

HaRakevet

A Quarterly Journal on the Railways of Israel and the Middle East
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הרכבת

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116:01.

An historic picture from 11th. September 1977 - forty years ago and how much has changed! In the old Jerusalem station GM-EMD G12 Bo-Bo IR 110 built 1958 stands - unusually - in the 'bay' platform next to the goods shed. One can see the low platform has been recently re-asphalted. Its train comprises two former Esslingen railcar carriages, part of the post-war German reparations, each with a (non-functioning) cab. In the background stands a 35 *Aleph* former USATC box van of 1942 in smart olive green. (Photo: Tim Edmonds).



Fire in the Carmelit. See page 8

EDITORIAL.

Another 'bumper' issue – less from IR for once, but sometimes there is just so much material available and so much happening. This time we have a great deal on Iran, and bad news from the Haifa Carmelit, and a chance to compare 'Then and Now' on the Sinai Military Railway....

NEWS FROM THE LINE.

(i). CHANUKAH (or HANNUKAH) CHANGES.

Barely had the last issue gone to press than news came of some timetable and other changes for this annual winter festival. Basically, Chanukah beat out Christmas!

From a press release of 14.12.2016 by Israel Railways Ltd.:

Due to the Festival (festivals for children, with songs and shows) to take place from 19.12.2016 connected with the Chanukah events (a religious festival which lasted in 2016 for 8 days between 25.12.2016 and 01.01.2017), and the importance of the Tel-Aviv University station located adjacent to the exhibition and fairs' area where the events were to take place, the Israeli Police and the Transport Ministry asked the railway authority to move the infrastructure works planned for between 21.12.2016 and 25.12.2016 and which were to cause closure of the line section between University and Herzliya stations forward by 2 weeks. The railways authority agreed to change the dates of works to between Wednesday, 04.01.2017 at 19:00 and Sunday, 08.01.2017 at 05:00.

All the planned changes in train traffic for the former dates were valid for the new.

Due to the postponed dates of works, the railways announced additional trains between Tel-Aviv and Haifa during Chanukah festivals; 25.12.2016 and 01.01.2017.

The additional trains were:

Between Tel-Aviv and Haifa:

Train of 10:23 from Tel-Aviv Savidor/Central to call at Tel-Aviv University at 10:26, Haifa HofHa-Carmel at 11:08, Haifa Bat-Galim at 11:16, terminating at Haifa Central at 11:21.

An additional 3 trains from Tel-Aviv Savidor/Central at 11:23, 12:23 and 13:23 terminating at Haifa Central at 12:21, 13:21 and 14:21 respectively. Calling at Tel-Aviv University, Haifa Hof-HaCarmel and Haifa Bat-Galim.

One of the tunnels on the A1 line already with Max Boegel slab track, prior to rail laying (all being performed by Lesico Ltd.) Photo courtesy of Mr. Shahar Wiesman from the Railways' spokesman's office



Between Haifa and Tel-Aviv:

Train of 11:06 from Haifa Central to call at Haifa Bat-Galim at 11:09, at Haifa Hof-HaCarmel at 11:16, at Tel-Aviv University at 12:00, terminating at Tel-Aviv Savidor/Central at 12:04.

An additional 3 trains from Haifa Central at 12:06, at 13:06 and 14:06 respectively. The trains will call at Haifa Bat-Galim, Haifa Hof-HaCarmel, Tel-Aviv University.

(ii). POLLUTION ISSUES.

Israel Railways Ltd. announced on 03.01.2017 that according to the need for the railways to meet requirements of the Ministry for Environment Quality at a court hearing regarding air pollution levels at Tel-Aviv Hashalom, Holon Yoseftal and Bat-Yam Hakomemiyut, these stations may need to be closed for service if the courts should decide so.

The railways' explained that this means partial closing of the services passing through Tel-Aviv and that 100,000 passengers using the line daily will have to use either their own cars or buses, which will in fact increase air pollution and chaos!

(iii). FREIGHT TRAIN DERAILMENT AT SHEFAYIM.

On Sunday 25.12.2016 a southbound freight derailed here. There was disruption while tracks were repaired. It was still on the IR website at 12:40 Monday, advising passengers to seek alternative means of transport.

From a press release of 26.12.2016 by Israel Railways Ltd.:

"Due to a derailment of a wheel on one of the container cars of a freight train near Shefayim (north of Herzliyya), the track was damaged along a length of 2 km.

Due to the urgent need to replace the damaged section, trains will partially run on the single operational track, thus causing of changes in traffic as following:

Trains on the Nahariya - Beer-Sheva line will operate between Nahariya and Haifa Hof-HaCarmel in the north and between Beer-Sheva and Tel-Aviv Savidor/Central in the south in both directions.

Trains between Netanya and Tel-Aviv regularly terminating at Rishon-Le-Zion Rishonim are cancelled and will operate between Rishonim and Tel-Aviv Hahagana only, where passengers will be able to change trains to go northbound.

Trains to/from Jerusalem and Beit-Shemesh will start/terminate at Tel-Aviv Hahagana.

Night trains between Nahariya and Ben-Gurion Airport on both directions will start/terminate at Netanya; bus services will be provided between the stations between 00:30 and 05:10. Works will last until Friday, 30.12.2016 including; traffic will resume on Saturday night, 31.12.2016."

It should be mentioned that the event caught the railways on one of the most popular weeks for travelling, with both the Hanukkah festival and the new year events when a lot of families like to travel. Due to the derailment event and works punctuality was down to 59%; far away from a stated average of 95%; even by 01.01.2017 it had not exceeded 86%.

The regular operations will, however, not last for long; already in the week between 04.01.2017 and 08.01.2017 the line between Tel-Aviv University and Herzliyya will be closed again due to infrastructure works connected with quadrupling and preparations for electrification.

(iv). FARE REDUCTIONS FOR FOREIGN RESIDENTS

From a press release of 26.12.2016 by the Transport & Roads' Safety Ministry:

"Transport Minister Mr. Israel Katz announced on 26.12.2016 that from 01.01.2017 foreign citizens with temporary residence will also enjoy fare reductions on buses and train while using the multi-liner smart cards; it is estimated that thousands of additional passengers will enjoy saving money."

(v). ANOTHER IC3 FIRE.

But this time not in Israel! On 20th. October 2016 an IC3 diesel multiple unit of DSB Class MF caught fire at the station of Odense. The driver was able to separate it from another set and moved the burning unit away from the covered part of the station. The fire had begun in the rear traction motor, for reasons as yet unknown. There were no injuries. Still, it does seem as though there is a tendency for these units to self-ignite.

(vi). HAIFA PORT IMPROVEMENTS.

On 10.01.2017 a new third track and an asphalted area for containers to be stacked, loaded and transhipped was opened on the east side of Haifa Port.

(vii). DRIVING SIMULATORS FOR TRAINING DRIVERS.

Elbit Systems and French partner CORYS will build simulators for training railway drivers.

Elbit Systems Ltd. (Nasdaq: ESLT; TASE: ESLT) and CORYS, Elbit's French partner, have won a tender to build simulators for training Israel Railways drivers. The two companies will operate and maintain two simulators for 10 years, including training the drivers. The tender was issued in December 2015. The simulators, which will be added to Israel Railways' current simulator, will begin operating in the second half of 2017 in support of Israel Railways' expansion and its transition to electrical trains.

One of the simulators will resemble the driving cab of Israel Railways' new locomotive (the Euro3200 and Euro4000 models). The second, a full mission simulator, will simulate driving Bombardier's electrical locomotives, which Israel Railways will receive starting next year. Bombardier

will sell Israel Railways 64 electrical locomotives, with an option for 32 more.

The simulators include a driver's cabin that is an exact copy of the one in the locomotive, with all of its systems. The windows of the cabin screen a view identical to the view seen from the locomotive when it is travelling on the selected route. A voice system installed in the cabin simulates precisely the sounds heard inside and outside the locomotive, and the movement platform simulates the locomotive's movement.

The tender also includes additional procurement of six part task trainer (PTT) table simulators that include a copy of the main systems in the locomotive. The other systems are simulated through virtual means. Training on the simulators is done in groups, with a different driver operating them each time, while the others analyze his performance.

Israel Railways acting CEO Beni Lavie said that the tender was part of Israel Railways' development and growth push, and was "another step in the adoption of advanced technologies for the purposing of a major advance in the quality of the professional training and qualifications we provide to our employees."

(viii). TIMETABLE IMPROVEMENTS IN THE NEW YEAR.

Israel Railways Ltd. have announced the following passenger services improvements:

Starting on 01.01.2017 trains 1701, 1703 and 1705, of 06:34, 07:34 and 08:34 from Haifa Central to Beer-Sheva on Sundays only, will call also at Lod and Lehavim/Rahat.

Starting from 15.01.2017 on Sundays only, train 615 departing at 07:23 from Hod Ha-Sharon/Sokolov and regularly terminating at Rishon-LeZion West (Moshe Dayan), will instead call at all the stations of Tel-Aviv, but from Tel-Aviv HaHagana will run on the regular line to Beer-Sheva, calling at Lod at 08:20, at Ramla 08:24, at Kiryat-Gat 08:46, at Beer-Sheva University 09:03, terminating at Beer-Sheva Central 09:20.

Train 610 regularly departing from Rishon-Le-Zion West (Moshe Dayan) at 07:01 will instead start at Ashkelon at 06:29 and will call at Ashdod 06:38 and Yavne West 06:51 then continuing regularly through Rishon-LeZion West (Moshe Dayan) and on terminating at Hod Ha-Sharon/Sokolov at 07:17.

Train 614 regularly departing from Ashdod at 07:08 will instead start at Ashkelon at 06:59 and then regularly continue through Rishon-Le-Zion West (Moshe Dayan) terminating at Hod Ha-Sharon/Sokolov at 08:32.

The results and reasoning for the changes are as follows :

From Ashkelon northwards there are be 6 trains between 06:00 and 07:00; 2 trains added.

From Ashdod northwards there are be 5 trains between 06:00 and 07:00; 1 train added.

From Yavne-West northwards there are be 4 trains between 06:00 and 07:00; 1 train added.

Beer-Sheva Central and Beer-Sheva University will enjoy 5 trains arriving from Tel-Aviv between 09:00 and 10:00; 1 train added.

Lehavim/Rahat will enjoy 3 trains arriving from Tel-Aviv and calling between 09:00 and 10:00; 1 train added.

Kiryat-Gat will enjoy 3 trains arriving from Tel-Aviv towards Beer-Sheva between 08:00 and 09:00; 1 train added.

Ramla will enjoy 2 trains arriving from Tel-Aviv towards Beer-Sheva between 08:00 and 09:00; 1 train added.

Lod will enjoy 3 trains arriving from Tel-Aviv towards Beer-Sheva between 08:00 and 09:00; 2 trains added.

IR explained that the additional trains and stops, as well as route changing (in the case of 07:23 train from Hod-HaSharon/Sokolov) are a result of a traffic survey and a pilot scheme which came to the conclusion that on Sundays a lot of soldiers are returning to their bases which are concentrated near and around Beer-Sheva, as well as a lot of students returning to the Beer-Sheva University, in addition to commuters and other passengers, thus creating overcrowded trains.

(ix). UPGRADING WORKS ASHDOD – ASHKELON ETC.

Israel Railways Ltd. have announced on their website that due to infrastructure works of track renewal and upgrading, the section between Ashdod and Ashkelon will be closed for traffic between the night of Thursday night, 09.02.2017 and Sunday morning at 04:00. As a result, trains from the north will terminate at Ashdod; trains from the south will terminate at Ashkelon. The railways will provide alternative bus services between these stations.

The railways announced on their website that between Thursday, 23.02.2017 at 23:00 and Sunday 26.02.2017 at 05:00 the sections between Yavne-East and Ashkelon and Yavne-West and Ashkelon will be closed for traffic due to track renewal and upgrading works to be carried out. Consequently, trains arriving from north on the coast line namely from Rishon Le-Zion West/Moshe Dayan, will terminate at Yavne-West; trains coming from Rehovot will terminate at Yavne-East. Trains from the south will terminate at Ashkelon. The railways will provide bus shuttle services between Yavne-West, Ashdod and Ashkelon, and between Yavne-East, Ashdod and Ashkelon.

(x). PROPOSED DUAL-TYPE 'HYBRID' LOCOMOTIVES.

It was reported in mid-February that Stadler Valencia (formerly Vossloh) Locomotives have recently presented to Israel Railways Ltd. the new DUAL MODE (or hybrid) HEP diesel & electric main

Here are pictures from the ceremony at Haifa taken by Aharon Gazit.

One of the few survivors veteran GM-EMD G12 #115 entirely rebuilt and repainted, about to take a container car train from the port of Haifa; the new 3rd track inaugurated today is on the right.

line locomotives for their possible use in Israel. The advantages of such a type of locomotive are:

- Since only 420 km will be electrified in the first stage (out of a 1,200 km network), the ability to run over the whole network both on electrified and non-electrified sections including depots, providing maximum operational flexibility and lowering the need for separate electric locomotives; Thus reducing the locomotive fleet as well as maintenance, training, and spare parts costs.

- Since the locomotive is equipped with HEP, (Head End Power), the power cars on push/pull trains become unnecessary as such, enabling the diesel generators and compressors to be removed, and to convert the cars to driving trailers only while increasing passenger capacity.

The data of the proposed locomotive have been checked by Israel Railways technical staff who found that it conforms to the Israel Railways loading gauge, standards and the whole push/pull passenger cars fleet as well as for the freight services; However, the railway authorities have not yet decided if and when such locomotives will be purchased.

Technical details:

Wheel arrangement: Co-Co due to the Israel Railways requirement for a mixed-traffic dual-mode locomotive and ability to run on steep gradients and sharp curves.

Tare weight: 126 tons; axle load of 21 tons, which is 1.5 tons below the Israel Railways max. axle load of 22.5 tons.

Max speed: 160 km/h.

25 KV/50 Hz current for the electric traction.

Conforms with fire standard TSI and smoke B for running through tunnels.

Output: 4 MW with electric traction (more than 6 MW at wheel); and up to 3 MW with diesel traction.

Regenerative braking: AUX-HEP-Overhead line supply.



Blended Brake system, 2 redundant AUX inverters for the auxiliary systems (air-conditioning, lighting and other systems on passenger coaches (HEP).

Traction system: one inverted per axle (83% of the axle power in case of an axle failure).

Special advanced equipment for energy saving and failure tracing (TWC, DAS, AESS, etc.).

The locomotive is based on well-proven earlier locomotive models: EURO 4000 (in service on Israel Railways), UK-LIGHT, and UKDUAL, sharing many components and sub-assemblies, thus reducing price and simplifying maintenance; some Central European railways have shown interest in the DUAL locomotive.

Attached herewith is an artist's impression of the proposed DUAL locomotive provided by courtesy of Stadler Rail. - See page 7

(xi). SHUNTING ACCIDENT AT LOD.

On 20.02.2017, a locomotive hit a parked train at the Lod depot; beyond the damage to the locomotive and the end car, the driver was slightly injured. The recently-appointed General Manager Mr. Shahar Ayalon has appointed an enquiry into the case.

(xii). FREIGHT SERVICE BOOMING

Three rather optimistic linked reports by Christian Doepgen from 'International Transport Journal' 49-52, December 2016. But they do serve to broaden the perspective.

(a). A CORRIDOR TO AMMAN

"The isolation of its network was one of the problems hampering the development of Israel Railways. The recent opening of an east-west route from Haifa to the border with Jordan has established new opportunities for freight transport.

In November a key route was finally completed, when operations commenced on a new railway connection from the port of Haifa east to the Jordanian border and beyond. The measure was not only means that the Israeli rail network has now overcome decades of isolation, but simultaneously created new international transit opportunities, for example from Turkey. The fact that the Israeli tracks end 5km short of the Jordanian border is more of a cosmetic issue.

The government in Jerusalem has invested in Israel Railways, with the stated aim of shifting more goods from the all-too-congested roads to the railways. Thus the entity Rail Cargo was established in mid-2015 as a transport subsidiary of IR, with the state holding a 51% stake in the corporation. Kathriel Moriya was installed as Rail Cargo's new managing director, with a mandate to add logistics options of all types to the subsidiary's overall range of services.

The ambitious investment programmes enabled around US\$1 billion to be spent on the reconstruction of the historic tracks in the Jezreel Valley, which were once part of the former Hejaz Railways, part of which ran through the present-day state of Israel. Good neighbourly relations with Jordan are at the root of the project. The exchange of goods between the two countries was mostly handled by road so far; now the cards are set to be re-dealt. Zohar Rom, the port of Haifa's head of marketing communications, sees more than just the binational potential in the effort.

The number of Turkish trucks arriving in Haifa on ro-ro vessels for the road leg to the Jordanian capital Amman have grown to hundreds a week lately, due to blocked links through Syria. The rail transit option opens up new channels for trucks."

(b). INVESTING IN THE FUTURE.

"The Israeli economy continues to grow, with the third quarter of this year [2016] seeing a 3.2% improvement. Both exports and imports have nevertheless declined slightly in recent months. The logistics and transport sector is expected to be given a renewed impetus, thanks to some major infrastructure projects earmarked for large investments, amongst other things.

Companies that cannot rely on large domestic markets frequently look abroad to achieve greater business success. This truism applies to many an Israeli firm too. The latest statistics offer sobering short-term assessments, however – despite a market that is still growing.

External Trade Fluctuations.

In October the country's exports were worth US\$ 3.4 billion, which not only represented a rather massive 27% fall vis-à-vis September's figures of US\$ 4.7 billion, but was simultaneously also the lowest monthly total of the last seven years. Volumes also declined year-on-year, namely by 24.7%.

Imports are usually a stronger pillar of business for the transport and logistics industry, but in October they only came to \$US 4. billion, far below the previous month's total of \$US 5.6 billion. The decline in comparison with the like-for-like month last year came to 9.9%. The country's trade deficit, which came to \$US 900 million in September, stood at \$US 1.4 billion in October. Experts expect this indicator to improve again in 2017.

The nation is making big efforts to enhance its capacities for a better future. Many a state worldwide has severely cut its infrastructure investment programme projects, in the meantime, but Israel continues to bank on developing every mode.

In March this year, for example, the government and the trade unions came to an agreement concerning the expansion of a quay, as well as investment in the facilities and equipment, of the state-owned Mediterranean port of Ashdod. Private enterprise is involved in constructing and operating the facilities, as is also the case in the state-owned port of Haifa. Two new terminals are expected to commence operations in Haifa and Ashdod by 2021 and 2022.

