

The new high-speed railway from Tel-Aviv to Jerusalem has been a colossal feat of engineering and construction, involving a great network of tunnels and bridges through very challenging terrain and ancient communities.



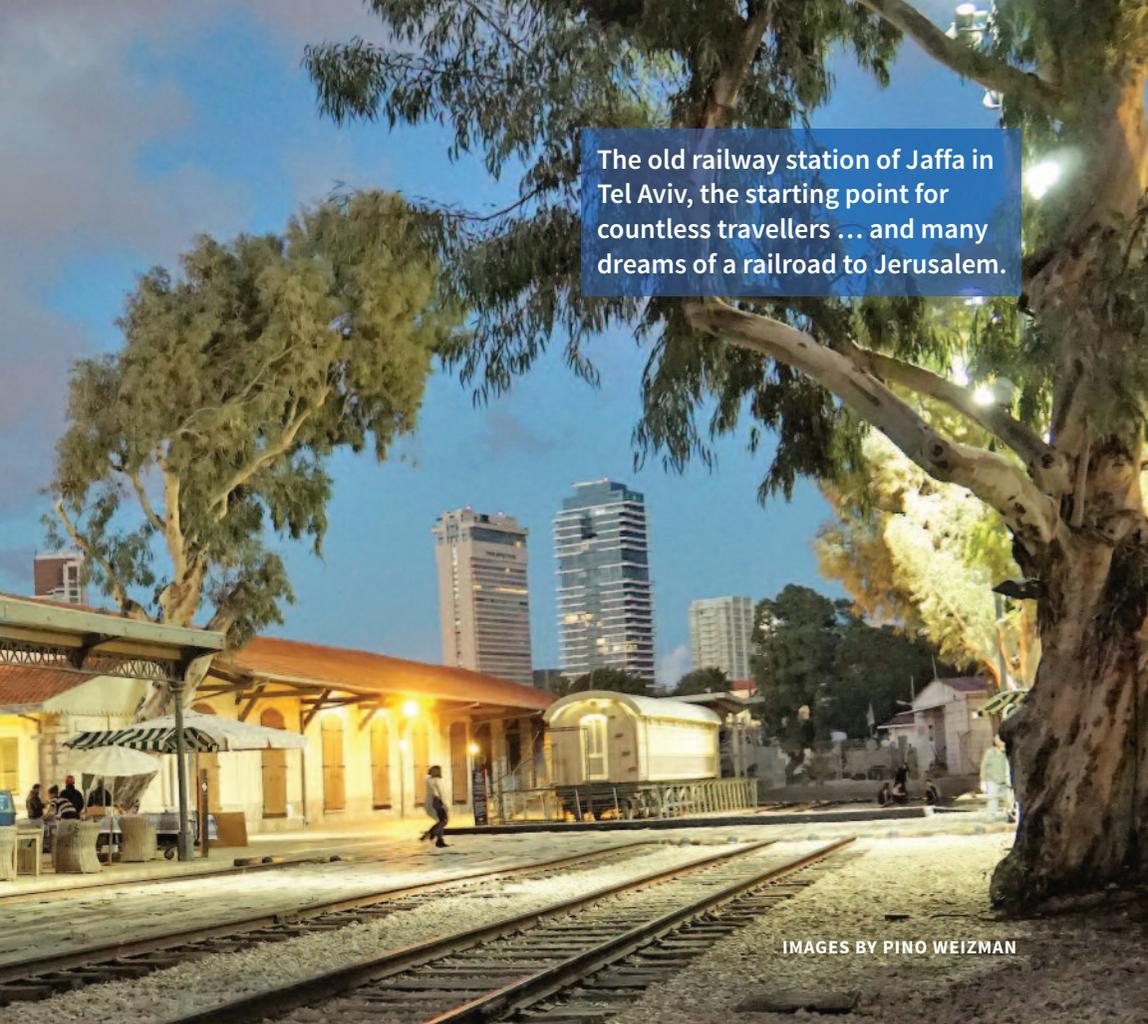




JANICE WEIZMAN

Through a Geography of Millennia

*The Quest for a Train Route
from Tel Aviv to Jerusalem*



The old railway station of Jaffa in Tel Aviv, the starting point for countless travellers ... and many dreams of a railroad to Jerusalem.

IMAGES BY PINO WEIZMAN

FOR CENTURIES, the idea of a road for wayfarers running from the Mediterranean port of Jaffa through the coastal plains, up over the Judean hills to the city of Jerusalem has both sparked the imagination of visionaries and presented a formidable technological challenge.

