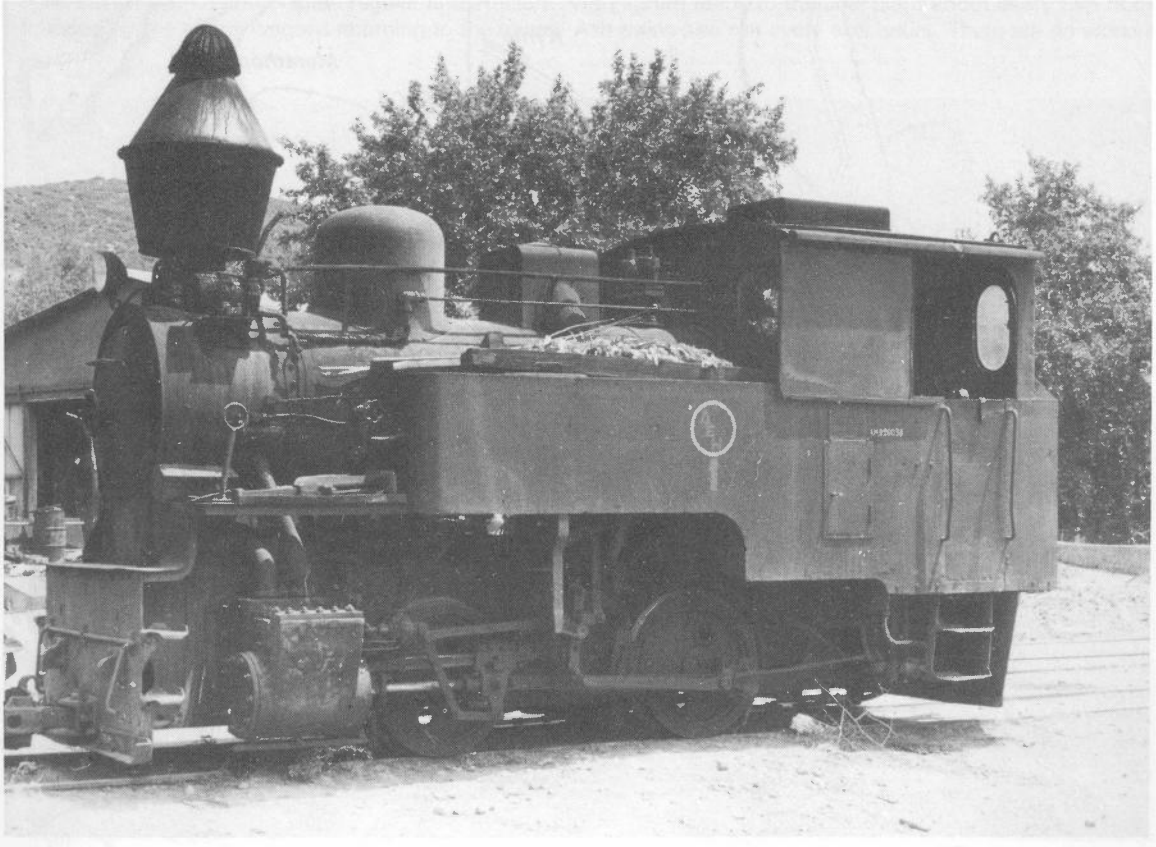
Freight is of course the line's raison d'etre, and the whole line was busy with international traffic. At Nova Lisboa there seemed always to be a freight arriving, departing, or being shunted, and a comfortable hotel situated right opposite the turning triangle ensures that one may keep in touch with operations even when engaged in such semi-essential activities as eating, drinking and sleeping. This was just as well because a regiment of clouds appeared but, when the weather gets too foul, one could sit and watch the "Duplas" arriving and departing. The nicest combination seen, just after dusk, was an eastbound train headed by a 4-8-0 with one of the poppet valve, wood burning Garratts cut into the middle. This was almost the last memory of my Benguela bash—maybe one day I will be able to repeat the experience.