The new Ramon airport in Eilat, under construction at the southern-most tip of Israel, has been earmarked as the country's second-largest international aviation gateway, after Ben-Gurion airport in Tel Aviv. When Ramon airport opens in 2017 the two other local hubs, Eilat and Ovda, will be closed. Israel Railways, in turn, opened a new east-west line running from Haifa to the border with Jordan a few weeks ago.

Over and above this Israel is aiming to join the top global technical development league, for example, for the practical implementation of autonomous vehicles, if the transport ministry in Jerusalem is to be believed. The Israeli company Mobileye is collaborating with BMW and Intel in the iNext autonomous driving project. 2016 is also expected to deliver the highest car import figures ever. Optimism concerning future economic development is strong.

International Networks.

It is still open whether Israel can actually become a Middle Eastern gateway for trade between Asia and Europe. It is certain, however, that the current geo-political situation presents it with quite some opportunities. Goods from Turkey, Ukraine and other countries, that used to transit Syria by truck on their way to Jordan, Iraq and other Middle Eastern nations, now have to find alternative routes. This has resulted in a strong increase in transit traffic through Israel, for example from Turkey. It frequently heads for a free-trade zone on the border, the Jordan Gateway, or the capital Amman.

This has very concrete effects on the market. Experts have estimated that in the dry bulk segment, for example, the transfer of Ukrainian grain through Israel instead of via the Suez Canal has reduced bread prices in Jordan by up to 5%. Opportunities abound."

(c). READY FOR THE MEGA-SHIPS.

From an interview with Ram Zohar of Haifa Port.

"The first call in Israel by a 14,000 teu [twenty-foot-equivalent-unit] ship, the *MSC Paloma*, is scheduled for December. This is a milestone for the port of Haifa..... We worked a sort of miracle to get here. When I joined Haifa, five years ago, the processing of a 6,000 teu Yang Ming unit represented a huge leap forward for us! Since then we've welcomed calls from ever larger ships in the port. Two weeks ago the '*Maersk Algol*' called at Haifa. It was almost a day late, and yet we made up for the lost time. Six cranes carried out more than 246 moves per hour in the Carmel terminal to complete the job.

In our newest facility, the Carmel terminal, we're currently installing two new ship-to-shore gantry cranes on the quay. They'll be able to handle 21 rows across and bring the total of ship-to-shore cranes in the terminal to eight. On top of this we'll soon have another three RMG's from Konecranes in the storage area, all of which will be operational by January 2017, so we'll have a total of 15 RMG's in the terminal. The eight cranes on the quay will allow us to load or unload two large vessels simultaneously.

Lines are showing some interest. Evergreen already fortified its Adriatic-Israel service, which it operates with Cosco, in October and it also wants to increase its calls from Asia to the ports of Ashdod and Haifa. The same applies to the 2M alliance. Established services are also developing satisfactorily, such as MSC's Indus Express, which was introduced a year ago and which offers a connection between Israel and the USA. Transit times of eleven days from Haifa to New York make it something of a perishables express line.

With around 60-65% of all Israeli exports transiting Haifa we remain the country's No. 1 export gateway. Perishables such as tomatoes, peppers, and other agricultural products play an increasingly significant role, but industry is growing fast too. Exports by producers such as Keter, a plastics manufacturer, fill tens of thousands of containers every year. Over and above this the goods flows are undergoing substantial change too. As an example, Ro-Ro traffic has increased enormously in three years. Car imports have also increased significantly, moving from no business at all in this field to approximately 65,000 cars a year by now, thanks amongst other to Grimaldi Grande ships that can carry between 1,500 and 2,000 cars per voyage. The port of Ashdod is undergoing a similar experience, it is also jam-packed. This is part of the reason why we're in search of more land outside the port at the moment. We need additional hinterland storage facilities for automobiles.

The importance of Haifa as a gateway to and from Jordan is steadily growing, Nw that Israel Railways has opened a new route from Haifa to Sheikh Hussein station in northern Jordan [! sic] we expect further new impulses. *(Continued on page 6)*

ISRAEL RAILWAYS TENDERS:

A. TENDERS.

(i). Tender No. 21621: Supply, installation, follow-up and maintenance of technical devices at level crossings: Latest date for submission of proposals: 12.01.2017.

(ii). Tender No. MS/RC/2016/15: Taxi services to/from Ashkelon railway station.

(iii). Tender No. MS/RC/2016/16: Taxi services to/from Binyamina railway station.

(iv). Tender No. MS/RC/2016/17: Taxi services to/from Jerusalem Malkha railway station.

(v). Tender No. MS/RC/2016/18: Taxi services to/from Akko (Acre) railway station. Each of the tenders will be treated separately. The contract for each tender is for 36 months. Latest date for submission of proposals for each tender: 09.01.2017.

(vi). Tender No. 41614: For Electric and Solar Trackside Rails Lubricators for Various Types of Rails. All proposals must be submitted no later than February 22, 2017.

(vii). Tender No. 21649: Extending the platforms and building an overhead pedestrian bridge at Haifa Lev-Ha-Mifratz railway station: Latest date for submission of proposals: 02.02.2017.

(viii). Tender No 21650: Carrying out infrastructure works on the Rishpon section and Herzliyya railway station, as an integral part of quadrupling the coast line: Latest date for submission of proposals: 31.01.2017.

(ix). Tender No. 21651: Carrying out infrastructure works between Herzliyya and Tel-Aviv University railway stations, as an integral part of quadrupling the coast line: Latest date for submission of proposals: 31.01.2017.

(x). Israel Railways Ltd. Tender No. 21619: Constructing a Control Building and an access road at Haifa East railway station site: Latest date for submission of proposals: 26.01.2017.

(xi). Tender No. 11685: Providing inspection and mechanical engineering services for the railways: The contract is for 24 months with optional extensions of up to additional 48 months. Latest date for submission of proposals: 07.02.2017.

(xii). Tender No. 11654: Providing waste material removal services both for the northern and southern parts of the network: The contract is for 24 months with optional extensions of up to additional 36 months. Latest date for submission of proposals: 01.02.2017.

(xiii). Tender No. 31610: Supplying tablets (computers) for the railways. Latest date for submission of proposals: 25.01.2017.

(xiv). Tender No. MS/RC/2016/19: Operating a parking area at Haifa Central the 8 railway station: The site is 4,000 sq.m. Of which w,400sq.m. Is suitable for Parking. The railways may decide to pave the area with asphalt on their account. The contract is for 36 months. Latest date for submission of proposals: 16.01.2017.

(xv). Israel Railways Ltd.: Process No. 11738: RFI for available land towards building the training center and simulation facilities for train drivers at the Negev (desert area at Israeli south area:

The railways intend to build the training and simulation centre in the Negev; the possibility of building an additional centre in the north of Israel, will seriously be considered in due time.

Conditions:



Elbit Systems simulator

1. Elbit Systems has been awarded by Israel Railways Ltd. the contract to supply, build, operate, training, and maintaining of a simulators system for train drivers, for the purpose of keeping and assessing their fitness both on passenger and freight services, new and veteran drivers – Contract 11501.

2. The contract is of Turnkey Project type and the supplier has to fulfil entirely its requirement so that the system will be built, operated and maintained entirely and perfectly under the supplier's responsibility.

3. The contract is for 120 months with optional extensions of up to additional 120 months.

4. Israel Railways Ltd. is committed to provide Elbit Systems with the building for the Training and Simulation Centre; the idea to build it in the Negev is due to intention to enhance facilities in the periphery (in this case the south) and surroundings, (but also due to the fact that the Negev is sparsely populated, hence the land availability).

5. The intention of this documents is to trace an area available for an immediate start of building the centre in order to complete it within 12 months as per railways' commitment to Elbit Systems.

The participants in the process must acquire all the necessary statutory and other approvals in order to be able to cope with requirements.

6. According to the technological and physical characteristics and features of the simulators to be provided to the railways, the area of the land needed for the center must be of 2,500 sq.m. of which 1,500 sq.m. will be occupied by buildings.

7. Since the trainees intended to use the centre will arrive mainly by rail, the requested land must be near to an operational railway station, or not further than 5 minutes' walk from the station.

8. The land must be available for the railways during the whole time of the project.

9. Latest date for submission of proposals: 26.01.2017.

(xvi). Israel Railways Ltd. Tender No. 11616: Providing services of Development, Creation, Installation and Maintenance of an Incentive Pay and Reward System for the railways' employees:

Notes: The railways are currently managing dozens of bonus systems used as incentive payments for the employees; the railways intend to move to a new system; an off-the-shelf item to be used for implementation. The main system users are:

-System managers.

-Bonus calculation department users.

-Passenger stations' stationmasters.

-Regional Managers.

The contract is for 84 months, with optional extensions of up to additional 60 months. Latest date for submission of proposals: 27.02.2017.

(xvii). Tender 41739. For Manufacture and Supply of Railway Crane 25ton and/or 150 ton. Proposals by 30th. March 2017.

The communications network that C. Mer will build for Israel Railways will serve the communications needs of emergency and security agencies. For the first time in Israel it will provide cellular connectivity for all the cellular providers when trains are moving inside the tunnels. Deployment of the network will begin in the third quarter of 2017 and is slated for completion in the first quarter of 2018, following the completion of a 1.5-kilometre pilot with two tunnels by C. Mer for the purpose of testing the network. In order to facilitate continuous cellular connectivity for the thousands of passengers on the route, C. Mer will install an 80-kilometre radiating cable constituting an antenna on the entire route. The cable will include broadcasting equipment working on advanced technology on a range of frequencies of cellular companies and emergency agencies.

"Israel Railways is in the advanced stages of work for operating the high-speed railway between Tel Aviv and Jerusalem, with a travel time of only 30 minutes," Israel Railways' management stated. "This is the company's flagship project, which is expected to revolutionize transportation between the two largest metropolises in the country. The project is very complex, with 22 kilometres of track being laid on bridges and within railway tunnels, including a pair of the longest tunnels in Israel. Nevertheless, when the line is in operation, Israel Railways will provide its customers with cellular connectivity and wireless Internet at no cost over the entire route and at the underground railway station."

The company's share price was up 3.09% in afternoon trading on the TASE.

B. TENDERS AWARDED.

From a press release of 07.02.2017 by Israel Railways Ltd.: The Israeli company C. Mer won Israel Railways communications tender No. MN/KB/01/16.

The system will provide cellular communications on the entire Tel Aviv - Jerusalem high-speed rail route, including tunnels and bridges.

The following announcement has been published by the winner:

C. Mer Industries Ltd. (TASE: CMER) has announced that it is the winner of the NIS 22 million (\$5.87 million) Israel Railways tender No. MN/KB/01/16 for establishing a communications system for the tunnels and bridges on the high-speed electric railway line currently under construction between Tel Aviv and Jerusalem. C. Mer will build a network to provide continuous cellular and emergency communications in the 22 kilometres of tunnels and bridges on the railway section between Latrun and Jerusalem. The network will include the Ha-Uma station at the end of the line, which will be built 80 metres underground and will include four passenger platforms. C. Mer will also provide maintenance services for the communications network for the next 10 years.

C. Mer CEO Nir Lempert said, "The infrastructure for the tunnels on the high-speed railway to Jerusalem is the first of its kind in Israel. It is essential for the railway's operation and its continuous communications, including cellular communications." C. Mer is a global Israeli company located in Holon that has 1,200 employees worldwide. The group develops, produces, markets, and installs technological solutions in telecommunications, cyberspace, big data, smart cities, intelligence, homeland security, and emergency communications. The company also designs and builds broadband infrastructure for its customers. The company's customers include communications operators and government, municipal, and security agencies, mainly in Latin America, Africa, and Israel.



See 116:04 (x)

LIGHT RAIL.

A. HAIFA.

First – the Good News.....

THE CARMELIT JOINS THE TARIFF NETWORK.

From a press release of 19.12.2016 from the Transport & Roads' Safety Ministry and Haifa Municipality:

"The Carmelit - Israel's only active metro so far - is from 01.01.2017 joining the other cities' public transport in the use of multi-liner smart cards, which will enable passengers a 90-minute period of unlimited travel on all means of the city's public transport (excluding Israel Railways between Haifa Stations); Fares will be the same as on those means of public transport.

It was the municipality's request and that of Transport Minister Mr. Israel Katz.

The Carmelit started operating in 1959 and worked successfully until 1986 when the system became obsolete; in 1992 its operation restarted with new trains - each consisting of 4 cars [sic!] - and it has worked successfully since; it is actually a funicular. Travel time between the downtown and the Carmel mountain is up to 12 minutes (it used to be 6 minutes); much faster than by anything else including private cars and with no traffic jams, weather disruptions, and without air pollution.

The system carries 700,000 passengers annually and this is expected to double after the introduction of the new ticket arrangements."

Attached herewith is a picture of the Carmelit at the upper last station on the Carmel provided by Mr. Roni Grossmann from the municipality's spokesman office; credit for photo-Zvi Roger.

Aharon Gazit adds: "Also attached is sketch of the Carmelit stations ordered by the Akhdut Ha-Avoda (a Labour party from until the second half the 1950's which later merged with the Labour party then called Mapai) before the elections; the building mentioned as Masada station used to be a British water tower demolished later; its location was about 500m from the Masada station.

Also attached is a song for the Carmelit from those years; I must admit that also I've lived in Haifa 28 years out of my 69, and also travelled on it on the first day of opening and many times later, but it is the first time I have seen both the sketch and the song!"

But then came the catastrophically BAD NEWS:-

From 'Y-Net News' on 04.02.2017, 13.25:

"Fire fighting teams managed to put out the flames after two Carmelit train cars parked at Paris Station caught fire on Saturday. One woman living near Golomb Station was reported to have been injured from inhaling the smoke, which began to fill underground stations and exit to street level. Several areas of the city were cut off from electricity as attempts were made to halt the fire. A representative of the fire fighters on the scene said that two cars were caught in the fire. The Carmelit does not operate on the Sabbath, though as maintenance workers do work in the tunnels on Saturday, further confirmation is pending. After smoke began to spread to several underground stations, it began to rise and spread through the city streets, causing city officials to close a number of streets for traffic. At present, all streets apart from HaNassi Blvd. have been reopened. Fire fighting units were first called to the Carmelit underground railway station on Ha-Nevi'im Street, after heavy smoke was seen coming out of the station. After the smoke begun to come out of several other stations, fire fighters started looking for its source. The Fire Fighting Unit have set up an investigation team to look into the circumstances leading to the fire. The underground system is expected to be out of operation, after joining the "Rav Kav" joint public transport

pass network in January. As a result of working with Rav Kav, Carmelit's number of passengers jumped by 30%." It appears both cars were damaged and one at least beyond repair, a service resumption will have to await a full cleansing of the tunnel and provision of replacement cars....

Another report from Haifa:

On Saturday morning, 04.02.2017, smoke was seen at Paris Square station of the local metro – Carmelit - in the downtown area. The smoke quickly spread to almost all the six stations of the 1.8km funicular line, reaching even the last station on the Carmel mountain.

After some hours the fire fighters succeeded in stopping the fire and smoke; only one person on a street nearby suffered from breathing smoke; many saw the event as a miracle due to the fact that, since the Carmelit does not operate at weekends, there were no casualties; the fire fighters' union said that to be more realistic, it has been found that safety in the tunnels is poor and this should be deeply examined and lessons learned.

Three cars were totally burnt-out in addition to cables and other equipment which was heavily and even totally damaged; the smoke also caused electricity stoppages in some parts of Haifa and for some hours people in the areas affected by the smoke were instructed to stay at home with all windows, doors and openings closed.

It is unknown as yet for how long the Carmelit will be out of service, but it is clear that it will be at least for some months; the municipality together with the bus operators will operate enhanced bus services, but neither they nor a private car can do the journey from downtown to the top of the Carmel in 12 minutes (the original time during the 1950's until the 1980's was 6 minutes!).

The reason for the fire is still unknown; however, the fire fighters have stated that it was neither sabotage nor an electrical short-circuit; it has been



The heavy smoke coming out from the entrance to the Mother's Garden station on the Carmel (the building with the yellow roof).



which 4.25 kilometres will be underground. The estimated budget for the execution of the Green Line is NIS 4.5 billion (USD 1.17 billion) and the works should be executed in 4 - 5 years.

The Red light rail line is the first such public transit system in Tel Aviv and operates since 2015." [sic! This is of course incorrect; it means work is under way since then. Ed.]

(ii). RED LINE TUNNEL BORING STARTS.

From a press release of 14.02.2017 by the Transport & Roads' Safety Ministry:

"Vision becomes a reality; on next Sunday, 19.02.2017, the boring of the Tel-Aviv METRO/LRV Red Line tunnels will start 4 months ahead of the planned date; it will be performed by 8 huge TBM which will work in couples over 12 km passing under the cities of Tel-Aviv, Ramat-Gan, and Bnei-Brak.

Transport Minister Mr. Israel Katz will give the sign to start operating the first TBM at a depth of 30 m; the machine will pass under the Ayalon highway (and Ayalon railway line) and will continue towards the stations of Arlosoroff, King Shaul, Judith, and Carlibach which are under construction.

Each of the TBM's is 115m long, has a diameter of 7.5 m and weighs 900 tons. 20 workers and engineers of the Chinese company CRTG are working on the machines at each moment; each machine can bore 10m/day. To each machine is attached a conveyor to remove the excavated soil; the machine also assembles, through a hydraulic robotic system, the concrete rings for the tunnel wall; it is promised that the underground works will not cause any vibrations or other disruptions on the surface."

'Metro Report Intl.' of 20.02.2017 adds: "Transport Minister Israel Katz attended a ceremony on February 19 to mark the start of tunnel boring on the Red Line in Tel Aviv, which included the launch of TBM 'Golda', named after former prime minister Golda Meir.

The TBM made by CREG is the first of eight that will be used on the project. A 51:49 joint venture of China Railway Tunnel Group and Solel Boneh Infrastructure is undertaking the work under a 3.1 Bn Shekel design-build civil works contract. This covers 11km of 5.5m-diameter twin tunnels and six underground stations.

The 23km light metro line will link Petakh Tikva north-east of Tel Aviv with Bat Yam to the south. It is expected to open in 2021, and will use a fleet of 90 LRVs that CRRC Changchun will supply under a contract signed in 2015."

