

PASSENGER SERVICES ON THE ROMANIAN RAILWAY NETWORK IN THE POST-COMMUNIST ERA

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Abstract: Romania's railways continue to play a crucial role in the life of the nation and a high proportion of the system is still open for passenger services. And despite the declining number of passengers - reflecting the great changes of the post - 1989 transition - the 'offer' of the railway companies (augmented by the involvement operators) remains attractive. However the impressive pace of railway modernisation witnessed in the 1960s and 1970s flagged in the 1980s and since 1989 the priority for highway construction has slowed the pace of development to produce a fully 'modern' European railway. This is especially evident in the slow pace of track renewal which has resulted in speed restrictions - and hence slower journeys - over the past 20 years, despite long-term planning for speeds of 140 - 160 kph. The paper reviews the trends since 1989 taking several different approaches including the importance of railways for tourism and recreation which is evident not only through rail access to the resorts but the development of 'heritage' railways (especially narrow - gauge systems) as a form of leisure and recreation in themselves.

Key words: Romanian's railways, post-communist era, trains, passengers

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INTRODUCTION

Romania has a substantial railway network which effectively integrates the regions of the country and serves almost all major settlements: exceptions for towns with more than 20,000 inhabitants are Borșa, Vișeu de Sus, Mioveni, Petrița and Turda where journeys of several kilometres are now needed to reach the nearest stations. Although the system developed on the basis of historic territorial arrangements with separate planning for the Old Kingdom of Romania, Transylvania (originally part of the Hungarian system) and Austrian Bucovina, it has been effectively unified to serve the present entity through standardisation and additional Carpathian routes as well as improved access to Bucharest.

This restructuring was much assisted by the economic and strategic importance attaching to railways in Greater Romania during the inter-war period and again during the communist era. Railways retain priority in the European context but the parallel interest in road transport (and highway construction in particular) means that there is greater competition for both investment and traffic. In a recent paper the author contributed to a review of railfreight (Nae and Turnock, 2010) and this paper now deals with passenger traffic. It follows from an earlier contribution looking at trends during the communist period and concentrates on the years since 1989 (Turnock, 1991).

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THE TRANSITION

Transition to a market economy has created many challenges concerned with falling traffic: rail passengers increased during 1950 - 1989 from 116.5 mln to 481.0 mln 1989 but fell back to 210.7 mln in 1995 and 117.5 mln in 2000. Passenger kilometres went from 8.16 bln to 35.46 bln during 1950 - 89 before declining to 18.88 bln in 1995 and 11.63 bln in 2000. There has been a great need for restructuring to raise standards on a European basis while competing for capital investment with other sectors (notably road-building) and increasing labour productivity through a period of heavy redundancy (Turnock, 2003).

Despite a focus on economic viability the railways continue to make heavy losses. Some transition states have responded by reducing services quite drastically but in Romania the number of trains has not changed greatly; 111 trains in 1989 were scheduled to leave Bucharest's Nord station (combining the main station with the adjacent terminal of Basarab) but the number actually increased to 129 in 2011. The number of stopping ('personal') trains was slightly down (from 53 to 49) while the express trains were up from 58 to 80 (13 to 35 for the fastest 'rapid' trains (with only a small number of stops) while the 'accelerat' services remained the same at 45. The leading provincial cities has also seen growth in the number of passenger train operations and Oradea is a case in point with 52 departures (44 if the recently - reintroduced local service to Băile Felix and Cordău is discounted) - involving 23 stopping trains, 11 'accelerat' trains and 10 'rapid' services - which compares with 39 in 1989 (with a 19 - 17 - 3 split between the three categories).

Of course some lines have experienced closure (table 1) but the Romanian network has not been greatly compromised and many of the services withdrawn affect narrow - gauge lines (operating at low speeds and hence particularly vulnerable to bus competition) and some other routes have been affected by landslides or severe storms of the kind that ravaged the Suceava area in 2010 (table 1).

Table 1. Service withdrawals since 1989 by development regions
(Source: CFR Mersul Trenurilor de Călători 1989 - 1990 and 2010 - 2011)

Centre: +Sibiu - Agnita / Vurpăr (71 kms); +Târgu Mureş - Băile Sovata (74 kms); +Târgu Mureş - Miheşu de Câmpia (55 kms); +Turda - Abrud (93 kms).
North East: Comăneşti - Moineşti (8 kms); Dângeni - Saveni (..kms); *Dărmăneşti - Păltinoasa (34 kms); Dorneşti - Siret (16 kms); *Gura Putnei - Nisipitu (25 kms); *Vama - Moldoviţa (20 kms).
North West: +Band - Lechinţa (69 kms); +Ghilvaci - Ardud (18 kms); *Holod - Cordău 29 kms; Huedin - Căţatele (14 kms); Oradea - Cheresig (23 kms); Sighetul Marmaţiei - Câmpulung la Tisa (12 kms); Ulmeni Sălaj - Cehu Silvaniei (20 kms); Vişeu de Jos - Borşa (23 kms).
South: Căciulaţi - Snagov (16 kms); Câmpulung - Argeşel (14 kms); Mija - Diţeşti - Moreni / Filipeştii de Pădure (13 kms); Poiana Slănic - Slănic (10 kms).
South West: Turceni - Drăgoteşti (28 kms)
West: Bouţari - Subcetate (40 kms); Deva - Brad (36 kms); Lupeni - Bărbăteni (4 kms).

physical problems *; narrow gauge +.

There have also been some significant reductions in services: on the Ploieşti - Slănic branch the number has fallen from nine per day to three and even these all terminate at Poiana Slănic (10 km/s short of the final destination) because of flood damage to a bridge; while the Ploieşti - Măneciu and Ploieşti - Târgovişte routes have both seen reductions from nine to two. Other casualties include the Băbeni - Alunu branch near Râmnicu Vâlcea (six to two); Simeria - Hunedoara (13 to six); and Cugir - Şibot (10 to five) but these are not typical and reflect the large decline of commuting to work in massive industrial citadels like the Hunedoara metallurgical works as well as competition from bus services as rising private car ownership.

In line with European standards, Romania has seen improvements in trains and stations as well as information and ticketing. Stopping trains are often second - class only; using 1970 s - 80 s stock but also some 1940 s / 50 s railcars. 'Accelerat' trains have been improved since c. 2005 with refurbishment of double - deck coaches and the introduction of Siemens 'Desiro' railcars from

2003 on routes from Bucharest to Constanța, Craiova, Galați, Sibiu and Tulcea; and also from Sibiu to Cluj, Craiova and Timișoara (benefits which occasionally apply to some stopping trains as well). Romania has been rather slow to move from heavy trains to lighter railcars because of large peak flows and the availability of coaches displaced from main line express services.

Various railcar designs have been produced but without any sustained series production and the re-engined Malaxa cars from the immediate pre - World War Two era are still prominent. And since no successful Romanian design has emerged the Germany's Siemens 'Desiro' design has been adopted with a considerable proportion of units built under licence in Arad; although the decision is surprising in the sense the trains were designed for local services in Germany. The cars have quite hard seats, a low speed and limited sound insulation, although improvements have been made since 2004 through better insulation and larger seats (70 per unit instead of 110) and the stock is now used widely over medium - distances; flattered by the title 'Săgeata Albastră' - Blue Arrow - first used for a prestigious but short - lived diesel-powered train operating between Bucharest and the Black Sea. Meanwhile private operators have opted for reconditioned railcars imported from France and Germany: the ubiquitous 'Deuwags' (from Deutsche Waggonbau) in the latter case.

Meanwhile refurbished loco - hauled coaches are used for longer distances; though some 'accelerats' now offer couchettes and sleepers with 'rapid' stock available for the long - distance trains from Bucharest to Craiova / Timișoara, Târgu Jiu / Arad, Cluj / Satu Mare, Focșani / Iași, Sighetul Marmăției; also Iași - Timișoara trains. Meantime the present 'rapid' trains now offer six - seat compartments, air conditioning and ecological toilets; with 'Desiro' railcars for some services. 'InterCity' (IC) is the top category with fares slightly above the 'rapid' level.

Trains from Bucharest to Galați, Iași, Suceava, Oradea and Timișoara offer airline standards (including power points and a business service on the Oradea and Timișoara routes) using Romanian - built Astra AVA - 200 coaches which were once appreciated internationally on the Bucharest - Vienna service before the Austrian Railways (ÖBB) took over the service in 2003. 'Desiro' railcars may however feature on the Galați service. IC services have also operated to Arad, Constanța and Târgu Mureș as well as the resorts of Predeal and Sinaia but do not appear in the 2011 timetable. There is no obvious regional equality however: IC trains emphasise the Suceava and Timișoara routes (each with two trains daily) with one additional 'rapid' train (but two more for Suceava as portions attached to the trains for nearby Botoșani). Oradea is another IC destination.

International trains generally run as 'rapid' services within Romania but there is also a 'EuroCity' service to Arad and Budapest; also 'EuroNight' to Belgrade and Budapest. Sleeping cars comprise refurbished Deutsche Waggonbau - built stock of c.1990 but there are some new sleeping cars (air - conditioned with shower facilities), couchettes and Inter City coaches (also some double - deck coaches for high - density express routes). Meanwhile, 'Accelerat' services are also rather unevenly distributed since the longest journeys seem to attract the fastest trains. Thus with all the international trains passing through Arad being treated as 'rapid' services the city has no 'accelerat' service from Bucharest apart from the one routed through Caracal and the Jiu Valley. Many 'accelerat' services tend to connect pairs of leading cities metropolises and are typically operated using 'Desiro' railcars.

Links between metropolises include Cluj to Bistrița, Sibiu and Zalău / Satu Mare as well as Iași, Timișoara and cities on the main line to Bucharest; also Galați to Brașov, Constanța and Târgu Mureș; and Timișoara to Arad / Oradea / Baia Mare and Sibiu. Traction is provided by modernised diesel and electric locomotives while electronic ticketing by XSELL ticketing has been available since 2004, assisted by deals during 2003-4 with the two main mobile phone companies (Orange and Vodafone, with the latter known as Connex at the time) over train information and booking. Smoking on trains was prohibited from 2006.

