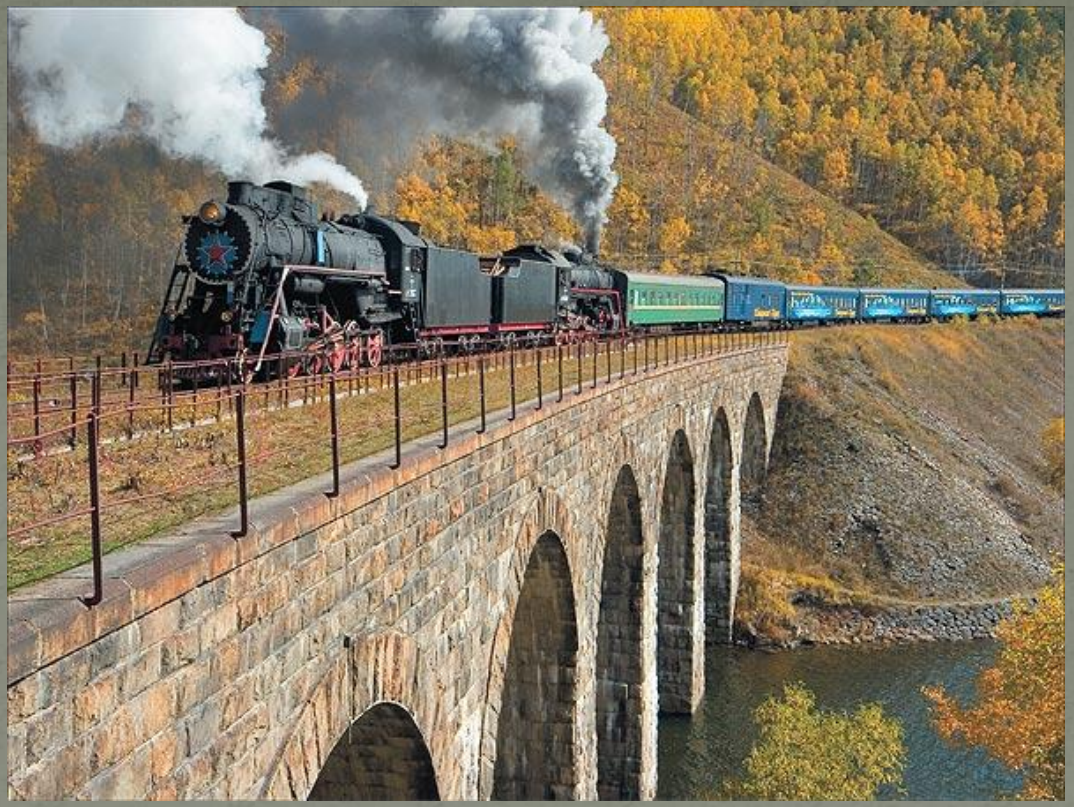


BAIKAL railway

Presentation by Dubrovsky R. 2012

Baikal Railway

- Baikal railway is stretched along the southern coast of the lake Baikal for 260 km, from a source of the Angara river up to station Mysovaya. Its western site is especially unique. Circum-Baikal railway is 84 km of a rail way from the port Baikal up to the station Kultuk, 39 tunnels (the general long is 9 063 m), 16 stone galleries, about 400 bridges and viaducts, more than 200 retaining stone walls, tens kilometers of railway embankments.

Baikal Railway

- The Circum-Baikal Railway is a historical railway in the Irkutsk region of Russia. It runs along the Northern shore of the Southern extremity of the lake from the town of Slyudyanka to the Baikal settlement. Until the middle of the 20th century the Circum-Baikal railway was part of the main line of Trans-Siberian Railway; later on, however, a duplicate section of the railway was built. Sometimes called a unique achievement in engineering, the Circum-Baikal is one of the picturesque sights of the area around Lake Baikal.

