

MARKET BRIDGES IN EUROPE AND OTTOMAN EMPIRE

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Abstract: *The work deals with one of the specific directions in bridge construction, that of constructions built with commercial buildings, with an emphasis on architecturally unified design. It is analyzed how from the chaotic construction with buildings stepping on one or both sides of the roadway, then in the 15th century goes to the architecturally unified type of the market bridges, consisting of closed commercial or commercial residential blocks, on both sides of the roadway. This typology is mainly the work of Italian architects. Indicative in this area is the work of Fr Giovanni Giocondo da Verona in Paris from the early years of the sixteenth century. However, a key moment in clarifying the idea is the competition for the Rialto Bridge in Venice. Among the several projects proposed distinctive are the grand ideas of Palladio. The latest West European market bridge designs belong to the Scottish architect Robert Adam (1728 - 1792), who was his follower.*

So far, the question of covered market bridges in Eastern Europe, Asia Minor and Iran in the period from the last quarter of the fourteenth to the end of the nineteenth century has not been analyzed in the scientific literature.

There are only individual publications on more significant facilities, mainly from Bursa in Asia Minor, Lovech in Bulgaria and Isfahan in Iran. The architecture of these bridges, which, unlike the West European ones, are entirely covered, is influenced by the Bezisten typology, which is a continuation of the development of the eastern covered market streets. And this seems to be starting to happen around the end of the fourteenth century. The earliest example of a covered bridge (over the Maritza River south of Adrianople) in the Ottoman Empire is only known to me from an image dating from 1388 to 1395. Further, a series of specimens from the 15th - 19th centuries are examined in the work, which is mainly found in the cities of the Balkan Peninsula - Edirne, Nis, Ser, Edirne, Pazardzhik, Dupnitsa, Malko Turnovo, Bitola, Prizren, Lovech, Drama, Gumurjina. etc. in present-day Bulgaria, Serbia, Greece, Kosovo, Turkey and northern Macedonia.

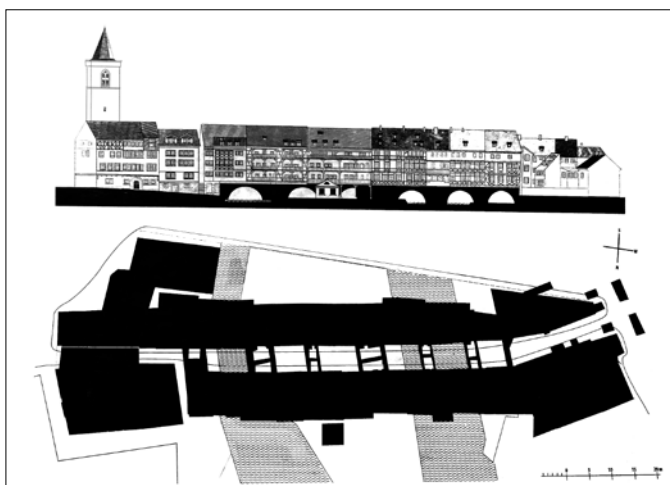
Key words: *medieval bridges, covered bridges, Balkan bridge builders, architectural history, medieval Europe, Balkan Peninsula, Ottoman Empire*

During the first half of the 15th century, the Irgandi (Irgandı köprüsü, 1442) market bridge appeared over the Gökdere River in Bursa. It was built by another Islamized architect of Minor Asia - Timurtash bin Abdullah¹. It is one of the earliest Ottoman covered bridges that will be built throughout the coming centuries until the late nineteenth century.

At the same time, in the western half of the European continent, the construction of bridges with chapels, shops, workshops and even residential buildings dates back to the XI-XII centuries, but then it was mostly a chaotic, time-consuming practice rather than the realization of complete architectural ideas.

Such architectonically thought out solutions emerge and develop only in the typology of covered bridges in front of fortress gates, a fortification idea designed to create narrow, easily defendable spaces, comfortable for concentrated direct fire and limiting fronts, which makes easy the crushing of attacking forces with tumbling rollers, balls and other large shapes with spikes. In German-speaking lands, covered bridges continue to be built due to the poor climate, without being directly related to defense functions.

It was not until the beginning of the fifteenth century that the first thoroughly conceived bridge construction solutions would emerge, sometimes combining in one both ways of building on bridges. Initially, this was done under the old schemes, which formed an open street, surrounded by two longitudinal sides with single or concluded residential and commercial buildings. A typical example is the history of the Kremerbruck (Commercial / Shop Bridge) in Erfurt (Thuringia), where over the repeatedly rebuild wooden bridge shops seem to have always been built, or at least since the beginning of the XII century, because in 1156 it was referred to as the "Pons rerum venalium" (I.e. Market Bridge).

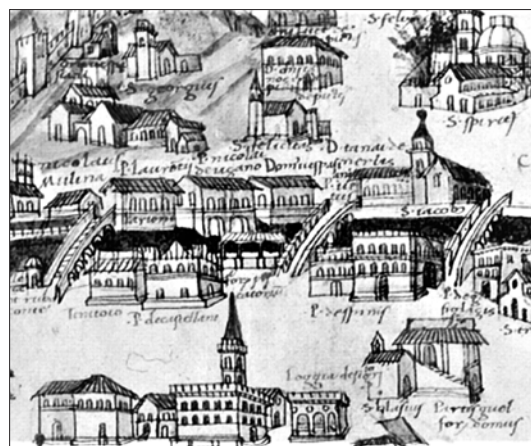


Erfurt, Thüringen, Germany. Krämerbrücke over the Gera River. View from the perspective map of Merian (1650); Summarized plan of the bridge in its present condition; Archival photo views

¹ In the Ottoman name system the personal name and the fathers name are indicated with the prefix 'son of'. It is a medieval practice to adopt a "son of Allah" in the form of "bin Abdullah" or "bin Abiddin" instead of his father's name for the adoption of Islam by a non-Muslim.

The bridge is owned by the local Benedictine monastery, but after its continuous burnings, which continued into the 13th century, the Erfurt City Council purchased its remains, once again burned in 1293, and began construction of a new stone structure. It seems that for the first time the bridge was conceived as a single whole with a commercial street with residential structures for the owners, and in 1325, when it was completed out of stone, there were already uninhabited timber structures on it, confirming the existence of a unified design concept. There are stone tunnel portals on both entrance sides of it, together with a church of the Benedictines and a second one dedicated to St. Egidien. In this form, the bridge has six arches and its 79 m long, with a width of 19 to 22 m. After the buildings burned down in 1472, by 1486, 62 new, this time stone-wooden buildings were re-created. Of course, after that there have been other rebuilds and demolitions.

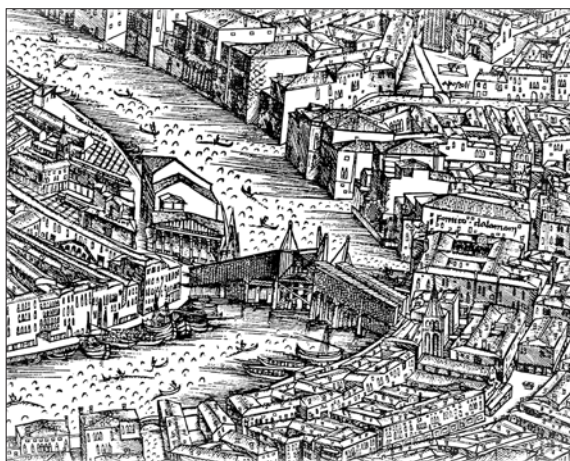
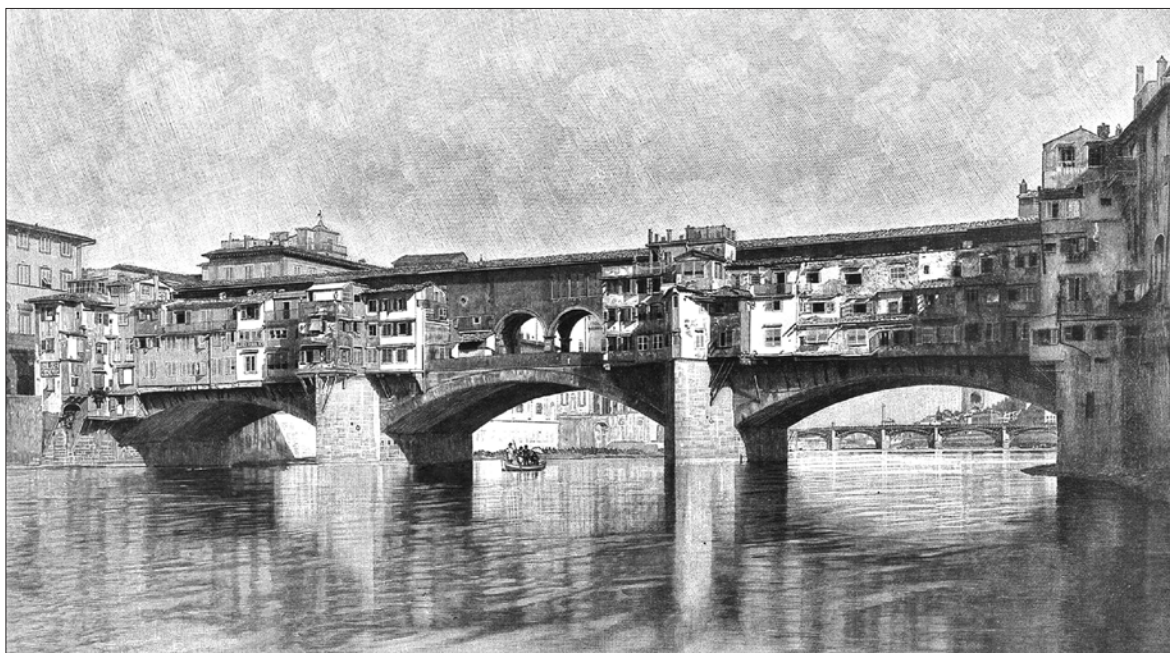
Undoubtedly in Western Europe this line of building market bridges continues to be realized, but more architectonic appearances will appear in the fifteenth century. An example of development in this direction is the Ponte Vecchio in Florence, which was restored as stone after the previous stone-timber one was swept away in the great flood of 1117. There is preserved information that there were twenty stores on it, which were destroyed during a fire on 23 June 1331². In 1333, it was demolished and only two river bases survived, on which later the construction of a new facility began. This new bridge was completed in 1345, with Giorgio Vasari (1511–1574) attributing his authorship to Tadeo Gadi (1290–1366), but nowadays it is also argued that the architect is Neri di Fioravanti (unpublished - 1366), and Gadi is just his associate. Anyway, these excellent bridge builders created together a bold solution of a three-arch structure with segmental arches in the proportion of 5: 1, the central of which exceeds about 30 m. However, it seems that initially two shop buildings corpuses were being built on the roadway, and only on one of its sides.



