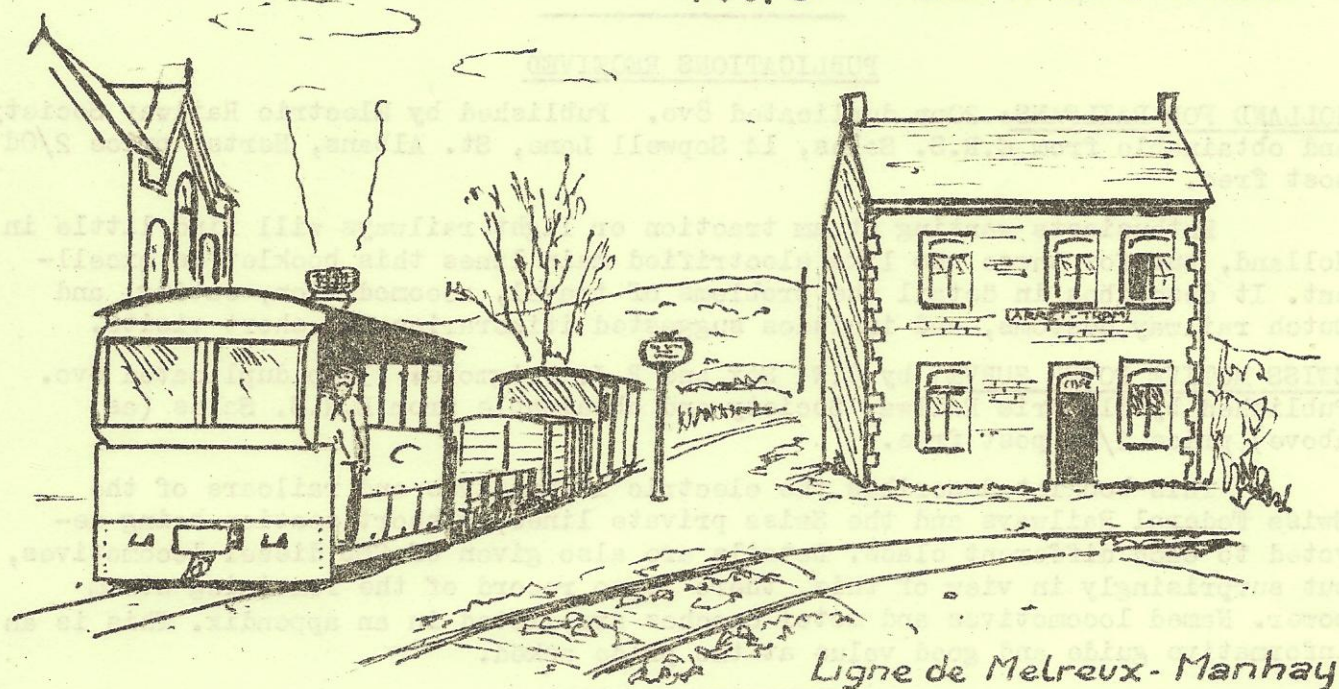


CONTINENTAL RAILWAY JOURNAL

No.6 - SUMMER 1965



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We must, firstly, apologise for the tardy publication of the last issue of the Journal, which appeared even later than had been envisaged when the Editorial was written. It was, accordingly, redesignated Winter 1964 and, as Winter and Summer seem more appropriate than Autumn and Spring for publications due to appear in November and May, the change has been made permanent.

Commencing with this issue, Journals are being numbered serially. This is No.6 and, for the convenience of readers, the theoretical numbering of earlier issues as follows:-

No.1	Autumn 1962	No.2	Spring 1963	No.3	Autumn 1963
No.4	Spring 1964	No.5	Winter 1964		

The subscription of most readers expires with this issue, and a renewal form is included where applicable. As these are old stock, the titles Spring and Autumn appear, and subscribers are requested to amend accordingly. Once again we invite readers to comment on the Journal on the back of the renewal form.

PUBLICATIONS RECEIVED

HOLLAND FOR RAILFANS: 20pp duplicated 8vo. Published by Electric Railway Society and obtainable from E.R.S. Sales, 14 Sopwell Lane, St. Albans, Herts, price 2/0d post free.

Enthusiasts wanting steam traction or light railways will find little in Holland, but for those who like electrified main lines this booklet is excellent. It describes in detail the problems of travel, accommodation, eating, and Dutch railway customs, and includes suggested itineraries for short visits.

SWISS MOTIVE POWER SURVEY by C.W. Sex and B.J. Prigmore: 36pp duplicated 8vo. Published by Electric Railway Society and obtainable from E.R.S. Sales (as above) price 2/6d post free.

This booklet describes the electric locomotives and railcars of the Swiss Federal Railways and the Swiss private lines, a short section being devoted to each different class. Details are also given of SBB diesel locomotives, but surprisingly in view of this, there is no record of the remaining steam power. Named locomotives and motor coaches are listed in an appendix. This is an informative guide and good value at the price asked.

ERRATA - Steam Locomotives of the Italian State Railways - On page 5 of the Winter 1964 Journal, Class 680 should read "4 CYL.COMP." instead of "4 CYL.COMP.SUP."

NOTE: We regret that, owing to shortage of space, we have had to hold over reviews of "Austria for Railfans" and "Austrian Railway Guide".

