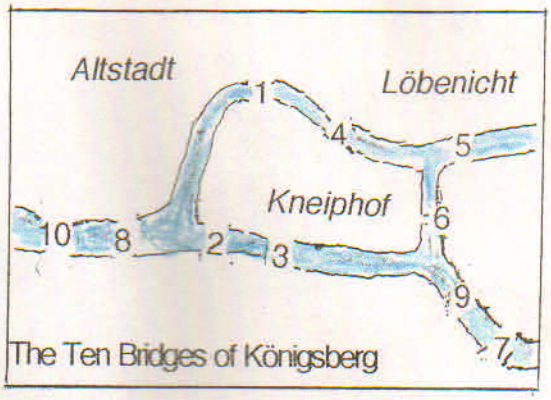
The Bridges of Königsberg

A brief history, from the thirteenth to the twentieth centuries

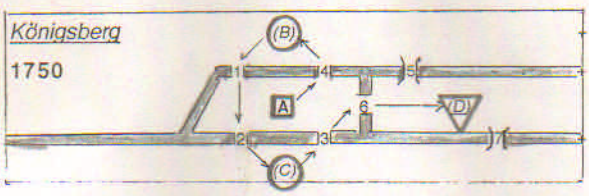
Königsberg was founded in 1255. Sections along the Pregel River arms were Altstadt on the northshore, Löbenicht in the north & east,Kneiphof on the island & the southshore.

Bridges: #1 was built in the 13th century followed by #2, #3, & #4 in the14th #5, &#6 in the 15th, # 7 in the 16 th, #8,&#9 in the 19th, and #10 in the 20th century.

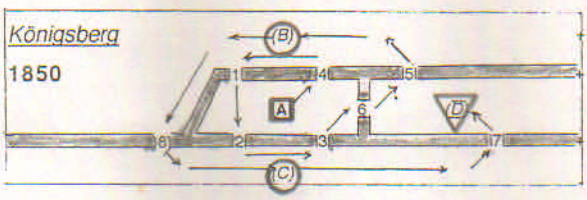


The Ten Bridges of Königsberg

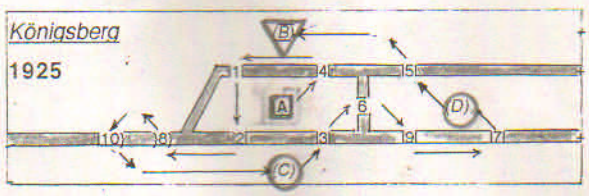
The swiss mathematician Leonhard Euler (1707-83) saw the seven bridges of his era as a problem of theoretical topology. A simplified version is:. From point A, find a path to points B, C, and D crossing each bridge only once



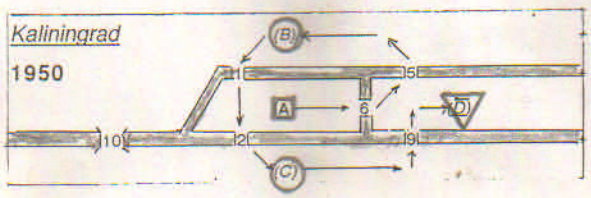
Euler's general "Net-work Rules"
yield the conclusions:
Seven Bridges are either
2 too many, or, 1 too few



Eight bridges permit a solution.
Example, the very circuitous path
A -> B -> C -> D



Ten bridges permit a solution.
Example, the circuitous path
A -> C -> D -> B



All ten bridges had been destroyed during the siege 1945. Russia annexed the city, renamed it, but restored only six bridges, spoiling earlier solutions of Euler's problem.

A contemporary british mathematician, M.Holt, wrote a booklet entitled *"Maps, Tracks, and the Bridges of Königsberg."* Mathematically, it is a fine introduction to Euler's theory . Historically however, it is fictional, incomplete and in need of updating. See back of this page.