The first project of this sort in antiquity was the ancient Roman road, which was in use from the second to the fourth centuries CE. Built according to the technology of the day it was made using large flat stones fitted together and bound on both sides by curb stones. Over the centuries alternative routes emerged, but the journey, which was normally made by donkey, camel, or horseback, took as long as thirteen hours and often involved an overnight stay en route. It wasn't until the nineteenth century, in the wake of the invention of the steam locomotive, that the possibility of safe, fast, and comfortable travel in the Holy Land was available.

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Egypt 1922

THE FIRST MAN to conceive of a railway train to Jerusalem was Moses Montefiore, the renowned British philanthropist who proposed the idea in 1838. For years he worked to rouse interest and financial backing from British, French, German, and Turkish officials and engineers. In spite of the important religious sites of Jerusalem, the lands in question were considered a provincial backwater, under the de facto jurisdiction of the Ottoman Empire, and it wasn't until 1889 that Joseph Navon, a Jewish entrepreneur from Jerusalem and an Ottoman subject, succeeded in securing the initial financing. Bernard Camille Collas, a French lighthouse inspector, bought the concession for a million francs, and the Jaffa to Jerusalem Railway Company (*Société du Chemin de Fer Ottoman de Jaffa à Jérusalem et Prolongements*) was born.

The project was considered a rare collaboration between Jews, Catholics, and Protestants. Construction was carried out by the Parisian Company for Public Works and Construction (*Société des Travaux Publiques et Constructions*). It was a truly international endeavour, as engineers were brought in from Switzerland, Poland, Italy, and Austria, while the construction workers were mostly Egyptian, Sudanese, Algerian, and Palestinian Arab. Enormous amounts of construction materials were also brought in from abroad – hundreds of tons of rails from Belgium, coal from Britain, and rolling stock from France. Just unloading these materials in Jaffa's primitive harbour proved to be a challenge.

When the line officially opened in 1892, it was considered to be the first operational railway line in the Middle East. Though it was hoped that the time of a one-way ride would take no more than 3 hours, it in fact took 3.5 to 6 hours. In *A Practical Guide to Jerusalem and its Environs*, a guidebook written around that time, E.A. Reynolds-Ball wrote: "It requires only an ordinary amount of activity to jump out and pick the flowers along the line, and rejoin the train as it laboriously pants up the steep ascent – a feat I myself have occasionally performed."

During World War I, the railway was taken over by the Turkish and German armies, which adapted it to serve their needs. Though the line suffered from looting and damage, the British, who captured Jerusalem in December 1917, saw it as a strategic asset as it provided the only viable link from Jerusalem to Egypt. Civilian passenger service was renewed after the war when, during the years of the British Mandate in Palestine, it was possible to travel from Egypt to Syria via Palestine. The trains continued to run until the War of Independence in 1948, when the railway was shut down.

The Jaffa–Jerusalem line reopened in 1949, under the operational management of the newly created state-owned railway company, Israel Railways. In the 1950s diesel locomotives were introduced, and maintenance was kept up, with extensive renovations made to the tracks in 1959,





סוף מלחמת העולם ה-1



קנין הממסד

FASHION
ART
ZONE

The old station in Jerusalem now serves as a cultural and entertainment centre, and recounts the early history of railroads in this part of the world.



סיפור
התחנה בירושלים
1920 - 1936

המנדט
הבריטי



Informational sign on the streetcar pole.

but the line was never converted to a dual-track configuration; thus travel time remained long. The Jaffa railway station was eventually abandoned in favour of a station in South Tel Aviv, and in the wake of the construction of the Tel Aviv to Jerusalem highway in the 1960s and '70s, the use of the line declined. The last train ran on August 14, 1998.

THE CONSTRUCTION of the Tel-Aviv-Jerusalem route is the culmination of a dream. In the new millennium the need for fast, easy rail transport between Israel's largest cities was more pressing than ever, but the challenges of plotting the complex route of tunnels, bridges, and underpasses through the Jerusalem hills and the steep projected costs of the project proved to be major obstacles. Nonetheless, construction of the Jerusalem High Speed Link Project began in 2001 and, after years of budgetary and legal hurdles, is presently in its final stages. When it finally opens in March 2018, it will be the first high-speed route in Israel and will serve as the main rail link between Tel Aviv and Jerusalem.