Bridges of Florence with Ponte alle Grazie (originally Ponte di Rubaconte, 1237) and Ponte Vecchio (1470-1471) over the Arno River. Views of the Charta della Catena (1470 - 1471, Francesco di Lorenzo Rosselli) and of a map of the Geography of Ptolemy (Geografia di Tolomeo, 1472, Francesco di Lorenzo Rosselli)

² For the early history of the bridge is of great value the information in the chronicles of the Florentine chronicler Giovanni Villani (La Nuova Cronica, ca. 1322 - 1348), and is entirely true for the years 1265-1348, because except as seen from him it is also based on eyewitness accounts, preserved archives and written testimony.

This is evidenced by perspective maps of fifteenth-century Florence, the earliest of which is the famous *Sarthe della Catena*, created in 1470 by Francesco di Lorenzo Rosselli, and a miniature in a 1471 book on the geography of Ptolemy, where the bridge is drawn from another angle³. In all of them the market buildings are shown as two-storeyed. Old photographs show a preserved part of these facades, but then over time they were repeatedly partially demolished, reconstructed and upgraded. Subsequently, buildings were also constructed on the other side of the roadway, but the front was only partially covered by shops, mainly above the ruts and on the sides of the central arches of the bridge. In 1565, the corridor of architect Giorgio Vasari, commissioned by the Duke of Florence Cosimo I Medici, will pass over them, which will give a monumental appearance to the facility⁴.



Florence. Ponte Vecchio (1470 - 1471) with the corridor of architect Giorgio Vasari (1565) commissioned by Duke Cosimo I of Medici. Views of the woodcut from 1893, the perspective map of Paolo Forlani (1569) and predecessor of Ponte di Rialto – Ponte della Moneta, by the perspective map of Jacopo de Barbari (1500)

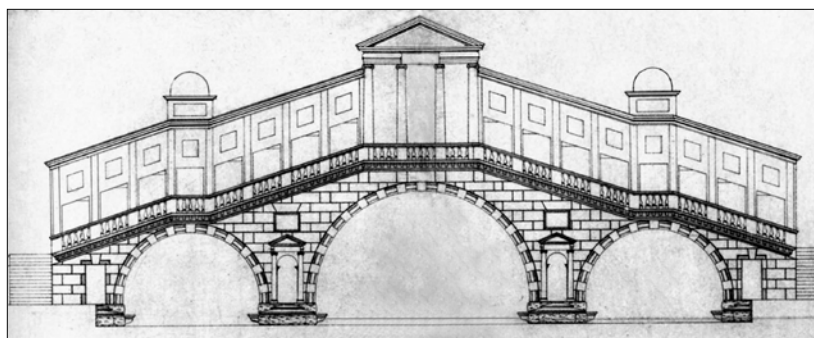
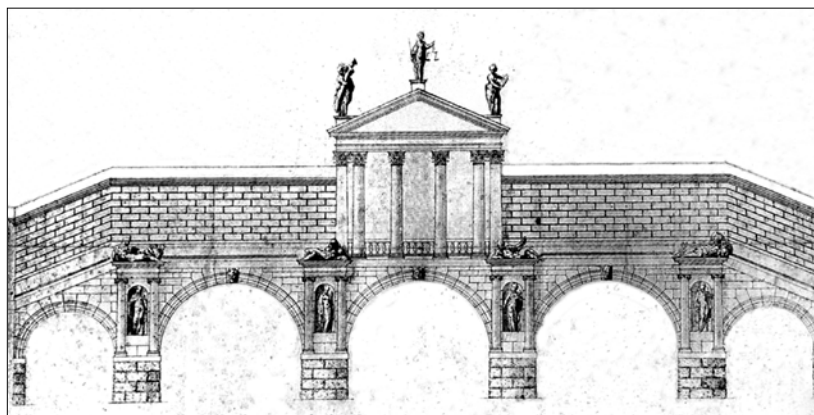
³ Mappa di Firenze. - In: *Geografia di Tolomeo*, 1472, Bibliothèque nationale de France, Paris.

⁴ The Vasari Corridor connects the Palazzo Vecchio administrative center through its south extension - Uffizi, to the residence of the Medici, Palazzo Pitti. It is long in combination with its coastal and bridge sections over 850 m.

The real beginning in the area of architectonic unity of a bridge structure with store buildings seems to be set in motion as construction intentions began for the creation of a stone bridge over the Grand Canal in Venice of the Rialto to replace another, already damaged wooden one, Ponte della Coin. The earliest proposal for this stone facility dates back to 1503 (it looks like Fra Giovanni Giocondo da Verona, who also made a project in 1514), and the first decision by the city government for its creation is in 1507. Following a lengthy deliberation in 1525, a tender was announced for the project, and a little later, the Venetian Doge Pasquale Chiconia held a competition. All of the proposal stages involved several of the most famous architects of the era - Andrea Palladio, Jacopo Sansovino, Vincenzo Scamozzi, Jacopo Barotzi da Vignola (maybe some project had Michelangelo Buonarroti) as well as some almost unknowns like the Swiss from Lugano Ponte, who will unexpectedly receive the order after the last round of 1587-1588. According to some sources, however, the original version of the winning project was submitted by Alvise Boldù ("dal Nobil Homo Alvise Boldù"). The final choice is mostly based on a project that is the only one created with a single large segmental arch.

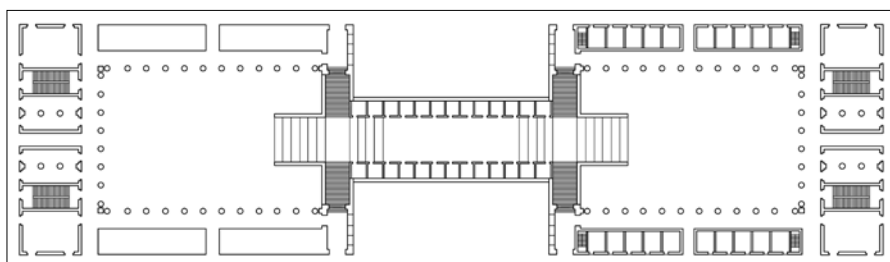
All of the preserved project designs created by the various authors have been resolved in the spirit of mannerism, based on the free interpretation of classical Vitruvian architecture.

Skamozzi's project made in 1587/8 is for a three-arch curved bridge with stairs going down to the shores, which greatly complicates the normal functioning of the store buildings. Only at its uppermost part above the main arch it had a broader area beneath colonnaded gates on both of its sides, but it is not a market area instead it's intended as a recreational area with river views. Skamozzi uses Palladio's scheme from 1551, which provides one central lane and two side promenades with shops.

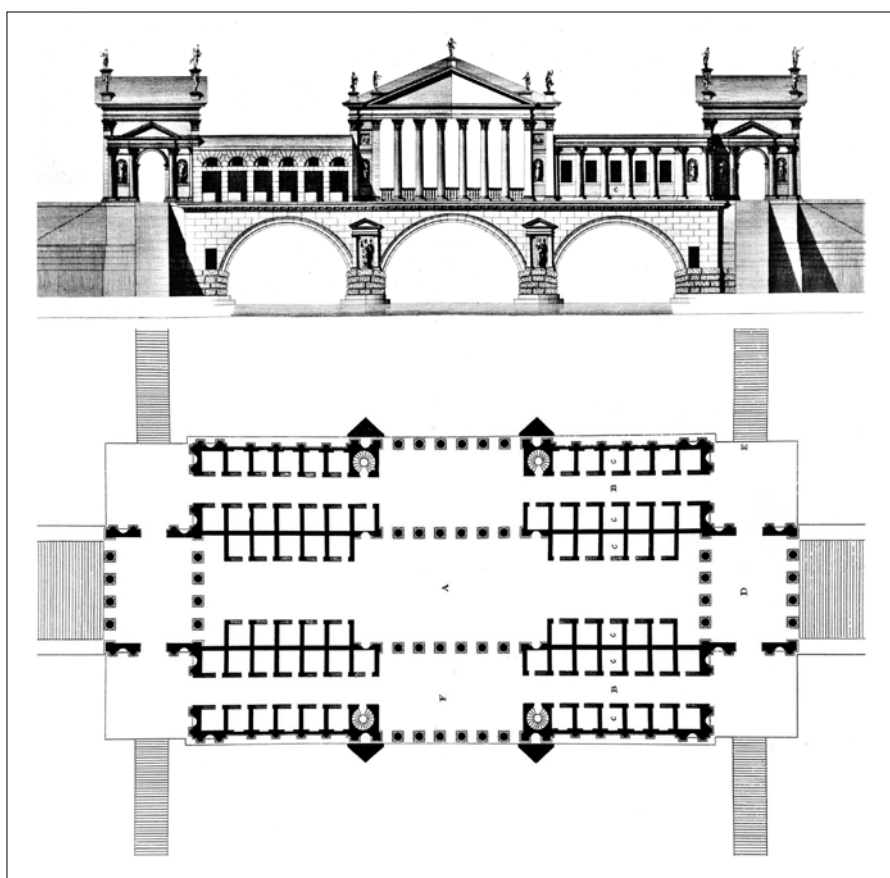


Andrea Palladio's first competition project for Ponte di Rialto (1551)
and the competition project of Vincenzo Scamozzi (1588)

This first of the two projects, created by Palladio, is much better suited than Skamozzi's idea which was perhaps based on it, because it offers embankments with long side stairs from the shores to the flat road with shops. Particularly pompous is the second of his projects (1566), which also has three parallel longitudinal shopping streets with three staircase approaches to them at the two opposite ends of the bridge, but the sideways were built with shops on both sides. He also developed the idea of a central space-marquee, offering a monumental transverse ship with colonnades and triangular pediments on both sides, but also added frontal, as well as colonnaded, porticoes on either side. Naturally, this super-heavy superstructure steps on three identical arches, lying on two mighty river bases with breakwaters and antique niches with statues above them. In fact, for the commercial needs of the city, this is functionally the best project, but obviously the very high cost of construction impedes its acceptance.