(iii). THE JEWISH UNDERGROUND.

The municipality of B'nei-Brak - of which almost all the population consists of ultra-Orthodox Jews - has issued a clarification which, unlike the information provided by the media that tunnel boring

stated that cleaning works underneath the train at the downtown station was a regular maintenance procedure.

Attached herewith are pictures from various sites taken from the network with their permission:



ASSESSING THE DAMAGE.

From a press release of 21.02.2017 by the Haifa municipality:

"Three Swiss specialists for metros/LRV/funicular from the companies Frey and Doppelmayr arrived on 20.02.2017 for a professional visit to the Carmelit-Haifa funicular.

After visiting the site and meetings, it has been decided together with the Carmelit General Manager Mr. Avishay Hadar that the specialists' team will prepare an initial quotation as an outline for repair of the repairable car and replacement of the totally-damaged cars.

The initial quotation, to be given within few weeks, will then be studied by the Carmelit management. Involved were. The Carmelit General Manager Mr. Avishay Hadar, the Carmelit Operational Manager Mr. Amir Daube, Mr. Albert Tabord from Frey AG (manufacturer of command, control, and electrical systems of the Carmelit), Mr. Peter Kalbermatter and Mr. Andreas Wytttenbach from Doppelmayr (manufacturer/supplier of the trains).

B. TEL AVIV.

(i). APPROVAL OF MORE LINES.

The following report appeared in 'Railway Pro' 12.01.2017:

"Tel Aviv finally approves two more light rail lines:

<http://www.railwaypro.com/wp/wp-content/uploads/2017/01/Tel-Aviv-Red-Line_c12_01-575.2013716T161809.jpg>

The Housing Cabinet headed by Moshe Kahlon, the Minister of Finance, approved the western section of the Tel Aviv light railway's Purple Line and southern and central sections of the Green Line. The two planned lines should be operating by 2030 and will serve more than 250,000 passengers per day.

The Purple Line section that was approved includes 29 stations. The section approved runs for 18 kilometres and a further 10 kilometres with 15 stations are planned.

The Green Line is divided up to three sections - southern, central and north - and will run for 39 kilometres and include 61 stations. The central section of the Green Line will be 5.9 kilometres long, of

works on the Red Line (which passes underneath the city) will be carried on 365/24, stresses that this is not the case for B'nei-Brak, where no works will be carried out from Friday afternoon (the exact hour changes according to daylight) until Saturday night (here again the exact hour changes according to sunset time). So the Sabbath will be respected even underground! [And who says Shabbat is boring? Ed.]

(iv). NTA TENDERS:

(i). Tender No. 188/2016: Providing consultancy services regarding land expropriation and treating real estates on various projects: The contract is for 36 months with optional extensions of up to additional 36 months. Latest date for submission of proposals: 17.01.2017.

(ii). Tender No. 189/2016: Providing services of Real Estate Appraisal and controlling appraisal: The contract is for 36 months with optional extensions of up to additional 36 months. Latest date for submission of proposals: 17.01.2017.

(iii). Tender No. 194/2016: Providing mapping and measuring services to follow-up expropriation and other projects of the implementation division: The contract is for 36 months with optional extensions of additional 36 months. Latest date for submission of proposals: 13.02.2017.

(iv). Tender No. 166/2016: Frame agreement for supply working positions, static and portable, tablets, and accessories including repair services:

The contract is for 36 months with optional extensions of additional 24 months. Latest date for submission of proposals: 30.01.2017.

(v). NTA tender No.2016/165: Providing design services, implementation and survey

analysis, focus groups and deep interviews: The contract is for 36 months with optional extensions of up to additional 36 months. Latest date for submission of proposals: 13.02.2017.

(vi). Tender 0036/2016 Delayed:

"Deadline: 14 Feb 2017

Web site: www.nta.co.il

Ref: Tender No. 0036/2016

NTA hereby informs the Bidders of the following changes to the Tender:

I. Certain revisions have been made to the Tender Documents, relating to the Bidder structure and the Threshold Requirements as set forth therein. It is NTA's intention to publish the revised documents in this regard on NTA's official website, www.nta.co.il, no later than Sunday, December 25, 2016.

All Bidders are required to thoroughly review the updated Tender Documents, including all Addenda thereto.

2. Furthermore, the Tender Committee hereby informs the Bidders that the submission dates with respect to the Tender have been revised and postponed as follows:

The last date for the submission of requests for clarifications by Bidders shall be on January 23, 2017. The final Bid Submission Date shall be on March 23, 2017, at 12:00."

(vii). NTA tender No. 7/2017: Providing external legal advisory services regarding real estates and lands: The services consist of 2 categories:

Category A - Includes follow-up of land expropriation, evacuations, various arrangements of property, and claims against depreciation.

Category B - Treating depreciation only.

NTA will select 4 advisors for Category A, and 2 advisors for B. The contract is for 36 months with optional extensions of up to additional 36

(viii). NTA tender No. 2017/008: Informative and branding advertisement on fences and other NTA boards: The contract is for 24 months with optional extensions of up to additional 36 months. Latest date for submission of proposals: 05.03.2017. months. Latest date for submission of proposals: 21.02.2017.

(ix). NTA Tender 0001/2017. For the Construction of the Turkish Alignment Cut and Cover Tunnel. This section shall consist of the Turkish Alignment from Kauffman Street in the West to Pines Street Int east, following the disused historic railway alignment, a distance of approx. 970 metres and including, inter alia, at-grade works from kauffman St., an open cut ramp to below ground level, the Elifelet Stop and the cut and cover tunnel through to the Herzl Shaft, all as set forth in the Tender Documents. Submissions by 29th. March 2017."

(x). NTA Tender No. 004/2017: Providing Simulations and simulation services. The contract is for 24 months with optional extensions of up to additional 36 months. Latest date for submission of proposals: 06.03.2017.

C. JERUSALEM.

(i) EFRAT EXTENSION IDEA FLOATED.

From Aharon: "On 23.01.2017, some newspapers quoted Transport Minister Mr. Israel Katz as saying: "A new LRV line will be built from Jerusalem to the Ezion Bloc - a group of settlements including the city of Efrat - all located south of Jerusalem and near Beit-Lehem". I've contacted the minister's spokesman, who confirmed the information, but explained that it is just an idea that has not yet even been discussed."

(ii). PASSENGER SURVEY.

A survey ordered by the operator CityPass Marketing Manager Mr. Ozel Vatik from the "Dialog" institute, headed by Prof. Kamil Fuchs, reveals that 85% of the passengers are very satisfied with the LRV services and would like to see the services extended to additional neighborhoods.

The survey's aim was to create a feedback from the public using the service in order to learn where and which improvements are needed; 800 passengers were questioned.

Additional results:

The most important parameter for service was the time of arrival at destination and train availability.

The LRV is spacious and the journey smooth and without bottlenecks.

The fluent information provided by electronic boards is excellent.

Most of the passengers would recommend their relatives and friends to use trains.

82% are convinced that the LRV contributes to the city's public transport improvements.

Most of the passengers use LRV to/from work and shopping, while 10% of users are students.

Among the Jewish ultra-Orthodox passengers questioned, a high percentage are satisfied with the trains' cleanliness.

The LRV carries over 140,000 passengers daily; the stations with the highest traffic volume are Jaffa Street Central and the adjacent to Central Bus Station.

CityPass General Manager Mr. Yaron Ravid said: "The survey's results prove that the LRV is now one of the city's symbols of success." CityPass Marketing Manager Mr. Ozel Vatik said: "The feedback received

through the survey is most important for us and we'll keep improving services to make journeys a pleasant experience."

D. HAIFA – NAZARETH SCHEME APPROVED.

From 'I.R.J.' 21.02.2017:

"ISRAEL's National Infrastructure Commission has approved plans for a 43km interurban light rail line linking Haifa with Nazareth and referred the project to the Israeli government.

The NIS 5.9bn (\$US 1.6bn) line from Haifa Bay Bus Station to Hamusakhim Junction in Nazareth will serve 26 stations, nine of them with park-and-ride facilities. The specification calls for a fleet of 32 52m-long LRVs, which will accommodate 300 passengers. LRVs will operate at up to 100km/h on interurban sections of the route, where distances between stations will be greater.

Management of the project will now pass to the Cross Israel Highway Company, which will be responsible for tendering.

Welcoming the committee's decision, transport minister Mr Israel Katz said the light rail line is a national project which will strengthen Haifa as the capital of northern Israel. The line is due to open in 2023."

Later information: From a press release of 20.02.2017 by the Transport & Roads' Safety Ministry:

"Transport Minister Mr. Israel Katz announced today that the National Council for Design and Construction has approved the project and all that remains is its approval by the government.

The double-track line will be 43 km long with 17 stations, of which the following 9 stations will be along the 34km-long inter-city sections: Merkazit Ha-Mifratz (adjacent to Lev-Ha-Mifratz railway station), Vulcan Junction, South Kiryat-Ata, Kiryat-Ata Transportation Center, Tal Hill, Shefaram, Yiftakhel, Northern Nazareth Outskirts, and Raina-Mashad. At each station there will be Park and Ride facilities.

On the final 7km. urban section the line will first pass Upper-Nazareth with 6 stations and then in Nazareth itself there will be 2 stations: at the city market and the terminus of Tufic Zayad.

The line will be operated - for the first time in Israel - by 'tram-train' with a top speed of 100 km/h. Each train is to be 52m long and with a carrying capacity of 300 passengers, including 170 standees. The service will be provided by 32 trains."

I16:07.

OTHER MIDDLE EAST RAILWAYS.

Rather a lot about Iran this issue, mainly because a railtour there has led to a surge in interest and two long articles and this led me to dig out also some historic material to provide some context.

A. EGYPT.

(i). In 'European Railway Review' No. 5 (2016) pp.69-72 is a rather self-congratulatory article by Fernando Nicolas Puiggari on the work of the Spanidh 'Adif' consortium in various countries, especially India. Relevant for us is:

"Another country in which Adif has active involvement is Egypt. Here the government showed a strong interest in enhancing the nation's rail network by examining the possibility of deploying new high-speed lines between its main cities, as well as increasing safety levels on existing ones.

In 2014 the Egyptian Minister of Transportation announced that the country would be developing a high-speed network linking Alexandria and Aswan, through Cairo and Luxor, investing around €10 billion. The lines would be gradually deployed until 2025.

Adif and Ineco were recently selected to draft the feasibility study of the high-speed line on the section Cairo – Luxor, and the possible extension from Aswan to Hurghada. The works to be carried out include the analysis of potential demand and traffic, assessment of different layout alternatives, economic and financial study of the selected option and a management scheme for the line.

The project consolidates Adif's position in Egypt – where the company has an existing presence – carrying out a Twinning Programme sponsored by the European Union; training Egypt's staff in areas

such as the regulatory framework and capacity building. These are examples of Adif's internationalisation plan, a primary objective for the coming years....."

(ii). PURCHASE OF DIESEL LOCOS PLANNED.

From 'R.G.I.' Sep. 2016 p.10: "The European Bank for Reconstruction & Development is considering a sovereign loan of up to €150M to support a €224M plan for the Egyptian National Railways to purchase up to 50 diesel locomotives under a competitively-tendered supply and maintenance contract.

The acquisition is part of a strategy to reform and commercialise the rail freight sector. This includes the proposed separation of ENR's freight operations into a subsidiary with managerial independence, and the introduction of track access charges which would provide a framework for future private sector involvement in the rail market."

(iii). HYUNDAI ROTEM GETS CAIRO LINE 3 CONTRACT.

From 'Metro Report Intl.' 06.02.2017: "Hyundai Rotem announced on February 6 that it had been awarded a 433bn won contract to supply 256 cars for Cairo metro Line 3 and maintain them for eight years. Deliveries are scheduled for 2018-20.

Extensions to the initial phase of Line 3 will take the line to 45.5 km, crossing the city from east to west and serving the international airport. The design of the Line 3 trainsets will draw on Hyundai Rotem's experience with the trainsets which it supplied for Line 1, with components designed to cope with summer temperatures of up to 50°C.

The South Korean company said the contract awarded by Egypt's National Authority for Tunnels is the largest which it has won in Africa since it entered the continent's rail market in the 1970s, and would support its ambitions to increase maintenance activities to strengthen the manufacturing business. It expects the Line 3 contract to put it in strong position to win the future contract to supply trains for Line 5, and is also targeting other African railway markets including Tunisia and Morocco."

B. TURKEY.

(i). IZMIR PUBLIC TRANSPORT.

From 'Metro Report International' Sept. 2016 pp20f. By Benjámín Zelki.

"Home to 2.8 million inhabitants, Izmir ranks as Turkey's third-largest city and the wider metropolis houses 4.2 million people. The city's position on the Gulf of Izmir means that ferries play an important role in city transport, with several routes connecting hubs on both sides of the gulf. The busiest ferry route links Konak with Karsiyaka.

The city's rail-based public transport consists of a northeast-southwest metro line and the Izban suburban line, which connects the northern and southern suburbs via the city centre. Both are due

to be extended, and will soon be joined by two tram lines that are currently under construction.

The origin of the metro lies in a transport masterplan published in 1989, which recommended building a route through the districts of Bornova, Buca, Narlidere and Cigli. Following a tender in 1992, an agreement was signed in 1993 with ABB. Construction started in 1994 and in 2000 the metro was put into service. The 11.2km first phase, of which 4.2km is underground, connected Ücöl and Bornova, with 10 stations.

Extensions in 2012 added two underground stations at each end of the line. Two years later the route was again extended, to Fahrettin Altay in the south-west. The metro now covers 20km and 17 stations, and ridership is steadily growing. Last year's figure of 250,000 passengers a day has already increased to 350,000 The rolling stock fleet comprises 87 cars. These were initially formed into three- or four-car sets, but growing demand has led to all services operating in five-car formations. ABB supplied the initial fleet of 45 cars, and CSR Zhushou delivered 42 more in time for the opening of the first extension. CSR's successor CCRC is currently producing 19 five-car trainsets. Ordered under a TL 192M contract, these are due to enter service in May 2017 and will increase the fleet to 182 metro cars.

The entry into service of the new vehicles is to coincide with the commissioning of upgraded signalling by Bombardier, which will enable the current peak headways of 4 min. to be brought down to 90 sec. In addition, construction is due to begin soon on a one-stop extension from the northeastern terminus at Evka 3 to Bornovka Merkez.

Complementing the metro line is the suburban line, branded Izban and operated by a joint venture of Izmir Metropolitan Municipality and state railway TCDD.The Municipality wanted to create a high-quality solution for urban transportation to connect the northern and southern parts of the city.

The core of the Izban route is an upgraded line which was previously operated by TCDD as a regional route. This was extended and made into more of an urban operation, primarily serving Izmir and its suburbs. Several level crossings were removed, with some of the alignment moved underground at Sirinyer and Karsiyaka stations. Existing stations were modernised and several new ones added. The line is now double track and electrified at 25kV 50Hz throughout.

Following these upgrades, Izban was inaugurated in 2010. The first section of the Southern Line, from Alsancak to Cumaovasi, opened in August that year, with the Northern Line linking Alsancak and Aliaga following in December. Interchange with the metro is provided at Hilal and Halkapınar, and Alsancak has connections with long distance rail services, as well as local ferries.

Part of the upgrade comprised the introduction of new rolling stock. CAF supplied the original fleet of 33 Class 22000 electric multiple-units, with a further 40 EMUs ordered from Hyundai Rotem in

2012, designated Class 22100. Izban services run in three- or four-car formations at peak headways of 5 mins. This contrasts with the previous regional hourly train....

In February the Southern Line was extended from Cumaovasi to Tepeköy. This 30km extension took the Izban route to 110km. A further 26km extension from Tepeköy to Selçuk is in progress, with TCDD responsible for renewing signalling and other infrastructure on its existing line. New rolling stock is also being purchased as part of the project, and the extension is due to open in early 2018.

As on the metro, passenger numbers on Izban have grown, from 225,000 passengers a day in 2010 to more than 500,000 today. This caused congestion at Alsancak, which was originally the city centre terminus of both lines. To reduce the need for passengers to change trains, Izban introduced through running between its two routes in April. Following a test period when several services in the morning and evening ran through, every train now connects the Northern and Southern lines, with a change of drivers at Alsancak. At off-peak times trains only run between Cumaovasi and Menemen, with shuttles serving the outer stations. Alsancak also functions as a terminus for some TCDD services, which use a separate station building. Most longer distance services, including those from Ankara, use the nearby Basmane station.

Trams to return soon.

Unlike many large cities in Turkey, Izmir currently has no tram or light rail operation. This will soon change, however, as two tram lines are currently under construction,

The Konak line will run along the coast from the Fahrettin Altay metro terminus to Halkapınar via Konak and Alsancak. The 12.9km route with 20 stations is to use 20 trams. The Karsiyaka line will be 8.8km long with 14 stations and use 17 trams. It will serve the other side of the gulf, connecting the Izban station at Alaybey and Karsiyaka in the east with Mavisehir in the west. As well as serving the transport hubs of Karsiyaka and Bostanlı, it will run through the dense area of Mavisehir.

The total cost including rolling stock is TL182.1M plus €69.2M. The project is financed by treasury-guaranteed foreign loans from the IFC, Agence Francaise de Développement and a joint loan from ING and MIGA.

Grassed track will be used on the Karsiyaka Line's coastal section and in the Atakent area, as well as on the Konak Line along Mustafa Kemal Coastal Boulevard. This section will see car traffic moved into an underpass to improve space for trams and pedestrians, including making access to the coast easier.

Gülermak is the contractor for both lines. Small problems arose during construction of the Konak Line relating to protected mulberry trees on Sair Esref Bulvarı, but the route was eventually modified so that the trees could stay. The city centre alignment made the Konak Line the more difficult of

the two routes to build..... as it involved a lot of work around road traffic. Work on the Karsiyaka Line is expected to finish at the end of 2016, half a year ahead of schedule. Both lines are due to be in service by June 2017.

The Konak Line has a design capacity of 11,400 passengers/h per direction, while that of a Karsiyaka line is 8,900. Headways are planned to be 3 min, in the peaks and 5 min. off-peak. Services will be operated using five-section low-floor trams. At 32.2m long and 2,650mm wide, each air-conditioned tram will have capacity for 285 passengers including 48 seated. Maximum speed will be 70km/h, but the vehicles will be restricted to 50km/h in service, and average commercial speed is envisaged to be 24km/h. Each tram will be equipped with two motor bogies and one unpowered, and a total of eight 60kW traction motors.

