

DR. FERENC HORVÁTH:

Formation and Development of the Hungarian Railway Network up to now

The history of the Hungarian railways goes back more than 150 years and can be divided into two large periods, separated by the time of change in the country's territory.

The first period started in 1846, when the first Hungarian public, steam traction railway, the Pest-Vác line was opened, and until the peace treaty following the Great world war, when Hungary was still a large country and member-state of the Austro-Hungarian Monarchy.

The second period started after the Treaty of Trianon of 1920, after Hungary's territory and railway network became smaller. This period has lasted ever since.

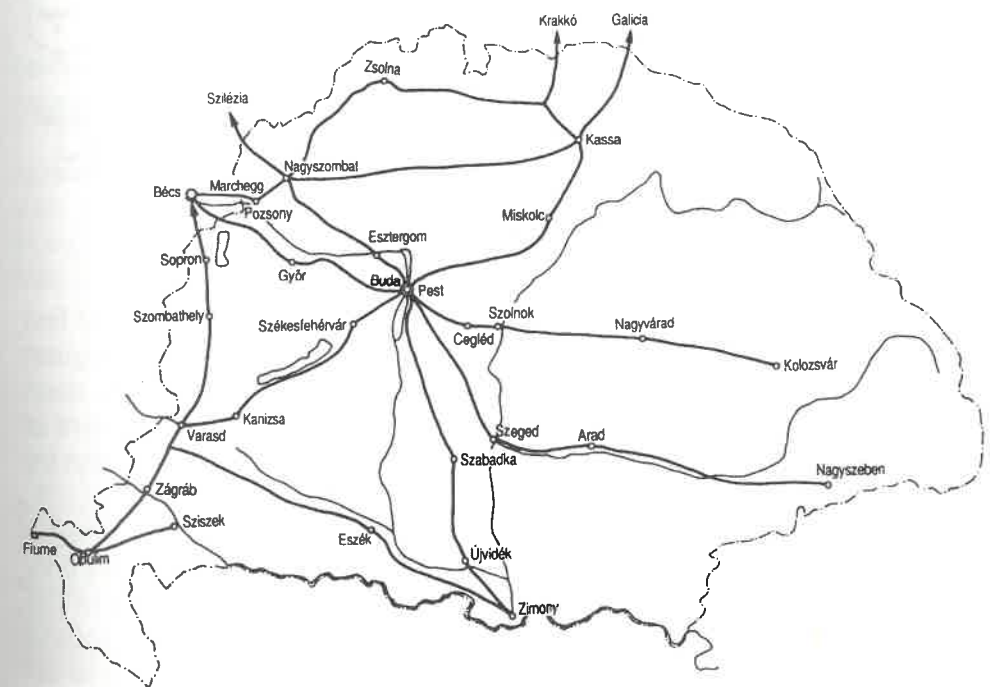


Figure 1. Main transport routes specified by Act XXV. of 1836.

In the middle of the last century Hungary quickly followed the example of developed Western European countries in modernizing transportation. A little more than two decades after the opening of the Stockton-Darlington railway line in 1825, Hungary built and opened to traffic a public, steam traction railway line, and for long decades continued to develop and modernize its railway network.

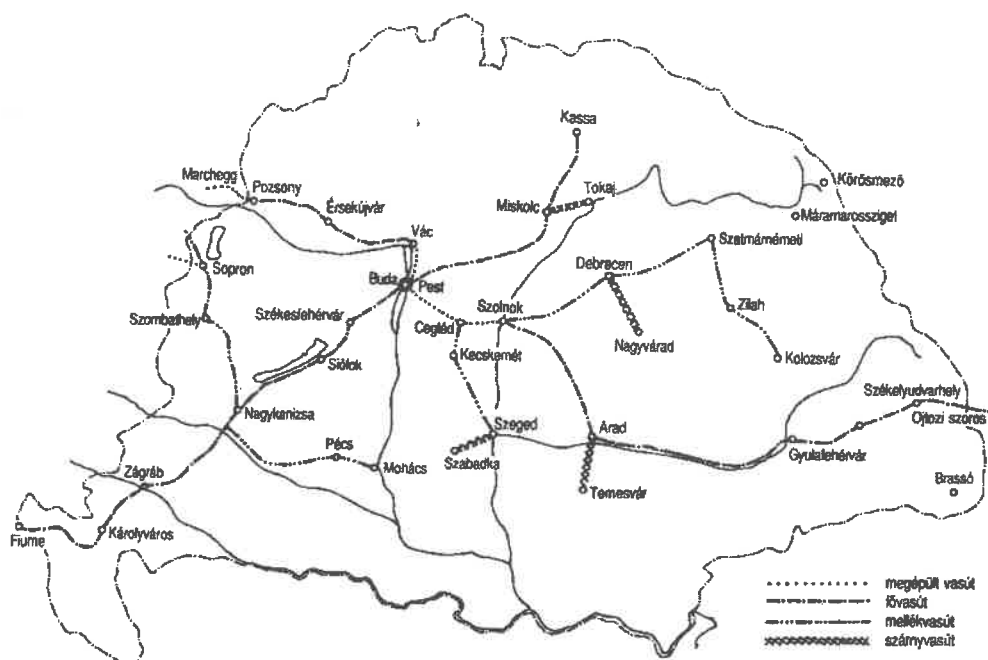


Figure 2. Earl István Széchenyi's plan for the development of public transport

Under the influence of Hungarian politicians and economists, and first of all following the studies, speeches and newspaper articles of the great statesman Earl István Széchenyi, the Hungarian public opinion soon accepted that due to the continental location and territorial endowment of the country, the most economical and effective means of transport can be the railway.

The development of public roads in the mostly flat areas where no stone is available is extremely costly, while water transportation can only be used periodically due to the lack of canals and the fluctuations of the rivers' water level. In addition, removing the obstacles from inland navigation, the control of the rivers and the building of canals is an expensive and long process.

Therefore, it was natural that after building two railway lines for horse-drawn carriages in Hungary, the unsuccessful and only 7 km long Pest-Kőbánya suspended railway line (opened in 1827) and the Szentgyörgy section of the more successful Pozsony /Bratislava/ - Nagyszombat /Trnava/ horse railway (opened in 1840), Hungary decided in favour of steam traction railway after the system had been proven in England, Germany, Belgium and France.



Figure 3. Earl István Széchenyi (1791-1860)

It was also evident that the first railway line would be built between the Hungarian and the Austrian capitals, Pest and Vienna. However, the implementation of the plan was not easy. Dispute arose already regarding the layout of the line, whether it should be built on the left or right bank of the River Danube. It took years for the Hungarian Central Rail Company to raise enough funds and establish a share company.

Hungary lacked the laws, approved rules and decrees on the basis of which a railway line could be planned, approved, built, opened to traffic and maintained. There were neither enough people specialised in railway construction, nor industrial

companies that could manufacture materials, equipment and vehicles for the railways.