Organisational changes since 1989 have included the creation of separate railfreight and passenger companies (Marfă and Călători) with separate organisations for the infrastructure (CFR Infrastructura) and other assets (SAAF). And in line with EU policy railway routes are open to private operators who may run competing services on the main lines and bid to become the sole

operator on minor routes where there is no basis for competition. Some of these ‘secții neinteroperabile’ have no operators at all due to lack of potential (i.e. small branch lines where bus services are highly competitive) or flood damage which occurred in 2010 on several sections in the Suceava area: Vama - Moldovița, Gura Humorului - Dărmănești and Gura Putnei - Nisipitu. Meanwhile several others are freight - only lines operated by industrial companies e.g. RG Holz for the Vișeu de Jos - Borșa branch; Rompetrol Logistics for Capul Midia; and Viromet for the Ucea - Victoria branch. Meanwhile the railfreight company Grup Feroviar operates around the port of Năvodari. But in addition many branches are now operated by private passenger companies with ‘Călători’ left as the default operator in only a relatively small number of cases (table 2); while on some of the main lines which are ‘interoperable’ Călători and private companies are now in competition on a regular basis. Privately - operated passenger services started in 2004 - 2005 when the lines involved (Brașov to Zărnești, Ploiești to Slănic and Măneciu and Sf.Gheorghe to Brețcu) were omitted from the official timetable. The Ploiești - based services reverted to Călători in 2005 but Regiotrans (owned by the French company Keolis) continued in Transylvania and extended operations to Blaj - Praid, Brașov - Întorsura Buzăului and Sighișoara - Odorhei in 2006 - 2007. The private sector has continued to grow and its operations are noted later.

Table 2. Branch lines still operated by the Călători company

North East: Bacău - Piatra Neamț - Bicaz (86 kms); Crasna - Huși (33 kms); Floreni - Dornîșoara (22 kms).
North West: *Carei - Jibou (118 kms).
South: Bucharest Progresul - Giurgiu (59 kms); Bucharest - Oltenița (79 kms); Ciulnița - Călărași / Slobozia (44 kms); *Golești - Câmpulung (57 kms); *Pitești - Curtea de Argeș (38 kms); +Ploiești - Măneciu (51 kms); +Ploiești - Poiana Slănic (34 kms); Roșiori Nord - Alexandria / Turnu Măgurele (84 kms); *Titu - Pietrosița (67 kms); *Videle - Giurgiu (66 kms).
South East: Mărășești - Panciu (18 kms); +Medgidia - Negru Vodă (58 kms); Medgidia - Tulcea (144 kms); +Zorleni - Fălciu (50 kms).
South West: +Băbeni - Alunu (41 kms); Craiova - Calafat (108 kms); *Filiași - Târgu Jiu via Turceni (76 kms); +Strehaia - Motru (31 kms).
West: *Caransebeș - Reșița (43 kms); Jebel - Liebling (10 kms); +Livezeni - Lupeni (18 kms); +Oravița - Anina (33 kms); +Oravița - Iam (27 kms); Timișoara - Jimbolia.

+Suggested for closure in Guvernul României 2011; * Carrying express trains

However economic viability remains elusive with passenger numbers continuing to fall since 2000 despite the encouragement of discounted fares e.g. ‘Cartea VSD’ for weekend travel involving the three days Friday to Sunday (‘Vineri’, ‘Sâmbătă’ and ‘Duminică’ in Romanian) as well as regular travel on specific routes: ‘călătorii frecvente’. The trend has continued with the onset of recession from 85.8 mln passengers in 2007 to 75.3 in 2008 and 65.5 in 2009 (with 59.7 estimated for 2010) while passenger - kilometers have declined from 7.42 bln to 6.88 and 5.97 (5.00 estimated for 2010). With some service withdrawals train - kilometers have fallen from 67.1 mln to 66.3 and 64.1 (59.3 estimated for 2010) but not as rapidly as passenger numbers and so the level of usage has fallen: from 30.9 travellers per 100 train places to 30.4 and 28.5 (26.8). Since Călători is still a state company the government is very concerned about rising losses, with subventions doubling during 2009 alone and various measures have been suggested including further decline in employment: already 17.1 thousands during 2005 - 2008 (to 16.0 in 2009 and 15.0 in 2010) with further reduction to some 13.0 now anticipated (Guvernul României 2010). There is also reference to fiscal concessions; elimination of surplus locomotives/rolling stock, reduced maintenance costs and the introduction of ticket machines. Reduction of train kilometres in line with passenger numbers could include further route closures e.g. Băbeni - Alunu (41 kms); Livezeni - Lupeni (17 kms); Medgidia - Negru Vodă (58 kms), Podul Olt - Porumbacu (19 kms), Strehaia - Motru (31 kms) and Zorleni - Falciu (70 kms). Furthermore selected closures would secure greater economies through the elimination of carriage depots: Caransebeș in the case of the

Bouřari branch (although this line is now privately operated); Oravița for Anina and Iam services; and Ploiești Sud for the Mâneciu and Slănic lines. Lugoj depot could also close if certain services terminating in this town were extended to Timișoara. But none of these measures have yet been adopted. Another idea is the rationalisation of motive power depots in parallel with a further round of redundancies. At present there are 14 Călători depots and closures are suggested as follows: (a) in Moldavia a transfer from Bârlad to Iași (other depots being Galați, Suceava and Tecuci); (b) in Wallachia - Dobrogea a transfer from Drobeta - Turnu Severin to Craiova (other depots being Bucharest Călători, Medgidia, Pitești and Ploiești); and (c) in Banat - Transylvania a transfer from Sighișoara to Brașov (other depots being Arad, Cluj, Jibou, Sibiu and Timișoara).

INTERNATIONAL PASSENGER SERVICES

Romania's strategic position makes for a substantial programme although it has been simplified in recent years as low-cost airlines have become prominent (while the interaction among former Comecon / Warsaw Pact members is now greatly reduced in terms of both conventional trade and Black Sea holidays) (Turnock, 2006).

There used to be through trains to the northern capitals: thus one service between Bulgaria and the GDR covered the 1,754 kms between Bucharest and Berlin via Arad in 32 h 44 (53 kph) while the Balt Orient Express travelling via Oradea took a fraction less (32 h 37) for a longer journey of 1,898 kms (58 kph). Today, apart from the 'Dacia' which provides a daily service between Bucharest and Vienna (a journey of 19 - 20 h over 1,145 kms, at an average speed of 60 kph including stops) there are no through coaches proceeding in a westerly direction beyond Budapest: until 2008 the 'Trianus' had included through coaches to München.

In 1989 there were still through coaches to Paris on the Orient Express which averaged 60 kph to reach Budapest in 14 h 15 and Vienna in 18 h 56. This evening departure from Bucharest was balanced by a somewhat slower early morning train to Vienna by the 'Wiener Walzer' (15 h 33 / 56 kph to Budapest) which also included coaches for Warsaw and Košice (also from Sofia to Warsaw and Wrocław). However Budapest services remain numerous; reflecting Hungary's key position in the Central European rail network, but also the traffic generated by the Hungarian minority in Transylvania. A key service is the 'Ister' EuroNight service over a 873 km journey with a considerable difference in average speed between 66kph in Romania (637 kms taking 9 h 40) and 75 kph in Hungary (2 h 57 for 225 kms) with the protracted waiting over the short Curtici - Lököshaza frontier section discounted.

Also on this route - which takes in Deva and Arad in Romania along with Békéscsaba and Szolnok in Hungary - there are trains from Arad / Timișoara ('Cris' in the morning and 'Traianus' in the evening) while Arad alone has the 'Zarand' (unnamed in 2008, when it started further east at Simeria) and another unnamed train. Meanwhile Târgu Mureș has its 'Mureș' service (which in 2008 included a Bucharest - Venice section - attached at Vințul de Jos - which also served Zagreb and Ljubljana); Sibiu has the 'Transylvania' (which in 2008 started at Arad and was unnamed); and Brașov has the 'Pannonia', which started in Bucharest in 2008 when the train not only continued to Prague via Győr, Bratislava and Brno, but also included a section for Kraków. Named 'Krakovia', this was detached at Szolnok to run north via Miskolc and Košice (replacing the service started some years earlier across Ukrainian territory from Satu Mare / Halmeu). Journey times for these trains between Arad and Budapest is almost exactly four hours for the 253 kms (63 kph): a few minutes less than the 'Dacia'.

A second major route branches from the main stem (Bucharest - Ploiești - Brașov - Sighișoara) at Teiuș near Alba Iulia and runs through Cluj and Oradea to the frontier at Episcopia Bihor - Biharkerestesz; proceeding thence through Püspökládany to rejoin the Arad route at Szolnok. There are trains from Brașov ('Corona' and 'Harghita' travelling via Deda / Beclean) as well as the 'Ady Endre' and 'Biharia' from Cluj. It is interesting to compare the two routes from Brașov: whereas the 'Pannonia' (already referred to) takes 12 h 54 for the 707 kms (55 kph) - but 52 kph for the Brașov - Curtici section (9 h 00 for 471 kms) and 69 kph for Lököshaza - Budapest (225 kms / 3 h 15). The longer journey via Beclean / Cluj is also slower:

averaging just 50 kph: (15 h 39 for 783 kms) with the Romanian section achieving 50 kph (11 h 38 for 542 kms) compared with the Hungarian performance of 70 kph (3 h 16 for 229 kms): once again the border section is excluded from the calculation. However the capacity over this route has been greatly increased because in 2008 the 'Biharia' and 'Harghita' services did not operate.

Mention should be made of a third western route to Belgrade by a train of this name travelling via Craiova and Timișoara to the Stamora Moravița / Vrsac crossing point: 13 h 06 for 712 kms gives an average of 54 kph. This compares with shorter journeys of 12 h 08 in 2008 and 11 h 40 in 1989 when Belgrade was the preferred 'Window to the West' with connections (after lengthy waits) advertised to both Thessaloniki / Athens and Milan. The total journey time for Bucharest - Thessaloniki was 48 h 35 (...kph over 1,954 kms) and 40 h 50 for Bucharest - Milan (...kph over 1,853 kms).