DISCOVERING STEAM IN GREECE

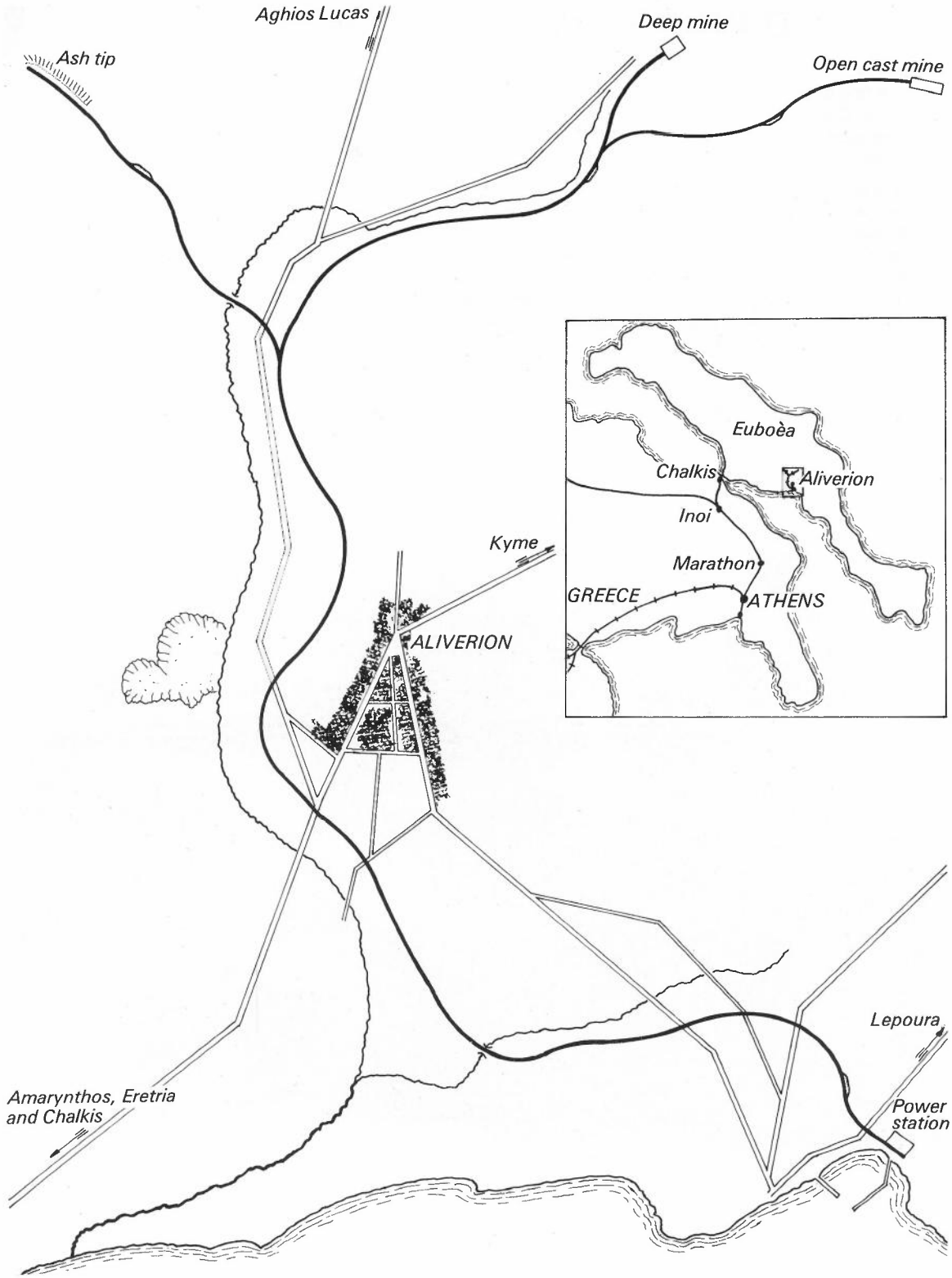
Ron Cox

On alighting at the small wayside station at Inoi, 39hrs 47mins after leaving Munich, I fully expected the last daily service to Chalkis to be well on its way and myself stranded. However, the "Akropolis Express" is obviously important enough to warrant holding connections almost indefinitely. The train to Chalkis had been held for two hours owing to our late running, and I finally reached my destination very early the following morning.

Inoi was the start of virgin territory to me; it is usually a case of tearing straight down to Athens for the goodies further south. The purpose of this diversion was to try to visit an isolated narrow gauge industrial railway at the small town of Aliverion on the island of Euboèa. The motivation for this latest excursion to Greece came almost a year to the day earlier, when a chance remark by one of the C.E.H. escorts to the Locomotive Club of Great Britain steam tour, described in *The Narrow Gauge* 91, raised eyebrows by suggesting the possibility of regular steam workings at Aliverion. The only other information forthcoming at that time was that the line served a power station, the steam locomotives were four-wheeled, and the gauge was thought to be 760mm. Investigations during the following year led me to expect 0-4-0 tank locomotives operating a line between a lignite mine and a power station administered by Dimosia Epikerisis Ilektrismou, Aliverion. Of the motive power only steam locomotives had been identified. The Jung works list revealed six metre gauge 0-4-0 side tanks delivered to the system. Jung 11715-17/1952 were supplied through the U.S. engineering company Burns & Rowe, Athens, and 11734-35/1952 and 12586/1957 followed direct to D.E.I.



No. 1 at the locomotive depot on 31st July 1981. *(A. Wilson)*


Aghios Lucas
Deep mine
Ash tip
Open cast mine
Euboèa
Chalkis
Aliverion
Inoi
Kyme
Marathon
GREECE
ATHENS
ALIVERION
Lepoura
Amarynthos, Eretria
and Chalkis
Power
station

Obviously the prospect of seeing working steam in 1981 was quite an attraction, and the year of planning and research served only to increase the sense of anticipation the nearer one approached. Chalkis had been reached on Sunday morning so I decided to rest after the long journey before pressing on to Aliverion in readiness for the full working day on Monday. Accommodation was no problem at all, but narrow gauge railways came to the fore on Sunday afternoon when two 600mm gauge four wheel diesel locomotives were noted in the car park of Cimentos Chalkis. The quarries and cement works were quite the largest such plant I had come across and although there was no trace of rail transport in the quarries or works there were these two locomotives—and new ones at that! I located the local bus station and checked the time of buses, then spent a very pleasant afternoon in this attractive seaside town.

On Monday morning I boarded the 07.40 bus to Aliverion, the second service of the day. The route was very pleasant, following the gently rolling contours for the entire 90 minute journey. The power station was noted well before we arrived at our destination and on the approach to the village we bumped over the double track level crossing. Aliverion proved to be a small village set on a hill some 3km inland. Accommodation is very limited and most rooms are booked for months by workers at the power station and lignite mine. Intending visitors are therefore advised to seek rooms in Eretria or Amarynthos, where it is plentiful.

After securing overnight accommodation I wandered down to the level crossing and was considering which way to turn when a fully loaded train passed, and I decided to follow it until I found myself inside the power station coal plant. No problems were experienced here or in the locomotive shed and other buildings. The staff proved friendly and helpful, even to the extent of moving a locomotive out of the shed for photographs.

The system is, as suspected, metre gauge. The main line is double track for 9km from the power station, where it becomes single then almost immediately divides into two branches. That to the east serves the mines, that to the west the ash disposal area. The gradient rises steadily as far as the deep mine, and is then level to the open cast mine. Operations are regular and efficient, with lignite trains to the coal plant about every two hours, followed by the empty wagons returning to the mines. Ash trains also run every two hours. There are no workings

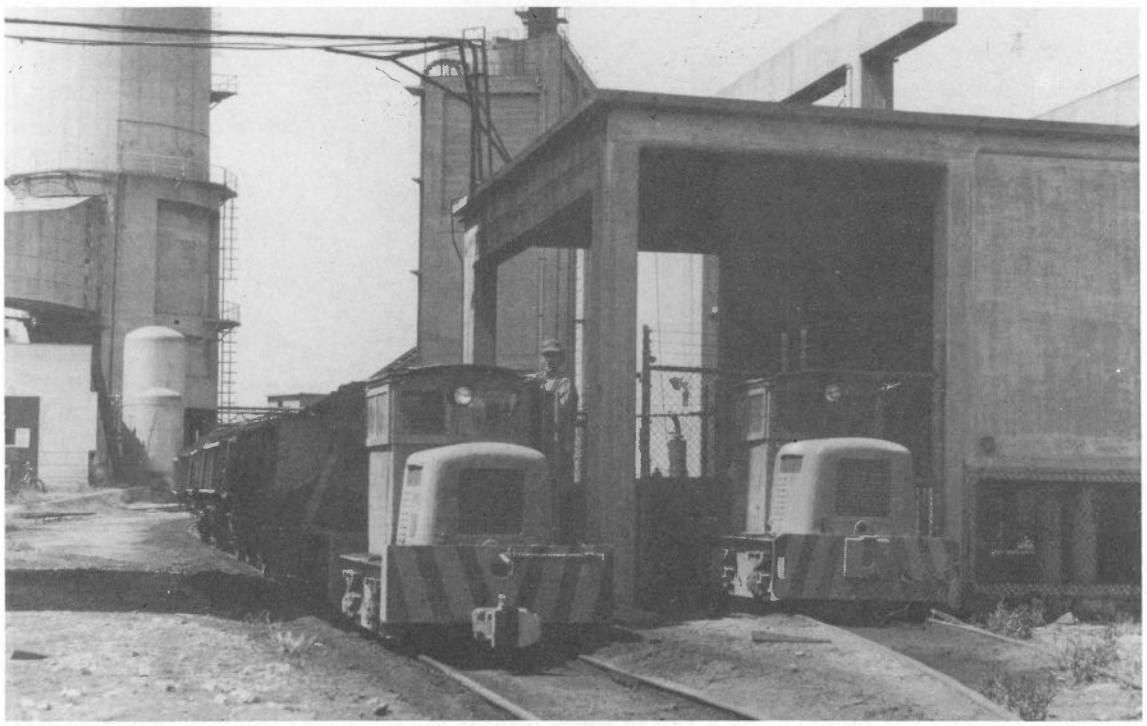
No. 2 skirts the village of Aliverion with a train of empty wagons heading for the mines on 29th April 1981. (Ron Cox)