Finally, after enduring big difficulties, adapting and applying the Austrian railway regulations, under the partial guidance of foreign engineers, and with rails, turnouts, engines imported from western countries, the first Hungarian railway lines were completed and opened between Pest and Vác in 1846, Pest and Szolnok in 1847, and Pozsony /Bratislava/ and

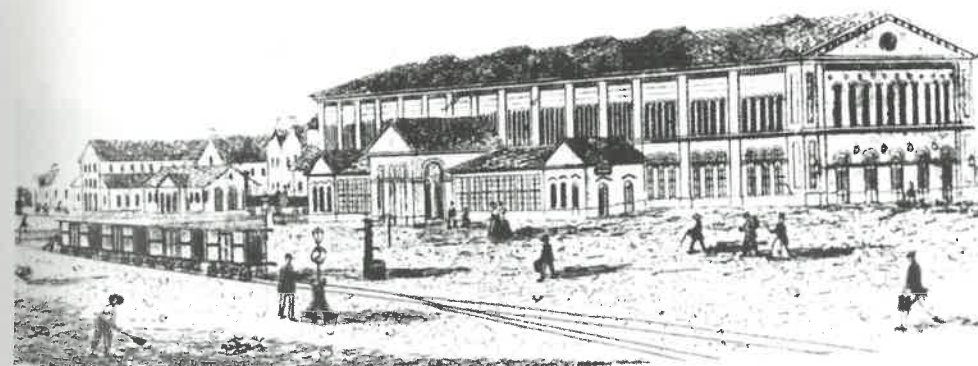


Figure 4. The Pest railway station of the first Hungarian steam traction railway line (steel etching by Frigyes Feszli)



Figure 5. The railway station in Vác (contemporary postcard)



Figure 6. The railway station in Pozsony /Bratislava/ (contemporary postcard)

Marchegg in 1848. This meant the triumphant start of rail transport in Hungary.

The building and later the operation of the railways were hampered by wars several times. As soon as in 1848, the year following the opening of the first lines, the construction of the Pest-Vienna line was halted due to the outburst of the Hungarian war of liberty. The construction was resumed only after the repression of the war in 1850.

However, the construction was no longer guided by the Hungarian Central Rail Company, but from the budget and under the supervision of the Austrian government as a state railway. In the five-year period between 1850 and 1854, the Vác-Pozsony /Bratislava/ and Cegléd-Szeged lines were opened to traffic as the lines of the South-East State Railways of the Austrian State Railways.

However, due to its warfare and other expenses, the Austrian government was no longer able to finance the construction of state railways, therefore, in 1855, it transferred its lines in operation and under construction in Hungary to private rail companies. After that, until 1882, the Hungarian railway network (a total of 6,300 km main lines) was mostly constructed and opened to traffic by private rail companies.

The major and widely known rail companies were as follows:

- Imperial and Royal Patented Austrian State Rail Company (1855-1890),
- Rail Company of the Tisza Region (1856-1879),
- Southern Rail Company (1858-1931),
- Northern Hungarian Rail Company (1866-1868),
- Kassa /Košice/ - Oderberg /Bohumín/ Rail Company (1866-1924),
- First Transylvanian Rail Company (1866-1883),
- Eastern Hungarian Rail Company (1868-1876),
- North-eastern Hungarian Rail Company (1868-1890),
- Great Plain - Fiume /Rijeka/ Rail Company (1868-1884),
- Western Hungarian Rail Company (1869-1888),
- Rail Company of the Valley of the River Vág (1872-1890), and
- Budapest - Pécs Rail Company (1881-1889).

The rail companies contributed to the development of the Hungarian railway network with the construction of the following major lines:

- Szeged - Temesvár /Timișoara/ - Bázias /Baziaș/,
- Temesvár /Timișoara/ - Orsova,
- Jassenova - Anina
- Bruck (Királyhida) - Győr - Újszöny

- Szolnok-Debrecen - Miskolc - Kassa /Košice/
- Püspökladány - Nagyvárad /Oradea/
- Szajol - Arad /Arad/
- Buda - Székesfehérvár - Nagykanizsa
- Zágráb /Zagreb/-Károlyváros /Karlovac/
- Pest - Salgótarján
- Kassa /Košice/ - Zsolna /Žilina/
- Kassa /Košice/ - Máramarossziget /Sighetu Marmatiei/
- Debrecen - Királyháza /Koroleve/
- Nagyvárad /Oradea/ - Szeged - Eszék /Osijek/
- Székesfehérvár - Szombathely
- Győr - Celldömölk,
- Pozsony - Trencsén, and
- Buda - Baranyaszentlőrinc

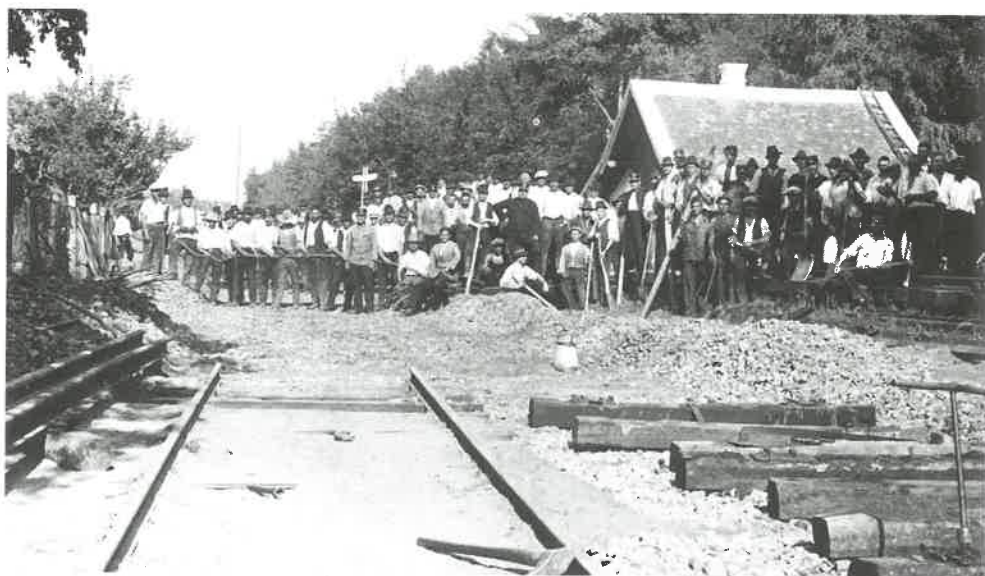


Figure 7. Railway building in years of 1800

and constructed such important railway stations as the Nyugati and the Déli railway stations in the capital, and the big country stations.

Most of the private rail companies were nationalized by 1890. The Hungarian State Railways (MÁV) took over nearly 5000 km long lines of 14 companies. The construction and maintenance of these lines was extremely important for the Hungarian rail transport despite the fact that the majority of the companies had constant financial difficulties and received

significant annual state funds as interest guarantee to make up for their revenues.

Subsidising the mostly loss-making rail companies put a large burden on the Hungarian State budget, therefore the government tried to redeem and nationalize the loss-making railway lines. After the 1867 Compromise with the Austrian monarchy, the first line to be nationalized was the Pest - Salgótarján line of the Northern Hungarian Rail Company, which became the first line of the Hungarian Royal State Railways. Then MÁV gradually developed its railway network year after year, by nationalizing and constructing new lines.

Most of the nationalization projects were carried out in an extremely consistent way by Transport Minister Gábor Baross. During his term nearly 2,500 km long private lines became state property. After the foundation of the state rail company MÁV started extensive construction projects between 1868 and 1918. In accordance with the transport policy of the second half of the last century, MÁV constructed railway lines first of all in areas where – due to low profitability – private investors did not find construction economical or because the construction was very important for national economy, political or strategic reasons.