Turning to other routes the 'Friendship' ('Prietenia') daily service from Bucharest to Chișinău in Moldova (including coaches from Constanța) is slowed by the need for a change of coach bogies at the frontier. The 590 kms from Bucharest take 12 h 58: i.e. 48 kph, which represents a slight acceleration since 2008. The 'România' service to Istanbul via Bulgaria travels at an average speed of 42 kph (19 h 37 for 832 kms) - slower by 0 h 30 than in 2008 - and includes through coaches for Thessaloniki with the journey of 890 kms completed in 17 h 27 (51 kph): again, slightly slower than 2008 when the schedule of 16 h 48 permitted a 53 kph average. In 1989 a Transbalkan Express originating in Berlin offered a service from Bucharest to Thessaloniki via Sofia taking 22 h 56 (39 kph) while Sofia was reached in 10 h 09 (53 kph). Meanwhile the seasonal service that used to run between Budapest and Varna / Burgas via Arad, the Jiu Valley and the Giurgiu - Ruse frontier crossing ceased in 2008, although Bulgaria is still served by a train with this name which reaches Sofia in 10 h 00 from Bucharest (54 kph over 536 kms) - slower than in 2008 when the 9 h 19 schedule produced a 58 kph average - while also including coaches for Burgas and Varna detached at the frontier station of Ruse.

In the northern direction through coaches between Sofia and St. Petersburg ceased in 2000, but the 'Bulgaria' still runs to Moscow via the Viçșani - Vadu Siretului frontier crossing and Kiev: a 2,099 km journey from Bucharest taking 47 h 00 (45 kph). There are also coaches for Minsk: 47 h 23 for the journey in 2008 (29 kph) but now shorter by 7 h 06 (i.e. 34 kph). Meanwhile the hosts of Black Sea holiday trains from former Comecon states are now a distant memory.

Finally, it should not be overlooked that there are a number of local border trains. First to Hungary there is a single Oradea - Püspökládany service via Episcopia Bihor / Biharkeresztész (a reduction from two in 2008 when the 'Biharia' and 'Harghita' did not operate). There are three daily services between Salonta and Békéscsaba via Kotegyan ditto 2008 and two between Satu Mare and Debrecen via Valea lui Mihai / Nyabrany (operating from Valea lui Mihai only in 2008). Oradea also has a new service to Debrecen via this route and there are two trains on the Carei - Mateszalka route via Tiborszallas. There are two local links with Moldova via Ungheni and another further south at Fălciu; but no connections with Ukraine at Reni or Sighet (where the new road bridge over the Tisa has presumably undermined the former railcar service from Rachiv); or with Croatia at Jimbolia - Kikinda where the two services listed in 2008 have now ceased. However in conclusion the general showdown in international services should be underlined. Over just one year (2010 - 2011) the 'Dacia' schedule has been extended from 10 h 06 to 11 h 29 and the delay applies disproportionately in Romania with an additional 1 h 30 required between Bucharest and Arad. The 'Ister' night train needs an extra hour for this leg of the journey while the 'Harghita' needs an extra hour in both directions for the semicircuit through eastern Transylvania.

SERVICES FOR THE METROPOLES: THE CASE OF ORADEA

In 1989 there was a stopping train to Bucharest along with regional services to Arad (three), Cluj (three) and Satu Mare (four); also more local services to Carei, Ciucea, Holod (two) and Jibou. There was also a 'rapid' service to Bucharest ('Transylvania') as well as a substantial 'accelerat' programme involving Bucharest (two) as well as Baia Mare, Iași via Cluj and Vatra Dornei, Satu Mare (two) and Timișoara (two); not to mention the more local

service to Vaşcău. But there was also a substantial international programme: the 'Balt Orient' (Bucharest - Berlin), classified as a 'rapid' service, and seasonal holiday 'accelerat' trains: 'Nord - Sud' (Warsaw to Burgas), 'Mamaia' (Prague to Mangalia), 'Nord-Sud' (Warsaw to Burgas's Tracia' (Dresden and Leipzig to Varna) and 'Varna (Warsaw to Varna).

In 2011 these long - distance trains were no longer operating but instead an intensive interaction with Budapest is maintained through a programme of 'rapid' trains already noted. There are also more local services into Hungary to Debrecen via Valea lui Mihai and also to Püspökládány which lies on the Budapest line some 50 kilometers from the frontier. Domestic services include the 'rapid' to Bucharest (now named 'Avram Iancu') and the seasonal holiday train ('Bihor') to Mangalia, with a section from Târgu Mureş. 'Accelerat' services include five trains to Cluj (one of which only operates off - season as a replacement for the Mangalia service), along with two trains to Bucharest (one of which is extended to Constanţa during the holiday season), two to Satu Mare and one each to Iaşi and Timişoara (actually a single train running between these two cities).

Stopping trains are now more restricted in scope with the most distant destinations being Arad (two), Cluj (three), Satu Mare / Halmeu (two) and Timişoara (four). Other destinations are Bratca (three) Ciomeghiu / Holod (three), Marghita (two) and Valea lui Mihai (two). But a local service of eight trains daily has been revived between Oradea and Băile Felix / Cordău. Private companies are involved in some of these services: Regional (Cluj) on the Ciomeghiu - Holod - Vaşcău and Săcueni - Sărmăşag routes: indeed one train to Sărmăşag originates in Cluj while other starts at the intermediate station of Marghita and runs through Oradea to Holod.

Meanwhile the 'Transferoviar' company operates the new service to Băile Felix along the old direct route to Holod and Vaşcău: broken by landslides between Ceica and Rogoz since 1993 - 1994 and never reopened throughout because of the alternative route through Ciomeghiu (on the Oradea - Arad line south of Salonta); although some local services served all the stations except Duseşti and Zăvolu until 1998. As already noted a Băile Felix service was then started during 2003 - 2006 and has now been reintroduced.

SERVICES ON THREE CARPATHIAN VALLEY ROUTES

The Mureş Valley: Arad - Deva - Vintu de Jos

The paper now considers a new of major Transylvanian routes beginning with Arad - Vinţul de Jos (between Alba Iulia and Sebeş) and continues with the lines through the Jiu and Olt valleys. In 1989, stopping trains once included some extremely long journeys Arad - Bucharest but also Deva - Bucharest via the Jiu Valley. There were also five trains Arad - Simeria and seven Simeria - Vinţul de Jos / Teiuş (one extended to Târgu Mureş).

Complex local operations reflected heavy industry at Arad as well as Cugir and especially Hunedoara. Local services involved Arad to Curtici (nine), Radna / Milova (two) and Săvârşin (two) while the Deva area was served by trains from Săvârşin to Ilia (one) and Simeria (two); Ilia to Simeria (three) and Deva to Simeria (three, plus one extended to Hunedoara). Hunedoara also had six local services to Simeria and three to Teiuş; not to mention two accelerat services in the form of through coaches attached to the Timişoara - Iaşi and Arad-Bucharest services already referred to.

Finally the engineering town of Cugir generated traffic in the form of four trains to the main line at Şibot with four others proceeding to Teiuş and two to Sibiu. But in 2011 the picture was somewhat simpler with the long - distance stopping trains replaced by more services with a regional scope: five trains between Arad and Simeria, two between Deva / Simeria and Alba Iulia / Teiuş (one originating in Hunedoara) and one each between Arad - Teiuş, Arad - Alba Iulia and Lugoj - Simeria. Local services also covered Arad - Curtici (seven), Arad - Radna (one), Deva - Simeria (three) and Ilia / Săvârşin - Simeria (three, with one extended to Petroşani and Lupeni). Hunedoara's services are now reduced to six of which only the Teiuş service (already noted) runs beyond Simeria. Meanwhile Regiotrans provide five trains from Cugir to Şibot which all continue to Vinţul de Jos and Alba Iulia.

Express trains are also simpler with the international traffic restricted to the Bucharest - Vienna service and trains from Budapest which run to Bucharest but also Arad / Timişoara (three),

Braşov, Sibiu and Târgu Mureş. The Arad - Bucharest express service continues along with a seasonal train to Mangalia and a Bucharest - Cluj train runs via the Jiu Valley. There is also a provincial Inter - City profile with trains from Deva to Cluj and Craiova (as well as Cluj - Craiova via Deva); also two trains between Timișoara and Iași and three between Timișoara and Sibiu. Overall the number of trains at the main stations served by express and stopping trains (Curtici, Arad, Radna, Săvârșin, Iliă, Deva, Simeria, Orăștie, Șibot and Vințul de Jos) averaged 22.9 in 1989 and 23.6 in 2011 while the average for the 38 other stations (including the Cugir and Hunedoara branches) fell from 10.0 to 9.1. But both changes are slight (with the first category performance slightly overstated by counting both the originating and terminating stations for each service) and demonstrate that even rural stations experiencing a big decrease in commuting still retain viable services.

The Olt Valley: Podu Olt - Râmnicu Vâlcea - Piatra Olt

The Olt valley line is a 164 km north-south railway between two east-west trending routes: Podu Olt on the Braşov - Sibiu line just north of the Turnu Roşu pass and Piatra Olt on the line from Bucharest to Craiova via Pitești). There are no stiff gradients to contend with because the Olt river (at an altitude of 200 - 370 m) neatly bisects what is otherwise a continuous watershed and the engineering problems are all about accommodating the railway in a narrow valley (especially at the Cozia defile) with options further constrained by hydropower developments. The line was completed in 1901 after a branch from Piatra Olt had first reached Râmnicu Vâlcea in 1887. In 1989 there were just two 'accelerat' trains each way connecting Bucharest with Sibiu and Cluj. They stopped at Râmnicu Vâlcea and other centres in the area (Băbeni, Călimănești, Drăgășani, Govora and Lotru: the latter being the railhead for Brezoi and the resort of Voineasa). But four stopping trains ran the full distance each way, with three extended to Craiova in the south and Sibiu in the north.

Another three ran between Piatra Olt and Râmnicu Vâlcea while one ran to this city from Podu Olt. Other trains were locals operating in the Râmnicu Vâlcea area to connect a string of small towns. Most originated in the city extending to Băbeni (three) in the south and Căineni, Lotru, Turnu and Valea Mărului in the north while two others ran from Băbeni in the south to destinations at Călimănești and Cornet to the north. There were also local trains into Sibiu from Lotru and Turnu Roşu (two). In 2011 there were still two 'accelerat' trains running the whole length (though both now terminate in Sibiu and one goes only to Caracal). Two other trains run to Bucharest: one from Râmnicu Vâlcea (competing with a bus service which is able to take a direct route through Pitești) while another starts at the spa of Călimănești. In addition one of the stopping trains between Craiova and Sibiu has been upgraded to 'accelerat' status. Three stopping trains still run throughout and two give a direct service to Sibiu. Two trains run between Piatra Olt and Râmnicu Vâlcea although the service is not quite symmetrical because in the southbound direction one train starts at Lotru.