for 1-1½ hours on either side of shift changes at 06.00, 14.00 and 22.00 but apart from this, operations are continuous. Coal trains usually consist of 8-10 bogie open gondola wagons with an engine and brake van, and ash trains consist of 8 side tip wagons again with an engine and brake van. A two-man crew is carried on all trains. The system has no signalling and trains are normally worked "at sight". the junction is manned by a pointsman but since ash trains have right of way over all other traffic when two trains approach the junction no supervision is normally required. Six roads are crossed on the level and each has manually operated lifting barriers.

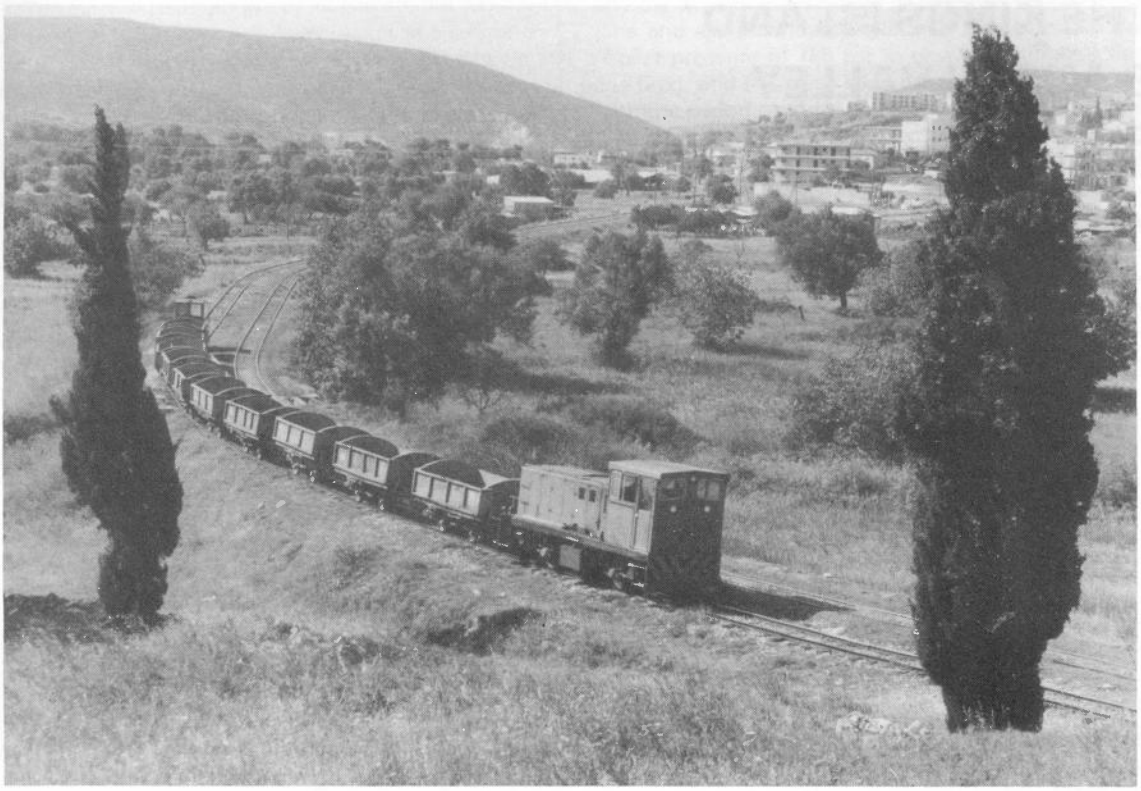
The power station was built around 1948-52 and is rated at 150MW. The two generators are of French manufacture and the boilers are fired with lignite from the mines or, at times, imported by sea at the station's own jetty. One port of shipment had a familiar name—Volos. Local lignite first came from a deep mine near Agios Lucas but during the early 1970s production was proving difficult and plans were drawn up to develop an open cast mine some 2km to the east of the deep mine. This has now been in operation for five years, and the deep mine is retained only on a care and maintenance basis. The railway was extended to the bunkers at the open cast mine as part of the redevelopment. The main steam locomotive depot and repair facilities are located at the deep mine. Stabling and fuelling points, a small workshop for maintenance and light repairs and the lignite unloading bunkers stand outside the power station area, but adjacent to it. The ash plant is inside the complex and guarded by very effective staff, but an approach will usually gain access to someone in authority, and thence to the station itself, where all staff were very co-operative and made visitors welcome.

Motive power is provided by four Nippon Sharyo diesel locomotives which work both coal and ash trains on the main line. Two Orenstein & Koppel diesels shunt beneath the ash bunkers at the power station where limited clearances preclude the use of the main line locomotives. One steam locomotive is available in steam on a regular basis but is believed to be a standby to the diesels and does not work when all four are in service. The full stock is:

1 4wDE	Nippon Sharyo Seizo Kaisha Ltd, Japan	2919/1971
2 4wDE	Nippon Sharyo Seizo Kaisha Ltd, Japan	2920/1971
3 4wDE	Nippon Sharyo Seizo Kaisha Ltd, Japan	2921/1971
4 4wDE	Nippon Sharyo Seizo Kaisha Ltd, Japan	2922/1971
—4wDE	Orenstein & Koppel AG, Germany	25799/
—4wDM	Orenstein & Koppel AG, Germany	25800/



The tall building in the centre background is the ash plant, with the two O & K shunters in the foreground. (Ron Cox)



No. 3 returns to the power station with a train of empties from the ash tip. *(Ron Cox)*

1 0-4-0T	Arn Jung Locomotivfabrik GmbH, Germany	11735/1952 (In Steam)
2 0-4-0T	Arn Jung Locomotivfabrik GmbH, Germany	11734/1952 (Spare)
3 0-4-0T	Arn Jung Locomotivfabrik GmbH, Germany	12586/1957 (Being dismantled for spare parts)
1 4wOHWE	U.S. or German make	Mines locomotives under repair on the surface.
2 4wOHWE	U.S. or German make	

At the time of my visit the station was only on half load. One of the diesels was undergoing heavy repair, but it was easy to see that the steam locomotives would be required regularly if the station was on full load.