STEAM LOCOMOTIVES OF THE ITALIAN STATE RAILWAYS (F.S.)

by P.M. Kalla-Bishop

(Concluded from Winter 1964 issue)

<u>F.S. Class</u>	<u>Type</u>	<u>Main Features</u>	<u>Date</u>	<u>Remarks</u>
X 730.001-190	2-8-0	2 CYL.COMP	1906-09	
X 730.242	2-8-0	2 CYL.COMP.SUP	?	Rebuild ex-730.042
735.001-393	2-8-0	2 CYL.SUP	1917-19	Alco and Montreal-built.
736.001-243	2-8-0	2 CYL.SUP	1942-45	Ex-U.S. Army. Some to JDZ and SEK. No. 736.202 preserved at Rome.
X 737.001-015	2-8-0	2 CYL.SUP	1936-41	Ex-L.M.S. Stanier type.
740.001-439	2-8-0	2 CYL.SUP	1911-23	One to JDZ.
740.446-470	2-8-0	2 CYL.SUP	1922	
X 740.691	2-8-0	2 CYL.SUP	1921	Caprotti rebuild of 740.324; rebuilt back.
740.692-697	2-8-0	2 CYL.SUP	1923	Caprotti; originally intended to be 740.440-445.
X 740.852	2-8-0	2 CYL.SUP	?	Caprotti rebuild of 740.452
741.003-470	2-8-0	2 CYL.SUP	1955-60	81 Cresti rebuilds of 740 class.
743.001-467	2-8-0	2 CYL.SUP	1942-53	94 Franco-Cresti rebuilds of 740 class.
744.001-025	2-8-0	2 CYL.SUP	1927	
744.101-125	2-8-0	2 CYL.SUP	1928	Caprotti.
745.001-073	2-8-0	2 CYL.SUP	1914-23	Inside cylinders.
746.001-050	2-8-2	4 CYL.COMP.SUP	1922	No. 746.031 preserved at Rome.
746.101-110	2-8-2	4 CYL.COMP.SUP	1926	Caprotti.
X 747.001-030	2-8-2	2 CYL.SUP	1942	Ex-British W.D.
800.001-017	0-4-OT	2 CYL	1911-14	Rebuilds ex-60 class baggage motors.
X 806.001	0-4-2T	2 CYL	1907	Ex-Germany; crane engine.
X 819.001	0-4-2T	2 CYL	1886	Ex-Società Veneta No. 227.
X 822.001-018	0-6-OT	2 CYL	1885- 1908	Ex-KK St.B 97 class. Some to JDZ. No. 822.012 preserved at Rome.
830.001-014	0-6-OT	2 CYL	1903	Ex-PM Nos. 6807-20.

<u>F.S. Class</u>	<u>Type</u>	<u>Main Features</u>	<u>Date</u>	<u>Remarks</u>
830.015-044	0-6-OT	2 CYL	1906	Some sold to industry; No.830.035 preserved at Rome.
X 831.001-004	0-6-OT	2 CYL	1943	Ex-U.S. Army, built Davenport.
835.001-370	0-6-OT	2 CYL	1906-22	One to JDZ.
851.001-024	0-6-OT	2 CYL	1901-04	Ex-RA Nos.2732-55.
851.025-078	0-6-OT	2 CYL	1905-07	
851.079-114	0-6-OT	2 CYL	1898- 1904	Ex-RA Nos.2701-31/56-60.
851.115-207	0-6-OT	2 CYL	1908-10	
851.208-210	0-6-OT	2 CYL	1924	Ex-Siena-Monteantico Rly. Nos. 851.01/3/4.
875.001-117	2-6-OT	2 CYL	1912-16	One to JDZ.
X 877.001-005	2-6-OT	2 CYL.COMP	1908-11	Ex-KK St.B 199 class; two to JDZ.
880.001-060	2-6-OT	2 CYL.SUP	1915-22	
880.102-217	2-6-OT	2 CYL.SUP	1920-22	26 rebuilds from 875 class; No. 875.002 becoming 880.102 and so on. No.880.159 preserved at Rome.
X 885.001-016	0-6-OT	2 CYL.COMP	1906-08	
X 893.001-012	0-8-OT	2 CYL.COMP	1902-14	Ex-KK St.B 178 class. Two to JDZ.
895.001-042	0-8-OT	2 CYL	1909-11	Three to JDZ.
895.101-165	0-8-OT	2 CYL	1913-16	Two to JDZ.
896.001-030	0-8-OT	2 CYL.SUP	1921	
X 897.001-002	0-10-OT	2 CYL.SUP	1916	Ex-KPEV T 16 ¹ class.
899.001-008	0-6-OT	2 CYL	1882- 1905	Ex-KK St.B 294 class.
905.001-084	2-6-OT	2 CYL	1908-12	No.905.032 preserved at Rome.
X 910.001-006	2-6-2T	2 CYL.COMP	1905	Ex-RS Nos.401-6. No.910.001 preserved at Rome.
X 910.007-054	2-6-2T	2 CYL.COMP	1905-08	
940.001-050	2-8-2T	2 CYL.SUP	1921-22	Four to JDZ.
940.051-053	2-8-2T	2 CYL.SUP	1924	Ex-Santhia-Biella Nos.941-3.
X 980.001-012	0-6-OT	4 CYL.COMP	1908-13	Rack locomotives. No.980.002 preserved at Rome.
981.001-008	0-6-OT	4 CYL.COMP.SUP	1922	Rack locomotives.

<u>F.S. Class</u>	<u>Type</u>	<u>Main Features</u>	<u>Date</u>	<u>Remarks</u>
R301.1-33	2-6-OT	2 CYL	1912-14	950mm gauge. Some to Libya and Eritrea. No.R301.2 preserved at Rome.
R302.1-42	2-6-OT	2 CYL.SUP	1922-27	950mm gauge. Some to Libya and Abyssinia. No.R302.23 preserved at Rome.
R370.1-36	0-6-OT	4 CYL.COMP	1908-21	950mm gauge rack locos. 22 of this and following class sold to Sardinian Southern Railways.
R370.037-048	0-6-OT	4 CYL.COMP	1928	950mm gauge rack locos. See note above.
X R402.1-9	0-8-2T	2 CYL.SUP	1938	950mm gauge. 7 rebuilds ex-class P.
X R410.001-006	0-8-OT	2 CYL	1916	760mm gauge. Ex-KKHB class K. One to JDZ.
X P1-P3	0-8-2T	2 CYL.SUP	1911	760mm gauge. Ex KK St.B Nos. P1-P3.
X P4-P9	0-8-2T	2 CYL.SUP	1922	760mm gauge. No.P7 preserved at Rome.

For abbreviations see page 5 of Winter 1964 Journal.