Andrea Palladio's first competition project for Ponte di Rialto (1551) – floor plan



Andrea Palladio's second and most extensive project for the Ponte di Rialto, in the original drawing (1569, published in *Quattro Libri dell'architettura*)

Antonio da Ponte's final project that won the tender, for which it is not clear whether and how much it has anything to do with the one proposed earlier by Alvis Baldou, also has central and lateral stairways inclined toward the shores, but through differential staircase approaches to them both shore climbs receive a slightly more moderate percentage of excesses⁵. In addition, there are narrow access areas at each store's entrance. This bridge also ends at its highest point with a panoramic landing with single arch porticoes. Its length is 48 m, from which the arch exceeds 28.80 m, with a hull width of the considerable 22 m. The foundations of the coastal bases are grounded deep below the bottom on 6000 wooden piles, followed by hydrophobic mortar-covered grates and lying on them masonry of gradually bending inwards rows of bricks, followed by stone construction, thus becoming perpendicular to the tensile forces of the vaulted structure.



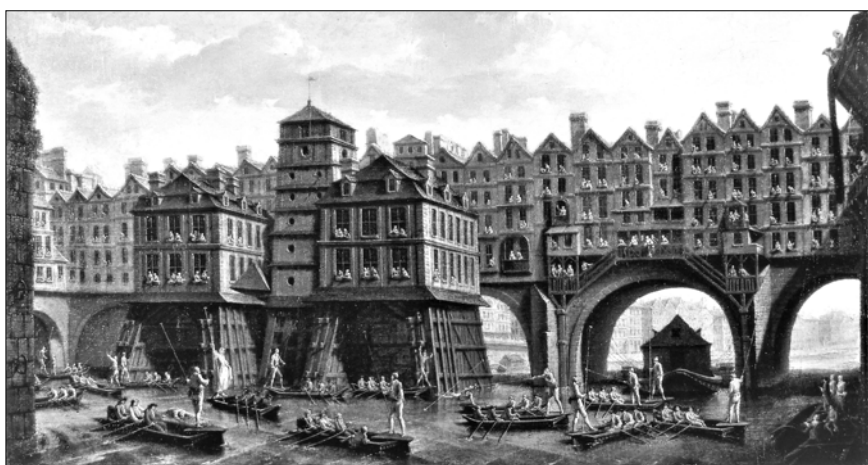
Perfectly realistic painting by Giovanni Antonio Canal-Canaletto (ca. 1727, Parma, Galleria Nazionale) of Ponte di Rialto by Palladio. Photorealistic views from the south of Canaletto (1727) and from the north to Michele Marieschi (1735) by Antonio da Ponte's realization

⁵ In 1590, the Venetian Senate granted to Ponti a patent for bridge building innovation, under which no one was allowed to sell views of the bridge for 20 years. Skamozzi, however, objects, considering that he is in fact the author of the architeconic scheme, though his is not based on a single-vault but on a three-arch construction, but also borrows ideas from Palladio's first project. And also Skamozzi, probably angry with his loss at the last of the competitions, predicts that his bold arch will inevitably collapse - something that never happens.

The construction began on June 8, 1588 at 6 pm and continued until July 1591, led by Antonio da Ponti, but in his team he included with no doubt his 20-year-old grandchildren Antonio and Tommaso Conti as journeyman.

Despite the creation in the sixteenth century of this progressive new line in bridge construction, it finds almost no continuation elsewhere because of the extremely high cost of this type of construction. Instead, the chaotic construction on top of bridges continues to be widely practiced, especially in the German-speaking territories of Europe and partly in France, Italy and England. In countries with harsher climates, especially in the German states, many covered, purely pedestrian bridges are still being created, sometimes only with added chapels.

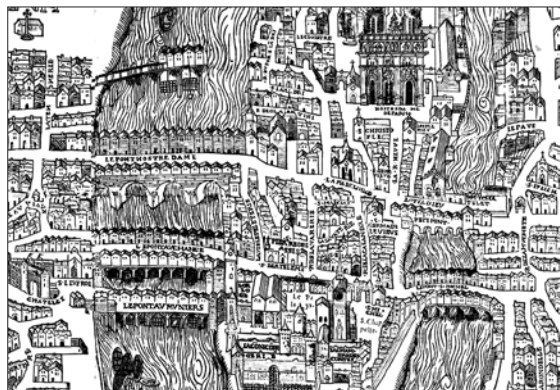
Among the exceptions are some of the bridges over the Seine along the streets of Paris, passing through the island of Saint-Ile-de-la-Cite, which were periodically rebuilt with their housing and commercial upgrades. Of these, the longest life had the Pont Notre Dame, which rolls over the large arm of the river at Sita. Built as a wooden one during the Celtic period, it was rebuilt as a stone one by the Romans and once again rebuilt as a stone-wooden one on the ancient bases. In 885 or 886, it was burnt down by the Normans besieging Paris and was therefore abandoned. Shortly thereafter, downstream another one was constructed to replace it, known as the Pont des Planches de Milbray. How many times after that it was repaired and rebuilt, is not very clear, but there are reports that, during the time of Charles VI Le Fall (1380-1428), it was destroyed in the great flood of 1405, its restoration this time was on its original location in front of Notre Dame Cathedral, which is why it began to bear its name. The new 115-meter-long structure was again wooden and includes 65 houses with shops on the ground floor. The idea is to achieve a unified image that serves to "decorate and increase the city's income." Poor maintenance, however, led to self-destruction in 1499. So one year later, Dominican architect Fra Giovanni Giocondo da Verona, working at that time in the city, was designing a reconstruction with a six-arch stone structure. The construction of the building, which was carried out by the city master Jean de Fellin, was completed in 1507, and the envisaged 68 residential buildings with shops on the ground floor - in 1512.



Paris, Cité Island. Pont Notre-Dame painting by Nicolas Jean-Baptiste Raguenet (1751, Musée Carnavalet in Paris) and by engraving (XVIII century, anonym)

The symmetry and architectural qualities of this construction make it a benchmark for the construction of shopping streets and other covered bridges in the city. According to

Merian's perspective map of 1615, this type architectonics is also owned by the Little Bridge and the Saint Michel Bridge over the small arm of the Seine, as well as a pair of adjacent bridges over the big arm near Pont Notre Dame. Of this type is the building along Magdelen Street, located between the Notre Dame Bridge and the Little Bridge.



Paris, Cité Island. View of all bridges built on perspective maps of Truschet & Hoyau (1550) and Merian (1615)

Pont Notre Dame was repaired along with part of the buildings on it in 1660, but 126 years later, in 1786, the depreciated and becoming dangerous structures were destroyed and in 1853 it was rebuilt on the old foundations and the stone hull.

An identical method of construction also appears on the Bristol Bridge over the Avon River in England. It was built with stone in 1245–1247, along with the built on top timber-framed houses with shops, the rents of which are intended to provide the means for its maintenance⁶. In the following centuries, due to the not durable construction of the buildings, they were undoubtedly rebuilt and upgraded, and in the 17th century it gets to the point where they were marked as four-storeyed, crowned with fifth attic levels. We also see them like that in engravings dating back a hundred years later. In the center of the bridge in 1361 a large two-storey chapel “St. Assumption of the Blessed Virgin Mary” was built, with lower level crypt and a bell tower. It was destroyed along with more than 20 other buildings in a fire in 1647.

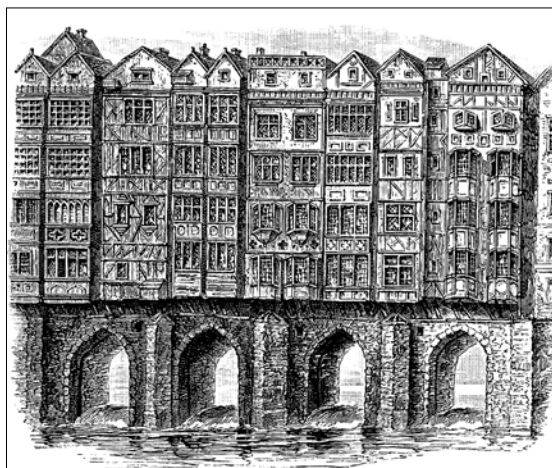
Because the roadway was only about 6 m wide, the building, although console-mounted above the river, became in places a dangerous obstacle for passers-by, and in 1760 it was decided the facility is to be demolished and a new one to be built.