Four trains run between Râmnicu Vâlcea and Podul Olt (two extended to Sibiu) while another goes to Turnu Roşu only. There are also the local services in the Râmnicu Vâlcea area which are somewhat reduced given the competition from bus services: on the southern side to Băbeni (two: of which one continues without a change along the branch to Alunu) and Drăgășani; and on the northern side to Lotru; while two trains run each way between Băbeni in the south and Călimănești in the north. The two daily services between Turnu Roşu still operate. On average the main stations (Piatra Olt, Drăgășani, Băbeni, Govora, Râmnicu Vâlcea, Călimănești, Lotru, Căineni and Podu Olt) average 12.0 and 12.7 trains daily (taking 1989 and 2011); compared with 7.5 and 6.3 for the 33 others (but one fewer in 1989 since Bucșani, km 318 and km 355 opened since 1989 while Răstoaca and Bogdănești have closed). Once again there is a widening gap but not an excessive one.

The Jiu and Strei Valleys: Simeria - Petrosani - Târgu Jiu - Filiași

We also consider a parallel route across the Southern Carpathians extending over 202 kilometers from Simeria (near Deva, lying between Alba Iulia and Arad) to Filiași on the line from

Craiova to Drobeta Turnu Severin. Once again the physical geography is quite distinctive because the Jiu river flows in a defile at 400 - 550 m cutting through the main mountain range while the watershed is displaced northwards to the Bănița Pass at 725 m north of Petroșani; leaving a substantial depression separated from other parts of Transylvania. This route was proposed for the first railway to connect Hungary with Romania although it was an unlikely route selection involving the Vîlcan Pass (1,621 m) rather than the Jiu defile through which a strategically - important railway was eventually completed in 1948 (Turnock, 2004).

It is unlikely that any serious survey was undertaken when the branch from Simeria to Petroșani was completed in 1870 (complemented in the south by Filiași - Târgu Jiu in 1888 and the Bumbăști extension in 1916) because the primary aim was the development of a new Hungarian coalfield (nowadays Romania's principal source of hard coal). In 1989 there were two 'accelerat' services between Simeria and Bucharest serving primarily the northern end: Simeria with Călan as well as the Hațeg area through Subcetate; the coalfield towns centred Petroșani; and further south Târgu Jiu with the smaller towns of Bumbăști and Târgu Cărbunești.

In 1989 there were two 'accelerat' services each way between Simeria and Bucharest; not to mention the international train 'Nesebur' running between Budapest, Istanbul and the Bulgarian cities and resorts of Burgas and Varna. There was also an 'accelerat' service between Târgu Jiu and Budapest and a seasonal holiday train from Petroșani and Mangalia. The stopping train programme included one daily service from Simeria to Bucharest and another to Craiova; while there were five trains between Simeria and Petroșani, one between Petroșani and Filiași and another from Târgu Jiu to Filiași. Local services from Simeria involved single trains to Pui and Subcetate and three daily services to Călan; while there were five trains from Petroșani to the mining towns of Vulcan and Lupeni; some involving a change at the junction station of Livezeni: the junction station which also had one daily service of its own. There were also trains to Târgu Jiu from Lainici and Meri and a service to Filiași from Pietrele Albe.

In 2011 there was much less traffic as a result of falling coal production and some reduction in passenger services which leaves this electrified line somewhat underused. A train from Cluj to Bucharest uses this route as does a summer service from Arad to Mangalia, trains to Craiova from Cluj and Deva and a service from Târgu Jiu to Caracal. Meanwhile there are no longer any stopping trains going the whole distance; let alone the former extensions to Bucharest and Craiova. There is a daily train from Timișoara to Târgu Jiu; six trains from Simeria to Petroșani: two of these originate further west at Deva and Ilia while three continue to Lupeni and one terminates at Baru Mare. There are two other local services between Petroșani and Lupeni although the area also has numerous minibus services.

For the rest there are four trains from Petroșani to Filiași and Craiova; plus another to Târgu Jiu only; also two trains from Târgu Jiu to Craiova (one of which originates at Lainici). Services at the main stations (Simeria, Călan, Subcetate, Petroșani, Livezeni, Valea Sadului, Târgu Jiu, Cărbunești and Filiași) averaged 14.2 in 1989 and 12.0 in 2011; compared with 7.5 and 5.5 for the 56 other stations (including the Lupeni branch): an all - round reduction. Once again the number of stations has increased (by two from 54 in 1989): two extra stations have appeared between Petroșani and Subcetate while another new station at Vâscoza on the Lupeni branch is balanced by the closure of Paroșeni.

An interesting issue arises over these Carpathian lines because of a much debated option of shortening the railway from Bucharest to Transylvania (c. 50 kms for the Brașov route and c. 130 kms for Piatra Olt) by building a direct line from Pitești to Râmnicu Vâlcea. The need for such a line was difficult to demonstrate when capacity at the Predeal Pass (between Brașov and Ploiești) could be increased first by doubling the track and later by dieselisation and finally electrification. But the inexorable growth of freight traffic in the communist period made the new line necessary and work began in 1979 after a series of studies extending over half a century (Peaha, 1975, Turnock, 2005).

The chosen 39km route is difficult because of its vulnerability to landslides despite long tunnels at Ploștina (1.91 kms) and Gibei (2.25 kms) respectively west and east of the Topolog

viaduct which is itself an impressive structure 48m high and 1.29 kms long. Such was Ceaușescu's penchant for anticipating each 'noua realizare grandioasă' that the line appeared in the 1989 timetable with two daily trains calling at the stations of Ciorangeni (Schitu Matei) in 1989 and Samnic (Blidari) although additional stations were also envisaged near the two ends: Râmnicu Vâlcea Est and Tutana. However some sections of new line were still up to 40 % short of completion when the revolution occurred and since there were no funds available to continue a project which quickly became irrelevant as freight declined and so the project was left in abeyance. It has been argued that displacement of freight to the new route would allow Predeal to concentrate on high speed passenger trains, but electrification for through running would be desirable.

And while the tunnels have sufficient clearance, the existing Olt valley railway would be very difficult to convert as an electrified double - track international railway: given the narrowness of the valley and its conversion for hydropower. However the mineral branches built for the transport of lignite (Băbeni-Alunu and Cărbunești - Albeni) could be connected (as was anticipated in the 1980s) so as to provide a link between Băbeni and the already - electrified (but much underused) Jiu Valley line which would also secure the shorter route to Transylvania: hence the proposal for an entirely new 50 km railway aligned south of the existing project to connect Poiana Lacului near Pitești - Golești with Sirineasa on the Alunu branch (Ciocoreanu and Fedeles, 2003). It would be a great waste to ignore the route already prepared, but there is no chance that any development along either of these lines will precede in the foreseeable future although it is an interesting speculation which links the two Carpathian routes under discussion.

JOURNEY TIMES

The matter of speed needs some comment because the plans for high speed routes as part of a European network are behind schedule and it is clear that the main government transport priority rests with highway construction. But inadequate maintenance since 1989 means that maximum train speeds have fallen, as already noted for international services. On the whole journey times have increased since 1989 due to lower maximum speeds compounded by additional stops. The late 1970s was the time of peak performance when the author published a paper (Turnock, 1978, p. 419) noting the speeds scheduled for the longest non-stop journeys between station stops in 1977: there Bucharest - Constanta: 225 kms in 2 h 47 (81 kph); Bucharest - Craiova: 220 kms in 2 h 28 (85.0 kph); Bucharest - Brăila: 199 kms in 2 h 19 (86 kph); Cluj - Oradea: 153 kms in 2 h 30 (61 kph); Arad - Deva: 149 kms in 1 h 56 (77 kph); and Brașov - Sighișoara: 128 kms in 1 h 36 (80 kph). But the situation had deteriorated in several cases by 2011 due to speed restrictions and station stops.

Thus the shortest Bucharest - Constanța journey is now 3 h 47 (59 kph) including four stops; while the Bucharest - Craiova service takes some 3 h 10 (66 kph) with stops at Videle, Rosiori Nord and Caracal and the Bucharest - Brăila journey - already extended in 1989 to 3 h 04 with four stops - took 3 h 18 (60 kph) in 2011 with stops at the Aeroport, Urziceni and Faurei. Cluj - Oradea is still a non-stop journey for the 'Avram Iancu' and 'Biharia' although the time is now 2 h 44 (56 kph); likewise for Arad - Deva with non-stop running over 2 h 15 (66 kph) for the 'Aurel Vlaicu' and 'Pannonia' trains; and also for Brașov - Sighișoara where the best time is 2h15 in the eastward direction (57 kph) compared with 2 h 32 (50 kph) going west.

To extend the analysis table 3 has been constructed to summarise the situation over ten routes with the present situation compared over 20 - year intervals going back not only to 1989 but 1969 and 1948 as well. And the survey considers 'rapid', 'accelerat' and 'personal' trains wherever possible. It becomes clear that journey times improved substantially between 1948 and 1969, with slight recession in 1989 and then more substantial deterioration to 2011. The main problems arise with 'rapid' trains which may serve Cluj but not Oradea; while a 'rapid' train to Suceava may be used for a Iași journey as far as Pașcani where a wait for a stopping train to complete the journey destroys any advantage gained by high speed (since Călători now route their best services to Iași through Tecuci and Bârlad).

Back in 1948 both ‘rapid’ and ‘accelerat’ services to Iași were only possible as far as Pașcani with a stopping train to complete the journey (accounting for five of the intermediate stops noted). In the case of the ‘accelerat’ the poor connection meant a three - hour wait which lost all the advantage of the fast train and made the entire journey by stopping train an advantage by 26 minutes. Another anomaly may be noted on the line to Oradea: in 1969 a ‘rapid’ service was available in theory between by taking the ‘Transylvania’ to Cluj and then waiting nine hours to continue by the Balt Orient Express. But the ‘accelerat’ service would have been much better under the circumstances. Today ‘rapid’ services score c.60 kph (though 80 kph might have been sustained in the past) while ‘accelerat’ trains are distributed across the 40s and 50s (only rarely touching the upper 60s).