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THE LOCOMOTIVES OF THE GREEK STATE RAILWAYS, PELOPONNESE REGION,

AND THEIR WORK.

PART II - THE TANK LOCOMOTIVES (CONTINUED)

By D. Dixon.

As with the tender types, each locomotive will, over a period of weeks, take an equal share of all these duties. No shed staff are provided outside Patras, so that firemen are responsible for fire-raising; this results in some very short nights - a fireman considers himself lucky if he gets five hours sleep between days 2 and 3.

The picture at Kalamata is similar. Here the following trains are worked in a seven-day cycle:-

- | | | | |
|---------------|--------|-------------|--|
| (1) Passenger | 703/4 | (TA 85/6) | Kiparissia-Zevgolatio and v.v. |
| (2) Mixed | 673/4 | (241/2) | Diavolitsi-Kalamata and v.v. |
| | 740-65 | (Unchanged) | Kalamata-Messini and Asprochoma-Messini and v.v. |

(3) Freight 285/5 (451/2, Patras-Kalamata and v.v.
 491/2 (431/2, Pirghos-Kalamata and v.v.
 495/6 (671/4) Kalonero-Kiparissia and v.v.

Until Spring 1964, 703/4 were railcar-operated, and are wrongly shown as such in the current timetable.

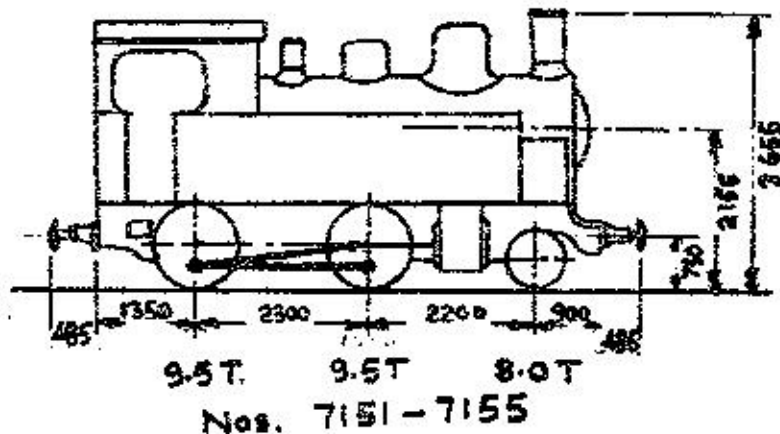
The cycle is as follows:-

Day	Kms.	Train	From (dep)	To (arr)
1	134	286	Kalamata 7.30	Kalonero 11.25
		495	Kalonero 12.00	Kiparissia 12.13
		496	Kiparissia 14.50	Kalonero 15.02
		285	Kalonero 16.20	Kalamata 19.40
2	117	748-53	Kalamata 10.55	Kalamata 14.50
			(Messini branch)	
		674	Kalamata 18.03	Zevgolatio 19.20
		704	Zevgolatio 20.00	Kiparissia 21.50
3	67	-	Shunt Kiparissia	
		491	Kiparissia 10.55	Kalamata 15.17
4	100	-	Shunt Kalamata	
		754-65	Kalamata 15.08	Kalamata 21.39
			(Messini branch)	
5	178	740-7	Kalamata 5.30	Kalamata 10.31
			(Messini branch)	
		492	Kalamata 12.06	Kiparissia 15.47
		703	Kiparissia 18.12	Zevgolatio 19.40
		674	Zevgolatio 20.10	Diavolitsi 20.21
6	38	673	Diavolitsi 6.25	Kalamata 8.45
		-	Shunt Kalamata	
7		Rest		

The total distance covered is 634 kms. in 7 days, an average of $90\frac{1}{2}$ kms. or 51 miles per day. As with the Patras turns, however, this figure belies the use made of the locomotives, particularly at Kalamata, where a lot of shunting is involved.

In addition to the cycle, one locomotive is sent out every Wednesday and Saturday to Lefctron (formerly Bilali) for working the Megalopolis branch, then continuing three or four days later to Tripolis, returning to Kalamata at the end of a week. Its duties at Tripolis consist principally of shunting and station pilot, and 7511 is only steamed when the Kalamata locomotive is needed elsewhere - on p.w. work, or for banking from Andritsa to Parthenion or from Leontari to Assea. (If a banker is needed out of Diavolitsi up to Chrani, this is provided from Kalamata.) The Megalopolis locomotive usually works out to Lefctron as pilot on train 552 or 672.

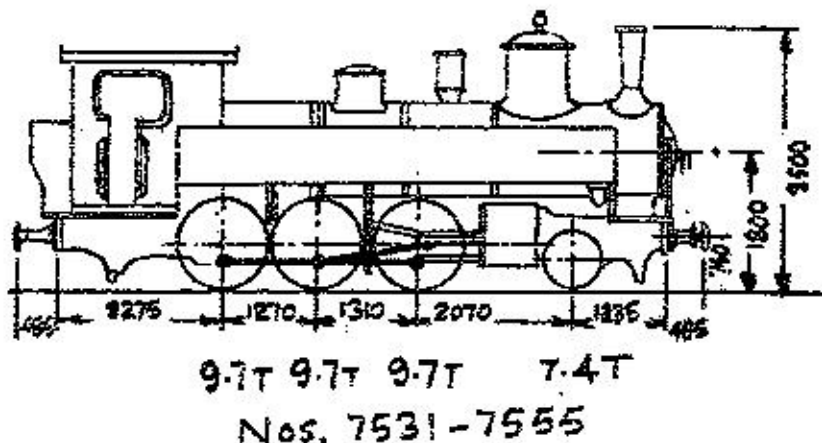
Presumably owing to severe winter weather conditions, every effort is made to run tank locomotives chimney-first; little turntables are provided at a number of places for turning tank engines, for instance at Pirghos, Olympia, Kalonero (despite the existence of a triangle), Kalamata, Paradissia (near Lefctron), Achladokampos and Mili.