In a similar way goes the construction history of the London Bridge over the Thames River. Built for the first time between 1176 and 1209 (Protomaster Peter de Colechurch) as

⁶ According to the “Adam's Chronicles of Bristol”. Written by William Adams between 1623 and 1648.

See her digitalization at:

https://archive.org/stream/adamsschronicleo00adamuoft/adamsschronicleo00adamuoft_djvu.txt https://archive.org/stream/adamsschronicleo00adamuoft/adamsschronicleo00adamuoft_djvu.txt. Under the year 1245 notes: “... the Bristol Bridge began, and the inhabitants of Radclay, Temple and Thomas were united (through him) into the common town of Bristol, whereas before they were in two (separate) cities and there were two markets, one at the Bristol High Cross and the other at Staleng Crosse's Tempell Streat. And the land on the Augustan side of the river was given and given to the monk of Bristol by Sir William Bradstone, abbot ...”. That means that the bridge is a construction work of the monastic order in Bristol.



Bristol, England. The bridge over the Avon River (1245 - 1247, chapel - 1361).
Views on engravings from the seventeenth century



London Bridge (1176 – 1209). View by a painting of Anton van den Wyngaerde (1545)
London Bridge (1176-1209). A general view on an engraving by Claes Jansz Visscher (1616)
and of the Bridge Street (eighteenth century)
London Bridge (1176 – 1209). View by a painting of Claude de Jongh (1632)



a stone multi-vaulted structure, which is what was customary for the time of The Late Middle Ages, it was gradually and chaotically built up with residential and commercial buildings along its 273-meter length. In the oldest engravings of the 15th - the beginning of the 16th century, the construction in the sections between the tower gates was loose and made of one-storey and two-storey multi-format buildings. In the first half of the next century, the first blocks appeared, consisting of uniformly designed party walled three-storeyed buildings. We can see it, for example, in the 1545-year drawing of Flemish Antonis van den Weininger, where a block of three-storey buildings is only in the section to the north of the bridge's chapel, and the rest of the bridge is still with the old lax construction of small buildings. Undoubtedly, by the end of the same sixteenth century, the newer type of building construction covers the southern part of the bridge too, because in engraving from 1616, Claes Van Visscher will create a panoramic view of London, with the bridge, the hull of which is already covered by four large blocks of four- and five-storey buildings, between which a shopping street is sought along the axis of the bridge lane. Probably this dense building has often suffered from fires, and therefore in the cavalry lane of 1632 by another Dutchman, Claude de Jongh, one can see destroyed parts of these blocks restored to different heights. A more significant reconstruction took place at the end of the same century, when the architecture of the buildings was once again modernised.

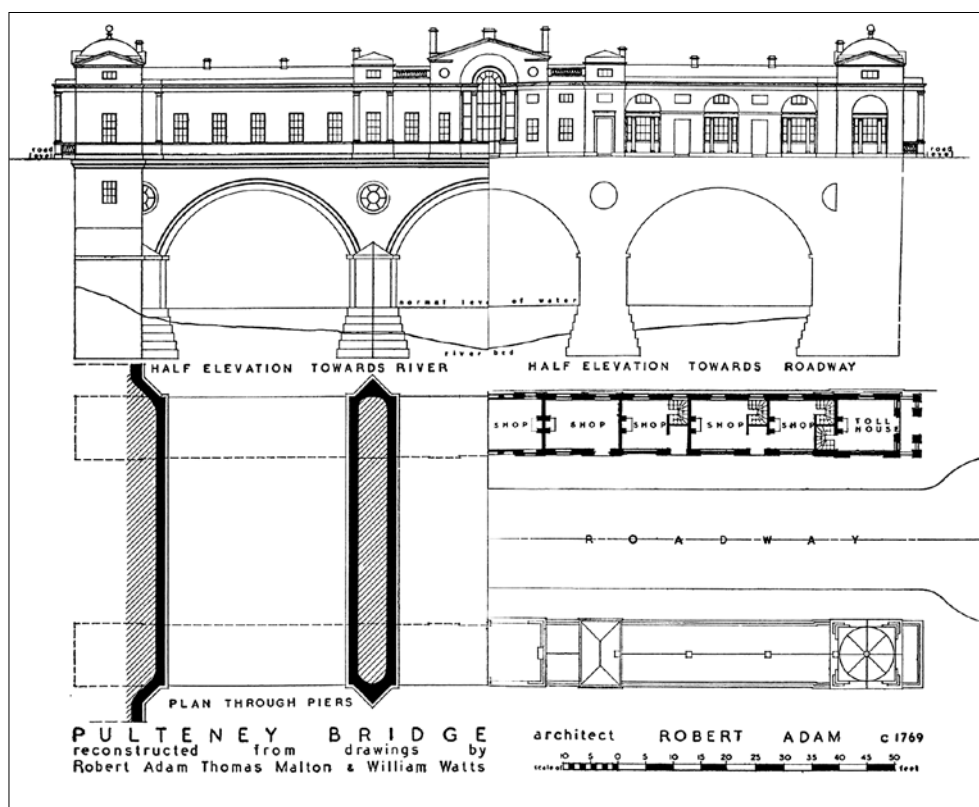
It may be added that during the Late Middle Ages, and afterwards, some palace buildings were built on bridges, as if mostly in France. Such a bridge wing over the Cher River has the Chenonceau Castle in the Indre-et-Loire department, designed by arch. Filiber Delorm and built in 1580 by Arch. Jacques Andrew Dusserso.



Department of Indre-et-Loire, France. Bridge wing of Chenonceau Castle over Cher River (1580)

The architectural unity of bridge structures with market buildings on them has its unexpected renaissance in the eighteenth century in the work of the great Scottish architect Robert Adam (1728–1792), the creator of the specific interior style “Adam” as a part of English neoclassicism. Working with his brothers James, John and William, among his many projects and realizations, he also has about 10 bridges, two of which stand out especially in this particular architectural area. These are the bridges in Bath, England, and

in Edinburgh, Scotland. Undoubtedly, they were influenced by what he saw and learned during his specialization in Rome between 1754 and 1758, when his mentor was the famous architect and architectural historian Giovanni Batista Piranesi, and when he specifically studied the work of Palladio, which underlies part of architectural visions from the seventeenth to eighteenth centuries, known as Palladian style. Of the two bridges with commercial streets, only the one in Bath (Pulteney Bridge) was built, built over the Avon River by Arch. Adam between 1769 and 1773 commissioned by the famous lawyer, farmer and politician Sir William Plutney. It was intended to connect the agricultural lands of the contractor to the city. Sir William assigns the work to his friend and compatriot Adam, who, impressed by the Italian designs, offers their structure as lucrative. It was designed and built as a bridge shopping street with shops on both sides of the roadway, solved in the neo-classicistic Palladian architecture of Adams, with dominant structures at the center of the building on both sides and at the ends at the entrances to the bridge.



Bath, Somerset County, England. Pulteney Bridge over the Avon River (1769 - 1773, architect Robert Adam). A reconstructive view of the project from the original drawings of Arch. Robert Adam (1769) General view of the bridge by Thomas Malton (1788) and the bridge street by Joseph Mallord William Turner (1810)



The second of Adam's commercial bridges was developed in 1790–1791 as a grand structure connecting the city along Princess Street and across the suburban Low Calton Hill to Leith Harbor. It was intended that a trace for a road would pass beneath it, now called Calton. It is a huge bridge structure, reaching to eight floors above the level of the road, made in Adam's Palladian style of neoclassicism. The design is extremely large and expensive, so this bridge was never realized.



Edinburgh, Scotland. Unrealized project for the so-called South Bridge (1790 - 1791, architect Robert Adam). General view of a watercolor by the author

So far, the issue of covered market bridges in Eastern Europe, Asia Minor and Iran from the last quarter of the fourteenth to the end of the nineteenth century has not been analyzed in the scientific literature. There are only partial publications on some of the more important facilities, mainly from Bursa in Asia Minor, Lovech in Bulgaria and Isfahan in Iran.

Until recently, there was no known archaeological or written source from the fourteenth century for the construction of covered bridges on the Balkan Peninsula too. I was recently impressed by an image of an anonymous Italian military map of the Balkans, dating it by the rulers' flags on the fortresses from before 1396, but not earlier than 1388, when the city of Sofia was Ottoman.



Adrianopolis (today Edirne, Turkey). Covered bridge over the Maritza River south of the city (14th century). View of an anonymous Italian military map (French National Library)

It is positioned after the big bend of the Maritza River and its merge with the Tundzha River, which means - at Adrianopol, although the city is marked rather northwest of it. However, which according to the realities of the Middle Ages is true, it is not by chance then that the approach to the main city gate is after the bridges across the island of

Tundzha. And the image itself is of a massively-built vaulted covered bridge with a colonnade upper structure that steps with its middle foundations on an island in the Maritza River. Where, then, should this facility be sought after it has been established for the time being that, by the end of the fourteenth century, the only existing bridge pair was the one across the island of Tundja - known today as the Gazi Michal Bridge and the Yaldaram Bridge, the first of which was later renovated in 1502 (or 1520). Of course, there is the possibility it might be either one of these two bridges crossing the road through Tundja Island, assuming that there is an inaccuracy in the image. Even with this hypothesis, the city would still be east of it. At the same time, in 1672, Parisian Antoine Galan saw large-scale remains of a bridge 7 km south of Edirne, near the Bulgarian village of Bosnakoy (now Bosnia, Turkey). "Walking along the Maritza riverbed," he writes, "I noticed remnants of a stone bridge there and, as it seems, quite long ..." As a location, this bridge completely corresponds to the location marked on the map after the river bend. It lies on the main route from Antiquity, connecting Via Ignatius of Traianopolis (Thracian Dorisk, today Banya, Ladzhaki, Lutra) through Dimae (today Feres) and Plotinopolis (now Dimitika) with Adrianopolis (day Edirne and Odrin) Via Militaris. In fact, it is also the direct connection of Edirne to the nearest seaport, which is extremely important for trade during the Middle Ages. It is possible that this bridge is a key trading and customs point on the Belorussian coast for the medieval themes of Macedonia and Thrace, as well as for the Kingdom of Bulgaria⁷.