History of Baikal railway

- When the Siberian railway, later called the "Trans-Siberian Railway" was being designed, it was divided into seven sections. Circum-Baikal railway was one of these, being the section from Irkutsk to Mysovaya wharf (now the town of Babushkin on the South-Eastern shore of Lake Baikal.

Construction of the railway

- The construction of the Circum-Baikal railway began in late 1899. Originally the efforts of the builders were concentrated on the section from Mysovaya toTankhov. Beginning in 1901, the section from Tankhoy to Slyudvanka was laid. The construction of these sections was carried out chiefly by the inmates and hard labourers of the Aleksandrovsky prison.
- Workers began construction on the most complex section, from Slyudyanka to the Baikal station, only in the spring of 1902, with the aim of finishing it by 1905. The original plan required the construction of 33 tunnels, at a cost of 5.3 million rubles, a retaining wall for 3.7 million rubles, and viaducts for 1.6 million rubles. With regard to the possible negative impact caused by the lake water, the minimum necessary height of the track route over the water of Baikal was calculated to be 2.5 sazhens (5.33 m). Technical conditions during the arrangement of the double-track sections fixed the capacity of the line at 14 pairs of trains per day.
- Owing to the lack of a flat shoreline all the materials (with the exception of stone mined at the site) were brought by water to the site of construction (by barge during the summer, by animal-drawn carts in the winter). The complex terrain of the rocky shore compelled the builders to lay the majority of the route in tunnels or on artificial platforms cut out of the rock; the sides of the railway were strengthened with retaining walls. The workers, already suffering under the hot summers and harsh winters, were required to carry out the majority of the construction by manual labour.

Construction of the railway

- Every kilometer of the line required the expenditure of about one wagon of explosives. Earthwork was carried out in volume, approximately equal to 400 wagons. Embankments amounted to 28.7% of the length of the road, and cuttings to 71.3% (with a great deal in rocky soil). The construction of the railway track itself had to be made heavier, using stronger, heavier track and increasing the number of ties. Because of the difficult terrain the minimum radius of the turns was reduced.
- The onset of the Russo-Japanese War in 1904 caused an acceleration in the construction of the railway. From 1901 to 1902 about 9,000 workers were employed on the railway, while in 1903–1904 the number rose to 13,500. The main efforts were focused on the construction of the railway line itself; therefore, the development work of stations and towns in the path of the line did not take place. Works trains began to run on the railway on October 1 [September 18] 1904 and on October 29 [October 16] 1905 the line was brought into permanent operation. The length of the railway in its final form from Baikal station to Mysovaya was 244 versts (260 km). The aggregate value of one kilometer of the Circum-Baikal railway was about 130 thousand rubles (compared to 93 thousand rubles on the other sections of the Trans-Siberian Railway).