The main line is quite scenic. The first 2km from the power station skirts the village and then passes through meadows around two sides of Aliverion. After crossing the main road from Chalkis the line follows the main road to Agios Lucas as far as the junction, 9km from the station. From this point the line to the ash tips crosses a small river and terminates about 2km further along, where a loop and two sidings are provided. The route to the mines skirts a range of low hills to reach a loop about 10.5km from the station. Here one line climbs steeply to the deep mine and steam locomotive depot, while the other climbs less steeply to the open cast loading point. It is this branch that is worked by steam when diesels are not available, but steam locomotives are not allowed on the main line to the power station because of the fire risk, and only work as far as the junction where a diesel takes over.

The system is easily reached by road from the mainland, either by the bridge at Chalkis or by ferry from Skala Oropou to Eretria. Buses run every two hours from Chalkis, and the fare to Aliverion (46km) is only Dr.100 (88p). The coast from Chalkis to Karytos in the south of the island is a tourist area and there are a number of hotels catering for British visitors along the main road between Chalkis and Aliverion. It is obvious that a number of tour operators use this area, and their packages could provide a trip here at modest cost. Since my visit I have heard that a further diesel locomotive has been delivered from Germany, and this may have eliminated the need for the spare steam locomotive. However, at times of peak demand who knows whether steam will not still be needed if diesels are under repair?

THE KINGS ISLAND & MIAMI VALLEY RAILROAD

Robert W. Maynard

Engine 19 rolls a train past the Indian village. (Robert W. Maynard)

Much to my surprise a few years ago. I found a very short line near Cincinnati. Ohio. that had some unusual qualities for a small railway. Imagine a railroad not quite 1½ miles in length that carries more than a million passengers in less than a year. There are two very interesting facts about these ribbons of steel. One is that the motive power is steam. and the other is the rails are laid to 3ft gauge.

Kings Island Amusement Park. owned by the Taft Broadcasting Corporation. has a section known as Rivertown. In Rivertown is a station for the railroad. one of the many rides offered to the public and. although it is not a long ride. it is pleasant and scenic.

The train leaves the station. rounds a curve and is immediately on top of a 150 foot high trestle approximately 200 feet long. followed by the longest straight length of track. about 120 yards. Every engineer wishes that it would be possible to let the engines "stretch their legs". but a medium speed must be maintained to keep pace with the tape narrative. The engine rolls into a rather sharp curve by an Indian village. and settles down to labour up the 1.5% grade topped by a wide sweeping curve to the left. The engineer whistles for the grade crossing at the top of the hill. and the train eases around the almost 360 degree curve at the cavalry fort. The locomotive whistles for the second grade crossing and the train starts the downhill run through the mock-up town of Lebanon. Ohio. The engineer gently slows down. while ringing the bell for another crossing. The engine rolls around a curve with the bell ringing and. in a few seconds. stops at the Losantiville Station from which the train left about eight minutes before. Although the buildings are mock-ups and the figures in the tableaux are plastic. the natural scenery is real. A major part of the ride is through virgin forest and some of the most beautiful beech and oak trees in the area arch over the railroad track.

Perhaps more interesting to the steam enthusiast is the railroad itself. The locomotives and cars were built by Crown Metal Products of Wyano. Pennsylvania. Crown has supplied a good many of their locomotives to amusement parks throughout the country and. except for minor differences. they all look pretty much alike.

Rail fans and photographers have the same problem at Kings Island as with many other parks running steam locomotives. It is extremely difficult to get a good picture of the train. either standing or in motion. When the locomotive enters the station it is visible in motion for approximately fifteen seconds. and this special spot is the favourite. However. the Kings Island engine crews are generally more friendly than at other large amusement parks. and thousands of happy youngsters of all ages have their pictures taken standing in the locomotive gangway while it is in the station. As the engines are in a spotless condition. and it is the responsibility of the engine crews to keep them in such a fashion. they are more than willing to show them off.

The locomotives, numbered 12 and 19, are basic 4-4-0s, and the dimensions are close to a narrow gauge design of the late 19th century. They weigh approximately 22 tons and are essentially well built. The cylinders are 10in × 16in, combined with 3ft 6in driving wheels and a boiler pressure of 185 psi to give a starting tractive effort of slightly more than 5,000 lb. The engines are propane fired, and this does keep the soot and cinders off the passengers. Perhaps this is not completely in keeping with the period of the train but, for the work they are used for, it is a bit more practical. There are hidden advantages also, as they are physically much easier to fire; and of course they do not get as dirty as a coal burner. Although it is possible to operate the locomotives without a fireman, there are always two men on the engine for safety reasons.

The boilers are of the all welded type, including the staybolts, and are rated at slightly under 30 h.p. The engines are not superheated. The boiler feed is with two 1in Penberthy Injectors. One is the lifting type on the engineer's side, and on the firemans side, the injector is fed by gravity. The engines are equipped with a single stage Westinghouse air pump manufactured by Crown Metal Products. The air brakes on the train are Westinghouse Automatic Air, and are the latest type used by Class 1 Railroads. The main reservoir carries 110 lb. of air with the brake pipe carrying 90 psi. Lubrication of the air pump is by a Lunkenheimer displacement type oiler. The air brakes on the train are controlled by a "self lapping" brake valve.

Cylinder lubrication is by a Manzell mechanical lubricator. The six 100 U.S. gallon propane tanks will operate the locomotive for the entire 14 hour day including steaming up in the morning. During the warm summer months the propane firing is quite easy but during the cool spring and much colder autumn months the gas pressure falls quickly. It is then necessary to refuel often or switch engines and trains. The tender water capacity is approximately 1200 U.S. gallons, and generally the rate of usage is less than 300 U.S. gallons per hour. Water stops are made every two hours, and as always with a steam locomotive, it is a good policy to take on water when it is possible. The passengers usually enjoy watching the operation.