It will thus be seen that at least 25 of the fleet of 40 tank locomotives in use on the S.P.A.P. proper are steamed daily, and this may rise to 30 or more with extra workings, leaving little scope if several locomotives are under repair or having washouts. But the imminent arrival of the Alco diesels should enable at least some of the Z class to be retired.

A1 TRIKOUPIIS A3 AGRINION A5 MESOLONGION

211 Couillet 931/88



it is not infrequently necessary to steam one of the others. The line is worked in two sections from Missolonghi (the depot and headquarters of the line). At least one freight runs to Agrinion most days, and two to Krioneri when the ferry-boat "RODOS" is operating - usually about four times a week; there is no fixed freight timetable. A typical day would find two locomotives in steam. There is a possibility, however, that the freight service may be withdrawn.

The 750mm gauge line from Diakofto to Kalavrita possesses six locomotives of two types:-

(i) Unsuperheated,

8001-3	Cail 2343-5/91
8004	Cail 2518/99
8005	Piraeus 1954

(ii) Superheated,

8011	Krupp 925/25
------	--------------

These are all outside-framed 0-6-2T's, with independent rack motion between the frames, as there are three stretches of Abt rack between Diakofto and Megaspoleon. 8005 was built in the S.P.A.P. workshops from the plans of 8001-4, to alleviate a severe power shortage (prior to the arrival of railcars in 1959, four were needed in service daily). Present use depends on traffic, but usually two are steamed, operating a two-day roster. After taking an unscheduled freight up to Kalavrita and back (leaving Diakofto at about 10.00), the locomotive takes the evening passenger train, viz:-

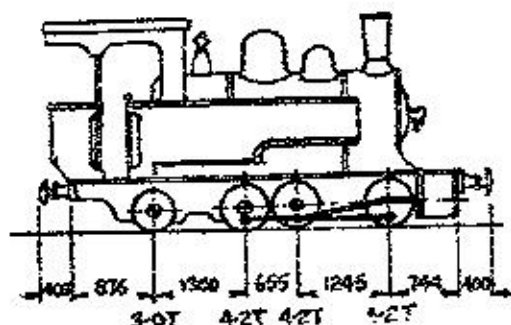
<u>Train</u>	<u>From (dep)</u>	<u>To (arr)</u>
953	Diakofto 18.16	Kalavrita 20.19

and on the second day:-

952	Kalavrita 7.46	Diakofto 9.29
951	Diakofto 14.04	Kalavrita 16.08
954	Kalavrita 16.25	Diakofto 18.08

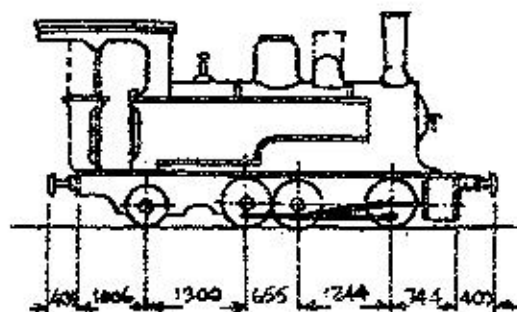
(This service has been in operation since 1960, and the 1954/65 timetable, showing four steam workings each way, is incorrect.) Maximum load is one coach or one wagon, despite which the engines have considerable difficulty in propelling their 'train' up to Megaspoleon, where the locomotive runs round and pulls it on to Kalavrita. Regular steam working will soon cease, as three

DIAKOFTO KALAVRYTA No 1-4



SEK No. 8001-4.

DIAKOFTO KALAVRYTA No 5



SEK No 8011

more railcars are on order from Billard; these are capable of taking either a wagon or a passenger trailer.

Only one locomotive has so far not been mentioned - the S.P.A.P.'s first diesel, 2-4-0 No. 9.321, class D.B^s, built in the Piraeus workshops in 1961. Its frame and wheels are of the same type as a B^s 2-4-OT, and it was planned to convert 7151-5. Despite the success of 9.321 however, this has not been done. The locomotive was intended for shunting, but has instead been used (with one or two coaches) on the same diagram as the pre-war single railcars; its work is thus outside the scope of this article.

POSTSCRIPT TO PART I AND FIRST HALF OF PART II.

There have recently been several changes in the tender locomotive rosters listed in Part I of the article. On day 2 of the Piraeus cycle, train 192 now leaves Patras at 5.00 and is timed as far as Eghion (arrive 6.50), thereafter unspecified. Train 592 (day 7) leaves Tripolis half an hour earlier at 11.30 and waits at Corinth only long enough to take water (and be shunted if necessary). Two days later, the Patras freight at present leaves Piraeus at 4.50 in the path of optional freight 1101 (formerly 501) to Corinth, arrive 8.52, depart 9.17 and thereafter untimed. The Piraeus locomotives are also finding considerable use on relief freights as far as Corinth (on the Corinth-Patras-Kiparissia road, one locomotive is allowed a load of 400 tons as against the 155 tons as far as Corinth). Up to three of these may run a day. The engines usually return light to Piraeus (incidentally, relief crews are used on these extra workings). Finally, one of the 7721-8 series has been on loan to Kalamata for some months for use on loads of rail coming in through that port for the relaying programme. The locomotive concerned changes every week or so.

The most important change has occurred at Patras, where passenger trains 151/2 have been cut back from Kiparissia to Pirghos. One locomotive now undertakes these two for five days - out on 151 to Pirghos the first day, four return trips to Patras on 152/1 (overnight at Pirghos), returning on 152 to Patras on the sixth day. 285/6 are then worked several times out and back, with nights spent at Kiparissia. This means that Patras usually steams only four 2-8-2's a day (the fourth in reserve); as a result, Piraeus is making a habit of borrowing ex-works Patras locomotives for several weeks.

Twelve Alco 1350h.p. diesels were due for delivery starting last autumn, and it was hoped with them to replace 18 steam locomotives (probably a mixture of 2-8-0's and 2-6-OT's). They will be able to work through from Piraeus to Kalamata or Pirghos without change, and considerable acceleration should result. Their horsepower compares with that of the steam locomotives as follows:-

7711-4	720h.p.	7101-8	875h.p.	7151-5	360h.p.	7531-55
7721-8	725h.p.	7111-20	770h.p.	7501-12	275h.p.	390h.p.