Figure 8. Gábor Baross (1848-1892)

Therefore, MÁV constructed the Zákány - Zágráb /Zagreb/ and Károlyváros /Karlovac/ - Fiume /Rijeka/ lines to the Adriatic Sea, in the north the Salgótarján-Ruttka /Vrútky/, Hatvan - Miskolc lines, the Pest - Szabotka /Subotica/ - Zimony /Zemun/ line leading to the Balkans, the Brassó /Braşov/ - Predeal /Predeal/, Csíkszereda /Miercurea Ciuc/ - Gyimes /Ghimeş/ lines towards Romania, the southern border railway line between Sziszek /Sisak/ and Jndija on the territory between the Drava and Sava Rivers, the Nagybecskó /Velyky Berezny/ —Körösmező /Yasynya/, Munkács (Mukačevo) - Beszkid, Nagybereszna /Velyky Berezny/ - Uzsok /Užok/ lines going through the North-eastern Carpathian mountains, the Hatvan - Szolnok, Rákos - Újszász lines in the area between the Danube and Tisza Rivers, the Budapest - Kelenföld - Komárom, Börgönd - Alsó-örs - Tapolca lines in Transdanubia, and the székely railway line in Transylvania. Even in the most difficult years of the first world war in 1914-1918, a 68 km section of the Hungarian - Dalmatian railway line designed to reach Spalato /Split/ was opened.

The main railway network was supplemented with secondary, local railway lines of companies with local interests constructed mainly from



Figure 9. The railway station in Zsolna /Žilina/ (contemporary postcard)

private capital without interest guarantee. The more than 180 local rail companies (HÉV) that were established between 1877 and 1916 opened to traffic more than 13,000 km long local railway lines based on Acts XXXI of 1880 and Act IV of 1888, which facilitated the construction of secondary lines.

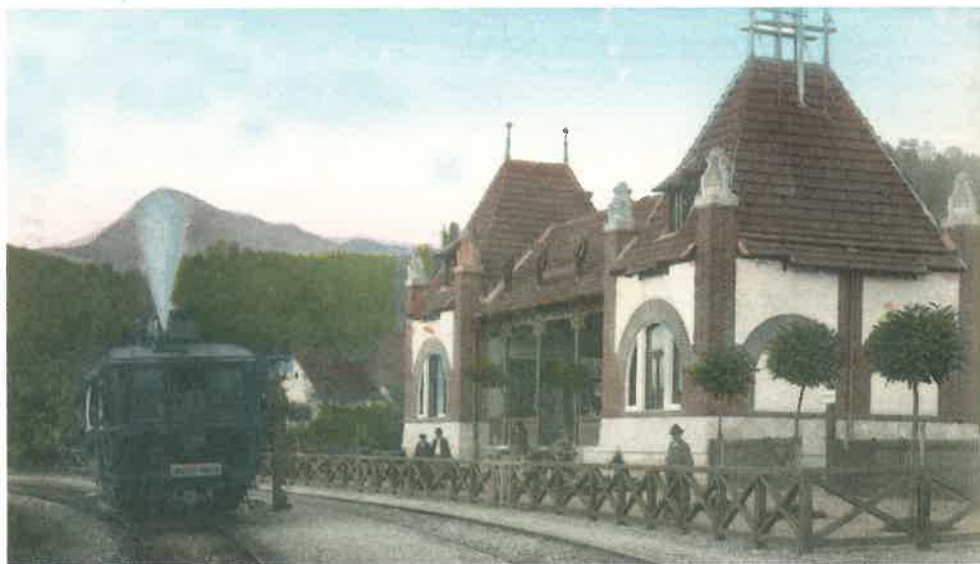


Figure 10. The railway station in Brassó (contemporary postcard)



Figure 11. The railway station in Zsombolya /Jimbolia/ (contemporary postcard)

As much as 82% of these lines were managed and operated by MÁV, therefore they fitted well into the unified domestic railway transportation system.

The local rail companies included significant companies possessing 200-300 km railway lines, such as the Arad - Csanád United Rail Company, the



Figure 12. The railway station in Kolozsvár (contemporary postcard)

Rail Company of the Szamos /Someş/ valley, the local rails (HÉVs) of the Bács - Bodrog county, the Southern Danube Region, Transdanubia, Transylvania-Southern Hungary, the Mátra-Körös-völgy and Torontál. In 1918, at the end of the Great World War, the expansion of the Hungarian railway network considerably exceeded the European average. At that time, there was a 6.9 km

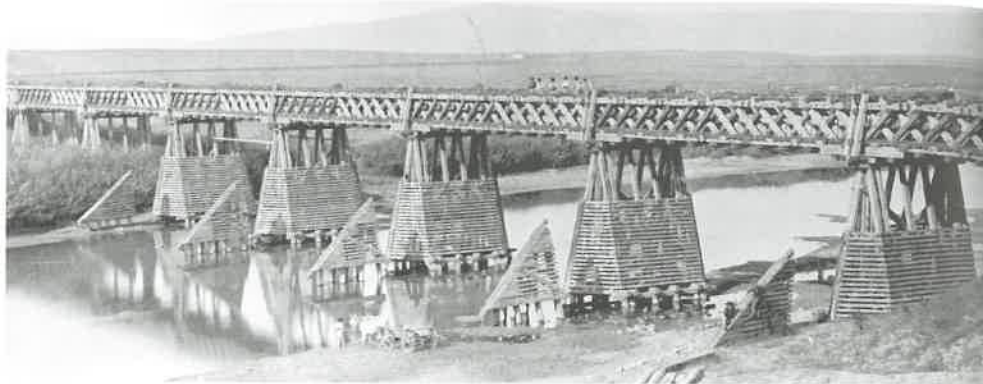


Figure 13. Trestle bridge building about 1890

long railway line for each 100 km² of the country, and 10.6 km for 10,000 inhabitants. The railway lines covered the territory of the entire country, and provided good international connection with the neighbouring countries, as well as the ports of the Adriatic, Black and North Seas. There were five lines leading to Austria, nine leading to Austrian provinces, four leading to Romania, one leading to Serbia, and three leading to Bosnia.

As far as international trade was concerned, the state of Hungary attributed great significance the construction of the Hungarian sections of the railway lines leading to the sea-ports, first of all to Fiume /Rijeka/ on the Adriatic Sea, which then belonged to Hungary, as well as to Hamburg on the North Sea and to the ports on the Black Sea.

However, the railway lines in Hungary were significant not only in terms of length. The territorial endowments of the country, the location of its rivers, the topographical features, as well as the mountains surrounding the Great Plain meant obstacles for the railway builders, the surmounting of which forced the domestic railway engineers to erect brilliant engineering structures.

The railway bridges over the Danube, Tisza, Maros, Dráva, Száva and Vág /Váh/ Rivers, the tunnels and viaducts built in the Carpathian and other mountains, the enormous excavation work involved in the construction of the tracks, the retaining walls, drain systems protecting the earth works, the river-bank regulations (especially when taking into



Figure 14. The viaduct in Biatorbágy about 1960



Figure 15. The railway station in Galánta (contemporary postcard)

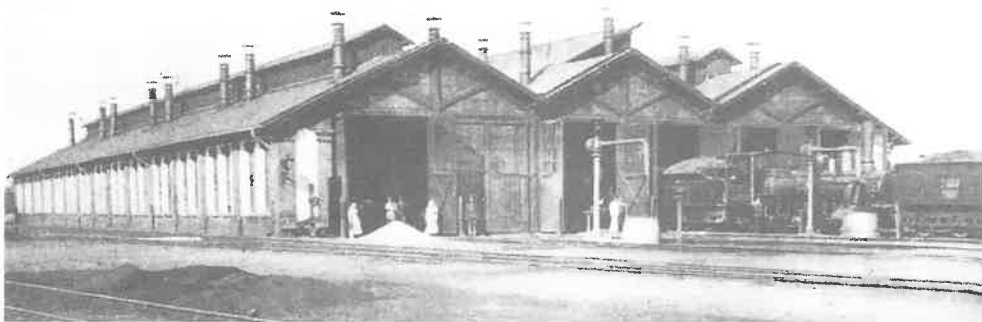


Figure 16. The engineshed in Szolnok (contemporary postcard)

account the primitive technical equipment) required thorough and accurate planning and implementation.