The shop crew has made considerable alteration to the piping on the engines. As delivered some of the valves were most inaccessible. One of the most important changes was the replacement of the gas burner. This was placed in the centre of the cab, and inserted through the firedoor. This created a hot spot on the firebox tubesheet and conversation was almost impossible in the cab. These burners were replaced in 1976 with a design that was fitted into the firebox with a suitable brick arch. The burner operates quietly and, best of all, the boilers steam more freely.

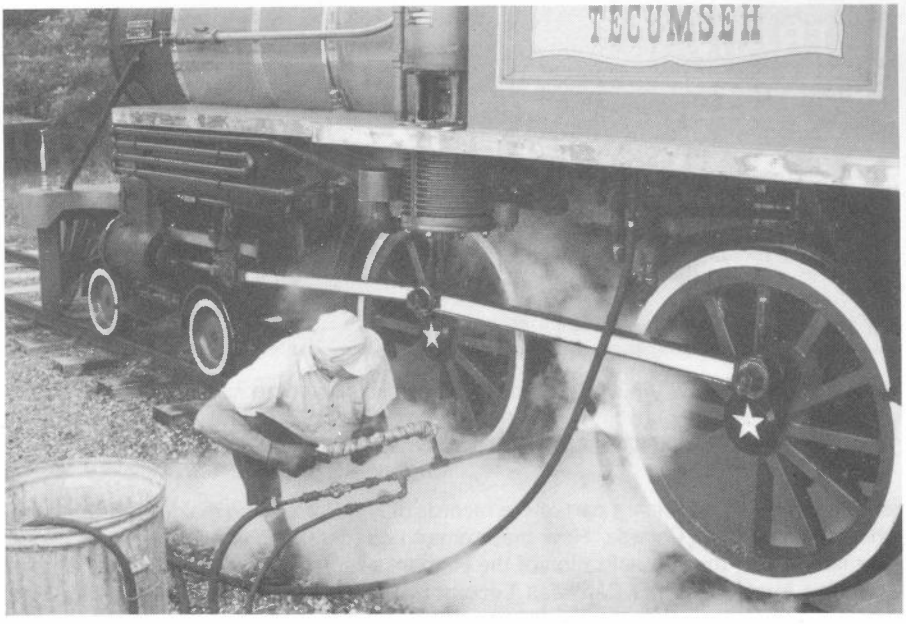
Engine 12 passing the town of Lebanon, Ohio. *(Robert W. Maynard)*

The lighting system on the locomotives as originally designed was by battery. The batteries also powered the sound system on the train, and late in the evening the dim headlight made track visibility quite difficult. In 1974 Pyle National generators were installed. These provide ample power for the head and cab lights, along with a slight charge for the sound system batteries. As the train stops only in the well illuminated station area, the cars are not provided with any type of lighting.

One of the most difficult problems of any railroad is the maintenance of the right-of-way; and, as we all know, a railroad is only as good as the track. Unfortunately the Kings Island & Miami Valley is a series of very tight curves and light 46 lb. rail. It is suspected that those who laid out the railroad used less than the minimum radius in their original survey. Although the engines and cars will negotiate these curves it is not without squealing flanges. Many solutions to this problem have been tried, from oiling flanges to continuous water feed onto the wheels and the track. The water system seemed to be the best, but it was generally pretty messy, and over a long period of time rusted the bottom of the cars. Air operated flange oilers were tried, but the 1.5% grade made slipping easy, and great quantities of sand were necessary for daily running.

It seems the best solution is the use of a graphite mixture, applied by a long handled brush each morning before running. If two trains are operating at the same time it is sometimes necessary to apply it late in the afternoon also. With careful starting and gentle brake application there is little wheel slippage. However, if it rains, the rail becomes as though it has just been greased, and until the rain has washed the rail clean it is usually necessary to apply a liberal quantity of sand for operation. The ease with which the rain removes the graphite from the rails is difficult to understand, because when you get it on your hands it is almost impossible to wash off. The graphite makes the train operation seem almost as though the engine is floating, but the black residue makes cleaning of the running gear very difficult.

Supervisor Lewis H. Brown recharges the propane tanks on 19.
(Robert W. Maynard)



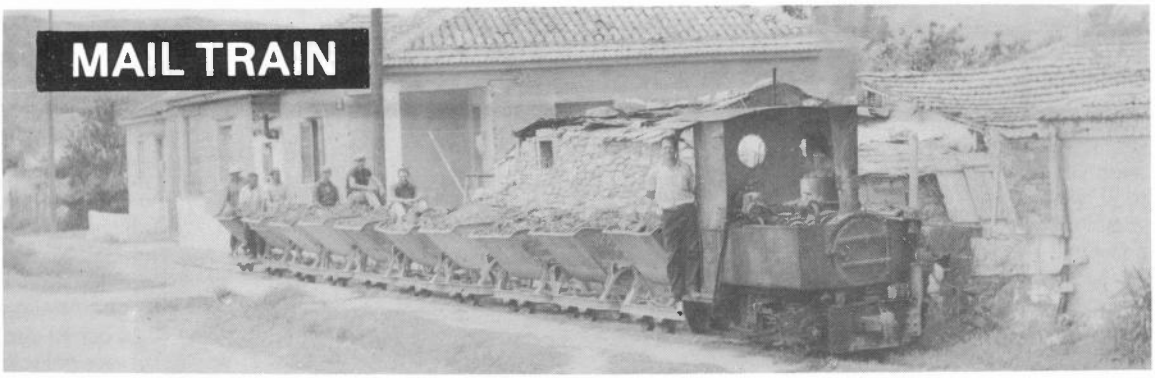
Richard Carmel steam cleans 12 to remove the graphite residue from the wheels and brake gear. Note the Westinghouse air pump in front of the cab, and bright-work along the footplate. (Robert W. Maynard)

The equipment is kept in spotless condition, the engines are wiped with kerosene and oil each day, and the brass (of which there is more than a generous amount) is polished about every two or three days. Rainy days dull the brass almost within minutes, but the engines and cars roll out of the sheds polished and clean regardless of the weather. When engineers and firemen (and the engine crews work both sides of the cab) are not actually running the locomotives their time is spent in working on the track or cleaning engines and cars.

The mechanical and direct operational supervision is under the direction of Lewis H. Brown. "Lew" is a working supervisor, and with the able assistance of Richard Carmell, performs the hard physical work of locomotive maintenance during the winter months. The track work is under the capable eye of Frank Burns, who spent almost fifty years as a track supervisor for the Pennsylvania Railroad. The age between the oldest and the youngest engineer is almost half a century, but all of them work for pretty much the same reason—a genuine love for the railroad and steam power. The combined experience of the dozen men making up the locomotive crews is over four hundred years!