The first four trams are ready for delivery from the Eurotem factory in Adapazarı. Eurotem is a joint venture of South Korea's Hyundai Rotem and Turkish company Tüvasas. Hyundai Rotem says that this is its first contract to supply trams to a foreign market, although it had previously won orders for main line trains in Turkey. The trams are being built using 85% Turkish components and the design features waves in the livery, a traditional motif for the city.

Ergenekon says that the decision to build tramways was taken for economic, environmental and nostalgic reasons. Izmir used to have the second-largest tram network in Turkey until this was closed in the early 1960's. More importantly, the new routes will run along roads currently used by busy bus routes and with heavy traffic, and are expected to relieve some of this.

More Rail means More Journeys.

Integrated ticketing covers buses, ferries, the metro and Izban services. All metro and Izban stations are barrier-free, which also applies to the future tram stops.

Public transport has a 34.7% share of trips made in Izmir, 18.9% for buses, 6.6% for minibuses, 4.8% for the metro, 4% for Izban and 0.5% for ferries. A further 32.7% of journeys are made on foot and 19.1% using private cars, with the remaining 13.5% covered by other modes such as school buses and motorcycles. Although the modal share of public transport is quite high, the municipality is planning to increase it through extending the metro line.

The proposed southwestern extension from Fahrettin Altay to Narlidere would add 7km. A further plan envisages a second driverless metro line from Ücöl station on the current metro line to Dokuz Eylül University in Tinaztepe via Sirinyer Izban station. A third metro line would run 4.5km from Halkapınar to Otogar.

There is also a plan to extend the Karsiyaka tram line to Cigli Izban station. Beyond all this, the municipality is planning a monorail linking Esbaş Izban station with Fuarizmir, a large trade fair site recently built in the Gazimir district. Tendering is

to begin next year for what would be the first monorail in Turkey."

Further to this: From 'Metro Report Intl.' 06.01.2017: 'Trams started test running on a 4.3 km section of the Karşıyaka Line in Izmir on December 28, with Mayor Aziz Kocaoğlu on the initial ride. Tests are taking place between Ataşehir and Bostanlı. The whole 8.8 km line is 95% complete, with opening expected in March. Kocaoğlu said that there are plans to extend the route north from Mavişehir to Çiğli Izban station.

On the other side of the Gulf of Izmir, the 12.9 km Konak Line is 35% complete. Testing is envisaged to start in July or August, with passenger services expected in October or November."

In addition: "Prime minister Binali Yıldırım has approved the extension of Izmir's only metro line west to Narlıdere. The 7.2 km extension with seven underground stations is estimated to cost €280m to build, with opening expected in 2020."

(ii). SIGNALLING.

'R.G.I.' Sept. 2016 p.28. "Siemens is to supply ETCS Level 1 signalling, including Trackguard Westrac electronic interlockings, point machines, level crossings and telecoms for the modernisation of the 380km line from Samsun to Kalın."

(iii). ANKARA METRO LINE 4 OPENS.

From 'Metro Report Intl.' 05.01.2017:

"Line M4 of the Ankara metro network entered passenger service at 14.00 on January 5. The 9.2 km route from Gazino to Atatürk Kültür Merkezi has nine stations.

Construction began in 2004 and test running started in August 2016. A further 1.4 km section running south from Atatürk Kültür Merkezi to Kızılay is expected to open by the end of 2018. This would have two intermediate stations, including a station serving the city's mainline station, which is being expanded and redeveloped.

CRRC Zhuzhou has supplied a fleet of stainless steel bodied trainsets from its Sincan plant near Ankara, as part of a 2.5bn yuan contract signed in 2012 covering 342 cars for use on lines M2, M3 and M4."

(iv). TRAM IN DIYARBAKIR APPROVED.

From 'Metro Report Intl.' 06.01.2017: "Prime minister Binali Yıldırım has approved the construction of a tram line in Diyarbakır. The city in eastern Turkey has 930,000 inhabitants, with more than 1.5 million in the metropolitan area, but no tram lines.

The planned route would link Dağkapı on the edge of the historic city centre with Etilim ve Araştırma Hospital in the northwest, serving 18 stops on a 14 km alignment. Construction would include the closure to motor traffic of Ekinciler Caddesi. It is envisaged that 30 trams would be

required to operate the service, with an additional three to be purchased as a reserve."

(v). TURK-RAIL CHATLINE.

For those interested in regular information on TCDD the following can be recommended: Turk-Rail@yahoo.com

Here is an example from a contributor from 11.01.2017:

"The TCDD website is being continually updated. The biggest change is that Soma-Balikesir has reopened with the Izmir-Eskisehir overnight re-routed this way as of tonight, 10/11 January. Revised times are 2245 Eskisehir-Basmane and 1915 Basmane-Eskisehir. The Karesi Ekspresi is extended to/from Balikesir. Only one through train to Bandirma, 1055 Basmane-Bandirma, 1430 Bandirma-Basmane. 0650 Basmane-Soma and 1615 Soma-Basmane are not going through.

According to the long distance page of the website the name Ege Ekspresi has been transferred to the Balikesir-Kütahya service. The reservation system hasn't been updated to include this.

The Izmir area locals that were terminating at Halkapınar now run through to Basmane.

The Islahiye-Mersin service which wasn't on the website last week has been re-instated."

(vi). HIGH SPEED EXPANSION IN TURKEY SHAPES THE FUTURE OF TRAVEL.

From "European Railway Review" Vol. 22 issue 5, 2016, pp. 113f.

[This is a very optimistic and positive report from İsa Apaydın, Chairman of the Board and Director General of TCDD. Nevertheless one has to admit that the Turkish railway system has been totally transformed over the past two decades or so and despite various political upheavals in the country and the region as a whole, the development is continuing. The article provides a useful overview. We note that, according to the brief biography, Mr. Apaydın studied Metallurgy and worked as an engineer in TCDD from 1987, working himself up to senior management positions from within the railways rather than being imported as a professional 'manager' from outside! Ed.]

"Railways are at the forefront of the transportation industry, as a cheap, long-lasting and environmentally-friendly mode that is not dependent on oil and the countries with advanced railway technology are gaining momentum in the fields of economy, social affairs and culture. Consequently, EU countries and certain Far Eastern countries such as China, South Korea and Japan have been heavily investing in the railway sector in recent years, creating international railway corridors.

To keep pace with these developments, Turkey has been following transportation policies that prioritise rail in the last 13 years and approximately €16 billion has been allocated to the railway sector in this time. These investments have been channelled

into hundreds of projects to build high-speed and rapid railway lines; refurbish and modernise existing tracks, develop and nationalise the railway industry and to liberalise the rail system.

The first high-speed line in Turkey became operational between Ankara and Eskişehir in March 2009. This 250km/h line was followed by the Ankara-Konya line in 2011, the Eskişehir-Konya line in 2013 and the Eskişehir-Istanbul and Konya-Istanbul lines in 2014.

High-speed trains create a new way of life. Cities become suburbs of each other, while the economic, social and cultural life in them becomes more dynamic and transportation and living habits change radically. Projects are underway to provide safe and comfortable high-speed and rapid rail services over a wide area, from the east to the west and from the north to the south of the country. Construction is currently progressing on the following lines:

- | | |
|--|------------------|
| - Ankara - Izmir | high-speed line. |
| - Ankara - Sivas | high-speed line. |
| - Yerköy - Kayseri | high-speed line. |
| - Sivas - Erzincan | rapid line. |
| - Bursa - Bilecik | rapid line. |
| - Halkah - Kapikule | rapid line. |
| - Konya - Karaman | rapid line. |
| - Karaman - Ulukisla - Yenice | rapid line. |
| - Adana - Mersin (third and fourth track) | rapid line. |
| - Adana - Incirlik - Toprakkale (second track) | rapid line. |
| - Aliaga - Candarli | rapid line. |
| - Tepeköy - Selcuk | rapid line. |

In recent years Turkey has focussed on the construction of rapid lines to accommodate mixed passenger and freight traffic with a maximum speed of 200km/h alongside the high-speed lines suitable for passenger transport only. By the year 2023 the total length of railways is expected to reach 25,000km with the construction of 3,500km high-speed, 8,500km rapid and 1,000km conventional rail lines. This will significantly increase rail's market share in freight and passenger transportation.

The Marmaray Project, which enabled uninterrupted rail traffic between Europe and Asia, will bring a radical solution to urban public transportation as well as provide mainline passenger and freight services on the 76km-long journey between Gebze and Halkah. Expected to serve one million passengers daily, Marmaray is an important link for the international rail corridor that will allow seamless travel from London to Beijing. The Ayriılık Cesmesi - Kazlıcesme section of the project commenced operations in October 2013. This section includes the 1.4km immersed tube under the Bosphorus, which is the deepest submerged tunnel in the world. The Ankara-Istanbul high-speed line will make use of the Marmaray tunnel at its western end and services will extend as far as Halkah upon completion of the project.

Today Turkey has a railway network of 12,532km, of which 1,213km are high-speed lines, 3,938km are electrified and 5,008km are signalled.

The addition of high-speed services led to considerable changes in the modal-split on the operating routes in favour of railways. The number of passengers who prefer rail travel has grown steadily over the years to justify the introduction of high-speed: since 2009 rail's market share has increased from 8% to 72% on the Ankara – Eskisehir route. The Ankara – Konya high-speed line has gained the same success. Although this is a new market for TCDD, rail accounts for 66% of all trips between Ankara and Konya, having the highest share among all transport modes available between the two cities. Rail transport's share is likely to rise in the forthcoming years with the expansion of the network, in line with the government's 2023 targets.

Objectives for the railway sector have been set for the year 2023, which marks the centenary of the foundation of the Turkish Republic. Accordingly, constructing 3,500km of high-speed, 8,500km of fast and 1,000 km of conventional lines to have a total railway network of 25,000km; Upgrading the existing conventional network; Completing the liberalisation of the rail system; efficient and sustaining implementation of the Safety Management System; Increasing the intermodal share of railways to 10% of the national passenger market and to 15% of the national freight market and development of international railway corridors to increase Turkey's share of the international transport market are the main targets.

The 2023 programme promises to plug important gaps in the network with 13,000km of new line construction. TCDD is currently engaged in significant work to connect Ankara, which is set to become the hub of the high-speed rail network, to three of the major cities: Bursa, Izmir and Sivas.

The new high-speed line running southwest from Ankara to Izmir – the third most populous city in Turkey – will operate at 250km/h cutting the journey time from 14 hours via the existing conventional line to just 3 hours and 30 minutes.

The Bursa – Bilecik line is designed for 200km/h operation and will offer a journey time of 45 minutes. This line will connect Bursa – the fourth most densely-populated city in Turkey – to the network for the first time.

Work is also underway for the 250km/h Ankara – Sivas high-speed line, which is an important connection on the east-west axis that will shorten the distance between the two cities to 405km and reduce the travelling time from 12 hours to just 2 hours.

Finally, the 245km stretch from Sivas to Erzincan will allow for 200km/h operation and will slash to travel time from 5 hours and 50 minutes to 1 hour and 30 minutes upon completion. The ambitious plans for expansion are reflected in the size of investment in rolling stock as well. Current passenger services are operated using a fleet of 13 high-speed trainsets and an order has been placed for the purchase of six new very high-speed trainsets from Siemens, four of these units are being trialled in Turkey and the remaining two have been manufactured and are currently being tested in

Germany for certification. To keep pace with the massive investment in track and infrastructure, TCDD plans to enlarge its fleet with 106 new high-speed trains by 2023. In this context, a tender will soon be launched to purchase the first 10 trains; 80 trains will be supplied through a technology transfer agreement and 16 trains will be manufactured within the scope of the National Train Project.

TCDD is well on track to meet the 2023 targets, working at full speed to strengthen rail's position as a safe, reliable and environmentally-friendly mode of transportation. With the government's ongoing commitment to invest in railways, work will continue to develop and expand the railway network, as well as improve international links to gain a greater share of the international markets. We are hopeful that Turkey will then rank among the top countries in this field."

(vii). MARMARAY PROJECT RECOMMENCES AFTER HIATUS.

From 'R.G.I.' 01.02.2018: "Surface works on the Asian and European sides of Istanbul's Marmaray suburban corridor reportedly resumed at the end of January following an agreement between lead contractor OHL and the government.

The Marmaray immersed tube tunnel which links railways on either side of the Bosphorus Strait opened on time in October 2013, but upgrading of approach routes to create a 77 km high-capacity corridor between Halkali on the European side and Gebze in Anatolia has been subject to considerable delay. OHL was appointed to lead the project under Contract CR3 worth €933m in October 2011, which includes station rebuilding work and triple-tracking on the Asian side to allow long-distance and high speed trains to serve Istanbul's Haydarpaşa terminus.

In a stock market announcement, OHL said that a 'modification' of Contract CR3 had been agreed with the Turkish government on November 18 last year. This has seen the appointment of domestic firms Kalyon, Kolin and Cengiz to serve as subcontractors. Work is reported to have restarted on sites at Atakoy and Zeytinburnu on the European side and Kartal, Bostanci and Kiziltoprak in Anatolia. The revised completion date for the work is now December 31 2018."

D. QATAR.

'R.G.I.' 9/2016 p. 27: "QR has extended a contract for a joint venture of Hill International (80%) and ASTAD (20%) to provide project management services for the Doha metro Green Line. The 30-month deal is worth an estimated US\$43.1M."

E. DUBAI.

'R.G.I.' 9/2016 p.40: "Dubai's Roads & Transport Authority has called tenders for a feasibility study on extending the city's Al-Sufouh tram route."

F. SAUDI ARABIA.

(i). SPANISH ACTIVITIES. As mentioned above, in 'European Railway Review' No. 5 (2016) pp.69-72 is a rather self-congratulatory article by Fernando Nicolas Puiggari on the work of the Spanish 'Adif' consortium in various countries, especially India. Relevant for us is also:

SAUDI ARABIA.

"This expertise and reliability helped Spain win one of the world's largest contracts: the second construction phase of the high-speed line between Mecca and Medina in Saudi Arabia. This 450km.-long electrified double-track line has a total budget of €12billion, of which €6.74bn is earmarked for phase 2 that has been entrusted to the Spanish-Saudi consortium Al Shoula. More specifically, the second phase includes the design and construction of the railway superstructure and railway equipment (electrification, signalling, communications, etc.); the supply of 35 high-speed trains built for speeds of over 300km/h; rolling stock maintenance; and the running and maintenance of the line, including stations, for a period of 12 years.

This project is the largest of its kind ever to be undertaken by the Spanish rail sector, and the biggest international contract won by Spanish companies. It is a display of confidence in Spain as well as our technology; and is an undertaking that is being used to gain experience for subsequent projects in other countries. Despite the complexity of the line, Spanish firms are carrying out the works they were entrusted with; a large part of the line is finalised and the consortium has been running successful tests for several months."

(ii). REVISED TIMESCALE FOR HARAMAIN.

From 'R.G.I.' 17.01.2017: "On January 16 Spanish Development Minister Íñigo de la Serna welcomed the ratification of the November 2016 agreement between the Saudi Arabian authorities and the Al Shoula consortium, which sets a revised timescale for the completion of the Haramain High Speed Rail Line between Makkah, Jeddah and Madinah.

De la Serna had been part of the delegation accompanying King Felipe IV on his state visit to Saudi Arabia, during which the minister met with Saudi Railways Organization President Dr Rumaih Mohammed Al-Rumaih. According to the Spanish Ministry of Development, Al-Rumaih particularly welcomed the appointment of Jorge Segrelles as the new President of the Al Shoula consortium on a full-time basis.

When the agreement was concluded, partial operations on the 444 km high speed line were expected to begin in December 2017 for full opening in March 2018. The Haramain project is worth €6?73bn to the Spanish rail sector, according to the ministry."

(iii). LOCOS FOR SALE. In 'R.G.I.' 9/2016 was a full page advert by IROLLI: 9 Diesel locomotives in the Kingdom of Saudi Arabia for sale – "DE 3300hp AC/DC Co-Co, remanufactured in 2011.

The units have been working in KSA between Dammam and Riyadh for the last four years, on mainline freight trains for containers and general cargo, as single or multiple units....Operational performance is optimal where over the last 4 years they did about 290 million t-km with average annual availability exceeding 90% and reliability less than 3 line-failure per 100 thousand kms."

Other reports indicate that the developing financial crisis in the country is behind the latest conflict over the contract for the High Speed Line.

(iv). TUNNELLING COMPLETED ON RIYADH METRO LINE 3.

from 'Metro Report Intl.' 27.01.2017.

"Riyadh Governor Prince Faisal bin Bandar Al Saud attended a ceremony at the future Qasr Al Hokm Downtown station to mark the completion of tunnelling on Line 3 of the Riyadh metro.

The 41km Orange Line includes 11km of tunnels. These have been partly excavated using the cut-and-cover method, with 5.8km bored using 10m diameter tunnel boring machine Jazlah supplied by NFM Technologies, which started work in July 2015.

Line 3 is being built by the ArRiyadh New Mobility consortium under a US\$5.21bn contract awarded in 2013. Led by Salini Impregilo, the consortium includes Larsen & Toubro and Nesma in the Civil Work Group, and Ansaldo STS and Bombardier Transportation in the Electrical Work Group. Idom and Worley Parsons are also part of the consortium.

In addition to the east-west Line 3, ANM is building Qasr Al Hokm Downtown station, which will provide interchange with the north-south Line 1. The 20,000 sq.m station was designed by Snøhetta with One Works & Crew.

Line 3 will be the longest of the six lines under construction in the capital. It will have 22 stations and use a fleet of 47 two-car driverless trainsets that Bombardier Transportation is supplying from its Sahagún factory in Mexico. The first of the Innovia 300 trains arrived in Riyadh in November."

(v).ALSTOM UNVEILS RIYADH METRO SETS.

An interesting insight into the globalised nature of such companies now!

From 'Metro Report Intl.' 08. Feb. 2017: "ARABIAN ARCHITECTURE AND PALM TREES INSPIRE RIYADH METRO TRAIN'.

" Alstom unveiled a Metropolis trainset for the Riyadh metro at its Katowice factory in Poland on February 7. The Metropolis trainset destined for Line 6 is the fifth that Alstom has produced for Riyadh; the first left the factory on January 10. Deliveries are due to be completed in 2018.