The extensive railway construction required the development of the Hungarian steel and rail-mill industries, the impregnation of sleepers, the manufacturing of bridge structures and reinforced concrete sleeper production already in the early 20th century. Similarly, in accordance with the demand, the manufacturing of steam engines, later electric and diesel engines, railway passenger and freight cars, as well as railway signalling and safety appliances satisfied the European quality requirements. For a long time steam traction dominated at the Hungarian railways, but early around the turn of the century also the production of electric and motor operated traction vehicles started soon. The passenger and freight running was also separated.



Figure 17. Kálmán Kandó (1869-1931)

In the 1890s, the Budapest based Ganz factory produced small locomotives for domestic and foreign mine railways. The electrification of the Italian railways also started with the participation of the Ganz factory, and personally, Kálmán Kandó. In Hungary several secondary railway lines were electrified already at the beginning of 20th century.

The development of the Hungarian railways was interrupted by the outbreak of the Great World War, and then the Treaty of Trianon in 1920, as a consequence of which Hungary lost two thirds of its territories, 63% of its railway lines and the majority of its rolling stock. More than 15,000 km long railways were transferred to the jurisdiction of neighbouring countries, and only 8,000 km railways remained on the territory of Hungary.

To restore the Hungarian railways destroyed and abused as a result of war losses and the worldwide economic crisis, the management of the railways had to put up an enormous fight. Despite the difficult economic conditions, between the two world wars 133 km standard and 280 km narrow gauge lines were constructed, and nearly 3,000 km lines were modernized by installing heavier (48, 42 and 34 kg) rails and sleepers made of reinforced concrete. Stations, marshalling yards were expanded, and the electrification of the Budapest-Hegyeshalom line meant the start of the introduction of state-of-the-art traction methods on the main lines, and motor traction on secondary lines.



Figure 18. Electric railway line Budapest-Hegyeshalom (contemporary aquarelle)

At the same time, world-famous Hungarian products, such as "Árpád" railway motor cars and later the popular "Hargita" motor-coach trains were used on several domestic main lines and even in international transport.

In the period between 1938 and 1941, a total of 4,726 km long railway lines became again the property of the Hungarian State Railways due to the fact that the Upper, Sub-Carpathian, Transylvanian and Southern regions were reannexed to Hungary.



Figure 19. Railways superstructure modernisation about 1930



Figure 20. The central building in Szolnok destroyed in the bombing (contemporary postcard)

In order to have railway connection with Sub-Carpathia and Székely land, new railway lines were constructed between Taracköz /Teresva/ and Aknaszlatina /Solotvyna/ (16.0 km), Déda /Deda/ and Szeretfalva /Sărățel/ (48.0 km), as well as Szászlekenye /Lechința/ and Kolozsnagyida /Viile Tecii/ (16.0 km).

The length of state railway lines also increased due to the fact that between 1925 and 1936, 561 km lines of the Danube-Sava-Adria (former Southern) Railways, as well as 3,572 km lines of 55 local rail companies were nationalized. The total length of the lines operated by MÁV in 1944 was 12743 km and of the domestic railways lines equalled 14,011 km.

The air strikes and land fights of the World War II. almost completely destroyed the Hungarian railway network and the majority of railway appliances. As much as 72% of double track lines, 25% of single-track lines, 47% of on-station tracks, 26% of turnouts, 83% of large bridges and 60% of the buildings were damaged.

The damage Hungarian railways suffered during the war was repaired within three years. After 1948, the expansion and modernization of the network were begun. From 1945 to 1949 all lines, but those belonging to GySEV were nationalized.



Figure 21. Railways superstructure modernisation (rail-welding)

In areas important for the mining and other industries, as well as the agriculture nearly 200 km long standard, 70 km long narrow and 37 km long broad-gauge railway lines were built. Among them the Tiszaug-Lakitelek (22 km), the Mezőfalva-Rétszilás (19 km), and the Galgamácsa-Vácrátót (15 km) lines were the longest. Several shorter lines were built in the industrial areas of Borsod county, Mid-Transdanubia and at the ironworks of Dunaújváros. The length of the second tracks of double-track lines increased by 200 km.

Significant construction was carried out in the area of Záhony in the transshipment zone. New stations, junction lines were built at Eperjeske, Fényeslitke, Komoró, Tuzsér, and Tornyospálca. The railway stations in the capital (Keleti, Nyugati, Déli, Kelenföld, Kíspeszt, Ferencváros), as well as the railway stations of larger cities (Miskolc, Szolnok, Debrecen, Székesfehérvár, Nagykanizsa) were expanded and modernized.

In the period between 1945 and 1998, nearly 12,000 km superstructures were modernised with 48, 54 and 60 kg rails, state-of-the-art turnouts and

fasteners, prestressed reinforced concrete sleepers and welded tracks. Track supervising is carried out by modern track inspection craker and ultrasonic rail inspection cars now. The ballast screener, plough and compacting machines, the track and turnout levelling machines, the resleeper machines, modern shipping and loading vehicles, welding machines and equipment are wide-spread in line construction and maintenance too.

The Hungarian railway network is not only characterized by enrichment, but also by reduction. In order to implement the transport concept of the 1960s and 1970s, more than 700 km long standard and nearly 1,200 km long narrow gauge railway lines carrying little traffic (a total of 1,900 km) were shut down, the tracks were removed, and loading was terminated at around 30% of the stations.

Due to the changes in the transport conditions and the economic situation, since 1985 traffic has been continuously declining on the Hungarian railways. Therefore, MÁV performed several inspections regarding traffic. In order to boost traffic on secondary lines, 20 regional railway centres were established so that the local governments and factories concerned would undertake a larger role in the maintenance of the railway lines.

At the same time, the Ministry of Transport developed a program to modernize the Hungarian railway sections of the traffic corridors specified at the Pan-European Conferences (corridors No. 4, 5 and 10). For the implementation of this program the reconstruction of the Budapest - Hegyeshalom line has been completed, and the modernization of the Budapest - Záhony, Budapest - Mura-keresztúr, Budapest - Szob, Cegléd-Kiskunfélegyháza - Kiskunhalas - Kelebia lines has started.

The construction of the Zalaötvő-Bajánsenye-Hódos /Hodoš/ line, which started in 1998 and provides direct railway connection between Hungary and Slovenia, is intended to improve international railway connection. The long-term railway development plan includes the direct connection of the Budapest - Hegyeshalom line (bypassing Budapest) with the lines running in the area between the Danube and the Tisza Rivers by the construction of the Szár - Baracska - Ercsi - Csepel-sziget - Kiskunlacháza -Dabas - Cegléd line.