When the renumbering took place after the S.E.K. takeover, all the brass number plates were initially blacked over, with the exception of the S.V.D.E. locomotives and one or two others. Several of the 2-6-OT's had plates reading, for instance, 2543, which, by some careful filing became 7.543. Other Z class which have been through works have received new plates, e.g. Z.7531. Very few of the tender locomotives have received new plates, rather curiously, though

Steam workings appear to have ceased from the depot at Irun. In May 1964, a handful of 2-8-0, 0-8-0 and 0-8-OT types were evident, but these seemed to have gone when passing in December 1964. One of the British-built 0-8-OT's is still to be seen shunting at the nearby port of Pasajes, where it is owned by the dock authorities (J.O.P.). It still bears its RENFE number plate 040.0207 and is named SUEROCA; livery is green.

The daily "international train" via the Portuguese border at Barca d'Alva was sampled in the course of an epic 72-hour continuous journey from Portugal to Austria. A total of three persons crossed the border, to be screened by some dozen assorted police and customs types. Eventually the train of two coaches plus a van ambled off towards the first Spanish station of Fregeneda, with a Spanish 0-6-0 as motive power. This 18km. journey through no-man's-land traverses spectacular mountainous country, and at no time did the train threaten to exceed 15m.p.h. Another coach was added at Fregeneda, and thereafter there were occasional dashes of spirited running over the plains. Nevertheless the 79km. journey took 3½ hours. Fuente de San Estaban was thus reached, and here there was just time for a pleasant visit to the small depot. The shed was occupied by two more of the 0-6-0's, and a Spanish railwayman fervently studying a booklet on steam locomotive maintenance as if it were the latest in science fiction.

AUSTRIA

On a visit in March 1965 to Knittelfeld depot, it was learned that 33.102 was the last working example of the 4-8-0's introduced in 1923 for the Semmering line. The engine was in poor condition and expected to be withdrawn shortly. Its most recent work had been on the 6.34 Unzmarkt-Graz and 16.45 Graz-Unzmarkt expresses, on which duty a 52 class 2-10-0 deputised when necessary. A recent withdrawal at Knittelfeld is 0-4-OT No. 088.01, which is to be preserved. 2-6-2 No. 35.251 is now used as a stationary boiler inside Knittelfeld shed; this is one of those which saw service as the 688 class of F.S. Italia up to 1952.

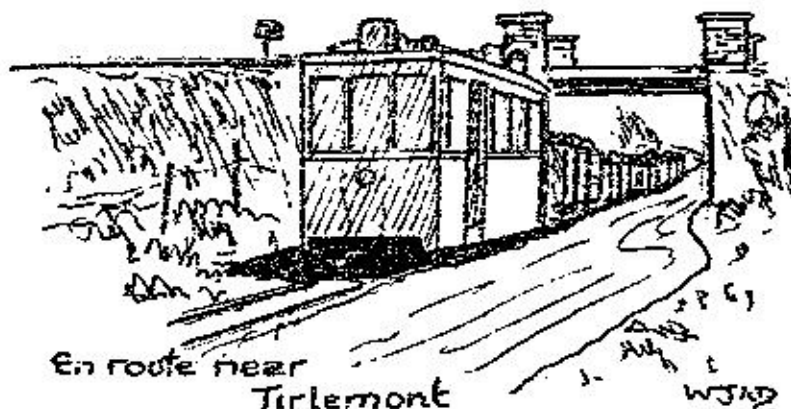
The preserved Gölsdorf 2-6-4 No. 16.008 and Giesl 2-8-4 No. 12.010 are now standing at Vienna Std shed, alongside the Südbahn main line. A further Gölsdorf passenger engine, 2-6-2 No. 15.013 (now renumbered 01032) continues to act as stationary boiler at Vienna Ost shed.

FRANCE

A main line diesel locomotive has arrived at Longueau shed for crew training and will be followed by others for use on trains between Amiens and Boulogne and Calais. Steam types presently to be seen at Longueau include 141R, 150P, 040D, 050TE and 030TU. An Easter 1965 visit to Creil produced a total of 44 steam locomotives of classes 141R, 150P, 230D, 050TD, 030TU and 141C (Ouest), the latter of Trappes shed and apparently ex-works. At Belfort, 230B still appear on Delle trains, but oil tanks are in course of erection at the shed. Despite the extension of electrification towards Rennes, Le Mans still boasts a considerable steam allocation and in the 63 locomotives on shed at Easter, classes 241P, 141P, 141R, 141C, 231D, 231G and 040TA were represented. St. Briec also produced seven classes, including a withdrawn 030C. However, the largest quantity of steam was found at Nevers, with a total of 112 locomotives, though of these no less than 62 were withdrawn. Active classes were 241P, 141R, 231G, 231R, 140J, 040TC, with representatives of most of these classes and also 141E, 140L and 242TC out of use.

Acknowledgements for information are due to Messrs. M. Bland, M.T. Hudson, P.M. Kalla-Bishop, C. Rickwood and B.A. Stone.

MINOR RAILWAYS SECTION



BELGIUM

Poulseur-Sprimont closed at the end of April, when the boiler of 801, the last serviceable tram locomotive was due to be condemned. To the last, 8 to 12 wagons of stone were being brought down daily, and in mid-April, Poulseur yard was full of loaded wagons. 810 and 816 were dead in the shed, their boilers already condemned and due for scrapping. Brake/coach C2003, ex Dolhain-Coë, and one derelict wagon were the only other items of SNCV stock.

Other SNCV lines - The four-rail spurs at Baudour and Mol are still in use with metre-gauge autorail-tracteurs hauling standard gauge wagons, and APT500 is still at Groenendaal with one steam locomotive, probably 808. At Tirlemont (Tienen) depot, two railcars are rotting away in the open with some wagons, and some lines at least are still in situ though the system closed two years ago. At Antwerp (Merksem) two other cars were observed, one being used for shunting the lines of electric stock due for scrapping. Boiler and frames of a steam engine were also in the yard.