Table 3 Train speeds on sample 1948-2011
(Source: CFR Mersul Trenurilor de Călători for the relevant periods)

1948			1969-1970			1989-1990			2010-2011		
Rapid	Accel.	Person.	Rapid	Accel.	Person.	Rapid	Accel.	Person.	Rapid	Accel.	Person.
Bucharest - Craiova - Turmu Severin - Timișoara 533 kms (574 kms via Pitești : p)											
10.20p	11.02	19.13	7.53	8.43	13.39	7.40	8.05	12.29	8.30	8.47	17.06*
21/55	22/48	90/28	8/67	10/61	92/39	9/69	13/66	100/43	10/63	13/61	85/31
Bucharest - Brașov - Sighișoara - Arad 626 kms (599 kms via Sibiu: s; 604 kms via Petroșani : p)											
11.33	13.22	20.15	8.48	9.23s	15.01	9.48s	10.35s	14.16	11.51	10.49p	31.11#
24/54	34/47	104/31	9/71	14/64	83/42	11/61	19/56	97/44	11/53	17/55	138/20
Bucharest - Brașov - Deda - Baia Mare 624 kms											
n.a.	21.05	45.42→	10.17	12.03	14.05	n.a.	11.43	15.00	n.a.	14.44	36.12!
n.a.	35/30	119/14	12/61	21/52	55/44	n.a.	17/53	111/42	n.a.	25/42	126/17
Bucharest - Brașov - Cluj-Oradea 648 kms											
10.55	15.10	21.40	n.a.	10.37	17.24	9.48	12.39	14.29	12.52	13.02	23.49#
26/59	37/43	84/30	n.a.	13/58	101/37	13/66	23/51	102/45	14/50	19/50	115/27
Bucharest - Ploiești - Bacău - Suceava 450 kms											
10.08	9.12	13.14	5.45	6.49	9.26	5.47	6.59	11.23	6.43	7.06	14.23#
13/44	19/49	59/34	11/78	12/66	63/48	9/78	12/64	72/39	9/67	12/63	72/31
Bucharest - Ploiești - Pașcani - Iași 462 kms											
8.47	12.43	12.17	n.a.	7.59	10.18+	n.a.	6.22	12.08+	9.17+	8.40	14.36#
15/52	18/36	57/38	n.a.	10/58	6/45	n.a.	4/73	69/38	11/50	5/53	70/32
Bucharest - Ploiești - Tecuci - Iași 431 kms (400 kms via Urziceni and Tecuci)											
6.25	8.40	11.50	5.11	6.44	10.28u	5.57	6.12	9.12	7.00	7.07	14.38#
13/67	15/50	54/36	8/83	12/64	51/40	10/72	10/70	61/44	10/62	12/61	66/29
Bucharest-Ploiești-Faurei-Galați 259kms											
n.a.	n.a.	12.13	n.a.	n.a.	5.52	3.20	3.35	7.34*	n.a.	4.30	7.41+
n.a.	n.a.	36/21	n.a.	n.a.	24/44	3/77	6/72	39/34	n.a.	7/58	44/34
Bucharest - Ciulnița - Fetești - Constanța 225 kms											
3.35	3.53	6.40	n.a.	3.08	5.00	2.33	2.50	4.54	3.47	3.49	5.44
4/62	4/58	36/34	n.a.	4/71	35/45	0/88	4/79	35/46	4/59	6/59	36/39
Timișoara - Oradea - Cluj - Suceava - Pașcani - Iasi 794 kms											
n.a.	19.35+	36.32@	n.a.	16.03	41.49#	n.a.	16.02	36.18!	n.a.	16.31	40.50!
n.a.	53/40	101/22	n.a.	34/49	135/19	n.a.	32/49	133/22	n.a.	31/48	157/19

For each route the first line shows the fastest train in each category; the second line shows the number of intermediate stops and the average speed over the entire journey.

two trains / one change+; three trains/two changes*; four trains/three changes #; five trains / four changes @; six trains / five changes!; seven trains/six changes^

Looking more widely at the situation in 2011 this remains broadly true as examples in table 4 suggest. Some ‘accelerat’ trains make a very considerable number of stops which inevitably reduces the average speed e.g. 38 stops for the Bucharest - Sighetul Marmăției service which averages only 39 kph over 606 kms. Of course the best potential for high speed running is in the lowlands, especially the lines from Bucharest to the north (as far as Florești, north of Ploiești) and also to Brăila, Constanța and Craiova. The general speed limit is 120 kph (though rarely

attained), with but 140 km / h (160 km / h in prospect: Floricel 1992) from Bucharest to Constanța and also on the Brașov route as far as Florești (20 kms north of Ploiesti). At the other end of the scale stopping trains may fall into the 30 - 39 kph bracket with some extremely slow branch workings e.g. 2 h 19 for the 41 km Babeni - Alunu branches means just 18 kph!

At the other end of the scale it is evident that in 2011 some long - distance stopping train journeys became virtually impossible (without excessive waiting) because such trains are now very limited on certain routes and night trains have been drastically reduced (table 5).

Table 4. A selection of 'accelerat' and 'rapid' train times in 2011

(Source: Mersul Trenurilor de Călători 2011)

Over 60kph: Arad - Cluj (62 kph*); Bucharest - Botoșani (60 kph*)
50 - 59 kph: Arad - Mangalia (53 kph); Bucharest - Arad via Târgu Jiu (56 kph); Bucharest - Cluj via Petroșani (55 kph); Bucharest - Piatra Neam / Bicaz (58 kph); Bucharest - Satu Mare via Sibiu and Cluj (52 kph); Bucharest - Vatra Dornei (57 kph); Timișoara - Mangalia (51 kph)
40 - 49 kph: Bucharest - Satu Mare via Medias and Oradea (48 kph); Timișoara - Sighetul Marmației (42 kph)
30 - 39kph: Bucharest - Sighetul Marmației via Deda (39 kph)

Table 5. Long-distance stopping trains

Long - Distance Stopping Trains Cancelled since 1989: Bucharest - Oradea 650 kms; Bucharest - Baia Mare 625 kms; Bucharest - Arad 599 kms; Bucharest - Timisoara 533 kms; Bucharest - Ciceu 399 kms.
Stopping Trains Travelling over c.150 kms in 2011: Brașov - Târgu Mureș (283 kms); Cluj - Sighetu Marmației 249 kms; Brașov - Teiuș (228 kms); Bucharest - Mărășești (219 kms); Bucharest Obor - Constanța (215 kms); Timișoara - Drobeta Turnu Severin (211 kms); Bucharest - Craiova (209 kms); Suceava - Ilva Mică (194 kms); Sibiu - Piatra Olt (186 kms); Mărășești - Miercurea Ciuc (183 kms); Constanța - Tulcea (179 kms); Timișoara - Oradea (178 kms); Iași - Tecuci and Mărășești - Pașcani (168 kms); Arad - Brad (167 kms); Bucharest - Brașov (166 kms); Arad - Simeria (157 kms); Oradea - Halmeu (155 kms); Cluj - Oradea (152 kms); Brașov - Sibiu (149 kms); Satu Mare - Jibou (148 kms).

This is very much the result of changing travel patterns from the days when people might often to save money by avoiding the higher fares for fast trains and might even gain some social advantages in taking an overnight journey from (say) Bucharest to Baia Mare with fellow passengers in a state of constant flux! But now the option is of minimal practical significance. However if a passenger wished to travel from Bucharest to Baia Mare by stopping train along the route of the former through service there would be changes at Brașov, Deda, Sărățel, Dej and Jibou including a wait through the night at Deda between the arrival of the train from Brașov at 18.59 and departure for Sărățel at 04.21; followed by a further lengthy wait at Dej from 09.14 to 14.15. On this basis it would be quicker to travel via Cluj: still requiring five changes but saving 4 h 20! In the case of Bucharest - Arad the fact that there is now only one stopping train daily between Bucharest and Brașov would mean a first leg during 6.26 - 11.14 while at the other end the best option is the 10.27 from Simeria arriving in Arad at 13.37.

The journey between Brașov and Simeria may then be accomplished either (a) by taking trains from Brașov to Sibiu at 14.14 (arriving 18.17); from Sibiu to Vințul de Jos at 19.30 (arriving 21.55) and from Vințul de Jos to Simeria at 08.48 (arriving at 0951) or (b) travelling from Brașov to Teiuș at 14.20 (arriving at 19.52) and then from Teiuș to Simeria at 08.05 (arriving 09.51). But since the 10.27 from Simeria originates in Lupeni (at 06.22) there is a third option involving the 15.38 from Craiova through the Jiu Valley to Petroșani: this would require leaving Bucharest at 06.55 to arrive in Craiova via Caracal at 11.50 before proceeding via Târgu Jiu and Petroșani to join the Lupeni - Arad service. Bucharest - Galați via Buzău is also difficult by stopping train with an overnight wait in Făurei but most horrendous is Timișoara - Iași: an overnight in Cluj is

required between the first leg (including the first change in Oradea) and a sequence of four trains (beginning early at 04.12) requiring changes at Ilva Mică, Suceava and Pașcani.

Even so there has to be a prompt start on the first day at Timișoara at 05.16 because the only other stopping train to Oradea arrives at 17.09 which misses the last stopping train to Cluj leaving at 15.25. As the table shows this journey has always been difficult although – except in 1948 (when it was necessary to change from one ‘accelerat’ to another in Cluj) – through expresses operate with journey times of 16 - 17 hours. On the other hand, some stopping trains fit reasonably well into a sequence of connections e.g. Bucharest - Iași via Tecuci with changes at Buzău, Mărășești and Tecuci; also Bucharest - Suceava with changes at Mărășești, Bacău and Pașcani (where there is an equally good connection for Iași).

Even so the journey time has more than doubled since 1989. At the same time, distinctions between the three categories have become somewhat blunted so that an accelerat from Bucharest to Timișoara takes 8 h 47 with 13 stops which compares with the rapid at 8 h 30 with three stops fewer. Indeed, the Bucharest - Constanța “accelerat” takes only two minutes longer than the ‘rapid’ with the same number of stops. And where connections are involved the ‘accelerat’ from Bucharest to Iași via Pașcani - which happens to be the slow - moving ‘Prietenia’ to Chișinău - is faster than the Suceava ‘rapid’ combined with a connection by stopping train at Pașcani

PRIVATE OPERATORS

As already noted, private operators are now involved under a new regime encouraging competition. Since 2004 - 2005 Regiotrans of Brașov has run its dark red railcars to Brețcu and Zărnești and the company now also offers a steam-hauled ‘Dracula Express’ to Zărnești that can be chartered with a minimum of 40 passengers. The company also works the Întorsura Buzăului line in the Brașov area and has expanded rapidly nationwide: e.g. in 2008 to take in lines from Alba Iulia to Cugir and Zlatna, as well as Arad - Nădlac, Sighișoara - Odorhei, Voiteni - Reșița, Berzovia - Oravița and Buziaș - Jamu Mare; with several other routes since. Belonging to the French transport company Keolis it was in a good position to transfer stock from France.