The history of the Hungarian railways saw more successful and less prosperous decades. The latter belongs to the most difficult periods of MÁV. We hope that in the new, forming European transport system the Hungarian railway network will occupy a place it deserves, and will be able to develop its tracks, vehicles and appliances accordingly.

DR. MIHÁLY KUBINSZKY:

The Architecture of the Hungarian Railways, Initial Constructions, Trends towards Standardization, and Individually Designed Buildings

When the Hungarian Central Rail Company opened its first line between Budapest and Vác in 1846, the structure called "indóház" (railway station) in Pest designed by Austrian engineer *Paul Eduard Sprenger* from Vienna had not been completed yet. Among the contemporary European facilities this was the most consistently designed railway building. The dimensions of the hall, in which there was room for five tracks, had been planned with regard to the traffic. The five tracks are shown on the city side facade by five archways. The hall is covered with a simple, Polonceau gable roof. On both sides of the block of the hall there are one-storeyed buildings (i.e. smaller than the hall). Correctly recognizing the functionality of the station, the buildings on one side provide services for departing, and for arriving passengers, respectively. These side buildings differ in size, in accordance with their functions, however this asymmetry does not impair the view of the building. Later the building was expanded, and then pulled down in the early 1870s, when after the Nagykörút and the current Nyugati station were built.

Obviously, Mr. Sprenger also contributed to the construction of other buildings of the Vác and Szolnok lines. Special emphasis must be made on the still existing building in Vác on which only smaller changes were made, as well as the restored former terminal in Szolnok (which is now a monument), and the pronounced middle stations, most of which were built with hip roofs (Párkány), and where one-storeyed side wings were attached to the central two-storeyed building with hip roof (Monor, Vecsés, Abony).

The buildings on the second railway line of Hungary between Sopron and Bécsújhely /Wiener Neustadt/ (1847) were also designed by an Austrian engineer, Mathias Schönerer, who was famous for his involvement in railway constructions. It was his merit that he supported construction based on consistent, standard plans on the railways: his two-storeyed central buildings had three, five and seven window axes, the remains of

which can still be seen the newly deserted southern station in Sopron, and on the station buildings of currently Austrian settlements of Nagymarton /Mattersburg/, Savanyúkút /Sauerbrunn/ and Lajtaszentmiklós /Neudörf/. He built standard line watch-boxes, two of which still exist between Sopron and Ágfalva.

The buildings on the Cegléd-Szeged line were constructed under the jurisdiction of the Austrian state railways in the 1850s, the first decade following the suppression of the Hungarian war of liberty of 1848-49. The construction of these buildings was continued in the spirit of the architectural solutions of the Hungarian Central Railways. In addition, the Mohács-Pécs Rail Company erected exceptionally functional buildings along the transportation route of the coal mines in the Mecsek hills to a Danube port, where the buildings were mainly designed for functions related to the transportation of goods and only to a lesser extent for passenger services. This explains why we can see the remains of a water reservoir between the rails and the personnel's living quarters (Áta).

When the Austrian state got into financial difficulties and leased the railway lines in its possession in concession to private rail companies, and at the same time authorised the construction of new private railway lines, then at the end of the 1850s and at the beginning of the following decade three larger private rail companies laid down the foundation of the Hungarian railway network. They erected railway buildings which embodied all the results of the European railway architecture, and made a deep impact on further railway buildings. The influence on MÁV architects was especially great. These three rail companies were the Austrian State Rail

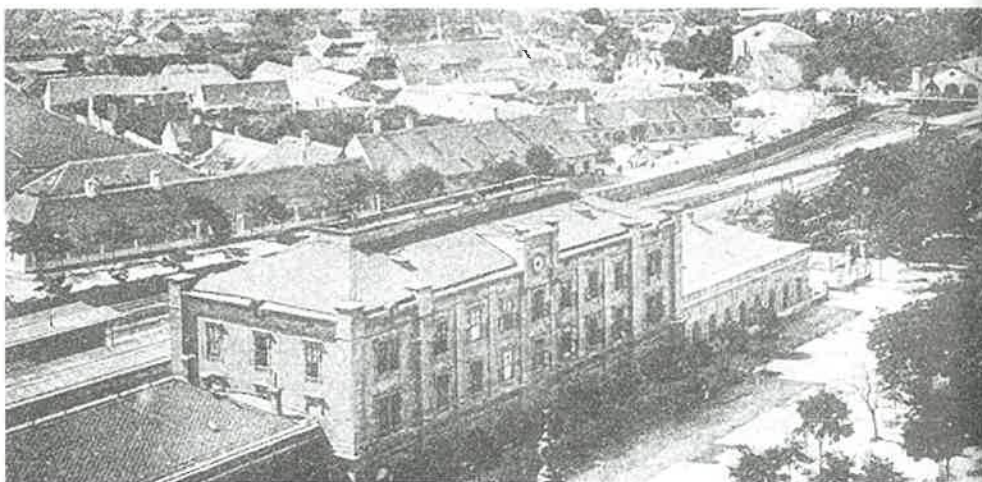


Figure 1. The railway station in Győr (contemporary postcard)

Company owned by the French Credit Mobilier and operating with the majority shares of the Pereire bankers; the Southern Rail Company, which belonged to the Rothschild bank consortium, and the Tisza Region Rail Company financed by domestic landowners and Wiener banks.

The name of the State Rail Company (ÁVT) intended to refer to the fact that it took over the lines of the Austrian State Railways. They immediately constructed the railway line on the right bank of the Danube from Bruck on the Leitha River via Győr to Komárom. On this line the central buildings of the stations were built in different styles (Moson /Mošon/, Lébény /Leiden/). Buildings were erected in the same style only on the last section (Győrszentiván, Nagyszentjános and Ács).

It must be noted that the significant, three-storeyed station building block in Győr was one of the most urban railway station buildings of this initial phase of railway construction. The two-storeyed watch-boxes with three window axes were also built on the basis of standardized designs. Unfortunately, one of the old operational buildings, the beautiful old warehouse, which deserves a better life and careful monument maintenance, still stands distorted in the heart of the city of Győr.

The architectural importance of ÁVT grew when the post of the construction director was taken by Jules Maniel, who knew the French construction practices. He implemented the determinate standard designing practice in Hungary, when he designed the most beautiful buildings on the Szeged-Temesvár /Timișoara/-Báziás /Bazia/ railway line with the first class arrangement of spaces and composition-like appearance (1856-58).



Figure 2. The railway station in Debrecen in the 1880s (contemporary postcard)

One of these buildings, the railway station at Nagykikinda /Kikinda/ is still used by the Yugoslav railways. The enormous building of the Temesvár /Timișoara/ railway station was the gem of this line, but was pulled down at the turn of the century for the purpose of extension. By the ingenious extension of the roof plane, a large iron structure hall was attached to the building, which covered two platforms and protected the passengers of a side platform from the elements. After the construction of the station hall in Pest, in addition to the wood framed halls of the Nagyszombat /Trnava/ horse-drawn rail carriage station, this was the second large station hall in Hungary. Unfortunately, it did not survive, and one hundred years after its destruction nobody remembers it.

Under Maniel's management, ÁVT buildings were moderately decorated architecturally, which, according to the arcature and a few arched coupled windows, the so called Romantic style still used in Central Europe reminded us of the mentality of mediaeval architecture.