Active operation

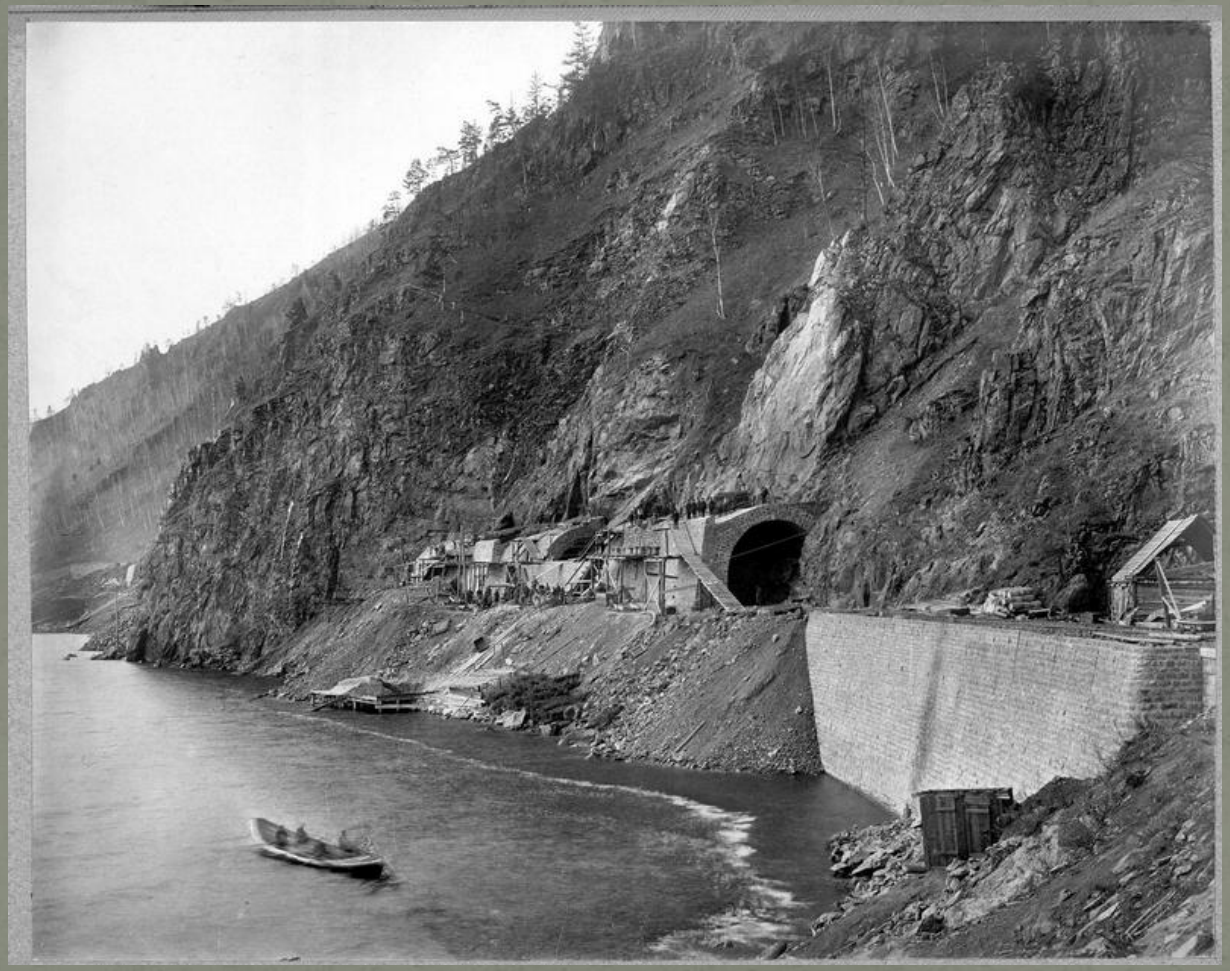
- When the Circum-Baikal railway was put into operation, the Trans-Siberian railway on either side of Baikal was linked, and began to be used to transport goods and passengers. The Circum-Baikal was called the "golden buckle on the steel belt of Russia".
- Initially, only one track was built; from 1911 to 1914 the construction of a second track was undertaken, which increased capacity of the Circum-Baikal to 48 pairs of trains a day. In this stage of the construction of bridges and other engineering structures reinforced concrete was introduced as a new material. As part of these works, considerable attention was paid to the construction of stations and station towns. On the section from Baikal to Slyudyanka alone ten stopping points were set up. Measures were taken to improve traffic safety and protect against landslides.
- During the revolutionary events of 1917 and the subsequent civil war the Circum-Baikal was the scene of intense fighting, as evidenced by the mass graves of victims of those events. The Red Army, retreating from the Czechoslovak Legions, blew up the Kirkidaysky tunnel (№ 39, past Slyudyanka on the way to Mysovaya) on July 23, 1918. The tunnel was later restored, but there was no movement on the line for almost 20 days.
- In the 1930s, 40s, and 50s, the villages were actively developed, and homes, barracks for the troops, and power plants were built.