SPAIN

Ferrol-Gijon - A new RENFE/FC terminus has been built at El Ferrol. All passenger services are railcar-worked, but several ex-Vasco-Asturiana locomotives (10, 20/2) are said to be working on construction trains.

Vasco Asturiana - Only four types remain - 4-4-OT, Engerth 2-6-0, 0-8-2T and 2-8-2T; but there are no diesels yet.

Economicos de Asturias - Now mainly diesel save for short workings from Oviedo and freight. The 0-8-OT/2-8-2T conversion has been abandoned and the locomotive dumped.

F.C. Cantabrico - Diesels work through trains from the EA, but steam is still used on short workings round Santander. Five locomotives were unearthed in a bricked-up shed at Llanes: DÜbs 3045-6/94; DÜbs 3932/00; Krauss 5144/04 and 6177/09; all in apparently good condition.

Langreo - Now all diesel, but some steam dumped at Gijon and Laviana.

La Robla - Ten new 1050h.p. G.E.C. BoBo diesels have been delivered recently. They are believed to be numbered 501-510.

AUSTRIA

Völkmarkt-Eisenkappel - This ÖBB narrow gauge line has recently closed to passenger traffic; the freight situation is unknown. Locomotives on this line were 0-8-0 699.01 and 0-8-OT 699.101-4, the latter class all fitted with Giesl ejectors, together with diesel 2092.03

(Continued on Page 17)

MAIN LINE TO MANIOBRA

Some interesting industrial steam
locomotives in Spain,

by R.S. Fraser

For many years Spain has been a good hunting ground for enthusiasts looking for old and antiquated steam locomotives. Inevitably, modernisation has taken its toll - firstly modern and more powerful steam locomotives arrived to relegate the older types to less onerous tasks, and now the spread of dieselisation is rapidly removing steam locomotives from shunting duties, although many centenarians are still around. In Spain, the shunting engine is usually referred to as a "maquina de maniobra" - or, in colloquial English, a maid of all work - hence the title of this article.

On the industrial scene, the steam locomotive is still reigning supreme in most quarters, particularly on the narrower gauges. The major industries using railways are mining and steel, with the narrow gauge predominating due to topographical limitations. The main mining areas are:-

- (a) in the north for coal and iron ore (more than 80% of Spanish coal is mined in Asturias), where even the passenger-carrying lines are mostly narrow gauge, and consequently most mineral lines are narrow gauge as well, but of course require outlets to the national railway system (RENFE).
- (b) in the south in the province of Huelva, where the well-known Rio Tinto and Tharsis systems operate, amongst other lines, but these are almost invariably self-contained units, not requiring any connection with the RENFE.

For the purpose of these notes, which describe some interesting industrial steam locomotives on the "broad" gauge (1674mm), we can ignore the lines mentioned under (b) above. However, the mining and steel industries do not monopolise the use of steam locomotives, another important industry being the production of sugar from sugar beet. This latter industry is more widespread, being found in the basins of the rivers Ebro, Duero, Tago and Guadalquivir, with the factories (azucareras) usually alongside RENFE metals. Consequently, the broad gauge locomotive is more common, the notable exception being the factory at La Poveda, east of Madrid, where three different gauges are used. In addition, there are other industries which have rail connections with the broad gauge.

The predominance of the narrow gauge lines reflects naturally on the locomotives used, and in the whole of Spain only about 18% of industrial steam locomotives are broad gauge. Perhaps it is for this reason, and the fact that many broad gauge industrial lines are merely short connections to the RENFE, that many of the locomotives for these lines have been obtained from RENFE, or its constituent companies, or other sources, with very few built specifically for the job. This has resulted in some locomotive types being still extant in industrial service when their counterparts on the RENFE have all, or nearly all disappeared.

MINING & STEELWORKS The region of Asturias produces the highest concentration of coal mining in Spain, whilst some of the steelworks are situated here as well. Perhaps the most well-known is the Fábrica de Mieres, and here there are some ex-main line locomotives in addition to a number of present-day RENFE steam locomotives that appear to work almost permanently at the factory. Amongst the stock is a batch of four 0-6-OT's, Nos.305-308, built by Dubs in 1891 and acquired from RENFE in 1956 (030.0215-18, originally Eorte 1607-10); also, there is 304 BILBAO, built as an 0-4-OST by Sharp Stewart in 1878 for the FC Triana and rebuilt at Mieres as an 0-4-OT in 1961. There is another locomotive, very similar to BILBAO, and also rebuilt from 0-4-OST to 0-4-OT, at Sociedad Industrial Asturiana "Santa Barbara", (SIA), Fábrica de Moreda, Gijón.

Just along the road from Mieres is Ujo which boasts a small RENFE shed, and nearby is the headquarters of Sociedad Hullera Española(SHE), Minas de Aller. The mines are all on narrow gauge, but the connection to RENFE requires two locomotives in service. In 1962 these were a standard ex-Morte 0-8-0 tender engine from Ujo shed and an 0-6-OT kept at the SHE premises although still RENFE property; by 1964 the 0-8-0 had been replaced by a RENFE diesel, although the 0-6-OT was still hard at work. This is 030.0232 PALAU, built by Maquinista Terrestre y Marítima(MTM) in 1887, and notable as being one of the earliest Spanish-built locomotives. In the same area are Hullera de Turón with a lengthy connection to RENFE using a 2-4-OT, No.101 SESTAO, built by Sharp Stewart in 1888 for the Bilbao-Portugalete Railway (BPT), plus another of almost identical appearance (No.103 BILBAO) alleged to have been built at Turón in 1921; also two others, 2-4-OT and 0-6-OT, alleged to have been built at Turón in 1928 and in 1931 respectively. It seems most improbable that such a type as a 2-4-OT would be built specifically for colliery shunting service, particularly in view of the large driving wheels, and the most likely explanation is that the locomotives concerned were rebuilt at Turón on the dates shown, having originated elsewhere.