The lines of the Tisza Region Rail Company (TVV) covered the eastern part of the Great Plain from Szolnok to Arad /Arad/ and Nagyvárad /Oradea/, and via Debrecen-Tokaj-Miskolc to Kassa /Košice/. TVV was the only rail company to erect similarly marked buildings with vivid decoration. Their central and operational buildings, as well as separate, pronounced, wood structure halls were all made in Romantic style.

The central buildings in Arad /Arad/, Várad, Debrecen, Miskolc and Kassa /Košice/ were considerably articulated, real urban buildings. The buildings



Figure 3. The railway station in Püspökladány (contemporary postcard)



Figure 4. The central building of the railway station at Forró-Encs

constructed during the short four-year period from 1857 to 1860 introduced many new compositions. A great influence was exercised on later construction projects by the so called triple mass articulation, where the central, prevailing ticket hall was connected to the two-storeyed pavilions at the sides of the composition with one-storeyed side wings. The urban style buildings were also significant, one of which at the important railway junction at Püspökladány has survived to the present day. However, the building in Szolnok disappeared due to reconstruction, and the one in Nyíregyháza was destroyed in the bombings during the World War II.

TVV used further three standard designs for middle stations. The buildings at Forró-Encs and Karcag have been thoroughly restored. In terms of layout, the TVV buildings are characterised by the following: centrally located booking hall connected to the traffic, telegraph and station master offices on one side, and to the waiting rooms on the other.

By now the practice had been established according to which in two-storeyed buildings the upper floor was occupied by the flats of railway employees, especially by the station master's flat that consisted of several rooms.

The first Transylvanian Rail Company constructed buildings similar in appearance to the Romantic TVV buildings, and also according to standard category designs in the Maros valley and along the industrial railway leading to the coal mines in the Zsil /Jiu/ valley. Today some of the buildings, like the beautiful station of Gyulafehérvár /Alba Iulia/ (1868) are regarded monuments and protected by the Romanian Railways.



Figure 5. The railway station in Nagykanizsa (contemporary postcard)

The Southern Rail Company, whose lines started in Buda and led along Lake Balaton to Pragersko, the connecting point of the proper Austrian railway network, and also covered Transdanubia, constructed its buildings in a totally different style. Namely, it gave preference to one-storeyed structures, even if it meant the occupation of a larger area. The exterior of the buildings was unplastered brick without any ornamentation. However, due to their appealing composition, they were very attractive.

The layout principle was very significant, according to which the passenger entering the station from the street faced the ticket and baggage checking booths. Then he could not directly make his way to the platforms, as was the case at most of the previously shown stations, but he had to take a corridor orientated to the street, and find the waiting room appropriate for the type of ticket he had bought (first and second class waiting rooms



Figure 6. The railway station at Vízvár (contemporary postcard)



Figure 7. The railway station at Barcs (contemporary postcard)

were separated only in larger, urban buildings) and he could step on the platform upon being called by the door-man.

If a station had a restaurant, it could also be accessed from the corridor. Due to this arrangement of the waiting rooms, the corridor leading to these rooms also meant that the significance of the waiting rooms grew, they needed quality furniture. Wood enwall-covering and nice furniture were introduced as a consequence.

The Southern Rail Company also erected wooden halls (Nagykanizsa, Sziszek /Sisak/, etc.), none of which has survived. The Buda terminal was also built with austerity, where the tracks going through the hall separated the departure side looking onto the Castle, and the arrival side, looking



Figure 8. The railway station in Székesfehérvár (contemporary postcard)



Figure 9. The railway station in Székesfehérvár (contemporary postcard)

onto the Svábhegy. This layout without a connecting platform was rather obsolete already in 1860.

The middle stations of the Southern Rail Company were characterised by an unusual layout, according to which the goods warehouse was located on the further side of the tracks. By this the course of passenger and load carrying carriages was separated. This involved higher construction costs, difficulties in expanding the station, but resulted in cleaner functions and the view of a real railway station.

Although several of the buildings owned by the Southern Rail Company have survived, the raw brick surface could not withstand the force of the elements for 130 years, therefore only the Vízvár and Barcs station buildings stand in their original form. However, there are several buildings that have undergone facade modification (Lövő, Bük, Acsád, etc.).

Of the original buildings of the Southern Rail Company, the buildings in Nagykanizsa and Székesfehérvár are the most prominent, which have the triple mass articulation mentioned in the case of TVV. The building in Nagykanizsa has survived with major reconstructions, but the building in Székesfehérvár has been destroyed.

In contrast with ÁVT and TVV, which were nationalized at the end of the last century, the Southern Rail Company was transferred to MÁV only in 1930. Therefore, its construction activity was significant during the large economic boom at the end of the last century, when major buildings proper



Figure 10. The railway station in Szombathely (contemporary postcard)

for the cities were built according to the designs of the then chief architect Gusztáv Posel at the railway stations of Szombathely (1901) and Sopron (1902), reflecting the rank of the given towns. Around this time new standard buildings were erected as well, some of which still exist (Sávoly, Felsőrajk).

After the Compromise in 1867, the Hungarian Royal State Railways (MÁV) was established in 1868 to create one of the biggest and excellently managed state railway in Europe partially by adding new lines to the existing



Figure 11. The station building in Tata (Renovated in 1996)

ones in the coming decades, and partially by the nationalization of private railways. This quality management had a long-lasting imprint not only on the lines and vehicles, but also on the buildings.

In the first place, MÁV took over the railway line under construction of the bankrupt Northern Rail Company. The architectural gem of this line is the nice complex, monument-like, but now somewhat neglected building of the Budapest Józsefváros railway station. Once this station was called Losonci station. The buildings on the Hatvan-Salgótarján-Ruttka /Vrútky/ line still come from this initial period. From among the middle stations, it is worth mentioning the nicely restored railway station of Pásztó, and the somewhat modified station at Turócszentmárton /Martin/, which is now the property of the Slovak railways.

Already in 1870, a few years after its establishment, MÁV constructed its buildings on the basis of standard designs placed into five categories. The buildings were simple, two-storeyed compositions covered with double pitched roofs. The elongated blocks usually gave room for several flats, which is a significant step in terms of social policy. Afterwards, MÁV often modified and developed its standard buildings. New designs showing smaller or bigger differences were elaborated primarily for new lines.

Thus, the 1881 design series was used during the construction of the Szabadka /Subotica/ -Újvidék /Novi Sad/ -Zimony /Zemun/ line. In 1884, on the line leading from Újbuda (today: Budapest-Kelenföld) to Komárom, the central buildings of the stations were built on the basis of a design



Figure 12. The railway station in Nagyvárad (contemporary postcard)



Figure 13. Nyugati station — Budapest (contemporary postcard)

series consisting of three building types. The same designs were used to increase the building stock on the Bruck-Királyhida /Bruckneudorf/ line.

A first category example of this series is the nicely restored, monument railway station building in Tata. Second and third category buildings can still be found at several stations (Győrszentivány, Öttevény).

Probably it was due to the austere construction manner of MÁV, as well as the forced austerity measures of the large railway construction projects of the era, that in the 1870s most of the stations built by major rail companies on key railway lines were rather simple, and most of them used the elongated, two-storeyed blocks with double pitched roofs, also used by MÁV. This is illustrated by the activities of the Hungarian Eastern Railway (with the main line running from Brassó /Braşov/ to Nagyvárad /Oradea/), the Hungarian Northeast Rail Company (with its lines running from the Eastern rim of the Great Plain to Sub-Carpathia), the Hungarian Western Rail Company (with its line from Székesfehérvár and Győr via Szombathely to Graz), the Pécs Rail Company, the Kassa /Košice/ — Oderberg /Bohumín/ Rail Company covering Upper Hungary, and several other rail companies. Of the surviving buildings, the one in Sárvár (1871) prominently preserves the mentality of that era.