Alstom is supplying 69 two-car driverless trainsets for lines 4, 5 and 6 as part of the FAST consortium that also includes FCC, Samsung C&T, Freyssinet Saudi Arabia, Strukton, Setec and Typsa. Alstom's €1.2bn share of the €6bn turnkey contract also includes the supply of Urbalis CBTC signalling,

power supplies and its HESOP energy recovery system.

The trains are 36m long and 2,710mm wide. The external and internal livery will match the colours of the lines: yellow for Line 4, green for Line 5 and purple for Line 6. This is intended to make the metro easier to use for residents who are not used to this mode of transport.

There are three classes of accommodation. First class features transverse seating; family class has transverse, longitudinal and tip-up seats; single class has longitudinal and tip-up seats. All three classes have wheelchair spaces. Trains for lines 5 and 6 have capacity for 231 passengers including 69 seated, whereas those for Line 4, which will serve King Khaled International Airport, have capacity for 228 passengers including 57 seated. The seat moquette design is inspired by traditional Arabian architecture and the handrails are shaped like palm trees.

Adaptations for the local desert climate include air-conditioning and door seals to prevent sand ingress. All axles are powered, giving a maximum speed of 90km/h and ability to climb gradients of up to 6%. They will draw power at 750V DC from a third rail. Lines 4 and 6 will share a depot.

Several Alstom sites in France are involved in the manufacture of the trainsets. Bogies are coming from Le Creusot, control systems from Villeurbanne, traction motors from Ornans and onboard signalling equipment from Saint-Ouen. Traction subsystems and auxiliary converters are being supplied from Charleroi in Belgium, with passenger information and security systems from Madrid in Spain. The aluminium car bodies are being made in Katowice, where final assembly is taking place.

The Katowice facility has four tracks for static testing, in addition to a 1.5km test track. These are equipped with 750V and 1.5kV DC overhead wires that allows testing at up to 50km/h with a temporary pantograph fitted to the metro trains. A planned upgrade would add 3kV DC and 25kV 50Hz AC power supplies. Alstom is also planning to extend the test track.

Work on the six-line Riyadh metro network is 47% complete, with opening planned in 2019. Rolling stock is coming from three suppliers, which are building trains to a unified design.

Siemens is supplying 45 four-car trainsets for Line 1 and 29 two-car sets for Line 2 from its Inspiro family. The first was unveiled at its Simmering plant in Wien in February 2016. Bombardier Transportation is supplying 47 two-car Innovia sets that will operate on Line 3. The first was delivered to Riyadh in November, having undergone testing at the Kingston site in Canada. The vehicles are being assembled at its Sahagún plant in Mexico."

(vi). WHEELS FOR SANDY CONDITIONS.

From 'R.G.I.' 10.02.2017: "Ukrainian company Interpipe has delivered an initial batch of 3,000 wheels to Saudi Railways Organization, under a long-term contract awarded last year which covers

the supply of 14,000 wagon and locomotive wheels of 838mm, 920mm and 1,046mm diameter.

Local conditions in Saudi Arabia lead to excessive wheel wear, according to Interpipe's Chief Commercial Officer, Alexander Garkavij, and so as well as supplying standard KLW branded products the company is to work with SRO to 'search for technical solutions to extend the service life of wheels in such an aggressive environment'."

G. ETHIOPIA.

From 'R.G.-I.'16.12.2016: "Ethiopia's Minister of Transport Ahmed Shide and his Djiboutian counterpart Mohammed Abdulkadir Musa have signed an agreement to establish a joint company to manage the new railway linking the countries.

The company will have its headquarters in Addis Ababa, and be responsible for the provision of passenger, freight and maintenance services on the 756km route.

The standard-gauge electrified double-track railway was officially opened with a ceremony on October 5. It was financed with Chinese support and built by Chinese contractors. Operations are being managed by Chinese staff for an initial five years to give time for local employees to be trained."

H. DOHA.

CATENARY FREE IN DOHA

From 'Metro Report Intl.' Sept. 2016 .49.

"Siemens has been undertaking extensive tests at Wildenrath to optimise the Sitras HES energy storage system being fitted to the Avenios for the Education City project in Doha. The 12km. route will have eight 1,600kW substations, feeding the stops at 750V DC via a continuous cable. Each stop is equipped with a length of rigid overhead feeder, which for the trials at Wildenrath was around 40m long. The trains will operate at up to 40km/h in service, but they will enter and leave the overhead section at around 25km/h, picking up current spark-free. The three-module Bo'2'Bo Avenios are 27.7m long and 2,550mm wide with 56 seats. Each weighs 43.5 tonnes (617kg/sq.m.) All have twin 750Wh Maxwell Boostcap supercapacitor packs on the roof and two identical units under the seats, along with an Actia battery management system. Actia has supplied batteries for nine cars, while the others have two 25 kWh Ion-Onboard Regen Super Phosphate Li-ion batteries from Saft. Battery and Supercaps are liquid cooled, while the 100kW asynchronous traction motors are force ventilated. A single traction inverter is provided above each end bogie, with its own brake resistors. Each inverter is fed by two supercap units and one battery. The pantographs feed the intermediate circuit via a DC/DC converter, charging both the supercaps and battery at the correct voltage. The Sitras HES equipment is concentrated on and in the central module, weighing around 4.5 tonnes. In operation, the supercaps provide fast charging to recover braking energy, which is blended with the batteries to optimise both the power and equipment life.

J. IRAN.

(j). OPENING OF LINE FROM KAZAKSTAN THROUGH TURKEMISTAN TO IRAN.

Technically this is 'old news' but still important; Although 'Harakevet' concentrates specifically on the 'Middle East' the boundaries of this region are fuzzy and there is overlap with what is also termed 'Eurasia' – the region between Europe and Asia, so often overlooked. With the shifts in the balance of economic power in the world we note that whereas in the 19th. Century railways were projected to link the West with the East, now in the 21st. Century they are being projected to link the East with the West.... and the flow of export goods from China etc. means that the ancient trade routes (such as the 'Silk Road') are being revitalised and railways being built through new 'transit lands'. This item is from the 'No. 6 2014' issue of the 'Zeitschrift der OSSHd' – the 'Organisation for Cooperation of Railways' – a magazine that appears six times a year in Russian, Chinese and German, from the headquarters in Warsaw. Translation by the Editor.

"On 3rd. December 2014 President Hassan Rouhani, President of the Islamic Republic of Iran, Nursultan Nasarbajev, President of the Republic of Kazakhstan, and Guranguly Berdimuhamedov, President of Turkmenistan, jointly opened the new railway line from Özeg in Kazakhstan via Gyzylgaya, Bereket, Etrek (Turkmenistan) – Gorgan in Iran, with further links on to the port of Bandar Abbas on the Persian Gulf. [This is essentially north-south parallel to the eastern shore of the Caspian Sea. Ed.] This event has the greatest importance not only for these three OSSHd member states but for the entire organisation – the newly-opened line serves as a north-south link between the other States on the Eurasian continent.

The three heads of State met at the Turkmenistan railway station of Akyayla to take part in the speeches and the ceremonial opening, which was then continued on Iranian territory. The Presidents arrived on Iranian territory in a VIP carriage, being thus the first passengers to use the new line. In his speech the President of Turkmenistan Gurbanguly Berdimuhamedov said: "This transport artery will form the shortest route to world markets - First, it is the access to the Near East, secondly, it is the access to the Baltic region, and thirdly it is the route via Kazakhstan to China."

During trials at Wildenrath in February with an ambient temperature of 6°C a fully-loaded tram weighing 61 tonnes could easily run around the 2.8km T2 ring at 40km/h, with ample surplus capacity remaining in the battery. Acceleration to the relatively limited speed of 40km/h is comparable with a tram fed from the overhead, while braking to a stand and restarting are electrically jerk-free. The small Schunck pantographs above each cab have a fixed position to contact and engage the angled ends of the overhead feeder at each stop. This allows charging for the whole time that the tram is under the rail, and the rear pantograph also helps to power the acceleration away from the stop.

Four trials in February and two later runs on April 20 with an ambient temperature of 20°C demonstrated an average energy consumption for traction of 1.3 kWh/km., or 1.1 kWh/km when running at a constant 40km/h. Around 2.5 kWh was taken from the 750V DC line, indicating an auxiliary power requirement of between 27 and 35kW. In Doha an estimated 60kW will be needed for cooling in summer temperatures up to 50°C."

I. MIDDLE EAST RAIL.

For those interested in this large trade fair, 7th.-8th. March 2017 in Dubai, see

<http://www.terrapiinn.com/exhibition/middle-east-rail/sponsors--exhibitors-list.stm>

The President of Kazakhstan Nursultan Nasarbajev mentioned that the Kazakh-Turkmen section of this line had been opened already in 2013. The new artery promised greater efficiency already. Goods traffic between our states rose by 40% within a short time. Today we are participating in the opening of the Turkmen-Iranian section. From this day onwards the transport networks of Central Asia, the Near East and Europa are linked. It is known that it is a good thing to build roads and bridges – that stands already in our Koran – and today we three State leaders have performed a good deed for our peoples. Firstly life always blossoms near a railway route, people find work, the own country develops; secondly, trade between the three countries will develop; thirdly trade will expand through all countries of the world – this means in effect that today we have linked our three countries into a new Silk Road. Following the extension of the railway in the direction of the Persian Gulf two-way trade in Kazakhstan had risen by 38%.

The President of the Islamic Republic of Iran, Hassan Rouhani stressed in his speech, "The opening of this new railway from north to south is an historic event whose importance can barely be exaggerated. The three States are politically independent of each other and have different forms of State structure but at the same time they share common strands of history, culture and religion." The citizens of the three neighbouring countries along the coast of the Caspian

Sea want "a continual development of inter-state relations." Especially relevant in this regard is the simplification of formalities for travel for Iranian, Turkmenistani and Kazakh citizens into the neighbouring countries. "The railway which we are opening today does not only link our three countries. With its opening the access to the Persian Gulf and the Gulf of Oman, China and other Eastern states will be simplified for Russia, Turkey, Western European states and states from the Mediterranean area," the Iranian president stressed. "We have only achieved the first step on the way to establishing the economic links with countries in the region. I am certain that this is not the end and that further steps in this direction will follow."

The agreement for the construction of the railway Kazakhstan – Turkmenistan – Iran (KTI) was signed by the heads of the three states in 2007 and works began in 2009. The junctions for this line will be Özen in Kazakhstan, Gyzylgaya, bereket and Etrek in Turkmenistan and Gorgan in Iran. The longest stretch of almost 700km is in Turkmenistan. Construction of the Kazakh section of 120km was completed in 2012 and in 2013 it was linked to the Turkmenistan section Gyzylgaya – Bereket. The total length of the new traffic artery is 928 kilometres. The route Özen – Gorgan is some 600km shorter than the railway link which exists between Beyneu (Kazakhstan) and Mashhad (Iran) since 1996, which runs through the Turkmen districts of Daschoguz, Turkmenabad, Tejen and Sarachs.

The new transport corridor permits a full realisation of the potential for transport and transit between the three countries. It is expected that annual freight traffic on this line will rise from 3M to 10M tons. The advantages for this project for construction of a new railway include:

- the annual increase in freight which will be carried by the railways of Iran, Kazakhstan and Turkmenistan;
- The increase in transit volume and the income from transit traffic;
- the creation of new jobs in the region."

[A continuation of this report is actually a separate article on pp.5f entitled 'New Railway Lines in Kazakhstan Opened' – this is included because it forms in effect the extension of the line from Iran and because, frankly, one learns otherwise so little about the massive railway projects in this region! Ed.]

(ii). KAZAKH LINKS. "On 22nd. August 2014 the President of the Republic Kazakhstan Nursultan Nasarbajev ceremonially opened the new railway lines

Shesqasghan – Beineu and Arkalik – Schubarkol. Total of these two lines, of 988km and 214km, is 1,202km.

In his speech he said: "In one single day we open two railway lines – our country has never experienced anything like this before! Operation of these two lines will affect the region and the entire state for many years and decades to come. With these we have carried out our contribution to the freight corridor from China to Europe, which will reduce transit times to a third. This means a totally new potential that we must now realise." Construction of the new lines began in 2012; within two years over 1,200km of tracks were laid and linked up and the necessary infrastructure constructed. The new routes permit a substantial shortening of the travel time for freight transport from the west to the east and from the north to the south of Kazakhstan and increase the country's chances as a transit country. [the longer of the new lines runs roughly south-west – north-east from near the Caspian towards the centre of the country, and the shorter one forms a south-east – north-west link between two existing branches, thus creating a through route by-passing Astana.]

During construction 46M cu.m. of earth were moved for the alignment; 1,200km of track was laid on the main lines and 48 intermediate stations built, 46 bridges and other crossings built, 570 water supplies and drains connected and over 4,200km of electric cables laid and operational infrastructure erected. Technical works connected with the transport procedures were carried out at 23 freight stations and 33 crossing and overtaking stations, including the six modernised stations of Arkalik, Schubarkol, Shesqasghan, Saksaulskaja, Schalkar and Beineu.

In December 2013 the last links between the tracks and on the main lines were closed at the stations Koskol', Majbulak and Tassai. Then began the next phase – development of the infrastructure, erection of freight train facilities and loops, the laying of power cables along the line, construction of operations buildings as well as accommodation and social buildings..... "

(iii). THE NEAR EAST AS A STRATEGIC BRIDGE FOR THE EAST-WEST AND NORTH-SOUTH CORRIDORS.

From the 'OSSHD Newsletter No. 4-5/2014' ('Organisation für die Zusammenarbeit der Eisenbahnen' – 'Organisation for Cooperation between Railways'.) By Hossein Ashouri, Vice-President for Operations and Traffic, RAI. (Translation by Editor. This article is a few years old now and of course much has happened in the past two or three years but it remains relevant for those who are still - despite everything - capable of long-term and strategic thinking.)

"Iran possesses a great Transit potential in terms of the railway traffic in the region. The RAI network is linked in the West of the country to the Turkish railways TCDD with the border station of Razi, and therefore possesses access to Europe. In the North-West of the country there is a link to the Azerbaijan Railway (AZ) (border station at Djulfa) and access to the Caspian Sea and to the harbours of Turkmenistan, Kazakhstan, Azerbaijan and the Russian Federation. In the North of the country, through the harbours of Amirabad and Neka and via the Turkmen ports there is access to Turkmenistan, the countries of Central Asia, to Russia and China. In the North-East there are the transport links to Turkmenistan, Pakistan and Afghanistan, and in the South-East of the country via the Persian Gulf (the ports of Bender-Abbas and Bender-Imam) to the international waterways.

In terms of this background and considering the strategic position of Iran, the creation of a link to adjacent railway networks in neighbouring countries through the international East-West Corridor (OSSHD Corridor No. 6) and North-South (OSSHD Corridor No. 11) take on an especial importance.

Total length of the rail network in Iran is 10,500km, of which some 7,000km are main lines. Plans for expansion of the railway network envisage construction of a further 8,000km. At present RAI possesses a stock of 645 locomotives, 2076 passenger carriages and 22,098 goods wagons. Since rail freight traffic plays a major role in the economy, short-term plans see an increase in transport capacity by the end of 2018 from 33M tons to 70M tons; to resolve this task an expansion of the fleet by some 11,000 goods wagons is planned.

The Near East region through which these different corridors run can be seen as a bridge linking the railway transport potential in two directions in terms of transport between Asia and Europe. There is a range of problems connected however to the use of these corridors; missing infrastructure in some countries, competition from sea transport and relatively high risks in several countries. The most important corridors which run through the Near East are:

Asia – Europe East-West.

This corridor, which within Iran corresponds to the OSSHD Transport Corridor No. 6, will be used for intermodal transport and transit between the countries of Asia, the Near East, Europe and Africa. The routes run over the territories of the following countries:

- China, Kazakhstan, Kirghizstan, Tadjikistan, Afghanistan, Iran, Turkey and onwards to Europe.

- China, Myanmar, Bangladesh, India, Pakistan, Iran, Turkey and onwards to Europe.

- China, the FSU countries, Iran, Iraq, Syria, Mediterranean, Greece and onwards to Europe.

- Persian Gulf, Iran, Iraq, Syria, Mediterranean, Greece and onwards to Europe.

Near-East – South-East Asia.

This Corridor runs from Iran via Pakistan to India and further to Bangladesh and South-East Asia (Myanmar, Thailand, Malaysia etc.) There is however a range of obstructions and some sections of the transport chain are still missing in the South-East Asia region. Construction of a line linking Bam and Zahedan is being completed. The connection to the Pakistan railway network does not however meet modern requirements and needs to be reconstructed and modernised to form a more effective corridor.

The Railway Links between Iran and Iraq.

In order to link the rail networks of Iran and Iraq two sections of line will be constructed. The first from Khorramshahr to Basra is 51 km long; the Iranian section (16km) is already complete and the Iraqi section (35km) will be ready in 2015. The second section Arak – Malayer – Kermānshāh – Khosravi is 536km long and is currently under construction, and should be ready by the end of 2016.

'Marmaray' Route – through the underwater tunnel under the Bosphorus, which was built as a link between the European and Asian sections of Istanbul. This route allows not only the link with Europe but also forms a link in the logistics chain between Europe and Asia. Total length of the line is 76.3km. The Bosphorus Straits are crossed by a tube tunnel at a depth of 56m and a total length of 12.2km. Rail traffic through the tunnel was opened in 2013.

The North-South Corridor.

Links the Indian Ocean and the Persian Gulf via Iran with the Caspian Sea and onwards through Russia (St. Petersburg) to Northern Europe. At present this Corridor is used for Combined Traffic. Via this route goods are also transported over the Caspian Sea via the southern Iranian ports to India (Mumbai). Direct rail traffic between the territory of Iran and Azerbaijan will be possible when the construction of the missing section of the railway network between Iran and Azerbaijan, the line Qazvin – Rasht – Astara is complete.

Today the railway networks of the lands of the Near East are linked via Iran (at the southern side of

the Caspian Sea) and Turkmenistan with the network of the Former Soviet Union. These countries therefore use the Iranian network and the link to the Caspian.

Two corridors to link the Near east with Central Asia and China are under construction:

Corridor Iran – Turkmenistan – Kazakhstan.