Following the RENFE main line northwards towards Oviedo, the train crosses the Río Caudal and plunges into a long tunnel; on emerging at Olloño the observant enthusiast will see a derelict locomotive at the end of a siding near the tunnel mouth. This locomotive is ELIAS MASAVEU, an 0-4-OST by Neilson (details uncertain as the makers' plate shows No.1878 of 1903 - or is it 1903 of 1878 ? - both possibilities are wrong) and is owned by Hulleras Veguin-Olloño. Nowadays the short connecting line is shunted by an 0-6-0 tender engine provided by RENFE. The 0-4-OST is possibly ex-Andaluces property, since across the mountains from Olloño is the associate works of Compañía Tudela-Veguin (a cement works with coal mining connections) with an identical Neilson (No.1777 of 1873) which still carries its old Andalucés number '03', and is named J. MASAVEU.

Tudela-Veguin is on the branch to Cisña which connects the important coal and steel area of Nalon valley with the RENFE main line. On this branch at La Folguera is the steelworks of Sociedad Metallurgica Duro-Felguera (SMDF), where the broad gauge locomotives include at least two that have seen "main line" service. No.4 GANDARIAS is a 2-4-OT by Sharp Stewart (No.4755 of 1901), ex Bilbao-Portugalete 13, whilst there is an 0-4-OT by Couillet (No.792 of 1885) purchased from RENFE in 1945, but still carrying its old MZA number '607'; the latter should have become 020.0237 with RENFE, and the type will be familiar to those who have visited Seville, Alicante or Valencia. SMDF owns mines further

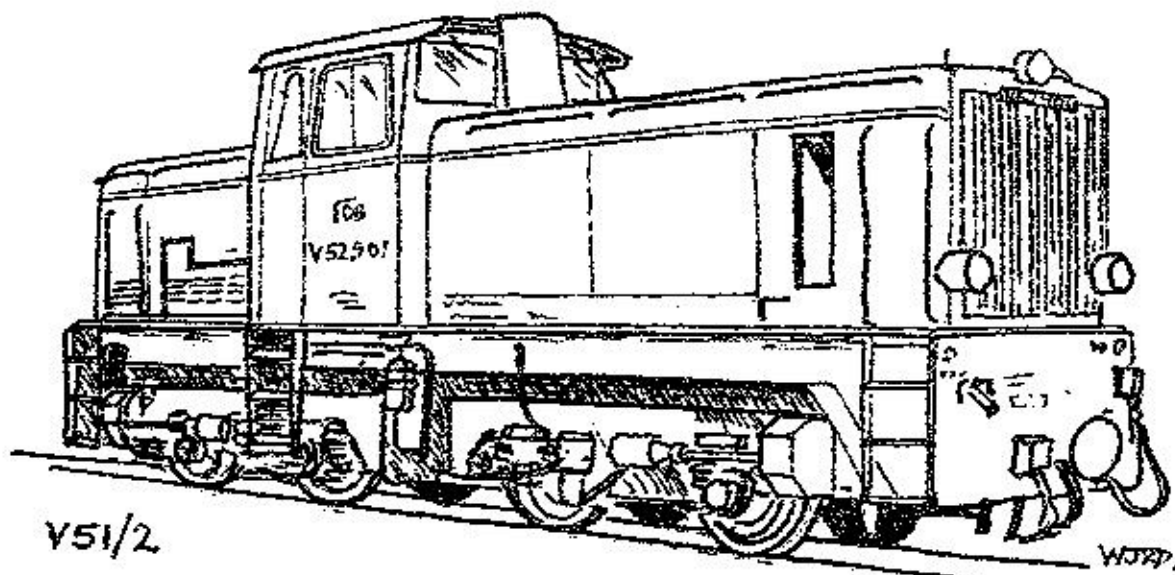
up the valley, at Santa Ana near the end of the RENFE branch, with, until recently, some rare specimens. In 1962 a 2-4-0 tender engine, 29 SAN SEBASTIAN (Graffenstaden No.77 of 1859, ex-Norte 117) was found at work here, and another of a similar type (but inside cylinders) has been seen, but a return visit in September 1964 found the broad gauge worked by RENFE locomotives (with SMDP crews) and the older locomotives scrapped.

South of Asturias, across the mountains, is the province of León. Within this province the Compañía Minera Siderurgica de Ponferrada (MSP) operates the metre-gauge FC de Ponferrada a Villablino, with narrower gauge at the mines, but at Ponferrada they have four broad gauge locomotives to operate the screens and briquetting works, and to facilitate connection with the RENFE. Three of these locomotives can be described as typical industrials, having been built for the job, but the fourth is an 0-6-OST, a type quite rare in Spain. This particular engine was purchased from RENFE in 1957, and usually shunts at some screens at San Miguel, nine kilometres east of Ponferrada on the line to León; according to RENFE information it was 030.0228, which was built by Nasmyth Wilson (No.411 of 1891) as FC Triano 14, but it carries a plate inside the cab indicating that it was originally Triano 15 (other parts are stamped '15' also) which should have become RENFE 030.0229 and was built by either Sharp Stewart or Nasmyth Wilson - some interesting points for investigation!

Travelling southwards from Oviedo on the main line to León and Madrid, the acute observer will see some mining activity at Santa Lucia, situated in the mountains 13 kilometres north of La Robla. Here is the headquarters of Sociedad Hullera Vasco-Leonesa (SHVL), and whilst the broad gauge is very limited, the locomotives are nevertheless very interesting. The 2-4-OT has been mentioned before as an unusual type for colliery shunting, but at Santa Lucia there are a further two examples of almost identical appearance. SACARMINAGA was built by Sharp Stewart in 1887 (No.3381), but AMEZOLA does not carry a makers' plate although presumably it is British-built of about the same period; both were obviously acquired secondhand, possibly from the same source, but details of origin would be welcome. Unfortunately, these 2-4-OT's have been withdrawn from service following the arrival of a German diesel in 1963, but two locomotives are required still and the other is perhaps the most interesting here. It is an 0-6-OST built by Robert Stephenson in 1882 (No.2521) named OLABARRI, and is a sister engine to RENFE 030.0202 JIMENA, the ex-Andaluces 0-6-OST (Robert Stephenson No.2522 of 1882) still in service as shed pilot at Utrera. JIMENA was used on the construction of the Bobadilla-Algeciras Railway and later became the property of that railway as their number '20', retaining this number on absorption by the Andaluces Railway. OLABARRI was presumably engaged on similar work in Spain before being acquired by SHVL.