We must dedicate a separate section to the two large passenger terminals of Budapest, the new capital, which was born in 1873 with the unification of Pest, Buda and Óbuda.



Figure 14. Keleti station — Budapest (contemporary postcard)

By the construction of the current Nyugati station in Budapest between 1874 and 1877, ÁVT erected one of its most characteristic buildings which was also a leading station among European urban railway stations, approximately on the site of the former Pest station. The preliminary design worked out by construction director Ágoston De Serres was transformed into the final design by the Paris based Eiffel Office.

In the building the historically composed departure and arrival sides that reflect French elegance intercept the large hall with glass facade, which fits into the view of the large boulevard of the new capital. A decade later (1884) MÁV constructed its central railway station, the current Keleti station, a bit farther from this boulevard. The station had an iron-structured hall with a span of 40 m. The facade, resembling a triumphal arch, was placed in the axis of Rákóczi road, and the side buildings were built in the neo-renaissance style. Thus, Budapest was connected to the European rail transport with two large passenger terminals, worthy to the capital.

Most of the many local railways – having significant lengths of lines – that were built from 1881 to the World War used standard designs for central and operational buildings alike.

The number of local railways taken over by MÁV was also considerable, and in the course of the authorisation process they were compelled to use the standard designs prescribed by the main authorities. As a result, these buildings flooded the entire territory of the country, from the Carpathian mountains to Slavonia, from West Transdanubia to Transylvania along



Figure 15. The Nagyharsány railway station

secondary lines that entangled so many regions. These buildings could be grouped in four categories according to size, and as a bigger house, they could move a category up by heightening, or addition.

The comprehensive role of the characteristic standard designs soon became well known for everybody. Buildings that belonged to Category 1



Figure 16. Battonya (contemporary postcard)



Figure 17. The railway station in Győr (contemporary postcard)

had two side wings and two storeys. The traffic offices and waiting rooms were downstairs, while there were flats upstairs.

Category 2 buildings had only one side wing, category 3 three buildings had three window axes, they were simple two-storeyed buildings, the ridge of the double-pitched roofs of which was perpendicular to the tracks. Category 4 buildings had the same plan, but had only one floor, which accommodated an office, a watch-box and a waiting room. This small



Figure 18. The railway station in Debrecen in 1906 (contemporary postcard)



Figure 19. Tiszai railway station — Miskolc (contemporary postcard)

category 4 building had rarely any distinction from the large number of watch-boxes that were placed along the main lines.

All buildings built on the basis of these standard designs along the Aszód-Balassagyarmat line, as well as the railway station at Nagyharsány in Transdanubia have been refurbished. These standard designs were changed only in 1912. (The central part was modified to have four window axes.) There were also one-storeyed buildings on local railways that had double pitched roofs and whose ridges ran parallel with the tracks. Some individually managed local rail companies constructed their buildings with extraordinary architectural taste, among which the Arad /Arad/ -Csanád railway must be mentioned in the first place, on which a whole range of beautiful buildings has survived to the present day.

In 1890, MÁV constructed a central station building in Hellenistic style near the port of Fiume /Rijeka/. This meant the beginning of a major program that was implemented in two decades, and in the course of which all bigger cities and major railway junctions received appropriate railway stations, which occupied the same position as an urban public building. The structural department of MÁV was then headed by Gyula Perner. The chief architect was Ferenc Pfaff. From among the buildings erected in this period the most prominent is the new central building of the Zagreb railway station, built in 1892, which was also the biggest MÁV railway station in the countryside. This was followed by the station in Füzesabony.

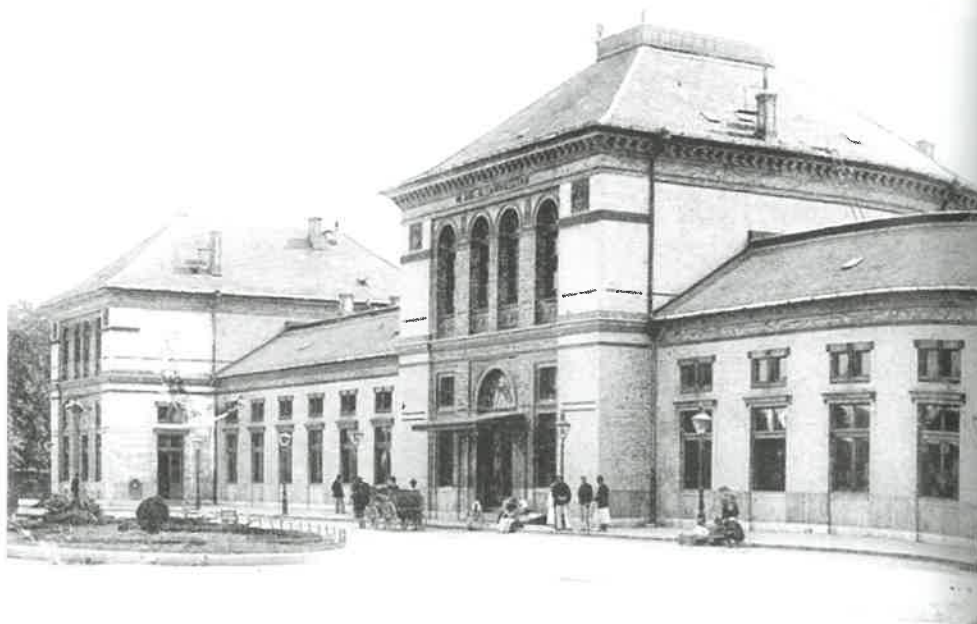


Figure 20. The railway station in Kaposvár (contemporary postcard)

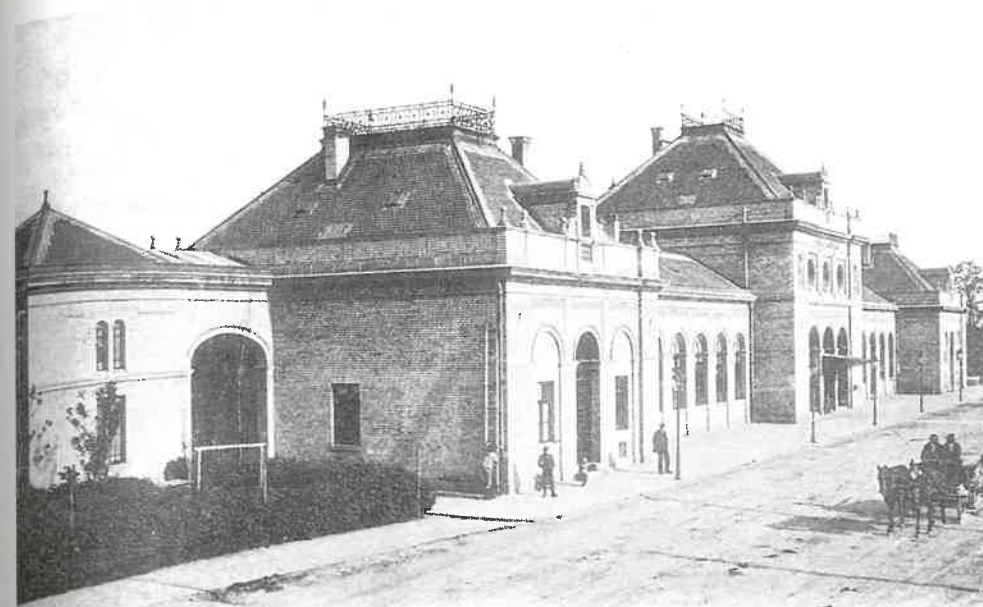


Figure 21. The central building of the Miskolc-Gömöri railway station (contemporary postcard)

The railway stations in Győr and Nyíregyháza were made more urban-like via expansions. Győr was the first place where island platforms, accessible via subways were built. The platforms were covered with steel-framed roofs.