This corridor is some 926km long. The section Kazakhstan – Iran is already finished and construction of the 32km section in Turkmenistan still has to be completed. The corridor will be taken into use during 2014.

A Further New Corridor between Iran – Afghanistan – Tadjikistan – Kirgizstan – China.

This corridor along the East-West alignment links China and the FSU countries with Iran and Turkey and from thence to Europe. Construction of these lines has already begun. There are still some missing sections along this route and they are under construction.

The Corridor of the Member Countries of the SSAGPZ (Cooperation Council of the Arab Gulf States – PGCC).

This corridor with a length of over 2,000km links six countries with each other : Saudi Arabia, the United Arab Emirates, Qatar, Bahrain, Kuwait and Oman.

Obstructions on the Way to Development of the Corridors.

The missing links of the transport chain form the greatest obstacle to problem-free use of rail transport in the Near East and make use of these corridors difficult. This has negative impact on the logistics chain, the costs and the delivery times. Infrastructure that is inadequate and old and no longer meets the needs is the greatest obstacle to the creation of effective transport systems. Heavy investment in infrastructure is necessary. The process of transfer from one gauge to another, the time-consuming process of exchanging bogies, non-existent transport norms and rules or their non-observance – these are just some of the problems with creating a smooth transportation process.

International Organisations and their Role in the Development of these Corridors.

Each international and regional organisation establishes its own regional and international corridors and the priorities for transportation, under cooperation with the member countries. So the OsShD and the ECO 13 groups have agreed upon five rail corridors which are to be given priority. The organisations UNECE, UNESCAP and UIC have also agreed on these transport corridors. In order to develop such transport, the international organisations have developed instructions and agreements. The efficient fulfilment of these rules and requirements and conventions can minimize legal issues and help towards a simpler crossing of borders. In addition to such transport norms and rules there is however still necessary the support of the member countries for the construction of the missing links in the chain.

From this background the conclusions can be drawn, that the following steps are necessary to remove the Obstacles.

- Acceleration of the construction of new lines and closing the gaps in the transport chain, especially along the corridors: As examples here the construction of the lines Qazvin – Rasht – Astara; the project Herat – Mazar-e-Sharif; and the line round the Lake Van, etc.
- Better cooperation of the international organisations, such as OSShD, OTIF, UIC etc.
- Expansion of the wagon and locomotive power fleets.
- Development of container transport and removal of problems at border stations.
- Resolution of problems of border transits, removal of obstructions formed by Customs controls.
- Introduction of new technical control methods to improve the competitiveness of rail transport.
- Introduction of measures for reducing the delivery periods along the transit routes.
- Coordination of the planning of travel times for regular and express trains when preparing also freight contracts for the customers.

Conclusions.

At present the economic development of the Near East region has great strategic importance. Rail freight transport plays a major role in covering the main economic requirements. I would like to express the hope that it will be possible in the near future to form better rail links between neighbouring countries, links which will be marked by peace and friendship and which will form an unbroken transport chain. We will then be witnesses to growing economies, the movement of freight flows via Asia and the countries of the Near East and a growing share of railways in the transport market."

(xi) **A RAILTOUR PARTICIPANT'S VIEW.**

In the same magazine (pp.4-13 is an illustrated Travelogue by Matthias Hille and Thomas Kabisch who were participants on the tour organised by Bernd Seiler. Here are excerpts (focussing on the railway elements and omitting purely touristic observations):

"The narrow road to the hillside behind the bridge is too small for our bus, so everyone needs to get out, sling the photo bag over their shoulder, carry the tripod and off we go by foot. Around us is a fascinating mountainous landscape. Soon everyone has found the position they want. Now the train we are expecting can come! A worried glance at the skies, where a thick cloud is approaching the sun. But then comes a brumming noise and soon thereafter two GM diesels cross the Shourab Viaduct on a northbound passenger train. A few seconds later the cloud darkens the sun. But we have the picture!

....'We' – that is 24 railway enthusiasts from Germany, Austria, Switzerland, the Netherlands, Belgium, Italy, Great Britain and even Canada who have signed up for the Far Rails tour. 12 days through the country, to get to see its sights, its inhabitants and of course its railways. Geography dictates that these dominate the first three days of the programme; Iran is four times as large as Germany and there is no way we can see everything within two weeks, so Bernd has arranged for us first to visit the spectacular section of the Trans-Iranian Railway and some of the more interesting sights in the south of the country. We are now in the middle of the mountains of the Elbrus range.

On the morning of 8th. May [2016] our group gathered in the lobby of the Hotel Enghelab in Teheran. For the coming days we are usually on a comfortable coach, for there only two passenger trains which traverse the line to the Caspian Sea in daylight, and we would prefer to photograph these in the mountains. Following our success with this Train 281 Mashhad – Sari we now head to take the second daytime train on the famous Veresk Viaduct, even though the steep midday light is not quite optimal. The bridge, designed by an Austrian engineer, was brought into use in 1936, but its filigree framework seems fit still for trains in the 21st. Century. Unfortunately no freight trains are working this afternoon on the section Firouzkuh – Pol-e Sefid and even the weather does what one does not expect in Iran at this season – it begins to rain. But in the north of the country this does not seem to be quite so unusual. Before we go to Qaemshahr for the night we visit the small depot at Pol-e Sefid; work is being carried out on GM 40-163 and on the next track the Shah's former sleeping car stands – he used it when inspecting the lines. The GM Diesels are a main focus of our interest; apart from the relatively short line Jolfa – Tabriz there is no further main-line electrification, although there are third-rail metro lines in Teheran and Isfahan and a local network with overhead in the capital. Although Alstom and Siemens have delivered a total of 250 new Diesel locos in the period 2000-2011, there is still plenty for the old GM diesels to do, especially in freight traffic.

The next morning we are greeted with rain and then later thick mists. So the day begins with

learning something about the country during our bus trip back into the mountains. We absorb a few facts and are introduced to the complex religious situation in which freezing hells, lions, holy cows and Aryans from Siberia all play a role.
.....

Catching a goods train working seems to be a matter requiring much faith, but we still try. We take up position near a curved viaduct in Savadkouh, for the Oracle has predicted a freight train – it should come from the right, or no, from the left, no, maybe it will just be a trolley, the freight will be from the left though, or maybe indeed from the right, but first after the trolley... the information changes every minute. What we are doing here has never happened before in Iran and is a challenge for all concerned. And in the end there does indeed come – the trolley. But what a trolley – it seems the entire railway directorate is under way in a bus on rail wheels. And then things get moving – freight train from the left, then one from the right, of course so soon afterwards that it is hardly possible to take a good photo.

In the meantime at the station 15 railway inspectors are happy to meet two Swiss fellows and vice versa, after all this is not something that happens every day. A half hour later we have indeed left behind us the Pass and the clouds which have settled there and the train (and of course the ultimate photo position) and instead wait anxiously at Gadouk station. It lies 2,015 metres above sea level and is close to the summit of this line and suddenly it gets really cold, there is also a strong wind and by the time three trains – the freight and two passenger trains – have passed we have been well blown through. Iran is warm? The next cliché crumbles.

The afternoon is spent partly with a siesta in Firouzkuh, the high point is a period spent getting the level crossing keeper to lower and raise his barriers several times for the cameras and video equipment for no real need – something the poor chap will surely remember till the end of his days.

In the evening we visit the grave of Walter Aigner, the Austrian constructor of the Veresk Bridge, which is named after the senior engineer responsible for this stretch of line. Then we travel for two more hours through the rain down to the valley.

On Tuesday morning there is a show put on for the inhabitants of Firouzkuh. Ten pretty large all-terrain vehicles have arrived from Teheran, in order to bring us from here into the gorge, which is not accessible for the larger bus. Three persons are allocated to each vehicle. Three others have gone ahead in a jeep and at the next station are met not only by Mohammed the pointsman but also by the first train which today is running a bit early! The rest of us get the shot with the already-known train 281 Mashhad – Sari, but the other team get the better shot of the next freight in the other direction. The shepherds of the horses, sheep and goats which stand around so picturesquely in the picture do not seem to understand our requirements and to cap it all St. Peter (or is it Mohammed responsible here?) sends the dreaded Cloud again. However we get

good pictures of the passenger train Teheran – Sari, having found a good spot with massive cliffs overlooking the line. Unfortunately more clouds come and obscure the sun as we shoot the afternoon train from Firouzkuh in the Hablerud river valley. And then it is 'time to say Goodbye' to Ali and the other Jeep drivers. Three hours in the bus to Teheran remain and we have managed a few more good pictures. It would have been good to see a few more trains in this wonderful landscape but one has to take what comes.

.....The next afternoon the railway is once more the centre of our attentions. Bernd has actually managed to get us a permit to visit the Diesel Loco Depot. We are allowed to move freely in the area. Alongside the attractive GMs there are some Hitachis and numerous Iran-Runners. Time is limited but even so it is interesting to inspect these from an engine-driver's perspective. The Diesel motors seem to work very reliably but some of the smaller parts, for example the sun shades, are as quickly defective here as they seem to be always at home on engines built by Siemens....

In the pompous VIP waiting room at the Teheran Main Station (it would be called a Lounge elsewhere) we then meet with the Vice-Director of RAI Passenger Division, in order to drink tea with these worthies surrounded as usual by photos of bearded holy men, although here there is also a picture of a Siemens 'Paradise' railcar. And then it is time to board the night train No. 150 to Andimeshk which is to bring us to the gorges of the Zagros Mountains, on the southern section of the Trans-Iranian Railway.

Next morning it is amazing what a wild, jagged landscape is to be seen in the grey morning light from our train windows as we awake – but actually we are here to photograph and so the heavy clouds in the sky do not fill us with joy.

Shabazan Main Station, at the end of the gorge. Whilst the clouds slowly move away and the sun rises, the station master has opened the Station Mosque, naturally also here 'in the middle of nowhere', so that the tour leaders can serve breakfast here. After breakfast on the carpet we set to work. Not far from the western station throat there stands a large viaduct, over which a train should run soon – from the left or from the right, once again the information channels seem a bit mixed. Despite hurricane-strength gusts all participants and the sun, which has in the meantime also appeared, stand firm and indeed soon another super picture is taken.

Now comes the Hour of the Trolleys. The section north of here is practically inaccessible except along the tracks, so we take to the rails too. A great idea of the tour leaders! Three small yellow boxes on wheels stand ready for us. One of them, it can be seen easily, was initially designed for use on roads. The initial trolley ride is short. Through two long tunnels and then we have arrived. The land falls vertically hundreds of metres from the tracks – down below flows a river.

The GM Diesel loco which comes soon afterwards with a loaded train of pipes is barely noticeable in the gigantic landscape. Only a quarter of an hour later 60-839 passes with a train of tank wagons in the opposite direction. And then begins a game of hide-and-seek with the trains. At the next viaduct most of the photographers have taken up position in a small bit of shade provided by a cliff – from here one can get the next picture with the train on the bridge and a village in the background. However the freight train does not come and when it does – from the wrong direction. The trains in the afternoon work out better, even though a few small clouds have reappeared in the sky.

In the evening we are at the station of Tang-e Panj again, where the opposite train and with it a wedding party cross ours. Where else does one travel by train to a wedding? But we go on! First by train to Doroud – though, since the hotel here is 'not sufficient' and in any case too small, we have to continue – after arriving at the station around 22.00 – to take a bus for another hour, in order to reach at last near Azna a tourist hotel a long way from civilisation.

The next day is Friday the 13th. - and today we plan to take an 'RAI-Regio' early into the mountains, at 06.10 from Doroud. Since as already mentioned our hotel is a little distant, this means an 04.40 departure for the bus.

The train which is waiting for us could have been running on DB in the middle of the 2000's. It consists of five former 'Silberlinge', of which four are in DB 'Verkehrsröt' red livery and one still in the DB mint green! Only the loco doesn't quite match, but it pleases us more than anything DB would have put onto such a train – it is a colourful GM G12 Bo-Bo No. 40-119, over fifty years old! So we get to experience one of the oldest line diesel locos still in use on RAI. We run through the canyons, through the Eight of Sepit Dasht, up to Chamsangar. Here there are more trolleys waiting for us, this time two small ones for the ordinary people and a larger VIP version (for the élite?!)

The station master of Chamsangar is so excited by the idea of our photographing that he comes with us along the line. Only the goats on the tracks are not used to so much rail traffic and so one of them is leaning lifeless out of one of the Draisine doors when the little yellow vehicles come along later to collect us.

In order to get the best position at the next viaduct a steep climb up the mountain is necessary. Unfortunately there is no radio contact with the railwaymen at Chamsangar, so that the trolleys come to collect us a little too early. Bernd tries to negotiate urgently with the station master but alas we have to move on to another position. That evening no wedding but instead a defective loco – so it is once more very late when we finally get to the hotel, which has rarely seen so many foreign guests as it has this week.

Next day it is planned to take us with minibuses rather than trolleys to the next gorge section above Doroud. Here there is a rather adventurous road, which one can just about manage in a Daimler-Benz 12-seater. But there are problems: only two of the three buses have come and there is much waiting around. On the way a change of buses is somehow arranged. The morning moves on with some more

clouds making an appearance. Then some of us in the first bus discover a spot where the railway crosses over the road with, in the background, snow-covered mountains – a quick halt is demanded and a wonderful photo taken. And we continue. An hour later we encounter another flock of goats, this time without casualties. And now we have protection – a monstrous Police pick-up follows us. We are not quite sure of the reasons for this but it seems a good idea nonetheless.

And then we reach the gorge, on a breathtaking mountainous road that climbs the hillsides. The minibuses just fit the road and round the corners (one cannot call them curves). Far down below the railway can be seen. After some two hours of winding journey on this serpentine a spot is reached where a mountain rises 1,000 metres above the railway; without exaggeration this is a gigantic view! Bernd suggests making the next pictures here, but the dimensions are simply too enormous, so that one would have to seek any train in the picture with a magnifying glass! Although – one must observe that the trains are hiding themselves again; the reason is a blockage on the line due to maintenance works. So we have to wait until at last two trolleys and then the train of sleepers emerge from the gorge, to make room for the scheduled trains. There follow then five trains in the best afternoon light. Back once more to Doroud, at 22.45 we board Train No. 131 which will bring us to Qom (Ghum) in the North-East. From here we will go further to the south of the country.

.....Today is the highpoint of the FarRail trip – the first photographic charter train in the history of Iran! This extremely expensive train was the 'bait' that Bernd and the rest of us had to swallow in order to get a permit to photograph normal trains as well. Of course the railways have made an especial effort with such a special train; and so there await us at the conspirative handover at the early hour of 04.00 at the junction station of Qom (Ghum) a rake formed of five former Danish compartment coaches and a sparkling new Iran-Runner, i.e. A new Siemens diesel loco from 2011, that would hardly raise an eyebrow on German rails. This was not really planned so but does make the train in some manner 'authentic'. First we run through the night, for – not to forget – we do not only wish to photograph this train but also cover 500km with it. A few hours later then our first photo halt takes place – the first ever in Iran. Our regular bus driver with our bus has also had a lengthy night journey here and is standing ready in front of the station. We have to change into it. But that one can halt a train out on the line – this is something the railwaymen do not yet understand. So we take the bus to the planned photographic point but discover a little later that we cannot reach it, for one bridge is too low. So – another spot. But that does not fit in with the timetable, and so the photo train sets off before the photographers are ready! We note that in Iran even the photographing of a special train for photographers is not so simple! But we get over this.

Already at our second planned spot, a tunnel portal, our railwaymen have learned that one can halt a train not only on the open line but even in a tunnel. Although when one considers that this tunnel is sharply curved, narrow, dating from 1935, some of the doors are locked and initially the light in the train has been turned off, then getting out and in is not such a trivial exercise. The next lesson is Reversing.

116:08½.

THE VIEW FROM HEAVEN: THE SINAI RAILWAY AS IT IS NOW.

Marc Stegeman has used modern technology to be an armchair angel flying over the globe and wrote this in December 2016:

"For some reason I googled to the map on the internet and looked for railways in the Egypt Delta. Great satellite view, even though the resolution is deliberately restricted for strategic reasons. It was quite disappointing following the line from Alexandria to Port Said. Just one passenger train in Alexandria railway station and one in Port Said station. There I saw some locomotives near the shed. The rail track on the container terminal was blocked by stacks of containers, so it seems there is no freight traffic there anymore.

I continued the line along the canal to the south. Now you can see the second canal being dredged in parallel a little bit to the east of the De Lesseps canal. Just south of Al Firdan you can still see the old double swing bridge which I suppose has not been turned for a long time now. Following the line to the east over the (mixed traffic) bridge, some wagons can be spotted that didn't make it to the west side before the bridge was turned open. The tracks disappear in the area where the new canal is. I think it is highly unlikely that a second swing bridge will ever be built to span this new canal for trains that will not run there anymore.

Then, still on the east side of course, the line runs north and approximately near Al Salam bridge it turns northeast to reach El-Qantara East railway station (El Qantraa Shark - Ras Sedr road). There the fenced-off former freight yard (or barracks area?) is without tracks now. A little bit further to the east, the fenced-off maintenance area shows some rolling stock there. It will probably be completely useless now and deserted I suppose. Of course, where in the desert area, the tracks seem to be covered by sand now.

The El Qantara Shark - Ras Sedr Road, running parallel to the railway, continues east-northeast and becomes El Qantara Shark - Al Arish road. Where it becomes the Shokry Al Kotaly Street, there is another

Truly, this is hard to fit into any Iranian railwayman's head! Why should anyone, having travelled from A to B, then want to reverse back to A again? This requires a lesson from Bernd lasting almost an hour. And then we continue, a further three hours through the desert. No further strange tricks to be played by the train's passengers against the train's personnel and they are free to do what they are used to – driving trains.

Isfahan is of note, one of the major tourist destinations in Iran, and so we also may not bypass it. The modern, newly-erected station lies well outside the city.....

....On Monday morning we depart Isfahan.... Our destination today is Yazd. Suddenly we are high up on a plateau and enjoy the view – of a crossing station in the desert. Several trains can be observed as far as the endless horizon. Apparently there is plenty of traffic here! Some get so excited that they forget the time, and so it is after sundown when we reach Yazd.

.... Next day ... back in the bus and 700km through the desert back to Teheran. This is equivalent to a varied 'Road Movie', from 08.00 to 21.00. The circle closes at the Mashhad Hotel in Teheran, and initial farewells as some of the participants have to fly back through the night.