Decline

- In 1940, exploration work was initiated to strengthen the track and ensure the safety of traffic on the Circum-Baikal Railway. Owing to the start of the Second World War, the work was completed only by 1947. The group in charge of development came to an unexpected conclusion and, citing the enormous cost, proposed not to carry out any work on the railway alongside Lake Baikal. Instead they proposed to transform the single track from Irkutsk to Slyudyanka across the mountains into an electric double track.
- From 1947 to 1949 an electric transfer railway from Irkutsk via Bolshoy Lug to Slyudyanka was built, noticeably shortening the distance compared with the Circum-Baikal branch line. The main route of the Trans-Siberian Railway was therefore transferred to the new section.
- In 1950, construction on the Irkutsk Hydroelectronic Power Station plant was begun. In connection with this, the part of the Circum-Baikal railwas from Irkutsk to the town of Baikal that passed along the Angara River was disassembled and in 1956 flooded during the filling of the Irkutsk reservoir (only remnants of dams remained on the shore of the Angara near the town of Baikal). In the end, a modern, "dead-end" route of the Circum-Baikal (from Slyudyanka-2 to Kultuk, Marituy and Baikal). The railway lost its strategic importance, the number of trains on the road dropped sharply, and security was withdrawn from the tunnels and bridges.
- Because it was no longer needed, the second track of the Circum-Baikal line was disassembled. In the early 1980s, some even proposed the closure of the line, or that a road be constructed in its place. The villages along the road gradually deteriorated, and people began to abandon their houses. Virtually the only means of communication with the heartland for the residents of these places was the rarely running diesel locomotive, and later a locomotive connected Slyudyanka, Kultuk, and Baikal (Port Baikal is linked to the village of Listvanka on the opposite shore of the Angara by an automobile ferry).