The railroad operates from the middle of April until the middle of October (when the park is open). During the winter months the locomotives are hoisted up on jack stands and all the moving parts are given a complete and thorough inspection. Reassembly means replacement of any part that is worn or defective, and all parts are cleaned and painted. The entire brake system of both trains is overhauled every year, and the replacement of brake shoes is done during the running season. When in daily operation the locomotive boilers are washed every thirty days, the time interval usually followed on large railroad systems when steam was the prime mover.

The engine and train crews experience some sadness when the last runs are made in the crisp sunshine coolness of October, and there is something empty about the railroad when the engine shed doors close at the end of the last seasonal run. But the time passes quickly, the winter months fly, and before too many weeks the days begin to get longer. Then the trumpet of spring is the sound of the single note Norfolk & Western Railway whistle announcing that, for another year, the blue and green locomotives of the Kings Island & Miami Valley will be carrying thousands of happy passengers of all ages on another excursion of fun.



WHO WANTED BALDWIN 4-6-0s IN 1919?

It is not widely known that a significant part of the records of H K Porter now reside in the National Museum of Science & Technology at Ottawa, Canada. How they came to be there, and why only part, is a long and slightly involved story beginning with the rationalisation of the Fairbanks-Morse empire in 1950 and the resultant transfer of Porter's locomotive interests to the Canadian Locomotive Company. The important thing is that much of Porter's early history has been saved.

In June 1980 I spent three days in Ottawa going through these archives, which include four cabinets of drawings, and although my interest was limited to compressed air locomotives I did find time to study a few of the steam locomotive designs. Some of these are quite remarkable, Porter having been a firm who would accept a challenge, but one in particular is of interest for a slightly different reason. It is a General Arrangement drawing of a proposed Porter copy of the Baldwin 10-12-D class, the famous WDLR 4-6-0 tank. The drawing is a direct copy of the Baldwin original, and from notes pencilled upon it was made in response to an enquiry for a locomotive or locomotives of this particular type in 1919. The notes add that it was not carried further because the order was "placed overseas". This suggests that the enquiry was from overseas too, so it would be interesting to know which overseas organisation was sufficiently well acquainted with the Baldwin 4-6-0 to place such an order so soon after the end of World War I. The French military railways in Morocco? Hardly—they had commissioned the 10-12-D in the first place and anyway they would have used surplus machines from the WDLR had they required extra motive power. The Buenos Ayres Great Southern Railway, for their 2ft systems in Balarce province, perhaps? Possible—they eventually bought former WDLR Hunslet 4-6-0s, but surely a British-controlled railway would have gone to the War Stores Disposal Board first of all? Can anyone suggest a more likely candidate?

Lastly, one may speculate on the reason that Porter could produce such an accurate drawing of a locomotive type that was not used in the U S A. Did they perhaps build these locomotives for Baldwin during the War?

KENILWORTH, WARWICKS — RODNEY WEAVER

COBTREE ZOO RAILWAY

I am looking into railways in this area and have discovered that one existed at Sir Garrard Tyrwhitt-Drake's Cobtree Zoo just outside Maidstone. The Zoo guide book for 1937 states that the railway was 500yds. in length and ran from the entrance lodge on the Chatham Road (TQ 753584) to the Zoo entrance (TQ 748584) and that the fares up were Adults 2d (1p). children 1d (½p) and down 1d (½p) adults and children. The railway was opened on Sunday. March 21st 1937 by Miss Jessie Matthews who also named the locomotive JESSIE M. From a photograph in the guide book it can be seen that the line was of approx. 2ft gauge. the locomotive was a steam outline six-wheel type presumably powered by a petrol engine. It was not of Baguley or Barnards construction and could possibly have been constructed locally or on the premises. Can any member provide further information on this line or identify the locomotive?

MAIDSTONE. KENT — IAN BRISCOE

NARROW GAUGE RAILWAYS OF THE SHANNON SCHEME

This article in NG 75 included some additional notes on further locos which may have been used by Siemens Bauunion. Martin Murray suggests that Hanomag 9397-9409, if built, may have been used. If Mr. McGrath's total of 106 locos, excluding the four electric locos, is therefore correct it would have brought the total number of Hanomag's used to twenty-five comprising 9416-9426, 9429 and 9397-9409 whereas most previous statements have put the total at nineteen. I would imagine that the nineteen Hanomags actually comprised 9416-9420 (Siemens 5031-5035), 9421-9426, 9429 and seven of the 9397-9409 batch. Can any reader confirm?

MAIDSTONE, KENT — IAN BRISCOE

A YORKSHIRE CLAY MINE RAILWAY

In this article in NG 77 the first locomotive is described as arriving in 1946/47. However, during my researches into advertisements appearing in Contract Journal I came across the following in the July 1941 issue:
"20 h.p. 2ft gauge Simplex locomotive for sale £225. Naylor Bros. (Clayware) Ltd, Denby Dale, Huddersfield". Could this have been used on the railway to the clay pit?

RICHMOND, SURREY — F. JUX

RAILWAYS IN THE HEBRIDES

A network of light railways throughout the islands of Lewis and Harris was a key part of Lord Leverhulme's ill-fated plans to revitalise the way of life in these isolated lislands. A railway, probably 3ft gauge, was actually built from the northern outskirts of Stornoway to Banahuie Quarry (3½ miles) with a branch to War Memorial Quarry (1½ miles) and was operated by a contractor between 1919-1921. The line was designed to carry the stone required for Lord Leverhulme's road and housing projects and at least two locomotives were used, possibly Hudswell Clarke 597 and Peckett 1003. With the collapse of the schemes due to the violent opposition of the crofters, the lines were closed and the locomotives returned to the mainland. Some traces of the quarry routes can still be identified.

Of the network of light railways, a considerable amount of civil engineering work was undertaken along the southern half of the main line towards Leverburgh. Embankments were constructed and a little work done on cuttings. No track was however laid and certainly looking at the area today one wonders how such railways could ever have been contemplated, even if the population had been moved out of their isolated crofts into new townships.

There were two other railways in Lewis—the fairly well known waterworks line which is still technically open but which has seen no traffic for the past couple of decades, and also the short lived horse worked line serving the kerosene factory at Lews Castle, on the southern outskirts of Stornoway.