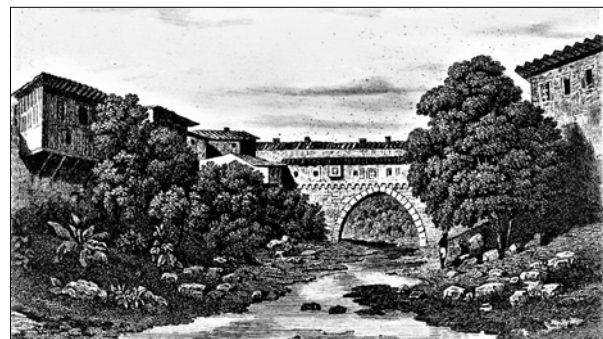
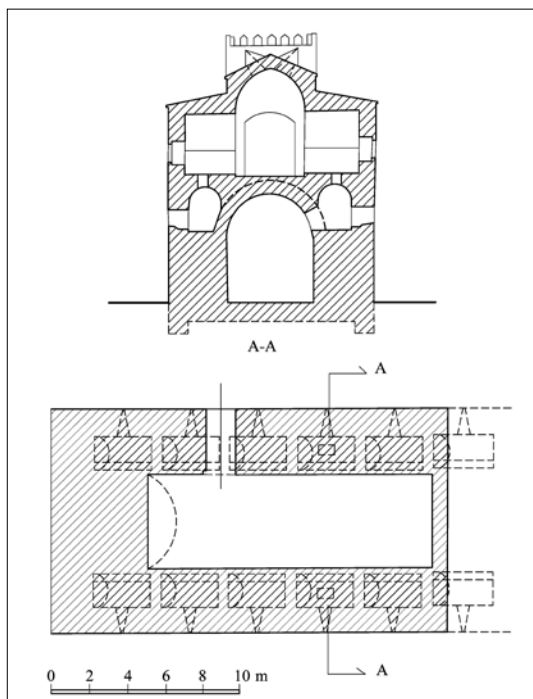
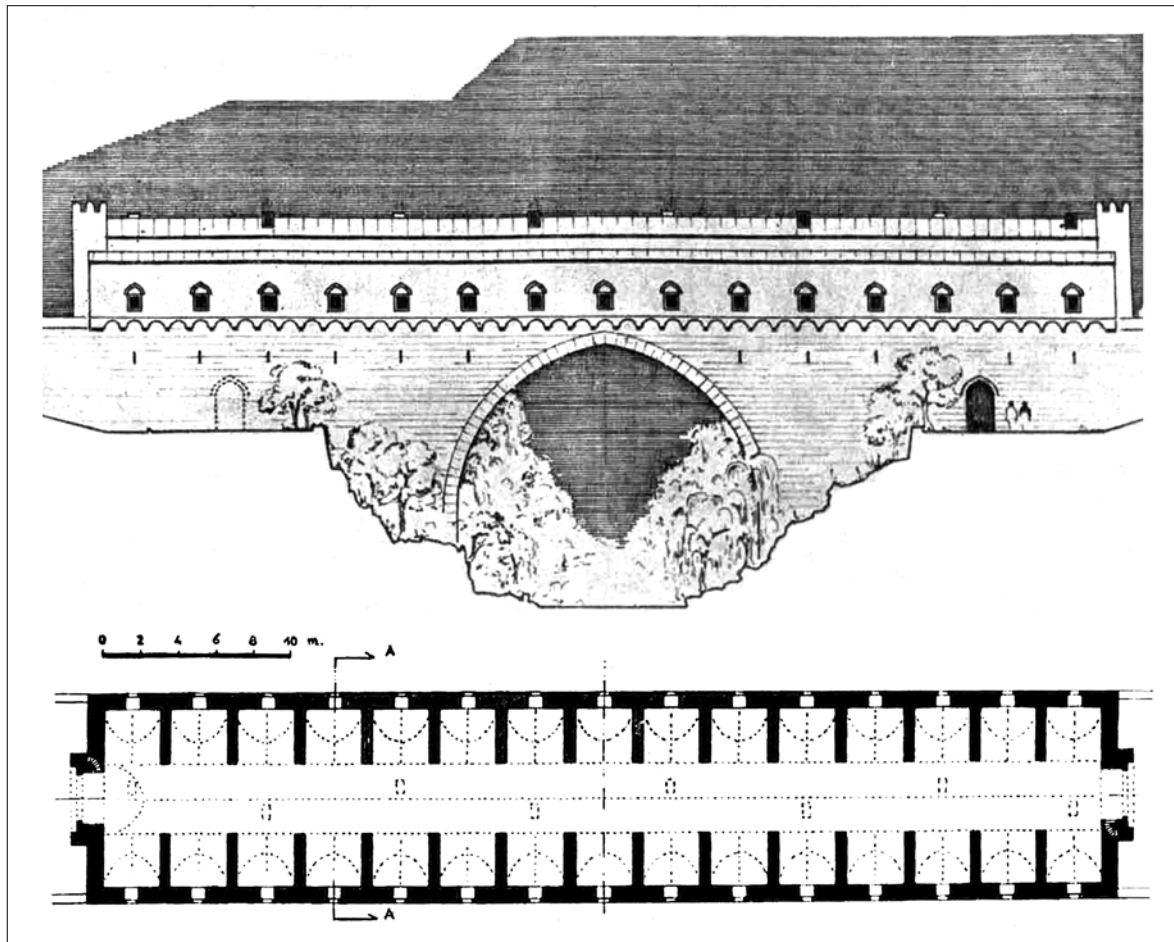
If the legend of the creation, told by Evliya Chelebi, is believed to be true, then from the 14th century dates the Irgandi Market Bridge over the river from the Gökdere Gorge in Bursa dates back. According to her, in the capture of the city in 1326, one of the participants in the battle finds gold coins scattered in the creek. He takes them to Sultan Orhan Bey as booty, but he tells him in charity to build a bridge with them in the same place, which was fulfilled.

However, according to the Kadi register of Bursa, the bridge was built by a Hajji Muslihiddin bin Ali al-Irgandi in 1442 who was killed in 1492 in Bilecik⁸. The same registers (Defter, no. 72, p. 114) state that in 1559 the grandson of the donor, Ahmed Chelebi, planned to create 31 shops and a masjid with the legacy bequeathed to him by his father. In 1855 the stores were already 33, ie. either a larger one is split in two, or the masjid has disappeared and two new shops have been formed in its place. Dr. Yilmaz Yonge, in his excellent scientific bridge studios (studies), has made an architectural restoration, in which the shops are 30. He furthermore believes that it has been built as a market bridge by Muslihiddin. It cites an in-depth architectural analysis, according to which some of the premises built into the hull are warehouses that can only be connected to upper structures erected above them, and therefore suggest that the initial shops may have burned down⁹.

⁷ Unfortunately, the electronic copy of the map that I have is poorly scanned and with insufficient resolution for me to read the detailed four-line inscription next to the image of the bridge.

⁸ Bursa Kadi Registers, Defter, No. 13, p. 11. The reference is to Irgandi Köprüsü, Bursa'da Gökdere suyu üstünde XV yüzyılda yapıldığı sanılan köprü. - In: İslam Ansiklopedisi.

⁹ Onge, Y. The Original Architecture of the Irgandi Bridge and Bursa. - In: Vakıflar Dergisi, XIII, 1981, pp. 425-448.



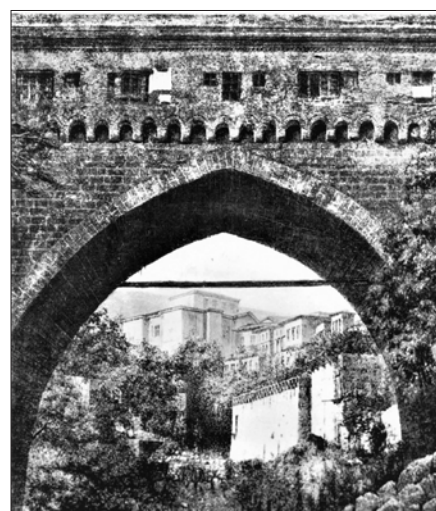
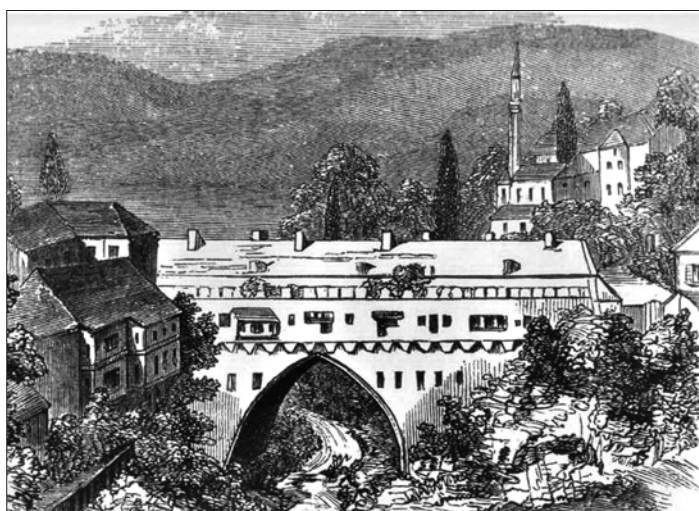
Bursa, Asia Minor Turkey. Irgandı Bridge (Irgandı köprüsü, and Çarşılı Köprü, 1442).