Perhaps one day there will be another FarRail tour to Iran – Bernd still has many ideas. For example, there is the steam loco at the Teheran Main Station, which could theoretically one day be steamed again. But its overhaul would be a real challenge for the Iranian railways!"

deserted railway station visible. From Baloza checkpoint on it is partly Sinai desert area so tracks are (completely) covered with sand but the alignment is still visible as a slight "hump" in the landscape.

East from Baloza a track diverts from the main line north to the Mediterranean (probably to Mahamdiyah) but then turns west again in the direction of the canal. Most of this line seems to have been lifted. Where it turned north just before the canal (more or less opposite from Ganoub on the west side of the canal) the tracks appear to be visible. I suppose this line was meant to reach the canal's eastern side where nowadays the container terminal is, east of Port Fouad. In this part of the world, it seems rail freight is non-existent now due to the conversion to containerized road traffic.

The main line from Baloza continues east to Ramanah (Romani) where the platform is still in place but the building was demolished. Next station seems to be Negila; platforms and building still in place. Same for Bir El Abd.

On the internet a hint was made that this railway would be made operational, but that seems nonsense to me now that I looked at it from above, as east from Qaryat El-Sadat and Misfaq the line is lost in the sand dunes. Misfaq station and platform were demolished but remains *(Continued on page 23)*

NOTES AND COMMENTS.

(i). [This first item has almost nothing to do with railways but a great deal to do with Transport in the Middle East and regional politics and ethnic issues and so we will include it here. Ed.]

"FIRST OVERLAND": The story of the Oxford and Cambridge Far Eastern Expedition. Tim Slessor. (Companion Book Club). 1958. Orig. published by George G. Harrap & Co. 1957. It describes an overland drive in two Land Rovers from England to India.

p.59. "We were in Lebanon and speeding down the tarmac road from Tripoli to Beirut. It was night, and I was driving. Never – before or since – have I driven at such risk; we might have killed or been killed at least eight times in less than two hours. According to our handbook on Lebanon, "it is decreed that the driver should pursue the right-hand side". The word "should" is given the most voluntary of all its possible interpretations. But "pursue" is obeyed to the very letter. With chin on horn, the Lebanese chase some indeterminate object which hurtles along an erratic course at any speed between 50 m.p.h. and 90 m.p.h.. The objects are of course invisible to all except their own individual pursuers, and, furthermore, there is no liaison between these objects - particularly those travelling in opposite directions.

In sixty miles we passed five knotted crowds who were admiring some head-on collision. Those Lebanese who cannot afford the replacement rate on cars have bicycles and hand-carts instead. At night they propel these unlit, down the white line. Because of this every motor vehicle is equipped with head-lamps of searchlight ferocity, and one's admiration would be complete if these lights had some means of dipping. But that would, I suppose, spoil the system. The result to all parties concerned – dazzled motorists, cyclists and pedestrians – are spectacular and often fatal."

.....

p.66. "While we were in the city [of Damascus] there occurred something which was serious and illuminating in its widest implications. The six of us had been invited to a restaurant in order to meet some newspaper-men. After answering various questions about ourselves, everybody sat down to tea. I found myself opposite an Editor, and, by way of opening the conversation, I remarked that the Middle East was "a very interesting part of the world." It was a trite remark, but one which certainly seemed harmless. I thought that the Editor must have misunderstood me when he replied curtly, "We in this country do not want your interest."

I hastily explained that I was referring to the past associations and history of the area rather than to present politics.

"That is what the British and Americans have always said, but all the time you have ideas."

"What ideas?" But, as I asked, I knew the answer.

"Israel. Why do you British send arms to the Jews when at the same time you complain that Arab countries buy arms from Russia? I will tell you – because you are an imperialist nation and wish to control this part of the world."

It was clear that our views were so wide apart that argument would be pointless, and, under the circumstances, undesirable. Instead, I asked what solution he saw to the problem of Israel.

"There is no problem," he replied, with a calculated smile. "We wait until U.N. support for Israel has faded, and then we attack. The Arab nation will finish the Jews." He made a dramatic gesture with his hands.

This intensity of hatred is a thing of which we in Britain have no comprehension. But, despite their constant talk of 'sweeping the Jews into the sea,' it seems that the Arab countries are in deadly fear of Israel. They know that their army is more formidable than all of theirs put together. This fear is covered by bluff and propaganda. Thus the Arab leaders are able to maintain the confidence of the masses – but the bluff is not always as cool as was the Editor's. A foreign diplomat whom we later met predicted that the Israelis would "break out within the next three years." If they left it longer, he explained, the Arab nations would have sufficiently caught up in the arms race to compete with the Jews on equal terms. "Then the Jews will be in trouble. The next war will start here." he was quite definite about it. (Note: These opinions and comments were made almost exactly a year before Israel's raid into Sinai.)"

pp.68ff. THE NAIRN ROUTE FROM DAMASCUS TO BAGHDAD.

The two of us had already met Mr. Fraser, the manager of the Nairn Company who had given us complete freedom of the bus depot and workshops..... The Nairn Bus is a byword for reliability in the Middle East. Every afternoon its 170 horse-power diesel engine starts with a great cough, and at five o'clock precisely the silver bus emerges into the bright sun. With a wail on its siren it picks up speed through the suburbs of Damascus, and then after a few miles it swings abruptly east into the desert. Fifteen hours and nearly six hundred miles later the bus – now glaring white in desert dust – draws to a halt with a pent-up sigh from its air-brakes. The Overland Desert Mail is in Baghdad after an all-night dash across half of Northern Arabia.

The design for this seventeen-ton machine (and the eleven others owned by the Company) is unique, and so is the service it provides to travellers in the Middle East. This, the biggest bus in the world, is the result of thirty years'

experience and experiment on the part of two New Zealanders – the Nairn brothers – first to realize the commercial possibilities of a direct link between Damascus and Baghdad. Back in 1923, when the Nairns were starting their enterprise, these cities were separated by the unmapped rocks and sand of the Great Syrian Desert. Tiny bands of hostile Bedouin attacked those who ventured forth without sufficient guard, and with summer temperatures reaching 140°F the desert was as hot as any place on earth. It presented driving conditions, - if you could call them that – unparalleled anywhere else in the world. It still does.

In April 1923 a small reconnaissance party led by the Nairns set out from Damascus in three open cars to find a route across this wild region. Navigating by the sun and compasses, carrying petrol and oil for one thousand miles, and ten days' supply of food, the party actually reached Baghdad in four days. Later they made the return journey, and, in the months that followed, repeated the crossing several times to improve their route. Soon they were able to cut the time to three days. Using open limousines, they instituted a weekly service which enabled passengers and mail to reach Baghdad from London – via Beirut – in two weeks. The previous London to Baghdad journey had taken one right out to Bombay, and from there up the Persian Gulf – an overall journey of nearly two months.

The cars in those early days were compelled to carry arms, a week's provisions, and to travel in strong convoys. For, despite the annual 2,000 Pounds in gold paid to the Bedouin for safe passage, attacks on the cars were always to be reckoned with. Stopping in the desert at night, the convoys formed hollow squares, and the men passengers took their turn on watch with the guides and drivers. Such measures made trouble rare, but during the tribal rebellions of the Druse in 1925 the Arabs made several raids on the convoys with their swift fighting camels. Once the convoy was killed, several passengers wounded, and a large consignment of gold was taken. Again, in 1928 Iraqi tribesmen ambushed a small file of cars. Mortally wounding the driver of the passenger vehicle and injuring two others, they forced the mail car to stop, turned out the driver, and dragged the machine away. Camel police, arriving later, pursued the attackers, but never found any trace of the car or its contents.

The Nairns, however, learned to evade the marauders by secretly changing their routes, sometimes by hundreds of miles to the north or south of their usual line of travel. The cars always managed to arrive on schedule – they had to, for the company had agreed to forfeit money for every hour that the mails were delayed, except when due to a force majeure. In thirty years the company has never yet had to pay such a fine.

There is the story of a Government official in Baghdad who in 1925 ruefully told one of the Nairn brothers that he would never get to Beirut in time to catch his ship for England and his leave. The ship left the next day. Looking at his watch, Nairn bet him a double fare that he could get him to the ship in time. The official accepted the wager, and was strapped into an overland car which Nairn himself drove to Damascus, and then down to Beirut. The 650-mile journey took sixteen hours, and the amazed but delightful passenger was rowed out to his ship as she dropped her moorings. The car was a wreck.

By the early thirties the fame of the desert service had spread far beyond the wastes it had conquered. The open touring cars were no longer adequate for the increased traffic. Larger vehicles, specially designed for desert travel, were needed. Three large, six-wheel buses were specially built in America. But, although they cut the journey to twenty-four hours, their long and inflexible chassis were never entirely satisfactory. Accordingly, trailers hooked on to powerful cars were tried. Allowing more flexibility, they seemed better able to withstand the battering of the desert surface. From this 'tractor and trailer' principle has evolved the Nairn fleet of to-day.

In the twelve modern buses the tractor is basically a heavy lorry – but a faster and heavier lorry than one will ever see on the Great North Road. These machines must pull their seventeen-ton load over an appalling surface at speeds of well over 50 m.p.h. for fifteen almost continuous hours.

Since no manufacturer will build a bus to the Nairns' exacting requirements, the company is forced to buy the various parts from different sources. Thus the two chassis in each bus – an outer one braced by an inner – are supplied from the United States. From another manufacturer comes the engine, while the axles are derived from wartime tank-transporters. The gear-box with its eight forward speeds, the half-ton of springs per vehicle, the tyres which cost 100 pounds apiece and last for 80,000 miles, the air-conditioning unit, which is driven by an engine strong enough to power a family saloon, the air-brakes, the railway head-lamps, and the electrical system – all are supplied by different makers. Only in the Damascus workshops can these components be assembled into the specially built "Nairn cocktail", as the chief engineer described it.

After two most interesting days the time came for B.B. and me to leave for Baghdad. We had the choice of travelling in the Pullman, which seated eighteen passengers and had a bar, a steward, air-conditioning, and a lavatory, or in the Tourist bus, which had none of these facilities. The latter carried more passengers, and – due presumably to the lack of a lavatory, it made one or two extra halts, and took a little longer on the journey. We chose the Tourist. The manager introduced us to Hassan, the driver, who immediately seemed to regard us as his honoured and personal guests. A few minutes before five o'clock we climbed into the dark interior and settled back in our seats. The dust-proof door was slammed shut, the engine cleared its throat, and the journey began.

Our fellow-passengers were Iraqis or Syrians. Some wore European clothes and shabby trilbies, while others were clad in the white robes and burnous of the Arab. They regarded us with curiosity. The more sophisticated ones came down the aisle and introduced themselves with offers of cigarettes and chewing-gum. Everybody did their best to make us feel at home.

Damascus was soon behind, and presently the bus turned off the road and eased herself on to the desert. She picked up speed, and it was only then that we fully appreciated the rugged construction of the vehicle, for in the desert there was no road, only an occasional oil-drum set out as a marker. The bus lurched and swayed slightly on corners, but, due to the rubber-mounted coupling between the coach and the tractor, there was little noise from the throbbing motor in front. The rush of the pounding tyres and the sensation of motion was similar to that experienced inside an airliner dashing across a grass runway just before take-off. The dust from the tractor swept past the windows and then began to settle on the glass itself, until in a short time one's view of the desert flashing past outside became dimmer, and then blotted out altogether.

At sundown the bus stopped at the border post, though the frontier itself was still a hundred miles ahead. The door of the coach swung open, and Hassan peered inside and shouted, "You come with me. How you like my bus? Ver, ver' good, eh!" We agreed, and were led inside a solitary mud building, where Hassan sat us down and signalled for coffee. Around the walls were advertisements incongruously telling us what English cigarettes to smoke, and which was Milwaukee's finest beer. A little boy insisted on cleaning our shoes, and then sat back on his haunches extolling his skill until we paid him. The question of customs' formalities was waved aside by Hassan – "you are my friends" – and obviously, therefore, such inconveniences were not for us.

We were invited to travel in the driving cab for the next stage. It was an experience I would not have missed. In the cab, high off the ground, there is an air of controlled strain. For hour after hour the driver neither speaks nor smokes; silent and expressionless, he leans slightly forward on his wheel, watching the way ahead as the look of his head-lamps rushes over the rock and sand. Suddenly, for no apparent reason, his hand flies to the gear-lever and the already deafening noise of the engine bursts to a roar, the air-brakes hiss as he dabs with a foot – then one sees what he saw seconds ago. Like lightning, and with wonderful precision, he wrenches the wheel, the bus peels away to one side and goes thundering through a tiny gap in the tangled rocks. The Nairn drivers never err, they never misjudge their speed, and they never crunch a gear-change. With seventeen tons behind them there is no time for a mistake. Sometimes they must move very fast, as the wheels surge into soft sand and begin the slide. They must know every yard of that five hundred miles – the Nairn Track, as their route is universally known. The Nairn Track: no small compliment to the men who drive it.

Rutba, a transport post in the middle of the desert, is reached a little before midnight. Here the east- and west-bound buses meet and refill their seventy-gallon tanks. Then on. After Rutba B.B. and I started to blow up our air-mattresses, on which we intended to sleep in the broad luggage-racks. It was all we could do to prevent the mattresses being burst by the enthusiastic efforts of the other passengers, Cadillacs and Coca-Cola they knew all about, but here was something entirely new – a bed you blew up! Marvellous! Every one blew in turn while the rest applauded, and when eventually we climbed into the rack we got no sleep at all – our helpers prodded the mattresses all night in wonder that they had not deflated.

By dawn we had travelled five hundred miles. The desert sweetened into the palm-fringed margins of the Euphrates, and the bus halted in the little township of Ramadi. Amid more applause, we let down our 'beds' and then pushed, with everyone else, into the Iraq Customs House. Here the inquiries were conducted with an informality startling in its simplicity. The official – we decided he must have been the official, because no one in the bus had been wearing pyjamas – courteously asked us, "How many baggages you have?" We replied that we had only one; we were sharing a

"baggage". This was clearly not customary among desert travellers, but, nevertheless, he seemed satisfied.

Then over the Euphrates, past the R.A.F. air-base at Habbaniya, and down to the Tigris. I was anxious to catch a glimpse of these famous rivers, and their ancient countryside. But it was not possible, for the dust hung thick upon the windows, allowing only a dim yellow light to filter through. At eight o'clock precisely we pulled into Baghdad. We collected our things and stepped down, blinking in the sunlight. Pat and Henry were there to meet us.... Hassan came to say good-bye, and when we told him "Your bus ver', ver' good. You ver', ver' good" we meant it, and he smiled all over."

p.73. "Baghdad, like Timbuctu or Casablanca, is a city about which people have highly imaginative and luxurious ideas, but in fact, it is not the sensual or romantic place that fiction would often have one believe. What we Westerners call 'civilisation' has definitely arrived in the sea of constipated traffic that is Rashid Street, the main thoroughfare. The Faithful are called to prayer by a minaret loudspeaker which plays its 'muezzin' from a gramophone below. Baghdad is a bewildering mixture: mud shanties and ten-storey buildings, camels and double-decker buses, women in purdah and Cinemascope. On the proceeds of the country's oil it is a boom town, but not quite sure of the direction in which it is booming. A brand-new railway station had been built, but, as it was built on the wrong side of a rapidly expanding aerodrome, the trains will never reach it. Instead the station is used for Government offices."

p.107. "The story of Thal Development... began in 1947. In that year the British left the Indian sub-continent, and it was divided into Hindu India and Muslim Pakistan; the resultant stream of refugees from one country to the other caused tremendous problems. In the first few weeks after partition Pakistan lost four million Sikhs and Hindus to India, but back across the newly-drawn frontier came six million Muslims to replace them. Thus Pakistan had gained two million starving mouths over-night and her inadequate agricultural economy was strained to breaking-point. Something had to be done to relieve the pressure on land and food, and it had to be done quickly. Accordingly, Pakistan drew up an ambitious plan for intensifying agriculture on land already available, and, more important, for bringing into cultivation desert areas long considered useless. The Thal was such an area.

Lying just beyond the bounds of the Punjab ('the Land of the Five Rivers') it is an extension of the largest irrigation network in the world, a network which stretches from the Kashmir foothills of the Himalayas down to the desert of Sind on the Indian Ocean.....

The 'cusec', or cubic foot of flowing water per second, is the vital key to Pakistan's economy, and it plays none too small a part in her politics, both internal and external. In fact, the dispute between India and Pakistan is over the division of water in the rivers of Punjab is the most important of all the many disputes between the two countries. The issue of Kashmir, for example, is not so much concerned with mere territorial acquisition (though this is the way it is presented in the world's Press) as one concerned with water. The rivers on which Pakistan so completely depends rise in the mountains of Kashmir; thus India, in control of Kashmir, has control of these waters. India has her thumb on the wind-pipe of Pakistan."

p.111. "Soon after our arrival the word would get out that some sahibs had come, and the farmers would start drifting in from the fields until there were about forty or so squatting around us. Questioning would begin, Mr. Abassi translating into Punjabi.....

Once there was so much chatter that I asked Mr. Abassi what they were talking about. "What they are always talking about – water," he replied, with a slow, sympathetic smile. "They want more, and one of them says he missed his turn through being away for a couple of days."

"Are there many disputes over water?"

"No, not in Thal. But elsewhere in the Punjab ninety per cent of the murders are over water-disputes."

"What are the remaining ten per cent about?"

"Women."

p.121. "Sikhism is an interesting and relatively young religion founded by Gurū Nanak only a little over four hundred years ago as a break from the rigid caste system of the Hindus. He held that all men had an equal right to seek for God, there being only one God underlying all religious forms. In this respect his teachings were more akin to the monotheistic Islam than to the multitudinous gods of the Hindus.

Traditionally despising the Hindu and hating the Muslim, the Sikhs have often desired a state of their own – and still do. Two wars were fought against them in the 1840s; as a result of which the Punjab was annexed to by the British in 1849, and one of their treasures, the Koh-i-Noor diamond, was ceded to Queen Victoria in the peace treaty. Since the 1947 India-Pakistan boundary passed right through the Punjab, the Sikhs' traditional home, it left many of their shrines and holy places in Pakistan. Consequently, terrible carnage ensued at partition. Muslims escaping to Pakistan were annihilated, while in revenge Sikhs were massacred in Lahore. The death-roll exceeded half a million; the mutual hatred between Muslim and Sikh will take decades to heal."