SUTTON COLDFIELD, WEST MIDLANDS — IAIN D.O. FREW

A WARD SALE PAMPHLET

I refer to the Kerr Stuart carrying the name FORWARD illustrated in NG 91. A.J. Booth suggested that this was a pun on their name, but I would offer a different explanation. FORWARD is the telegraphic address of Thos. W. Ward Ltd at Barrow-in-Furness, Briton Ferry, Grays, Inverkeithing, Newport and Wishaw according to their 1981 diary. Some other locations use WARDSMAN. Similar abbreviations are used for telex addresses, including WARDMN, TOWARD, BYWARD, WARDCO, WARDIL and of course FRWARD.

It may be that other companies have used their telegraphic address on locomotives over the years, and readers may like to investigate further.

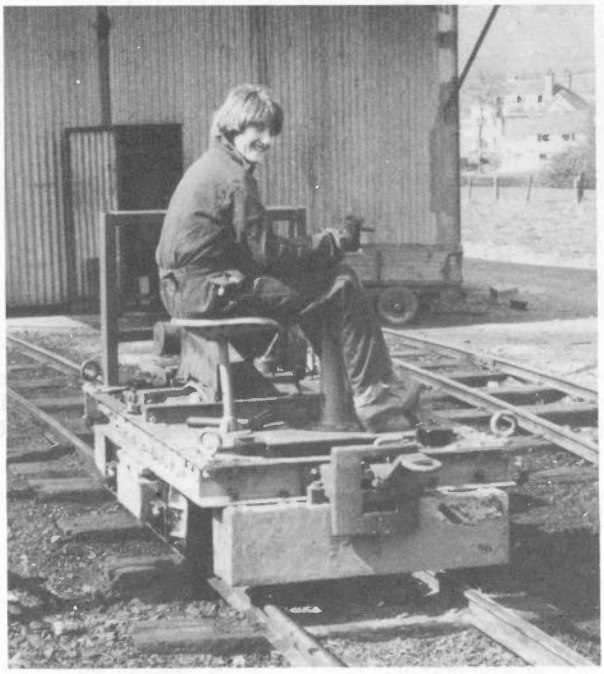
WATFORD, HERTS. — HENRY E. PRYER

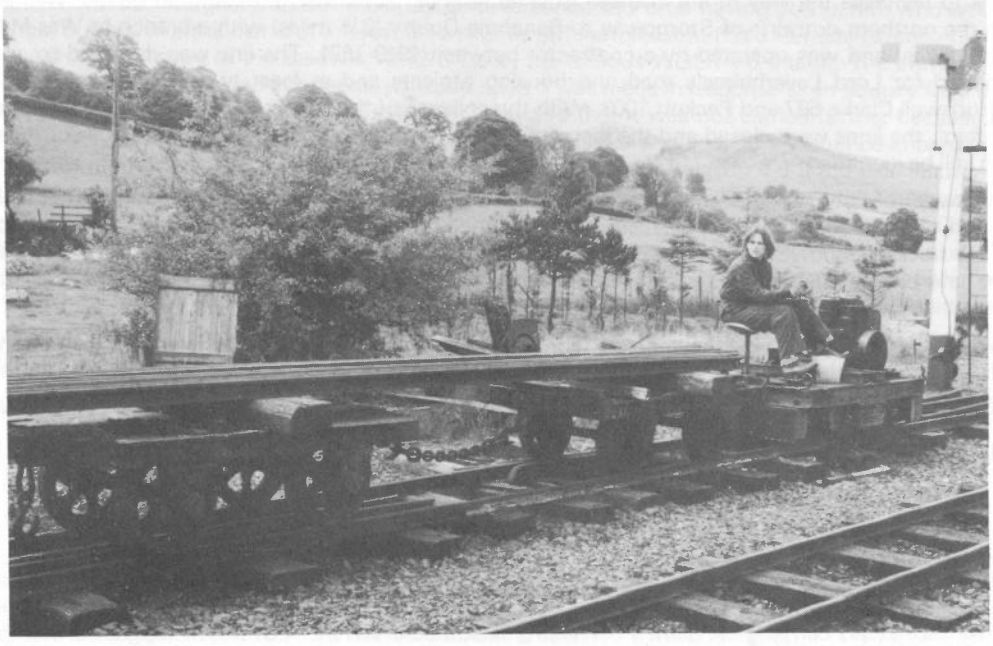
LADY LISTER DRIVERS

I am not too sure what Adrian Booth means by stating that Miss(?) Allison Patterson is unique. (Richardson's Fannyside Works—NG 92). As the accompanying photograph shows, one of the Rheilfordd Llyn Tegid Listers, in this case 34025, is regularly under the charge of a lady driver. Here, of course, the picture is of my wife Stephanie, who is also known to fire HOLY WAR on occasions.

SHEFFIELD, S. YORKS.

PETE BRIDDON





LLYN COWLYD TRAMWAY

In his letter in NG 92 Vic Bradley asked if anyone could confirm the withdrawal date of EIGIAU. I saw this locomotive on 25/9/53 on Bethesda main level "out of use near the shed". The terms of my note and its appearance on my photograph—it was grubby unlike all the working engines on all levels of the mountain that day) suggest that it very probably did not work again.

KENDAL, CUMBRIA

HAROLD D. BOWTELL

ESKDALE IN 1925

I think it highly unlikely that the two gentlemen who set off behind RIVER ESK on the occasion of Harold Bowtell's visit in 1925 would have been Bassett-Lowke or Greenley. Despite their close connection with the R&ER in its early 15in gauge days, both faded out of the picture very quickly when Sir Aubrey Brocklebank took charge of the railway in 1924, Greenly then being fully occupied with the RH&DR project. I think it more probable that the gentlemen concerned were from the builders of the locomotive, Davey Paxman & Co. Ltd., who had recently supplied a set of correctly balanced driving wheels and carried out some very necessary alterations to the Paxman-Lentz valve gear, increasing the cut-off to the 85% or thereabouts that Greenly had told them would be necessary when the gear was first proposed. I have often wondered how quickly RIVER ESK would have been rebuilt had Greenly remained as Engineer following Sir Aubrey's "takeover"; much sooner and much more practically than was actually the case I suspect.

KENILWORTH, WARWICKS. RODNEY WEAVER

SIR AUBREY BROCKLEBANK is not shown at the original terminus of Boot in the lower photograph on p.2 of NG.92. The houses on the left are Dalegarth Cottages, so the picture shows the temporary Dalegarth terminus used between abandonment of the line to Boot, which passed behind the cottages, and extension to the present Dalegarth terminus—now named Eskdale.