It could also benefit from the experience of Keolis in mainline operations and although the plan for a Brașov - Constanța ‘accelerat’ has not yet materialised there are fast trains running to Craiova and Iași (running together as far as Ploiești). There are three other companies providing regular services which have developed out of freight operations: Servtrans started in 2002 with shunting operations in connection with EuroCorridor Four, with passenger services started in

Then in 2003 Călin Mitică’s Transferoviar Grup (TFG) emerged in Cluj as a freight carrier, associated with the Cluj railway engineering company ‘Remarul’: passenger services started in 2010 using VT624 ‘Deuwag’ railcars from Germany (turned out with a blue/grey livery) on the Oradea - Băile Felix/Cordău. Finally the freight - carrying Via Terra Grup (established in 2003) spawned the ‘Regional: transport public feroviar de calatori’ company in Cluj in 2005. All the operators collaborate over a private railway timetable: Mersul trenurilor operatori feroviari private (available online at www.tren.transira.ro) but services are now also included in the CFR timetable as well. As already noted there are now relatively few branchlines still operated by CFR and some of the lines shown in table and important lines with the potential for competition.

Services by Regiotrans

Space does not allow discussion of all services but in the Iași area the Iași - Dorohoi service consists of six trains each way plus one additional train from Iași to Trușești. Before there were three trains each way plus a fourth train from Dorohoi to Iași only. Timings have also improved from a range of 3.55 - 4.20 before to 3.12 - 3.35 now (38 – 45 kph on average) (table 6).

The Dorohoi - Botoșani service involves two trains each way with three to Leorda where there are Călători connections with Botoșani and Suceava. For Buhăiești - Roman there are six trains each way but in one case a break at Dagâța provides late night workings into this centre from both ends; balanced by early morning departures. Journey times are unchanged at c. 2 h 10

but the frequency has improved three-fold from the twice - daily service before. In addition, one service is extended to Iași to allow a morning's business in the city.

The Iași - Hârlău service has improved from three trains to five (allowing late morning and early afternoon services) while there has also been considerable acceleration from c. 2 h 07 before to c. 1 h 30 now (30 - 43 kph). The Târgu Neamț service is essentially a 31 km branch line operation from Pașcani involving five intermediate stations.

The schedule has been accelerated to c. 0 h 40 from c. 0 h 50 and there are now eight trains daily compared with only four before (although there was a fifth from Târgu Neamț to Pașcani with through coaches to Bucharest attached to the night train from Suceava (while the return working was combined with a stopping train). Two of the services are extended: one to Fălticeni (see below) and another to Iași although the advertised through service from Iași leaves at 13.21 while there are already Călători services at both at 12.55 and 14.11.

Finally there is a short branchline service linking Fălticeni with the main line at Dolhasca. There has been a small acceleration while the frequency has doubled from four to eight: a great improvement in the afternoons and evenings, especially from Dolhasca. One service provides a direct link between Fălticeni and Târgu Neamț (39 kms by direct distance but 78 kms by rail through Dolhasca and Pașcani) with a schedule averaging just over two hours (38 kph).

Meanwhile in the Odorhei / Târnoveni area the first service provides (a) services into Bistrița in the mornings from Sărmășel (2) and Luduș (1) with return in the evening; (b) a mid - day return to Miceștii de Câmpie; (c) two trips between Sărmășel to Luduș; (d) one train Bistrita - Alba Iulia outward in the mornings; returning in the afternoon. 5.16 hours south 5.57 north with 18 mins at Ludus N and another wait at Sărmășel; but only four south: 48 stations. Connections are provided at Luduș: the 7.30 arrival in Luduș and 8.05 return connects with the Accelerat 'Harghita' (Târgu Mureș-Cluj) and a stopping train Vintul de Jos to Târgu Mureș and beyond. The 21.15 departure from Luduș for Sărmășel connects with the stopping trains Târgu Mureș - Teiuș and Sibiu - Târgu Mureș.

The 14.30 from Luduș also links with stopping trains in both directions but the wait is considerable. However the service provides a big improvement over previous pattern of just two trains from Bistrita to Luduș and one to Sărmășel. Timings before were 3 h 44 south but 4 h 43 norths (due to a long wait at Sărmășel): respectively 29 kph and 23 kph for a 110 km journey. Now the time is 3.12 and 3.22 southbound (33 kph) and 3.56 - 3.58 northbound (30 kph): still with long waits at Sărmășel. Meanwhile, the second route used to involve nine trains between Blaj and Târnăveni and four from Târnăveni to Praid, near the resort of Sovata (with one through service taking 3.18).

Now there are nine and four trains respectively (plus one local service between Balaușeri and Târnoveni. Regiontrans has also taken over the Sighișoara - Odorhei service running five trains in each direction (some terminating at the junction station of Cristur) which compares with three in 1989 when the midday period was poorly served. But there is also an interesting innovation is the direct connection between Odorhei and Sibiu through Sighișoara for the very first time. The 142 km route normally requires changes at Sighișoara and Copșa Mică with the best connections in 1948 extending the total journey time to 9 h 53 southbound and 9 h 34 return (averaging 15 kph). At this time there was actually an alternative service was provided through use of a 161 km route taking the narrow gauge line from Sighișoara to Sibiu via Agnita.

But the one daily train meant a total (overnight!) journey time from Odorhei of 15 h 57 southwards and 14 h 02 northwards (reflecting the difficult summit section north of Agnita and a long wait of several hours in this town): an average speed of 11 kp h. However the option disappeared with closure of the northern section in 1965. Meanwhile the standard gauge route registered improvement to provide a journey time 4 h 24 southwards in 2008 with 5 h 42 north (averaging 31 kph), but now the new through service by Regiotrans takes just 2 h 09 - 2 h 12: averaging an unprecedented 66 kph!

Turning to the Timișoara area, it may be noted first that in the past the Cermei line provided connections only for five trains into Arad and six out (all to / from Brad). Now Regiotrans provide

seven direct services and one other which connects with a Călători service at Ineu. Meanwhile Nădlac trains are now scheduled to take 1 h 22 - 1 h 41: accelerated from 1 h 48 - 2 h 02 by introduction of a railcar; while the five trains previously running between Arad, Sânnicolaul Mare and Valcani have been supplemented by two extra trains between Sânnicolaul Mare and Valcani. There are six trains on the Buziaş - Gătaia - Jamu Mare route against only five before, with one non-stop early morning train to Jamu Mare to provide the first service going to the town of Gătaia.

There are good connections at Gataia with Timisoara with waiting time reduced; though curiously there are five trains to Timișoara against only four in the other direction; also three extra trains go as far as Voiteni but only two in the other direction. Consequently while only one of the nine trains heading west from Reșița terminates Gătaia (since the others continue to Voiteni or Timișoara) three of the trains running in the opposite direction start from Gătaia. The Timișoara - Reșița service now takes 2 h 14 (43 kph); much better than the c. 2 h 45 (34 kph) average in 1989 - discounting the section between Reșița Nord (the present terminus) and Reșița Sud which Regiotrans does not use (although in the 1990s there was a daily accelerat working at 46 kph to the Sud station).

Meanwhile the Jebel - Giera line has an extra train and slight acceleration; likewise Lovrin - Jimbolia and Sântana - Grăniceri. The Nerău line has an extra train and big acceleration: 2 h 13 now (42 kph) but 2 h 31 before (37 kph). In the Alba Iulia area the Cugir service now includes a late evening train while in the Craiova area the trains the Caracal - Corabia trains offer good connection with both the main line (Bucharest - Craiova) and other local services to Piatra Olt. On the Alexandria - Zimnicea line there are extra late morning and early afternoon services, as well as a connection for Zimnicea for Roșiori Nord and Caracal, though not in the other direction. Finally while the Brașov area has already been mentioned, there is the matter of the 'accelerat' services to Craiova and Iași with the two trains combined as far as Ploiești. The Iași service takes 10 hours with 20 intermediate stations but 18 on the return journey when Breaza and Comarnic are omitted.

Table 6. Services by Regiotrans in 2011

ALBA IULIA Alba Iulia - Bărbant - Ampoița - Zlatna (43 kms)+ #Alba Iulia - Teiuș - Războieni - Cluj (121 kms)@ #Alba Iulia - Vințu de Jos - Deva - Arad (211 kms)[] #Alba Iulia - Vințul de Jos - Sebeș - Sibiu (73 kms) #Alba Iulia - Vințul de Jos - Șibot - Cugir (37 kms)+
BRAȘOV Brașov - Sfântu Gheorghe - Târgu Secuiesc - Brețcu (98 kms)+ Brașov - Hărman - Teliu - Întorsura Buzăului (36 kms)+ Brașov - Cristian - Râșnov - Zărnești (27 kms)+ #Sibiu - Copșa Mică - Mediaș - Blaj (96 kms)[]
CRAIOVA #Caracal - Roșiori Nord - Alexandria - Zimnicea (133 kms)+ Caracal - Frâsinet - Vișina - Corabia (41 kms)+
IAȘI Dorohoi - Văculești - Leorda - Botoșani (37 kms)+ #Iasi - Buhăiești - Dagâta - Roman (115 kms)+ Iași - Podul Iloaiei - Cotnari - Hârlău (64 kms)+ #Iași - Târgu Frumos - Pașcani - Târgu Neamț (106 kms)+ Iași - Vlădeni - Dângeni - Dorohoi (154 kms)+ #Pașcani - Lespezi - Dolhasca - Fălțiceni (47 kms)+
Odorhei / Târnoveni - Luduș - Bistrița Alba Iulia - Luduș - Lechința - Bistrița (182 kms)+ Blaj (Câmpu Libertății) - Târnoveni - Sângeorgiu de Pădure - Praid (115 kms)+

Odorhei - Sighișoara - Copșa Mică - Sibiu (141 kms)+
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TIMIȘOARA