(ii). CENTENARY OF DEATHS OF 16 JEWISH CIVILIAN WORKERS IN BEER SHEVA STATION. (by Steve Sattler).

During the night of 14/15th January 1917 a group of Jewish workers (mostly masons, carpenters and plumbers) from Jaffa and Jerusalem, who had been working in Beer Sheba under the Turkish Military Authority, were sleeping in a railway carriage, parked to one side of the Turkish railway station complex. They had a 6am train to catch that morning to Lydda. They were heading home.

At 4am a British air force BC2c dropped a 45kg bomb very near the carriage and all 16 were killed. After considerable confusion and anger they were buried in a common grave in Beer-Sheba. This burial site later became the first Jewish cemetery in Beer-Sheba. A Rabbi was brought in from Gaza to identify, officiate and bury the bodies.

Two weeks later a British pilot with engine trouble force-landed near Beer-Sheba and was detained by an angry mob. He asked - in passing –if his bombing attack two weeks earlier had caused any damage. He identified himself as Lord Shar-shin Rothschild. The angry mob almost lynched him on the spot, as they assumed that he was the pilot responsible for the 16 civilian dead.

In later investigations British and Australian air-force historians finally confirmed that the pilot in question was an Australian. After further investigation and an in-depth study of British/Australian and Turkish records, one researcher Dr. Ilan Gal-Peer confirmed that the most likely pilot was one Lawrence James Wachett of the AFC, a 21-year-old Australian of the Number 1 Squadron attached to the EEF. This pilot apparently glided his plane from 6,000 feet and using his heavy bomb(s) dropped one on the non-existent ammunition shed next to this single carriage.

Commemoration. On Thursday 19th January 2017 [exactly 100 years later according to the Hebrew date] over 200 relatives, friends, historians and Train enthusiasts gathered at the re-built [old] Turkish Train Station in central Beer-Sheba to remember, acknowledge and respect this tragedy. In Hebrew this event is called "The Tragedy of the Carriage - 1917"

A second commemoration was held an hour later at the common grave of the 16.

Plans are now been made to build and install a marble plaque with all the names of the dead at this Turkish railway station, not far from a stone Turkish column with names of the Turkish dead from battles in Beer-Sheba."

(iii). DUTCH HOLOCAUST MEMORIALS.

The 'WO II Centrum' ('Wereld-Oorlog' = World War 2) at Medemblik – has a Belgian G10 goods van built 1907, donated by SNCB and being restored,. The USATC van of Stichting 162 is also here.

At the Memorial to the transit camp at Westerbork: The Memorial has acquired two goods vans:

- DB 945 2 194-2 (DR 31 599 Karlsruhe) and

- DB 945 3 543-9 (DR 52 326 Kassel) from the Butzbach-Licher Eisenbahnfreunde e.V. ;

on 2nd. & 9th. Dec. 2014 brought them to Coevorden where they were restored by the Ministry of Defence. 31.599 was fitted with a brakemen's hut. On 2nd. April 2015 they were brought to Westerbork, as part of the display where the names of the 107,000 Jews, Sinti and Roma transported from here are read aloud.

Also acquired in July 2015 from the Wutachtalbahn e.V. is restored 4wh. DR coach Cid-24 No. '98 046 Breslau'. It requires further restoration.

Information displays on the deportation trains have been set up at the stations of Hoogezand-Sappermeer, Zuidbroek, Winschoten, Bad Nieuweschans, Bunde, Weener and Leer.

(iv). TURKISH INFLUENCE SPREADS.

In 'Railway Gazette' 03.02.2017 the Editor noted this:

"TANZANIA: The government signed contracts with Turkish firm Yap? Merkezi and Portugal's Mota-Engil on February 3 for the construction of a new 1,435mm gauge railway between Dar es Salaam and Morogoro.

To be built under a turnkey contract, the 207km single-track line is being designed for operation at up to 160km/h. Tenders for the project were called in September by the state-owned railway infrastructure authority Reli Assets Holding Co, with bids to be submitted by early December. Announcing the signing of the contract, Reli said construction of the line would start in March and take 30 months to complete.

The contract signing follows a visit to Tanzania in January by Turkish President Recep Tayyip Erdogan, during which the Turkish government was reportedly asked to provide financial backing for the project.

The new line to Morogoro is intended to form the first stage of a planned 2,200km standard gauge network linking Dar es Salaam with Kigali in Rwanda, Musongati in Burundi and the Lake Victoria port at Mwanza. This would supersede the existing metre-gauge Central Railway network operated under concession by Tanzania Railways Ltd, with priority going to the 971km between Dar es Salaam and Isaka.

According to Bloomberg, Yap? Merkezi and Mota-Engil have also been selected to build around 400 km of new line from Isaka to the borders of Burundi and Rwanda at a cost of around US\$1 bn.

China's Eximbank agreed last year to provide up to US\$7.6bn to support Tanzania's US\$9bn railway construction programme, which was to be undertaken by Chinese firms under accords signed in 2015. However, these agreements were subsequently cancelled by incoming President John Magufuli who took office in November 20."

[Interesting here is that the Chinese, who are also now building a standard-gauge line linking Kenya and Uganda, were actually turfed out in Tanzania! We do not know all the political implications, but until recently Africa was famous for 'Cape Gauge' and Metre Gauge but is now increasingly being penetrated by Standard-gauge lines, mostly with Chinese 'soft diplomacy' providing the finance, skills and rolling stock. Ed.]

(Continued from page 20)

can probably be seen as articulations in the landscape. Near Al Mazar the desert sands definitely win from the satellite and we need archeologists to do the job. With a bird's eye view it helps looking for more-or-less straight lines in the landscape, but when on the ground it may be extremely difficult to decide where to start digging....

When trying to start working backwards from the Gaza strip border, I could not locate the Rafah railway station. Also in El Arish I was lost although on the internet I found this historic picture on <https://www.awm.gov.au/collection/H12282/> and <https://www.flickr.com/photos/uon/7465046608> . Back after WWI, returned Aussie WWI soldiers probably planted El Arish and Jaffa in Queensland which is a bit confusing.

If there is a map somewhere of present situation and indications of where the railway alignment was mainly between El Arish and Rafah, this would help me to follow the line. So far for armchair travelling."

"UP THE LINE. THE MILITARY RAILWAY."

(From 'Egyptian Gazette' 1st. August 1918.
(By Twoasyouwere).

Military railways have no swank about them. The civilian (there are still one or two left) who knows the term "military precision" will imagine falsely if he expects to find that quality in a soldiers' railway. Pride, importance, and official dignity smites you in the great glass Termini of London or the calm opulence and vast platform spaces of Birmingham; you must not look for any of this in this line that runs from Kantara into the unknown. Shining engines that, over and above their mechanical sufficiency, move as mobile testimonials to the ambition of a private company and bear on their ten times enamelled flanks impressive names and monograms become, if by chance they are set aside for war service, as unlike their former selves as that dusty sweating draft of pack laden Tommies differs from their neat clerk-like selves of three or four years ago. This railway of ours of which we are so proud is a utilitarian concern, a haulage and contracting syndicate, which takes soldiers, not as passengers, but as freight, packing them like cattle in a collection of trucks which will soon be pounding up the line loaded in addition with thirty mules, an eighteen pounder battery, two tractors, mail, and the bits of an aeroplane. Instead of a ticket you are given a 'Movement Order'. Instead of a travelling trunk your luggage is that beloved old shapeless bundle – a valise. There are no bells and no barriers. No one charges you a penny or a piastre to come on to the platform to see your pals away, for there usually isn't a platform. You entrain somewhere near midnight by the light of the R.T.O.'s lantern. He, sole official of the line, is not supposed to know anything about the working of it. The real business is, I am led to believe, carried on by the R.E.'s (Railway Company) who have appointed a number of engine drivers as their executive. Even these grimy fellows sometimes get 'fed up', and in the middle of a long run will slow down, stop, descend from the locomotive and, sitting on the line with their backs to it, enjoy a quiet pipe. Then will the soldiers awake one by one and steal out of the train in search of honour or amusement. Suddenly the driver and his mate, recalled to duty, start up, knock out their pipes and steam away as quickly as they can. This once happened in the middle of a mulberry plantation at Ludd. How nearly were we left behind, engrossed in fruit picking, with our dyed hands and 'purple stained mouths'! This is a trick played by military trains in France as well as Palestine. Once a Colonel, holder of the empty office known as "O.C. Train", was quietly discarded in a café, on his way to Marseilles. Once an officer, a coffee jug full of milk in one hand, a paper bag full of eggs in the other, ran at full speed after a retreating guard's van to the cheering of half a battalion. These things do not happen on civilian railways.

After long days of weary waiting at the Depot the news comes through one morning that you are re-posted to your battalion up the line. Now you are tramping it to Kantara East; now the lorry is unloading kits, boxes of mess-stores, a civilian 'pre war' suit case or two; now it is beating back to the mechanical-transport park. You stumble among many lines in the middle of a broad spreading open-air goods-station, trains in front and behind you, very black under brilliant stars. You must look out, for a lanternless engine is creeping over that level crossing – the returning lorry nearly ran into it. Get across these lines and jump up: you are on a long platform, the military siding. The kit has been tumbled out anyhow in a big pile – how ever will you be able to distinguish your own valise? That one somebody's servant is carrying away looks remarkably like it. "Hi there, put that down!" Have you a movement order? Yes, of course, - it. Have you booked a berth? No, - it, I haven't. Thought one got in anywhere.

"Jolly good improvement this" – a veteran captain jerks his head towards the line of shattered vans. "First time I went up, troop train, cattle trucks, absolutely rotten. Knocks a fellow up. Put a camp bed up once in the middle of one. Smashed utterly. But now, look at them! Coaches, corridors, comfort – I would do some of these fellows good if...."

Conscious of a younger generation, enjoying a slightly easier time than he has had, this ancient youth of twenty-six wants to "put them through it", the "You-should-have-been-with-me-at-Ypres" attitude.

"I don't agree with you at all," says someone who has collected his possessions and is sitting on them. "It all wants organising. I don't know much about railways, but I don't mind bet ting that if I had control of this one....."

"What he would like," interrupts a third member of the party, "is a regular system of public houses, bordering the permanent way, one every twenty-five miles, "arrêt sur demande."

"I hate," continued the organiser, "a train that doesn't know anything. Doesn't know when it is going to start, doesn't know when it'll get to El Arish. If I went up now and asked the engine-driver if he had got enough coal for the journey, I bet he'd say he "couldn't say" or he "didn't know."

"Camouflage, my dear chap," said the captain. "Camouflage. They know all about it. Is it likely they're going to give you valuable military information for the asking. They probably thought you were an enemy agent. 'Spies have been known to wear uniform.' I daresay that tall fellow over there...."

Travelling on a military railway is like undergoing an operation – you hope you will not wake up until it is over. Your berth booked at last you hurry from one dark coach to another, searching for the one that includes in its range of numbers S.6. Then, in the general absence of servants, behold that most pitiable of sights – an officer loaded with his own valise. Regulations concerning weight have been evaded at the last moment; it is with difficulty you push and knee it along the narrow corridor. Two of your three companions are already bedded down; the lower berth on the left is S.6. It is a padded ledge, narrow and precarious, but comfortable beyond words compared with the provision made for the packed soldiers in the troop train which first took your battalion up the line. Presently the fourth man arrives – an Australian. "Say, is this anybody's bunk?" he queries. You hazard a suspicion that all the berths have been allotted. "Well, guess I'll chance it," he rejoins, "some feller will have to go without a bed tonight," and he throws himself down anyhow, settling his pack as a pillow; then, remembering hospitality, holds out a flask. "Have some, it's the right stuff. No? Then you'll excuse me, mister." Follows a long drink, and silence.

Some men, like healthy dogs, can stretch themselves out anywhere and sleep peacefully for hours, in spite of knocks and jolts. I am one of the restless. No elaborate unrolling and manipulation of my flea-bag ensures me more than temporary repose. Above me, level with me, oblique to me, the three sharers of our cramped compartment are lying absolutely quiet. I steal to the corridor end and look out. The train is driving through an ashen grey desert. Now and again an object breaks the monotony – a bale of tbn lost from some ration train, an abandoned incinerator made of old corrugated iron, the only relic of a once-popular camp. At rarer intervals small groups of tents or a long station hut. Then again dunes and dips and rises and slight cuttings, features that are mere accidents in the general sameness. Through the desert with the set purpose of a human being the train drives on, and beside it, sometimes half seen in the moonlight, sometimes only indicated by a ridge in the sand, runs the pipe-line, our indefatigable companion.

What a relief to such hours is the sleep that comes at last and the next awakening. The train has stopped. I get up and look out – and see the Mediterranean. It is El Arish and the time is early morning. No one is about but an R.E. corporal, who is talking to the engine driver. One or two officers more or less undressed appear at the coach-ends, but the majority are still asleep. The sea is harmless and innocent-looking, and breaks upon the featureless sandy beach in small inaudible waves. Some trains used to stop for three-quarters of an hour at El Arish, and officers would undress before arrival, and dash out naked for a short plunge. Such acts are possible only on military railways.

Coming down the line on leave from the front you reach or used to reach El Arish in darkness. The train stopped there for about half an hour, and it was absolutely de rigueur to leave the train and rush in search of an omelette. Following each other in haste, stumbling across points and metals and signal wires, you pushed along a wire path that led to a small lamp-lit marquee in which were several wooden tables. Omelettes and bread and butter and tea and jam were the only eatables recognised by this benevolent concern, and very rapid was their preparation and consumption. Mrs. Chisholm of Kantara West (just outside the limits of this essay) must surely divide her fame with the originators of this more remote enterprise. Lately a rather swell affair has opened in a field at Rafa and finds many patrons. It cannot compare in my eyes with the quick-onmelette-supply-company, floated for bona fide soldiers at El Arish.

I cannot hope to deal in an orderly manner with a subject which to me is a confused remembrance of groping in the dark by unclimbable carriages, fitful dozings on a narrow bunk, bumps, banks and long mournful stoppages. And looking back on these sheets, I am afraid I have done it, not nicely, but too well. I should have borrowed from Sterne some extra rows of asterixes, uncoupled a few sentences, telescoped two or three paragraphs, shunted my adverbs and adjectives about a little, made a heavy substantial clause run off the line. It is now too late; I must rely on the linotype machine to work these changes. For our journey is now at an end and Oh, how travel weary we have come to be. You have not come to Gaza, reader, as you expected; the train has drawn up at the sandy station of Sheikh Nuran. It is before the great push, and the line ends abruptly a little further on in a wadi near Shellal. You are now at the back of the old front. Desert has given place to miles of light powdery earth broken by wadis. You ask eagerly the whereabouts of the battalion you are rejoining. Someone suggests you should go to the ration dump, marked by great piles of fodder and bully beef boxes a few hundred yards away. It is ten o'clock in the morning and fiercely hot. Unfed, unwashed, unshaven you wander about, momentarily getting more tired and more angry. No one you ask has ever heard of your unit. Presently a limber comes bumping up to the dump. The driver salutes and grins, "Coming to join us again, sir? We heard as how you was coming up," smiles and salutations follow. The valise joins the rations. The military railway fades out of sight and mind."



Days before Jerusalem Day, President Reuven Rivlin toured a section of tracks for the highly anticipated Jerusalem-Tel Aviv high-speed train, which is scheduled to open in late 2018.

116:10

The Fast Lane project, which costs an estimated NIS 7 billion (\$1.8 billion) and has been in planning since 2001, is expected to cut travel time between Tel Aviv and the capital to 30 minutes, down from 78 minutes on the old line built during the days of the Ottoman Empire.

The fast trains will reach speeds of up to 160 kph (100 mph). When fully operational, they will depart every 15 minutes in each direction, carrying up to 1,000 passengers.

“This just goes to show that all roads lead to Jerusalem,” Rivlin said Wednesday during a site visit atop of a 97-meter (318-foot) high bridge over the Yitlah Stream west of Jerusalem, the highest bridge in Israel.

“As we mark another year of the uniting of Jerusalem, we are seeing now that Jerusalem is open to the whole country, and the whole country is open to Jerusalem.”

The massive public works project, however, has faced a few hurdles since the planning started 15 years ago. Originally slated to be finished in 2008, environmental activists stalled the plans after raising a number of concerns about potential damage to the protected hills and valleys surrounding the capital.

Environmental groups tried to force the planners to build a tunnel under the Yitlah Stream instead of passing over it with a bridge. The Interior Ministry’s Planning Commission decided that the tunnel would hold up the project for at least two years, and ruled in favor of Israel Railways.

The high-speed rail line also crosses the Green Line twice, once near Latrun and once near Mevasseret Zion, inviting criticism from the Israeli left and pro-Palestinian groups. A German company advising the project withdrew in the face of pressure from activists.

In September 2015, Economy Minister Aryeh Deri, the head of the Ultra-Orthodox Shas party, decided not to allow construction on Shabbat, further delaying plans by two years.

And in January 2016, part of an emergency exit tunnel collapsed, fueling a legal fight between Israel Railways and the various contractors responsible for different aspects of the construction.

Despite the delays, Fast Lane to Jerusalem director Dror Sofro said he is confident that the train will begin operations for passengers in the last quarter of 2018.

Construction of the Jerusalem-Tel Aviv high-speed train, seen outside of Jerusalem on December 20, 2015. (Hadas Parush/Flash90)

Rivlin toured the empty tunnels on June 1 to get a grasp of the sheer size of what he called “a very serious undertaking for the State of Israel.”

The longest tunnel in the Fast Lane project is 11.6 km (7.2 miles) long, making it the longest tunnel in Israel. A massive German tunnel boring machine drilled each of the tunnels, specially customized to drill in one motion at the size of the tunnel. The machine uses 24 motors to drill directly into the hard Jerusalem stone, advancing at a rate of 16 to 20 meters (50 to 65 feet) per day.

In Mevasseret Zion, the train tracks will be 200 meters (650 feet) below ground, as the suburb is perched on hilltops higher than the capital. In Jerusalem, the train station, being built near the Central Bus Station, is 80 meters (260 feet) below ground and doubles as a public bomb shelter



***Views in Syria in 1966, from
the Harald Navé Collection.
(Thanks to Alfred Luft,)***



**Serghaya on 29th. August
1975; 2-6-0T 751 and 0-4-4-2T
961 on a train from Beirut to
Damascus.
(Photo: Keith Chester)**