The railway station buildings in Pozsony /Bratislava/, Szeged, Debrecen, Kassa /Košice/, Kolozsvár /Cluj-Napoca/ and Miskolc were expanded by reconstruction.

In 1898 a new building was erected at the railway station of Pécs, and later in Temesvár /Timișoara/ and Arad /Arad/.

In 1899 the buildings at the railway stations of Kaposvár, Versec /Vršac/ and Szatmárnémeti /Satu Mare/ were built on the basis of identical designs. The building at Kaposvár still exists. In 1901 the new building in Cegléd was built with a raw brick covered facade. In the first decade of the 20th century, the new railway stations at Csap /Čop/, Piski /Simeria/, Bátaszék, Szolnok and Körmend were built under the influence of the Hungarian style introduced by Ödön Lechner. The new buildings of Nagyszeben /Sibiu/, Brassó /Brașov/ and Kisújszállás show the characteristic features of the Renaissance. The railway stations at Károlyváros /Karlovac/ and Nagykároly /Carei/ have a more economical, yet urban character. Apart from these buildings, the group of architects working under Ferenc Pfaff also designed a whole range of operational buildings to satisfy the developing technological demands. The creative group of architects,



Figure 22. The central building of the Békéscsaba railway station (contemporary postcard)

Ferenc Pfaff and his close colleagues became widely known. A memorial tablet in memory of Ferenc Pfaff was placed on the facade of one of their most beautiful creations, the Gömöri station in Miskolc.

From among private rail companies, the Kassa /Košice/ - Oderberg /Bohumín/ Rail Company erected a railway station proper to its rank function in Késmárk /Kežmarok/ at the turn of the century.



Figure 23. The new central building of the Debrecen railway station

After the Treaty of Trianon in 1920, the country's railway lines shrunk, but despite the economic difficulties soon three major buildings were erected in historical style: in Békéscsaba by MÁV (Béla Goszieth MÁV architect, 1928); at the railway stations of Zalaegerszeg (architect Fábrián Wannenmacher, 1926) and Szentes (1928) from the support of local railways.

In 1930, significant construction projects were carried out by the former Southern Railway – which was then already called the Danube-Sava-Adria Rail Company (DSA) – according to the designs of architect Ákos Ney. He reconstructed and for the first time added reinforced-concrete framed, the so called “butterfly roof” covered island platforms to the station in Székesfehérvár (1927). He renewed a whole range of old stations around Lake Balaton in neo-Baroque style, appropriate for the places visited by more and more tourists (Balatonszemes, 1927, etc.) The railway station at Kiscsérpuszta was built in a style reflecting Hungarian rural architecture, while the station at Alsóbélatelep looks like an Italian villa (1927).

In the inter-war period the most outstanding creation of MÁV was the new central building of the railway station in Kiskunfélegyháza (Nándor Heimann, MÁV architect, 1933). In this period, MÁV also carried out some major railway station reconstruction projects (Kecskemét, Szekszárd, 1940). The new buildings on the Déda /Deda/ -Szeretfalva /Sárápel/ line were built according to the designs of MÁV architect Jenő Fodor (1942). The primary reconstruction task after the World War was the restoration and replacement of ruined buildings. Until 1949 this meant the continuation of the construction of buildings with austere forms and strict functionality (functionalism) generally accepted in the inter-war period: the exemplary buildings of the Children's Railway (architect Jenő Fodor, 1948), Nyíregyháza (Jenő Gillyén and István Zahradniczky, 1949-1951), and several other smaller buildings (Galgamácsa “type”, Kóny, Balatonszabadi-sóstó, etc.)

Then, for several years, buildings had to be designed in an archaistic, so-called socialist-realistic style upon the instructions of the communist party. Of the buildings designed in this style the more outstanding ones are the stations of Székesfehérvár, Győr, Dunaújváros and Hatvan, and the construction of the railway station of Debrecen was also commenced in this style.

The three decades between 1960 and 1990 are one of the most productive architectural periods of the Hungarian railways. A significant contributor was MÁVTI, the specialised design institute of MÁV. With many talented architects of this institute MÁV undertook an enormous task and successfully reconstructed many obsolete, old railway stations. An outstanding example of this work is the railway station of Szolnok designed by Vilmos Schneller (1975), and the reconstructed Déli station in Budapest by György Kővári (1960-1970), and the reconstructed suburban station at Kőbánya-Kispest (1980). This project was also carried out on the basis of Kővári's designs. In these three decades all stations of entire lines were modernized, e.g. on the Debrecen-Nyíregyháza-Záhony line, in the Balaton region, etc. New, modern border stations were built (Rajka, Hidasnémeti, Murakeresztúr). With the buildings of Imre Stefler, an almost new railway architectural style evolved around the 1980s (Fonyód, Siklós).

The recognition the eternal value of railway buildings opened up the possibility for MÁV to introduce – almost in the first place among European railways – internal regulations to protect significant urban buildings and the building stocks of entire lines as monuments. The big start was the reconstruction of Nyugati station (from 1976), which was followed by the professional renovation of many outstanding buildings.

It is a special merit of railway architects that in the past 150 years they have not only provided the passengers and railway operators with functional buildings, but with their distinctive buildings they have developed an image characterising the entire country.

ZSUZSANNA KISS:

Works of Fine and Applied Arts on the Railways

Since the very beginning, all rail companies made efforts not only to build novel, state-of-the-art facilities, but also ones that enthrall passengers aesthetically. In addition to making railway cars and passenger buildings more comfortable, works of fine and applied arts appeared everywhere.

The installation and placement of these works were supported not only by the railway management, but also by the artists themselves, who considered that there would be plenty of art lovers among the rail passengers, and that the railways were big clients of their hopes.

There were also a significant number of works of "anonymous artists", simple, but outstanding representatives of their own profession, who had high level working culture and produced high quality products. They did not intend to produce works of art, although they did such a high quality job that with time, and especially due to the low-level mass production of the second half of the 20th century, they have become irreplaceable values.

For a long time these pieces were not even recorded as pieces of artisanship. Especially in the 1950s and 1960s many of these works of art were destroyed and fell victim to the misinterpreted modernization movement. Fortunately, today the existing, invaluable pieces are protected and valued everywhere.

Arts play several roles on the railways. Firstly, when to the order of the railways, they intend to improve and make more attractive the general aspect, appearance of the railways. Secondly, they are important in the system of relations, since some works of art represent the respect for the railways or the work of railway employees, speed and technology. And finally, it is very important when the railway appear as a patron, which, irrespective of the subjects of the works of art, supports artistic creativity and universal culture. This patronage is of course not an end in itself; indirectly it influences the way the railway is seen, the "spiritual image" of the railway.