#Arad-Sântana - Ineu - Cermei (76 kms)+

Arad-Pecica - Semlac - Nădlac (52 kms)+

#Arad - Vinga - Sânandrei - Timișoara (57 kms)
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Arad - Periam - Sânnicolau Mare - Valcani (87 kms)+

Berzovia ormac-Gătaia-Jamu Mare (56 kms)+

Jebel - Ciacova - Banloc - Giera (33kms)+

Lovrin - Lenauheim - Grabăț - Jimbolia (27 kms)+
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Sântana - Nădab - Socodor - Graniceri (39 kms)+

Timișoara - Utvin - Peciu Nou - Cruceni (49 kms)+

Timișoara - Lovrin - Sânnicolau Mare - Cenad (75 kms)+
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Timișoara - Gătaia - Berzovia - Reșița (95 kms)+
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+ programme of several trains daily

@ usually one train daily

[] weekends only or two days per week

includes use of mainlines in competition with Călători

Services by other private operators

The 'Regional' company was working in Bihor on the Ciumeghiu - Holod - Vașcău branch in 2008. But trains operate quite separately on the two halves of the branch with very few good connections at Holod (surprisingly in view of the tourist potential). Meanwhile trains to Holod frequently originate beyond the main line junction of Ciumeghiu: while a connection with Arad has not been sustained there are services from Salonta, Oradea (two) and Marghita with the latter providing a link with the company's other service in Bihor County (Săcueni - Sărmășag; linking the Oradea - Satu Mare main line with the cross-country link between Carei and Jibou) (table 7).

There are now much improved connections at Sărmășag with Călători services on the Căței - Jibou route: the 8.03 arrival from Săcueni connects with the 8.11 departure for Carei and Satu Mare as well as the 8.14 departure for Jibou; while the 1330 from Săcueni connects with 13.52 trains to Jibou at 13.52 and 15.18 as well as the 14.57 from Marghita and 15.18 to Jibou.

In the other direction the 7.08 from Sărmășag to Săcueni departs after the 6.49 arrival from Jibou; also the 8.30 to Marghita after the 8.10 arrival from Jibou; while the 14.02 follows the arrivals at 13.44 and 13.51 from Satu Mare and Carei. Also the 15.10 follows the 15.03 arrival from Jibou and the 20.52 leaves after the 20.39 arrival from Jibou while the 22.01 to Șimleu Silvaniei follows the 21.56 arrival from Carei. By contrast in 2008 there were just two Jibou connections each way plus two to Oradea from Săcueni, with only one northward to Tășnad (but nothing in the other direction).

Turning to northeastern Transylvania, the five daily trains on the Ilva Mică - Rodna Veche branch start in two cases from Năsăud and one from Salva. The timings are unchanged (0 h 52) but there is no longer a through coach service (attached to the Bucharest - Sighetul Marmației service) which used to arrive in the evening and depart in the very early morning arrival balanced by an early morning departure. However the 11.00 departure from Rodna Veche gives a connection at Năsăud at 12.49 with the Iași - Cluj - Timișoara accelerat (while the same train, arriving at Ilva Mică at 11.50, links with the Cluj - Iași service). In the other direction the afternoon train from Năsăud links at Ilva Mică with a stopping train from Bistrița to Vatra Dornei while travel to Bistrița is possible through early morning connections at all the stations between Ilva Mică and Năsăud.

Transferoviar have developed a string of interests around the country with a core in Transylvania involving services from Cluj to Bistrița and Târgu Mureș and two others in the Oradea area. The Nehoiășu service comprises eight trains although one service up the branch is

split into a late evening train from Buzău to Pârscov which continued to Nehoiăşu as an early morning service. There were four trains before taking 2 h 36 going up the valley and 2 h 23 going down (.....kph), whereas some journies are now completed virtually within two hours while most others take 10 - 15 minutes longer (33 - 36 kph). The Caransebeş - Bouřari service operates over the remaining western end of the old line through the Poiana Ruscă hills to Subcetate which included a rack section through the Iron Gate Pass.

A programme of 10 trains (serving mainly the steelmaking town of Ořelul Roşu) is a big improvement on the five provided before, with a slight acceleration to an average of 1 h 20 from 1 h 15 (an improvement from...). As with the Nehoiăşu line where a train waits overnight at an intermediate station, the last train from Caransebeş waits overnight in Ořelul Roşu before proceeding to Bouřari. The company is ambitious under its enterprising manager Kinga Mădăraşan with mainline services from Cluj to Oradea and Tărgu Mureş to be extended to Bistriřa - Beclean and Buzău - Ploieşti and even international services such as Budapest - Istanbul and Timişoara - Belgrade. Finally the green-liveried railcars of Servtransinvest operate only on one route: Roşiori Nord - Balaci - Costeşti - Piteşti, with four trains way offering a number of connections at Costeşti with main line Călători trains to both Piatra Olt and Piteşti. Galaţi - Bărlad 109 kms: reduced frequency / slower trains 3 h 25 / 32 kph.

Finally Servtrans started with two daily services between Roşiori Nord and Piteşti but in 2011 they went only to the main line junction at Costeşti to connect with Călători stopping trains on the Piteşti - Slatina - Craiova route (and also one 'accelerat' service).

Table 7. Services by other private operators

<p>REGIONAL (Cluj)</p> <p>Bistriřa - Josenii Bărgăului - Prundul Bărgăului - Bistriřa Bărgăului (29 kms)+</p> <p>#Oradea - Ciumeghiu - Holod - Vaşcău (150 kms)+</p> <p>#Oradea - Săcuieni - Marghita - Şărmăşag (130 kms)+</p> <p>#Salva - Năsăud - Ilva Mică - Rodna Veche (47 kms)+</p> <p>Satu Mare - Bixad (52 kms)+</p>
<p>SERVTRANS</p> <p>#Roşiori Nord - Balaci - Costeşti - Piteşti (64 kms)+_</p>
<p>TRANSFEROVIAR (Cluj)</p> <p>Buzău - Berca - Pătărlagele - Nehoiăşu (73 kms)+</p> <p>Caransebeş - Ořelul Roşu - Zăviou - Bouřari (37 kms)+</p> <p>#Cluj - Dej - Beclean - Bistriřa (119 kms)+</p> <p>#Cluj - Războieni - Luduş - Tărgu Mureş (128 kms)@</p> <p>Galaţi - Tărgu Bujor - Bereşti - Bărlad (109 kms)+</p> <p>#Oradea - Aleşd - Huedin - Cluj (152 kms)+</p> <p>Oradea - Băile Felix - Cordău (14 kms)+</p>

Symbols as in table 6.

RAILWAY PRESERVATION AND TOURISM

Railways offer access to areas of touristical interest and the Carpathan lines especially. Indeed for many years timetables have listed all the mountain chalets and indicated the stations from which a ramble (often involving many kilometers on mountain paths) should begin. The private operator on the Vaşcău line is well aware of the tourism potential. However railways themselves attract visitors and this resource - boosted by retention of steam traction - is slowly being appreciated by a small group of enthusiasts (based in Romania and also abroad) who have been able to obtain the support of the relevant local authorities in order to access the infrastructure and overhaul it.

Although communism was able to preserve old technology through its typically unbalanced approach to modernisation linked with the maximisation of employment in industry people were not encouraged to take a close interest in state property especially with railways in general viewed as strategically important. But industrial archaeology in its various guises is now a developing interest (Hillinger et al. 2003). Many narrow gauge lines did close in the communist period e.g. the Sighet system in 1976 but a significant number of survivors were quickly threatened during transition as low average speeds opened the way for bus competition while locomotives and rolling stock could not be replaced by main line 'cast-offs' (unlike the situation standard gauge secondary routes that benefit from the 'cascading' of second-hand material from the main lines.

The remaining CFR narrow - gauge lines closed as follows: Ghilvaci - Arduș near Satu Mare (18 kms) in 1994; Turda - Abrud (94 kms) and the Târgu Mureș system, involving lines to Sovata (74 kms) and Lechința / Miheșu de Câmpie (124 kms) in 1997; and finally Sibiu - Agnita in 2001. Attempts by SAAF to work special tourist trains resulted in the retention of locomotives and coaches at Sibiu, Târgu Mureș and Turda. But while some workings were reported (e.g. to Band and Sovata in 2001 and from Sibiu to Agnita in 2003) no great momentum was achieved, despite interest from leading politicians (including President Băsescu in his earlier career as transport minister) and local authorities, especially Alba County and the Abrud primar.

Activity in Alba has safeguarded the last few kilometres of the line from Turda i.e. between Câmpeni and Abrud, but the most promising restoration project concerns the Sibiu - Agnita line which started as a Sighisoara - Agnita connection built during 1895 - 1898 and eventually extended to Sibiu in 1910 (total length:110 kms); while plans in 1912 for a branch from Agnita to the Cincu military base and the main line at Voila were stopped by the First World War The northern section was closed in 1965 because of a difficult hill summit section and circulation through the main street in Agnita.

A new station on the south side of the town then supported a local passenger service from Sibiu using new diesel locomotives from Sibiu through the Hârtibaciu Valley as well as transport of timber and sugar beet until the short Vurpăr branch closed in 1997 and the twice - daily Agnita service ceased in 2001 given a lack of funds for locomotive maintenance. Tourist specials did not succeed and by 2006 SAAF were keen to sell - off the line which had become totally overgrown and vandalised by Roma. However cultural interests in Sibiu secured the railway as a historic monument in 2007 and the following year a 25 - year concession was secured from SAAF by 'Sibiu - Agnita Intercommunity Development Consortium': comprising the Hârtibaciu Valley Association.

The Sibiu Department of Culture and the Mihai Eminescu Trust or MET (a UK - based conservation group working among the former German communities in the Sighișoara area. Since then four coaches have been rescued and stored in Agnita (2008) while MET financed restoration of a small railway building at Coveș which had become derelict and vandalised. The old Agnita freight depot to be used as a workshop. Centenary celebrations in 2010 generated further momentum and work continues with the help of a widening network of supporters in Romania (e.g. the Scouting Organisation based locally at Nocrich) and abroad e.g. New Europe Railway Heritage Trust. A diesel locomotive has been salvaged and taken to Crișcior near Brad for overhaul but regular tourist trips on the line have not yet started.