The line will span 56 km of electrified double track, with travel time from the HaHagnana station in South Tel Aviv to the Binyanei HaUma station in Jerusalem, including a stop at Ben Gurion Airport, running at 31 minutes. Non-stop trains will make the journey in 28 minutes. The system will have the capacity to carry up to 4,000 people per hour.

It is a massive feat of engineering whose original estimated cost of NIS 3 billion has ballooned to 7 billion. The budgetary excess and prolonged delays were the result of the numerous technical challenges that had to be resolved. Construction of the route through the hilly terrain that rises up to Jerusalem required the excavation of large tunnels through the bedrock and the design of high bridges over the valleys.

Work on the project was divided into multiple segments. The first sections, running from Ben Gurion Airport to Latrun, required the construction of several bridges, including one running 1.2 km, the longest in Israel. The following segment, which crosses the coastal plains to the Sha'ar HaGai valley, includes a 3.5 km tunnel under Canada Park. The next section, from Sha'ar HaGai up to the Jerusalem suburb of Mevaseret Zion, necessitated the construction of two parallel tunnels, each 9.2 m wide and 11.6 km in length, able to withstand trains speeding through at a rate of 160 km/h. The final section, from Mevaseret Zion to Jerusalem's Binyanei HaUma Railway Station, includes two parallel single-track tunnels 800–900 metres in length, and an additional 2.9 km tunnel. A system of cameras and speakers is being installed along the entire route, to facilitate immediate contact with the driver in the event of an emergency, and to enable the train to be driven by remote control.



The old station in Jerusalem has already seen a great deal of history ...

As often happens with major public construction projects, the building of the line was subject to objections and protests which ultimately shaped key decisions. One of the most problematic was that of local Green organizations, which warned about imminent damage that would be caused by the construction of a conventional concrete beam bridge over the Yitla Stream. As a result, the bridge site was changed to make it environmentally friendlier by adopting instead a long concrete balanced cantilever design, supported in the middle by a single set of columns.

Another issue, more political in nature, arose because of the construction of two separate sections that pass through the West Bank, mostly through tunnels. The issue led some foreign companies to withdraw their



... built in traditional style, it still serves as a historic cornerstone.

cooperation. Nonetheless, the project has involved collaboration with several foreign engineering firms, including the Russian company Moscow Metrostroy, the Italian engineering firm Impresa Pizzarotti & C. S.p.A, and Črni Kal Viaduct of Slovenia.

The line's massive tunnels were dug using German-made tunnel-boring machines, each costing NIS 100 million (not including NIS 100 million in supplementary equipment), weighing about 1,800 tons, and working at a rate of 22 metres per day.

"Five years ago," said project director Dror Sofro, "tunnels of this sort in Israel were like science fiction." And for Israelis, who for years have been hearing about plans for a high-speed train to Jerusalem, the announcement



Non-stop trains will make the Tel Aviv to Jerusalem trip in 28 minutes.

that the tunnelling has been completed and that the line will indeed open in less than a year is truly exciting. When, during a tour of the tunnel sites this August, member of parliament Shelly Yachimovich was told that bikes would be allowed on the trains, she marvelled that she would be able to travel by bike from her home in Tel Aviv to work at the Knesset.

When the system begins service, passengers will be able to take a journey not unlike a ride in a time machine, where in the space of a little more than half an hour, one will board a train in one of the high-tech capitals of the world and get off in a city with long roots into antiquity. Israeli transportation minister Yisrael Katz has spoken of plans to extend the high-speed Tel Aviv-Jerusalem line to the Western Wall in the Old City. Should this plan come to fruition, travellers will indeed be able to travel, in the space of half an hour, through a geography of millennia.



The system will carry up to 4,000 passengers per hour on the journey.

It is somehow apt that the train will start running soon after the 100-year anniversary of the Balfour Declaration, which stated that “His Majesty’s government view with favour the establishment in Palestine of a national home for the Jewish people.” Though the declaration and indeed the very existence of Israel remain controversial and fraught with difficult questions, the astonishing process whereby a primitive backwater was transformed into a vibrant, dynamic twenty-first-century centre of culture and technology is inspiring to behold.

JANICE WEIZMAN is the author of *The Wayward Moon*, a historical novel set in the ninth-century Middle East. Her work has appeared in *Consequence*, *the Jerusalem Report*, and *Lilith*, among other publications. She has lived in Israel for over 30 years. 