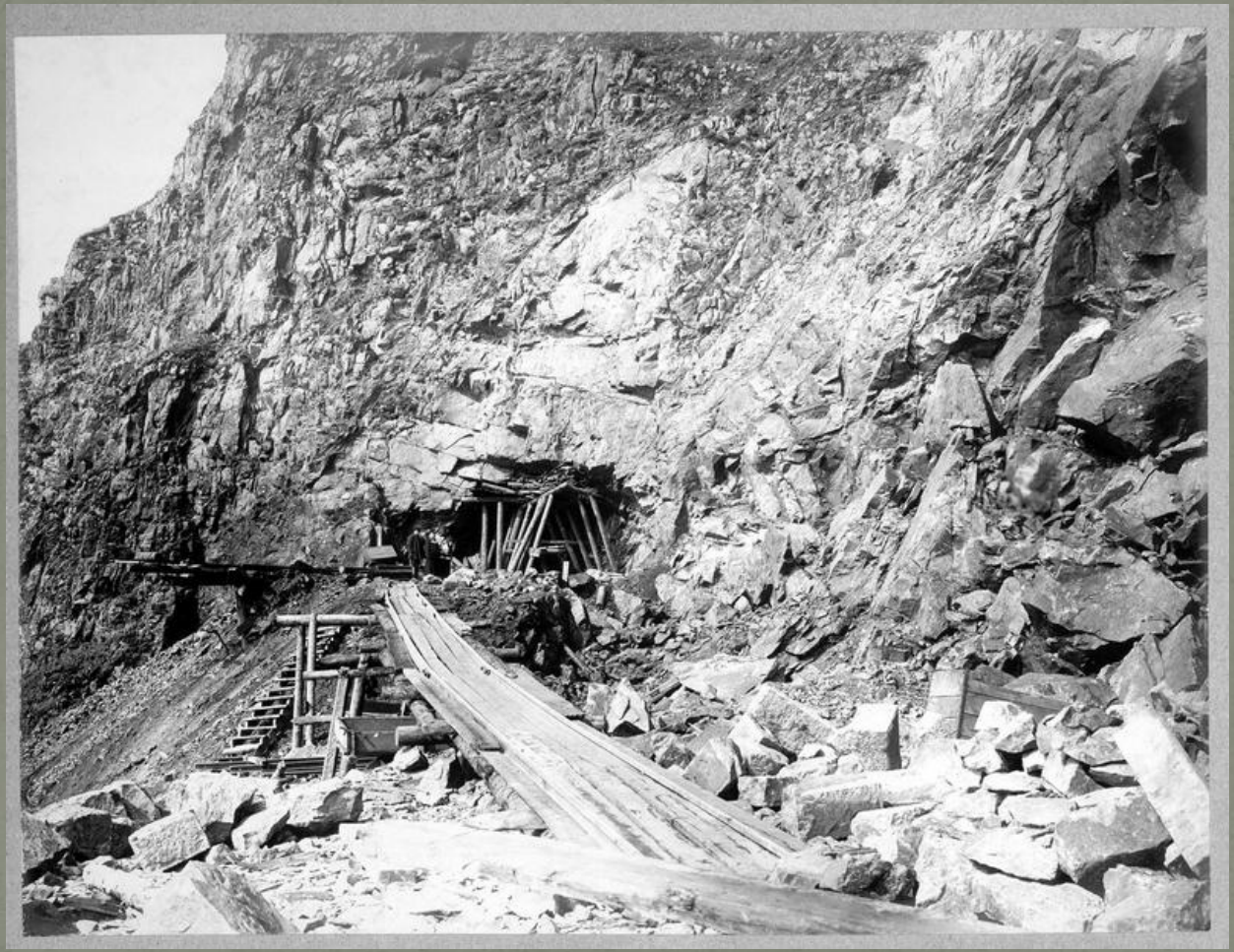
A bridge

A gallery construction



A 88-meter long gallery

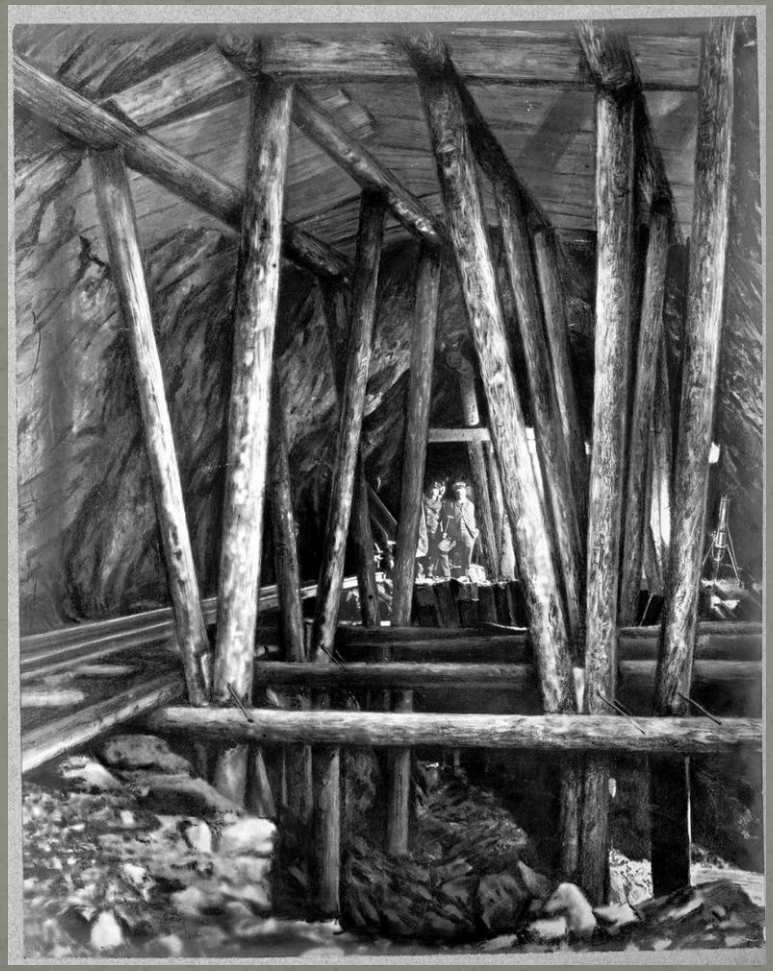
The development of the tunnel's calotte