NEWCASTLE, STAFFS. E.K. STRETCH

SAND HUTTON—AND SYNOLDA

I had the privilege of driving SYNOLDA at Sand Hutton in 1921, when Sir Robert Walker invited my mother and myself to accompany my father to an official visit to Sand Hutton in connection with permits to obtain fuel supplies for the farms and railway. I spent the whole afternoon on the footplate with Mr Batty, the engineer, and Sir Robert asked him to instruct me in driving and have a few runs. I later saw the loco at Belle Vue, and was very pleased indeed when we managed to get it to Ravenglass.

DARWEN, LANCS. W. EWART BAXENDALE

VALE OF RHEIDOL WAGON RESTORED

The restoration reported in NG 92 was even more extensive than the article indicates. They now bear the legend "Re-built 1.5.81/2284" and that is a pretty fair summary. At least two have completely new solebars, and at least one headstock has been replaced. All three have new curb rails of a slightly different design to the previous ones.

Use of the metric system for the tare weight has resulted in an interesting example of the errors that can arise when transposing between different systems and conventions. As painted on 34124 the tare weight is 2.030 kg. which is about 4½ lb! (Could it be that Chester shops really regard VofR vehicles as toy trains?) The error has probably arisen because of confusion between the British convention of using a comma to indicate thousands and the Continental SI system, which uses the comma to indicate a decimal point. The British SI designation of a decimal point is a full stop either on or above the type line. (e.g. 1.1 or 1·1) and thousands are indicated in the true SI system by a space. (e.g. 2 030 kg.) For the record the tare weight of 34136 is 2 010 kg, again painted with an incorrect decimal point.

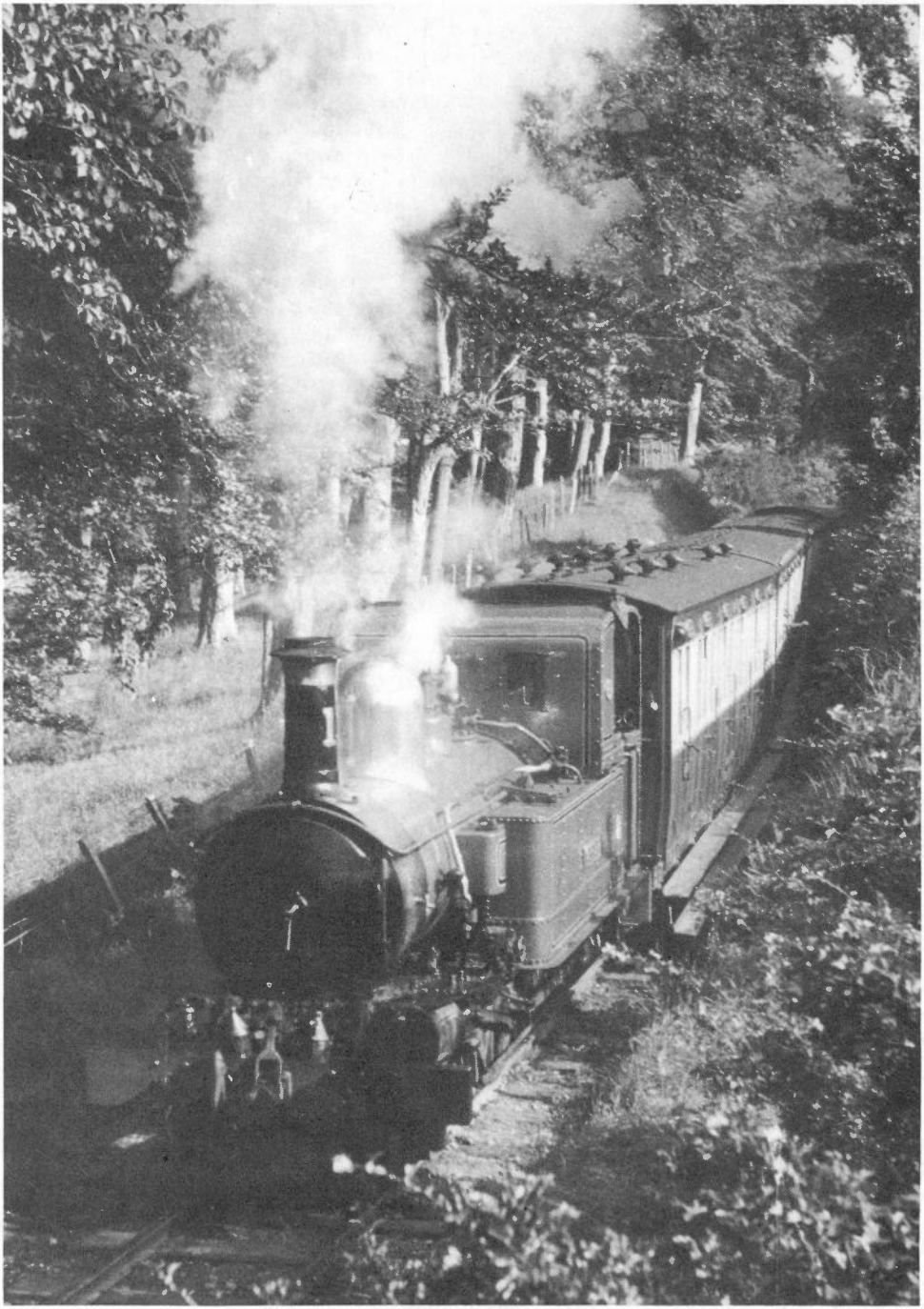
MIDDLESBROUGH, CLEVELAND CLIFF BARRATT

UNDERGROUND ELECTRIFICATION

With reference to Iain D.O. Frew's letter in NG 92, I can add further information relating to the locomotives utilised at Irthlingborough Mines. Greenwood & Batley Ltd records show that the four electric trolley locos supplied by them were designed to operate at 250 volts DC with the pole taking power from an 8ft high wire. These 7/8 ton locos were slightly more powerful than their BTH predecessors, being fitted with two motors rated at 40 h.p., and developing a maximum draw bar pull of 3,200 lbs.

The eighteen battery electric locomotives were all small 3 ton machines, fitted with one 4½ h.p. 48 volt motor, and producing a maximum draw bar pull of 850 lbs. They had a 3 speed controller, and were fitted with 18in diameter wheels. They were ordered in four separate batches: works numbers 1569-74 (quoted for delivery between July and September 1938); 2061-63 (delivered in July 1947); 2078-80 (delivered in June 1947); and 2291-96 (delivered in June 1950).

ROTHERHAM, SOUTH YORKSHIRE ADRIAN J. BOOTH



The peace of Nunnery woods is briefly disturbed by the passage of No 13 KISSACK, on six carriages forming the 10.10 a.m. Douglas to Port Erin train on 24th August 1980.
(A.D. Swift)