Reconstruction of the plan with the upgrades with stores and the facade by Onge (1981)

Sections through the bridge housing and the building above it on the restoration of Onge (1981) and views of the holes in the housing in a photograph taken after its destruction by the Greek Army in 1922.

Views of the bridge on drawings by Julia Pardoe (1838)

Indeed, this bridge has two long, vaulted caravanserais (14.85 x 4.50 m) built on its hull on both sides of the bridge vault, and longitudinally on the sides of them - with a series of 12 small, chain rooms that are without any connection to them. Which naturally means that they are warehouses of commercial premises built above the level of the roadway. This architectonic really reveals that the bridge was built and then in 1559 and rebuilt at its top as a completely massive covered structure. On either side of the street, there are stone gates, closed at night with iron doors. Engravings by Julia Purdy (1836) and French archaeologist architect Charles Texier (1835) show the covering of the market street as rising basilica like over the roofs of shops, with a number of ventilation and chimney overhangs. It is also seen that both the upper build stores and their warehouses below them are illuminated with rectangular windows - almost square in the upper structure and narrow as battlements (0.75 x 0.43 m) on the facades of the bridge housing. Dr. Yonge suggests that the initial ones are sharp pointed, but he does not actually state any details. Only the bridge arch is sharp pointed.

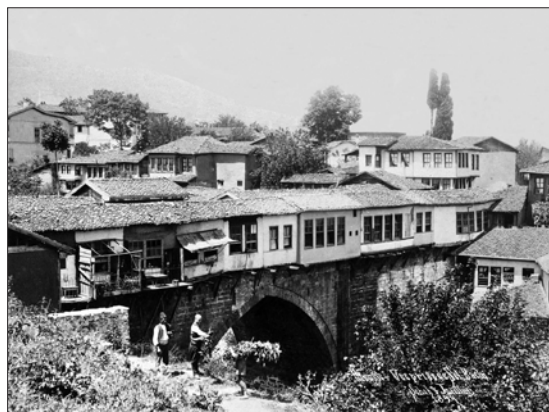
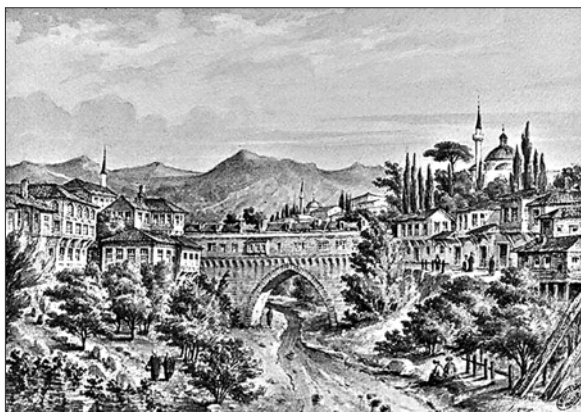


Bursa, Asia Minor Turkey. Irgandı Bridge (Irgandı köprüsü, and Çarşılı Köprü, 1442). Views of the bridge on drawings by Charles Texier (1832, published in 1862 and 1882, *Asie Mineure*) and archive photo view (1854)

According to the Kadi registers, the whole superstructure is covered with lead sheets, which were repaired in 1567, 1573, 1576 and 1632. Pardo's engraving shows that in the early nineteenth century, some of the sheets have disappeared and the roof was overgrown with shrubs, meaning that the rooms were massively arched. From the engravings and one photo from 1854, we find that the long outer walls of the store superstructure are cantilevered by shallow Lombard fittings, and that the entire superstructure with them is made of bricks. The facades are topped with a powerful, intricate cornice resting on a wolf-tooth style frieze. The body of the bridge (11 m wide) is stone, lined with large slabs whose surface hangs slightly above the forehead of the vaulted structure. There is a 16m wide point arched breakthrough, formed by quadras - whole and fitted with two shorter ones, which is an Armenian technique. By the way, the name of the Islamized mimar (architect) Timurtash oğlu (son of) Abdullah¹⁰, who is much more likely to be Armenian rather than Greek, is recorded as the author of the bridge.

¹⁰ Baykal, Kazim. Bursa ve Anıtları - Bursa et ses monuments. Bursa, 1950.

And by the time of the twentieth-century genocide, the neighborhoods with the bridge were populated with Armenians, as were the shop owners.



Bursa, Asia Minor Turkey. Irgandı Bridge (Irgandı köprüsü, and Çarşılı Köprü, 1442).

Watercolor view (before the 1855 earthquake)

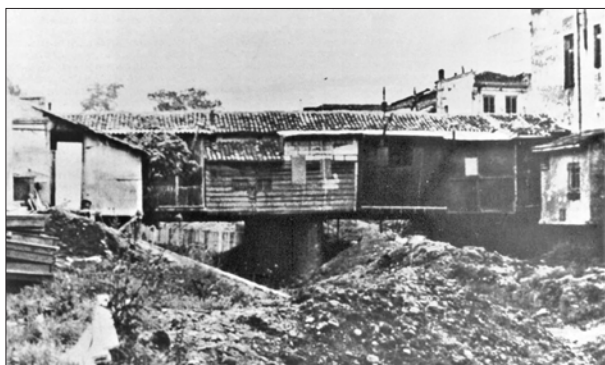
View of an archival photography from 1894 (Sébah & Joaillier)
of the restored after the earthquake look of the upgrades

Between 1573 and 1589, the bridge was visited by Reinhard Lubenau, who states that its length is 300 meters, and considers it to be Byzantine before the conquest of the city. In 1836, when it was thoroughly examined and drawn by Julia Pardew, it was perceived as Roman. During an earthquake in 1885 the market superstructure of the bridge collapses, and from photographs from the very end of the 19th century it can be seen that from the Lombard arches only some of the stone brackets on which they stand are left. On top on the two sides of the arch are built new, orieled timber structure shops, but the street between them is no longer covered. In its late appearance in 2004, it was completely rebuilt after its destruction by the retreating Greek army in 1922 and the partial reconstruction of the remains of 1949. However, the arch is built as a semi-cylindrical, and not sharp pointed.

It should be noted that in the Asia Minor medieval Islamic world, bazaars representing shopping streets, closed on both sides with solid gates and covered with rooftops, appear quite early. There are written records of such dating back to the X-XI centuries. Undoubtedly, they are at the heart of the architectural typology of Bedesten, which had a strong development in the fourteenth and fifteenth centuries and throughout the cities of the Ottoman Empire¹¹ - insofar as they were also classified as cities with or without bedesten. In the Seljuk Sultanate there are reports of bedestens since the beginning of the 13th century. In Kahramanmaras they date from the XI-XIII centuries, and from the XIV century are those in Lozengrad (Kirkklareli, 1383), Manisa and others. From the nineties of the fourteenth century is also the bedesten in Yildaram in Bursa. Functionally, the typology of the bedesten is thought to develop on the type of three-ship basilica, widespread in ancient and early medieval Syrian architecture. It can be seen that this type of architectonics is present at the superstructure of the Irgandi Bridge, which in fact repeats that of the three-ship bedestens.

¹¹ The word bedesten (tur. Bezesten, Bezestan) is composed of the arabic "bez" - clothing, with the Persian suffix "istan" - for a place.

In climatically warmer areas of the Ottoman Empire, it is often practiced to cover the whole or part of the street with light wooden roofs and even to close them with gates on either of the outer sides. Also, in the presence of rivers and gullies passing through the settlement, its eventual expansion, similar to what is happening in other territories of Europe, begins the construction of shops on top of the transfer bridges. In many cases, they are directly rebuilt as covered markets. It is clear from the descriptions of travelers and Kadis and tax registers that in the 15th-19th centuries many market bridges were built on the Balkan Peninsula, for example in Nis, Thessaloniki, Ser, Edirne, Pazardzhik, Dupnitsa, Malko Turnovo, Bitola, Prizren, Lovech, Drama, Gumurjina and others, in Bulgaria, Serbia, Greece, Kosovo, Turkey and Northern Macedonia¹².



The Covered Bridge in Gumurjina (now Komotini, White Sea Thrace, Greece). Views from archival photographs from the 1960s

In 1611, Lefèvre saw in Edirne a large wooden (or stone-wooden) bridge with workshops and shops. He describes it as "... the mosque bridge... where the shoemakers are. It is as new as the mosque."¹³ It was therefore built around 1568–1574 as a waqf of the then building Selimie Mosque by mimar Sinan. But as early as 1555, Hand Dershwam would note that "there is a stone bridge in the city opposite the Sultan's palace over the Maritza River (actually Tundzha), with many craftsmen around it: they also have a wooden bridge."¹⁴ Which means that the market bridges in Edirne in the sixteenth century are more than one. In this case, it is probably the Sarachi Bridge, which was almost duplicated at the same time by the Sarachhane stone (in 1853/4) near the Fatih Bridge, also above Tundja, leading to the Sultan's palace.

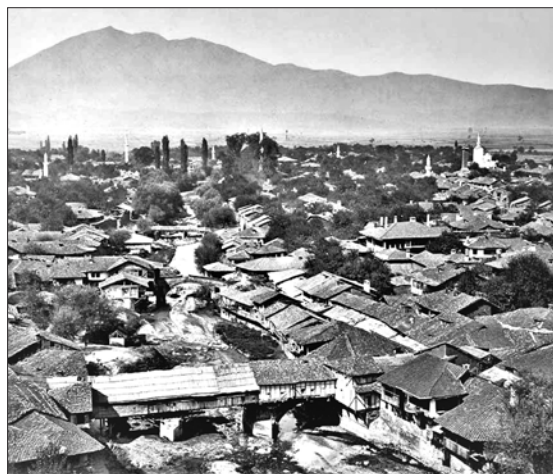
Evliya Chelebi also wrote about a wooden bridge in the middle of Drama's market in the middle of the seventeenth century, with the river sometimes flooding and dragging the shops. In the 1990s, Armenians Hugas Inejian and Stepan Agontz published a "Geography", which states that in Dupnitsa "there is a mosque, a bath and a market through which the gully passes", ie. establish the existence of a market bridge¹⁵.