Further east from Asturias is the iron ore mining and steel centre of Bilbao. Whilst there are many industrial steam locomotives in this vicinity, the number of broad gauge is very small. Perhaps the most interesting are those at Sociedad Anonima "BASCONIA" where they boasted a 4-4-OT (still extant?) supplied originally to the Bilbao-Orduna Railway, a type that disappeared from the main line many years ago. The remaining 1674mm gauge stock here consists of two 0-6-OT's, both of which are believed to have started life on "main lines", but further details would be welcome.

(To be continued)



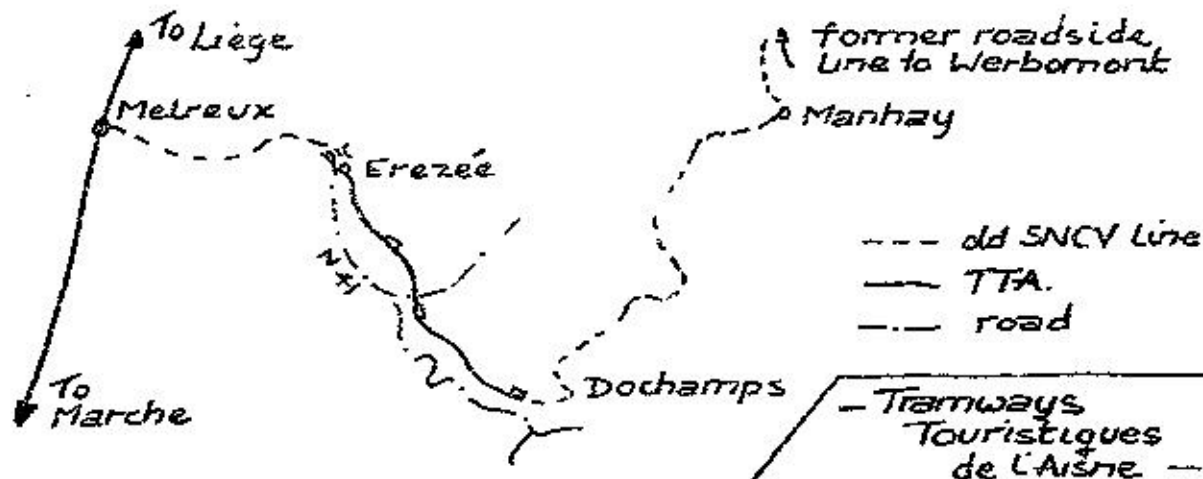
KNOW YOUR ENEMY No.4 - DB V51/2 Class Diesel Locomotives.

Until a year or so ago, steam reigned supreme on the DB narrow gauge lines, except for the almost vintage diesels at Altensteig and Regensburg, but the DB has now placed in service four new diesels of classes V51 and V52. The locomotives, V51.901/2 & V52.901/2, are at present in service on the 750mm. gauge lines at Ochsenhausen and Buchau, and on the metre gauge Odenwaldkleinbahn (Mosbach-Mudau). One of the 750mm. gauge ones may be moved to Beilstein in the near future.

The locomotives are of the B.B. wheel arrangement, are twin engined with the usual hydraulic transmission, and are built by Gmeinder of Mosbach. The two classes are virtually identical apart from the difference in gauge, and strongly resemble the V100 Class in appearance. They have the surprisingly high maximum axle load of 10 tonnes, although they are designed for lines with curves as sharp as 70m. radius. Thanks are due for information to DB Zentralamt, München.

Dimensions: V51/2 Class

Gauge:	V51.	750mm.
	V52.	Metre.
Length over buffers:	V51.	9.810m.
	V52.	9.780m.
Breadth overall:		2.400m.
Height overall:		3.484m.
Total wheelbase:		5.860m.
Weight in working order		39 tonnes.
Maximum speed:		40 km/h.
Tractive effort:		12 tonnes.
Engines:		2 x 270h.p.



Poulseur-Sprimont is dead, but our cover picture celebrates the birth of a new light railway in Belgium - the TTA. Briefly, l'AMUTRA, the Belgian Society which has created the magnificent museum at Schepdaal, has now arranged to take over a section of the old SNCV line from Welreux to Manhay, in a very scenic part of the Ardennes. This line was steam and diesel-worked until its closure some ten years ago and is, apparently, still in good condition.

The AMUTRA are reopening the section shown on the accompanying map, at first with a railcar and ex-SNCV coaches hauled by... one of the Borsig 0-6-OT's from Mosbach! It was cheaply acquired and the line is on its own right of way, so a tram engine is not needed, but a Type 18 may come later.

NEWS ITEMS (Continued from Page 12)

Schaffergbahn - Two diesel railcars 5099.01/2 have been delivered to this rack line, but steam will presumably continue in use at peak periods.

Murtalbahn - This section of the StmB has received a new diesel locomotive numbered VI, 11.

EAST GERMANY

The "Kindereisenbahn" or Pioneer Railway at Cottbus has an O-8-OT No. 99.0001, ex D. Feldbahn No.2255.

WEST GERMANY

Albtalbahn - The section from Busenbach to Langensteinbach is to be standard-gauged not for goods traffic, as suggested in the last Journal, but for use as a passenger carrying electric tramway.

STICHWORT

Byvalla-Långshyttan - This line has closed, certainly to passengers, and probably to all traffic. However, it is believed that certain of its locomotives may still be in use in the steel works at Långshyttan.

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