Outside the CFR domain there is substantial narrow gauge legacy arising from industrial and forest railways some of which are still operating e.g. at Lonea in the Petroșani coalfield. Most interesting here is the forest railway system in the Vaser valley of Maramureș (close to the Ukrainian frontier 60 kms above Sighetul Marmăției) where a 45 km line was opened at Vișeu de Sus in 1932 (after German 'Țipterii' from Bucovina had first floated timber down the river in the eighteenth century) with a branch along the Ilhoasa tributary in 1952.

The difficulty of road building ensured the retention of this line and even now - following privatisation of the state logging and wood processing complex in 1999 - World Bank surveys have demonstrated that the railway is the most efficient means of transporting timber. Hence the

wood processing company (RG Holz of Sweden, who absorbed the Vișeu forest logging company in 2003) and local tourist interests (supported internationally - and especially from Switzerland by the 'Hilfe der Wassertalbahn' organisation established in 1999 by Michael Schneeberger - are committed to maintain the railway with a dual function.

After the working engines on the line were gradually reduced from four to one during the 1990s, a substantial fleet of steam and diesel locomotives has been collected together and some have been overhauled: notably a locomotive name 'Cozia' - built at Reghin for forest railway use as recently as 1984 - which emerged from 'Remarul' in Cluj in 2006. In total, five Reșița - built narrow - gauge steam locomotives (part of a large fleet built in the 1950s as a standard class for the nationalised forestry system: CFF) are joined by three smaller locomotives dating to 1910-21 built by Budapest, Krauss and Orenstein & Koppel. Tourist trains started in 2007 although the following year flood damage through a massive unexpected July thunderstorm caused extensive damage and after rescuing 160 passengers stranded overnight there was a hiatus while repairs were carried out during the remainder of the year: difficult work in low temperatures (with the onset of winter) with much consolidation work remaining.

Tourism income remains significant with daily trains in the summer (three days a week in the early / late season) for 22 kms to Paltin which includes typical scenery and the local tunnels. Special trains can also be hired at costs upwards of €500 for stream and €250 for a 'drezina' or railcar. Overnight accommodation for up to 40 persons is offered in a stationary hotel train 'Carpatia - Express': incorporating a vagon - restaurant and a standard - gauge Reșița - built locomotive of 1950s vintage (although there is other accommodaton locally and also at several places in the lower valley.

A second forest railway project is emerging at Covasna (60 kms northeast of Brașov) in a massive forested area extending across the former Hungarian - Romanian frontier: indeed the main logging of Comandău gets its name from the German word 'Grenzkommando' referring to the military surveillance on the margin of the former Habsburg Empire.

Construction of the standard - gauge railway Sfântu Gheorghe - Brețcu in 1891 stimulated the expansion of logging in the area (which dated back to the first sawmill at Gyula in 1875) and a narrow - gauge forest railway system extended from Covasna to Comandău sawmill (requiring an inclined plane) with an extensive network of branches which extended across the old frontier both southwards via the Bâsca valleys to Nehoiu and westwards across the watershed to the Năruja and Zabala valleys of Vrancea (Turnock and Muică, 2003).

In 1989 the system was much reduced but the wood was still collected in the Comandău area from railheads at Gyula and Manicica while sawn timber and firewood was sent down the inclined plane to Covasna. These operations continued at first, although the Gyula branch was lifted in 1991 and the Manicica line was cut back to the Halom / Benedec area in 1995. Meanwhile the incline survived forest fire damage in 1996 until 1999 when the state logging company (Brafor) was declared bankrupt.

Preservationists were frustrated by attempts of the former (pre-communist) landowners to regain their estate but the railway system to Comandău was secured as a national monument in 2006 and Covasna County Council is now giving full support to the preservation movement - Sikló Association, embodying the Hungarian name for the inclined plane - which attracts many foreign enthusiasts. The inclined plane is not yet operating but the line to the foot of the incline has been repaired and local enthusiast specials operate at Comandău on special occasions.

The County Council purchased a diesel locomotive from Târgu Mureș in 2008 from to run a services, especially when the forest is too dry for steam to operate safety and further acquisitions have followed to operate both the lower and upper lines, while a Borsig - built steam locomotive of 1909 (which used to work in the standard - gauge sidings at Covasna until 2000) has been secured for overhaul in order to work special steam trains on the Brețcu branch. There are not yet any resident narrow - gauge steam locomotives but some have been loaned in the past to work special trains at Comandău. Eventually this should become an important tourist resource.

One other forest railway restoration has been attempted at Moldovița in Suceava County where an extensive system with origins in 1900 (but still expanding in the 1980s) served a local sawmill until its economic collapse in 1999. RG Holz took over 2003 with the aim of using the railway for both timber transport and tourism but use of lorries for timber transport by the state company Romsilva damaged the track and RGH pulled out in 2004.

There were sporadic operations in 2006 before a new group from Crișcior (Hunedoara County) took over and there is still a hope of restoring the 42 km network (although matters have not been helped by storm damage in 2010 which cut the CFR Vama - Moldovița branch, with trains maintained until that time by the private Iași - based operator Ferrotrans. At this juncture it is appropriate to mention the leading role played by a young Austrian Georg Hocevar (b. 1974) who came to Romania in 2000 and set about preserving narrow gauge railways: thereby becoming known as 'salvator de mocănițe'.

By taking over Hunedoara County's Brad - Crișcior line in 2000 (formerly used to carry locally - mined brown coal to the small power station) he and his colleagues established 'Calea Ferată Ingustă' (CFI) in 2002 with capacity at Crișcior to manufacture parts needed to restore locomotives and in addition to working the local (from 2005) motive power - including a historic Austrian (Donawitz) locomotive, a L 45 H - type diesel of 1970s vintage and a Volga 'drezina' - has been supplied for special events on other lines including Abrud, Covasna and Moldovița.

CFI may now succeed in rescuing the Moldovița project, but they also have an interest in the industrial town of Hunedoara - noted for the monumental Hunedoara Castle which is a major tourist attraction - through the former industrial railway serving 'Ținutul Pădurenilor'. Started in 1859 and developed up to 1871 to supply the Govăjdie / Retișoara furnace: originally opened in 1806 on the basis of local ore, talc and dolomite from the immediate locality and further afield at Zlaști. The furnace closed in 1889, but when a new, larger furnace opened in Hunedoara in 1900 the old railway was revived as a mineral line (working in the opposite direction) through a new connection from the town spanning a narrow valley with a 747m viaduct (incorporating semihyperbolic girders for central and side spans). The new line (now 13 kms long) in all was used by the metallurgical works until 1998 when the blast furnaces closed (though passenger trains had stopped earlier in 1990) and Tender Grup then used the line for their 'Talc Dolomita' company for just two more years before dismantling the line for scrap. At this point the preservation interest moved in with the support of the local 'primar' Ovidiu Hada.

The intention is to operate tourist trains over a five kilometre section Hunedoara - Zlaști - Cătănași which includes a 747 m tunnel but repairing a bridge could then extend the line a further kilometre to Tulea where further bridge problems obstruct access to the Govăjdie/Retișoara area.

CONCLUSION

There have been major adjustments since 1989, but there is still a good range of services despite the falling number of passengers (arising through the reduction in commuting between rural areas and the towns, as well as rising car ownership and competition from bus services. Some lines have closed while others have seen a fall in the number of trains operated; yet the decline has so far been modest in comparison with other economies in transition and privatisation of local services is well advanced; not to mention a degree of competition on the main lines.

However train speeds are quite low while much use is being made of refurbished motive power and rolling stock; while another major consequence is a high level of state subsidy enhanced by heavy losses sustained by the state - owned railway companies, especially during the recent recession years. There are certainly challenging decisions ahead if Romania is to enjoy a quality rail service, achieving the European standard of main line speeds of 120 - 140 km / h.

REFERENCES

- Bellu R. (2007), *Istoria ilustrată a căilor ferate forestiere din România*, Editura Pro Corona, Braşov;
- Ciocoreanu D., Fedeles M. (2003), *O posibilă legătură peste Munţii Carpaţi*, Jurnal Feroviar (10);
- Floriceş G. (1992), *Introducerea vitezelor mari la Căile Ferate Române*, Revista CFR 79(3), 15-19;
- Hillinger N., Olaru M., Turnock D. (2003), *The role of industrial archaeology in conservation: the Reşiţa area of the Romanian Carpathians*, GeoJournal 55(2-4), 607-30;
- Nae M. M., Turnock D. (2010) *Restructuring Romania's railways: the freight business*, Human Geographies: Journal of Studies & Research in Human Geography 4(2), 5-16;
- Peaha M. (1965), *Contribuţii la studiul posibilităţilor de construire a căii ferate Curtea de Argeş-Râmnicu Vâlcea*, Comunicări de Geografie 3, 287-300, Bucureşti;
- Turnock D. (1978), *Modernisation on Romanian Railways*, Modern Railways 35, 416-9;
- Turnock D. (1991), *Railway passenger services in Romania 1948-1990: a preliminary survey*, Revue Roumaine de Géographie 35, 80-103;
- Turnock D. (2003), *Romania's railways under transition: reorganisation rehabilitation and regional development*, Promet-Traffic-Traffico: Scientific Technical Journal for Traffic Theory & Practice 15(4), 241-69;
- Turnock D., Muică N. (2003), *The railway age in the Carpathian forests: a study of Romania*, Geographica Pannonica 7, 9-20;
- Turnock D. (2004), *Railway network development in inter-war Romania: economic and strategic motives*, Geographica Pannonica 8, 16-24;
- Turnock D. (2005), *Romanian railway development 1950-1989: changing priorities for socialist construction*, Geographica Pannonica 9, 32-43;
- Turnock D. (2006), *Romania's international transport links*, T.Kahl, M.Metzeltin & M-R.Ungureanu eds., Rumänien: Raum und Bevölkerung, Geschichte und Geschichtsbilder, Kultur, Gesellschaft und Politik heute, Wirtschaft Recht und Verfassung, historische Regionen (Vienna: Österreichisches Ost- und Südosteuropa-Institut, Österreichische Osthefte 48) 623-40;
- *** (2010), *Strategia de restructurare a transportului feroviar*, Guvernul României, Ministerul Transportului şi Infrastructurii (MTI), Bucureşti;
- *** (2011), http://www.tourismguide.ro/x/mersul_trenurilor/, Mersul trenurilor de călători.

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