The development of a tunnel

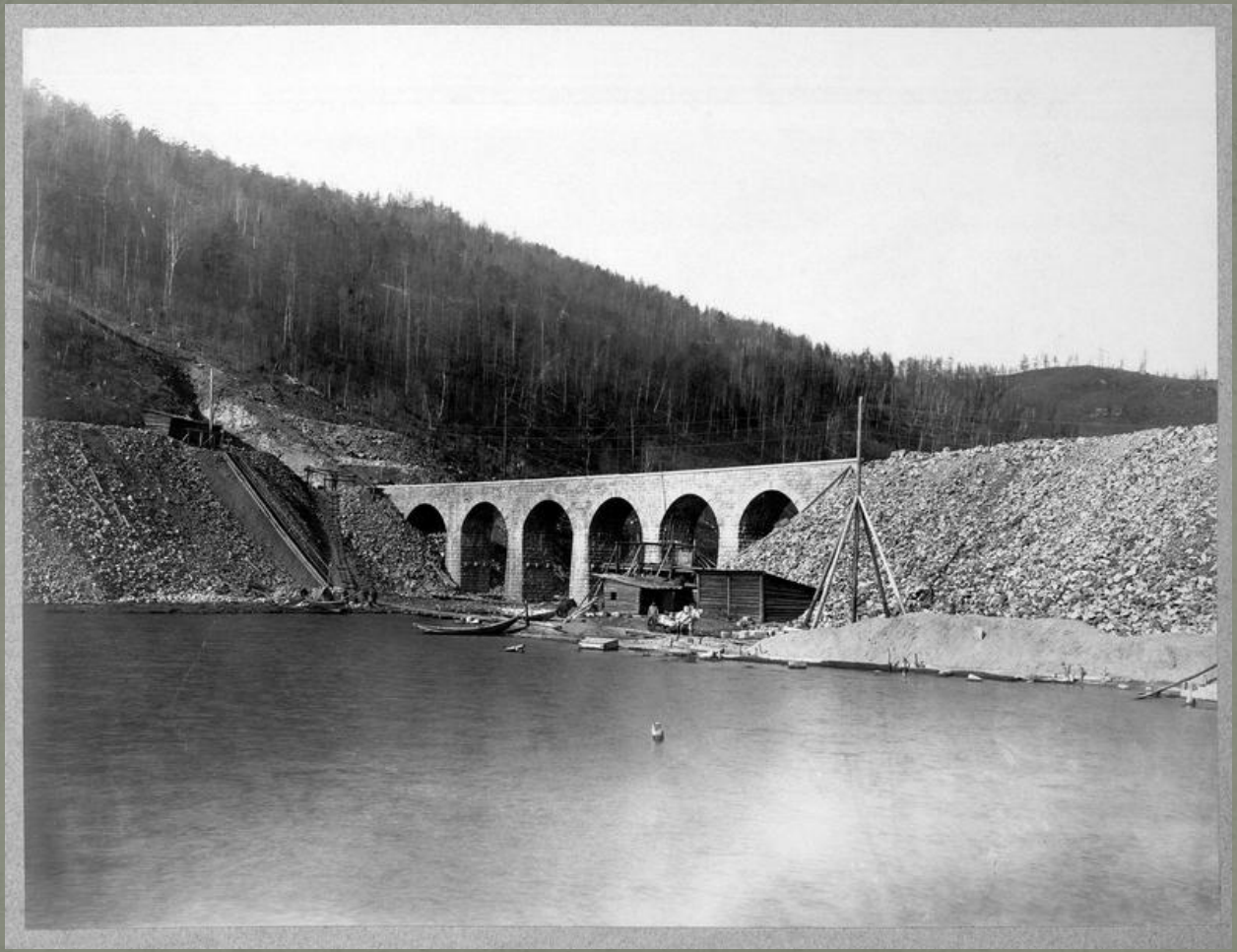
A railroad bridge construction

A tunnel construction



A 94-meter long tunnel

A 74-meter long viaduct



Map of Baikal railway