¹² Tuleshkov, N. Protomaster Nikola Fichev - Life and Activities (1800 - 1881). - In: Protomaster Nikola Fichev - Creator of the Bulgarian National Revival (sometimes called Bulgarian Renaissance), S., 2000, 78–79.

¹³ French travelogues about the Balkans XV – XVIII in..., p. 193.

¹⁴ German and Austrian travelogues about the Balkans XV-XVI in..., p. 259.

¹⁵ Armenian travelogues about the Balkans in the 17th-19th centuries S., 1984, p. 110.



Covered Bridge in Drama (Eastern Macedonia, Greece)

Prizren. Panorama of the city, foreground Sozi Bridge over the Bistritsa River. Photo by Jozef Szekeli (1863)

In September 1863, Hungarian photographer Dr. Josef Szekely, accompanying Dr. Johan von Han on his expedition through populated with Albanian areas, took a series of photographs in Prizren (Kosovo), one of which shows a large market bridge. Two years later, it was described by Henry Tozer: “The bridge that crosses this part of the river, with its vaulted roof and the pavilions (shops) on both sides, reminds us of Ponte Vecchio in Florence, though it is entirely made of wood and is much smaller in scale. The exceptionally picturesque bazaar of which these pavilions are part has a colorful appearance, with brightly colored towels, rugs and cotton garments hanging in front of them...”¹⁶

The bridge is known as Sozi (Ura e Soziut), as it is reportedly built by the famous Ottoman poet Sozi Chelebi (1455-1524/5, born and died in Prizren) as a sign of his great love for his wife. According to local studies, it dates back to 1508. Later, in 1513, a mosque would be built on the shore in front of the Sozi Bridge, and a library next to it, considered one of the earliest on the Balkan Peninsula.



Prizren. Sozi Bridge. Photo of Austro-Hungarian consul Oskar Prochazka (1906)

¹⁶ Tozer, H. F. *Researches in the Highlands of Turkey*. 335–338.

In a photo from 1906 by Prochazka it still exists, but in 1912, during the Balkan War, after the city was conquered by Serbs and many people were killed, Commander General Jankovic demolished and detonated many public buildings and mosques, and also burns the bridge down. So next year, photographer August Leon will shoot a panoramic view of the city with the bridge for the Albert Cannes collection, on which it is already without his storefront structure.



Prizren. Panorama of the city, in the foreground is the burned Sozi Bridge over the Bistritsa River.
Photo by Auguste Léon (1913)

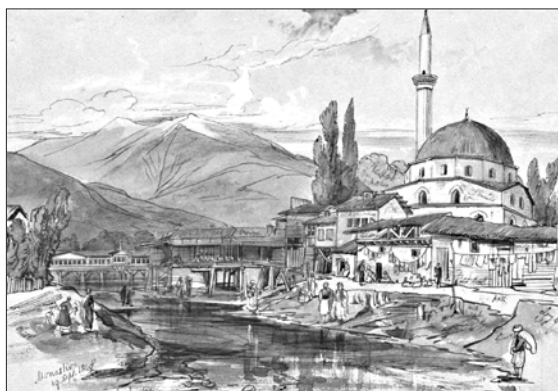
According to the old photos, the bridge was built out of stone and had three-vaults, undoubtedly curved, with powerful high breakwaters. However, we can see formwork imposts around them and on the breakwaters with large long squares, which indicates the construction is of the period from VI-VIII centuries, if one also takes into account the presence of a single-stage overhang of the hull lining above the forehead of the arched construction. So in this case it is most likely a restoration, made in 1508, of a ruined ancient or early medieval Byzantine construction. By the beginning of the sixteenth century, only the smallest arch from the shore with the tabakhane (the leather workshop) survived, part of the one on the opposite bank and one of the river bases at some height above the breakwater.

But whether this restoration also included the market upgrade is unknown. Assuming that the missing on all pictures next two vaults are in its current form during the reconstruction, then undoubtedly the new construction is a market, stepping in large part on the wooden road construction.

The photo by Szekely clearly shows two stages of construction of the upgraded part. The left half is lower, fronted with vertical boards and covered with wooden shingles, while the right half is taller, timber structure with a brick fill and a tile roof. It also continues on the

coast with taller store buildings with the same architectonics. Therefore, it can be assumed that the left, longer part is from an older bridge, dating from the seventeenth to eighteenth centuries, while the right is undoubtedly from the nineteenth century.

In 1836, the French scientist Amy Bue would see in Bitola (Monastir, today in Northern Macedonia) another market bridge and write: "The bazaar with its shops... occupies on both banks of the river a vast area connected by a wooden bridge, along which it also has shops. The bazaar has a wooden roof ..."¹⁷ Twelve years later, in 1848, Edward Lear will depict him in one of his Balkan watercolors as an architectonised, all-wooden structure with pediments and a semi-cylindrical kyoshk (sitting area for eating, meetings etc.) in the middle of the hull¹⁸.



Bitola, Northern Macedonia. The Great Bridge over the Dragor River between Pekmez Market and Ishak Celebi Mosque. Watercolor Views of Edward Lear (1848)

The bridge, called "The Grand", crosses the Dragor River along the market street (Pekmez Market, part of Shirok Sokak) between the city's Bedesten and Ishak Celebi Mosque (Ulujami, 1506) on the other bank. Near it, along the road of the bazaar, a city clock tower was built. There is no information as to when the market bridge was created, but the mosque waqnam (the document for establishing the waqf) dated June 3, 1508, records that 105 shops are provided for its maintenance, so it can be reasonably assumed that some of them are from The Grand Bridge near it. And this means that its appearance dates from the beginning of the sixteenth century. Of course, it was then inevitably rebuilt several times until 1853, when it was swept away by a catastrophic river. In January of the following year, Jordan Hadzhikonstantinov-Dzhinot wrote about the incident: "Down in the middle of the Monastery (Bitola) there is a river called Dragor. It has 6 bridges, and on them there are rich shops. This past year, Dragor ran in and, with strong and terrible water, destroyed the bridges and shops, which would cost them up to 5 million Groschen in damages."¹⁹

We also learn from this information that in the first half of the 19th century, there were five more covered market bridges over the Dragor River in Bitola besides The Grand Bridge. For the rest, however, no data is available. Most of them are probably part of the existing bridges of the twentieth century, for which there are preserved memories of previously wooden ones.

¹⁷ French travelogues about the Balkans XIX c., 1981, p. 374.

¹⁸ Edward Lear. In the Levant: Travels in Albania, Greece and Turkey in Europe, London 1988, p. 79.

¹⁹ Jordan Hadzhikonstantinov-Dzhinot. Monastery (Bitola). - Constantinople newspaper, January 29, 1854.

After the demolition, The Grand Bridge is no longer rebuilt as a market bridge. Soon after, a stone one was erected in its place, but it did not have a long life and no longer exist in photographs from the beginning of the twentieth century.

For the rest of the bridges, except for the one preserved in the Drama and those from archival photographs from Gumurjina, there are only brief references in travelogues and other old notes.

The most famous of the market bridges on the Balkan Peninsula is the "Covered Bridge" near Lovech, over the Osam River. He is referred to in the 1890s as a "large and very solid stone bridge with several arches"²⁰. I have found that some authors of the sixteenth to the nineteenth centuries classify stone-wooden bridges as 'stone' and their bridgings as 'arches'. For example, James Baker in 1877 would write about the one near Lovech: "The fast Osam, about a hundred yards wide, crosses the city beneath the arches of the new stone bridge, which would be an honor for every country."²¹ At that time, it was actually with a stone-wood construction. Therefore, without hesitation, it can be considered that the bridge, described at the end of the eighteenth century as "stone", is actually a well-built stone-wooden one. This is also the case with the earliest, more specific, information belonging to Ami Bue, who in 1836-1838 will see in the city a "covered stone bridge with shops"²².

It also appears that this one of the bazaar bridges was also quite old, possibly even from the sixteenth to eighteenth centuries, often smashed in its wooden parts by incoming river waters²³. Afterwards, most probably restored on the surviving stone foundations, finally in 1871 Felix Kanitz welds in such condition, which made him classify it as a "pitiful bridge connecting Mustafa and Dolna (Lower Krai) neighborhoods to the left bank of the Osam River. Even the most undeveloped and poor German village - he adds to this finding - would be ashamed of such an ugly bridge, especially since it, like the Ponte de Rialto (in Venice), is also used as a closed bazaar. The rotten boards and the holes drilled on this bridge were dangerous and fatal to my horse's legs. "Kanitz goes on:" In 1874 it was completely demolished due to the danger of collapse and a new one was erected in his place, built by Master Nikola (Fichev) from Dryanovo."²⁴

In connection with this construction, three Ottoman-Turkish documents were put into scientific circulation a quarter of a century ago²⁵. It is understood from them that at the beginning of 1874 (and perhaps even at the end of 1873) Nikola Fichev was preparing a project and a quantitative account for a wooden bridge bazaar. Later, the people of Lovech demand from him to offer a construction option for a massive bridge structure. In a letter dated July 20, 1874, to the Lovech Kaymakam, it was noted:

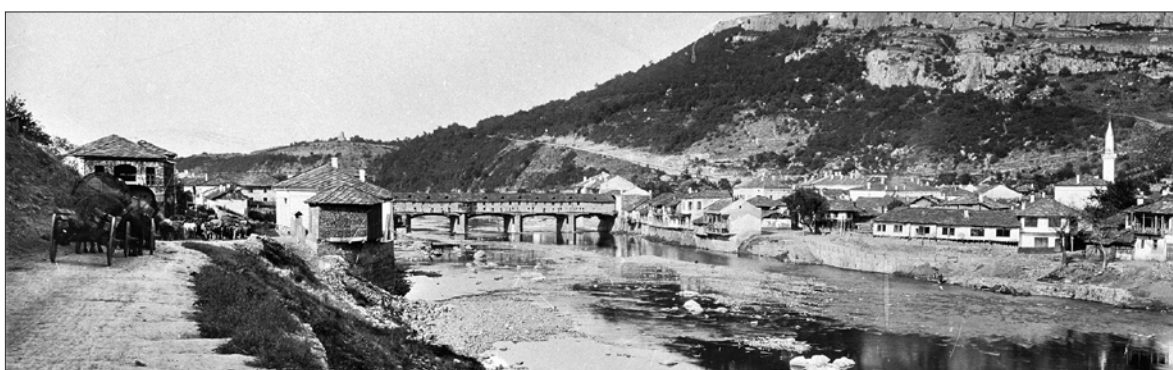
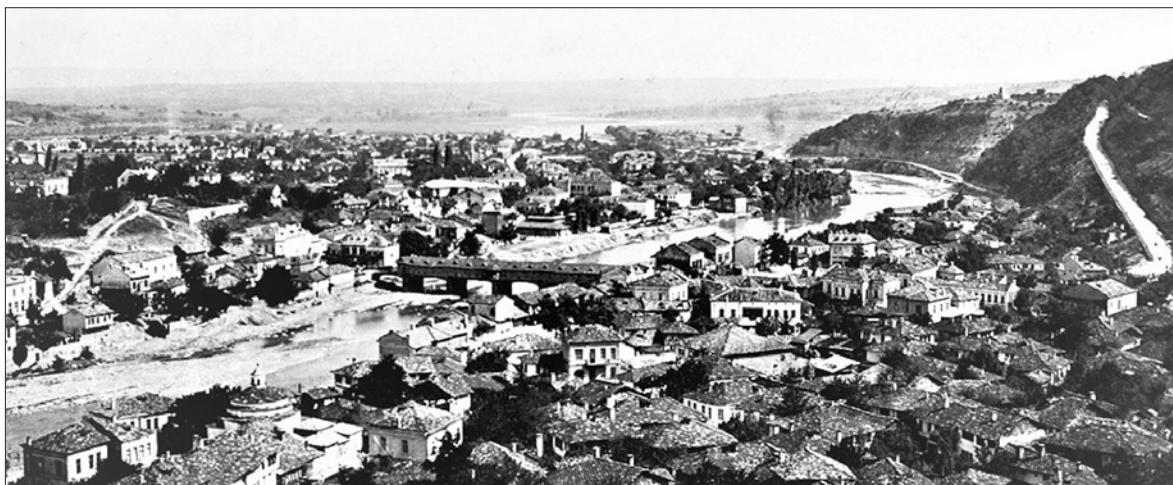
²¹ Baker, James. Turkey in Europe. London, Paris & New York, 1877.

²² French travelogues about the Balkans of the nineteenth century ..., p. 241.

²³ In a note from the book "The History of Alexander the Great" (Lovech Museum), it is noted that in 1848 "the Osam came and carried the bridge along with the shops and the goods". In another note published by Geno Ivanov, this is confirmed - "1848 June 25: the water carried the bridge". (Ivanov, G. Floods in Lovech and Caused Mischief - Nineteenth Century. - In: Lovech and the Lovech area).

²⁴ Felix Kanitz, Danube Bulgaria and the Balkans. T. II, S., 1995, p. 27.

²⁵ Maria Mravkarova. Kolyo Ficheto and the Covered Bridge in Lovech. - Journal of the Ages, vol.1, 1976, 49-53.



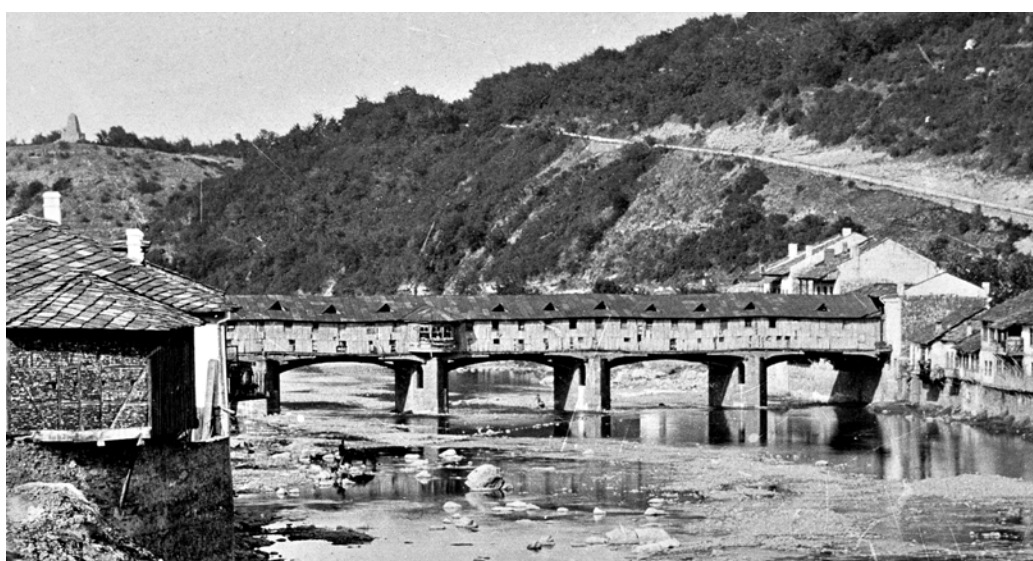
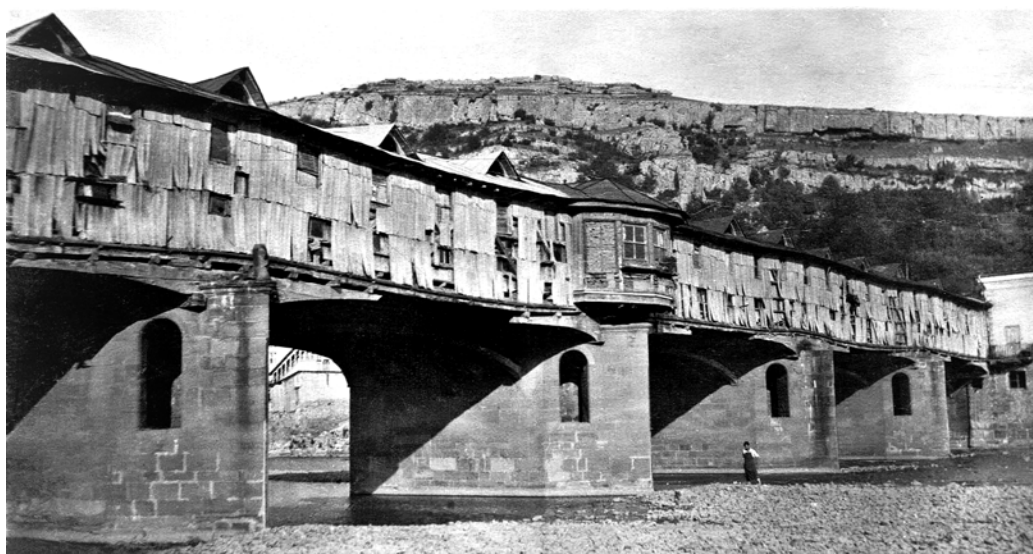
Lovech, Bulgaria. The Covered Bridge over the Osam River (1874).
Panoramic view of the fortress (1910s) and road level view (early twentieth century)

"In connection with the request to the master Kolyu, who returned from there (Lovech - B.A.) to Tarnovo, whether materials were prepared (ie projects and bills), for the big bridge in Lovech ... whether it can be of stone or not, according to the enclosed copy of the written account sent by him ... its value will be increased by 73,800 Groschen." But, because as can be seen from the text below, there were stones donated by the local population, and if allowed to use the "old ruins" (of the fortress of Lovech - B.A.), the cost of construction will go up only by 20,000 Groschen. Let us note in passing that Nikola Fichev, like all the masters of that time, were mindlessly demolishing the abandoned ancient buildings and fortresses for the needs of new construction²⁶.

From the third document (November 11, 1876), we learn that the old bridge was not deliberately demolished, as Kanitz claims, but that "last year (1875) it was completely destroyed when the river came". It is also confirmed by correspondence, published by Geno Ivanov: "1871 June 25: the water carried the bridge."

²⁶ Unfortunately, this practice destroys a great deal of ancient and medieval Bulgarian construction. For example, the fortress of the capital Pliska was preserved until the sixteenth and seventeenth centuries together with the crenels, but in the next three hundred years, in addition to the demolition for building materials, but also hundreds of furnaces smelted its limestone quadras, columns and decorative plastic arts for him to witness it at the end of the nineteenth century as pitiful ruins. It was not until 1890 that a royalty decree prohibited this practice, which, later on did not prevent Alexander Stamboliiski from officially allowing it again.

This bridge, which serves the traffic of the "Constantinople postal road leading from Tarnovo to Vidin", is an old waqf property managed by muteveliya (inheritor of the waqf), and therefore the whole of its funding from the state was denied. So it was built mainly with funds from donations, loans and personal labor, as evidenced by the same document. It costs about 500,000 Groschen. In its completed form, there were 46 shops, bringing 170 000 Groschen each year, which are serviced by the loans and which, after their repayment, should be used to support primary schools, repair mosques, repair and build small bridges and fountains.

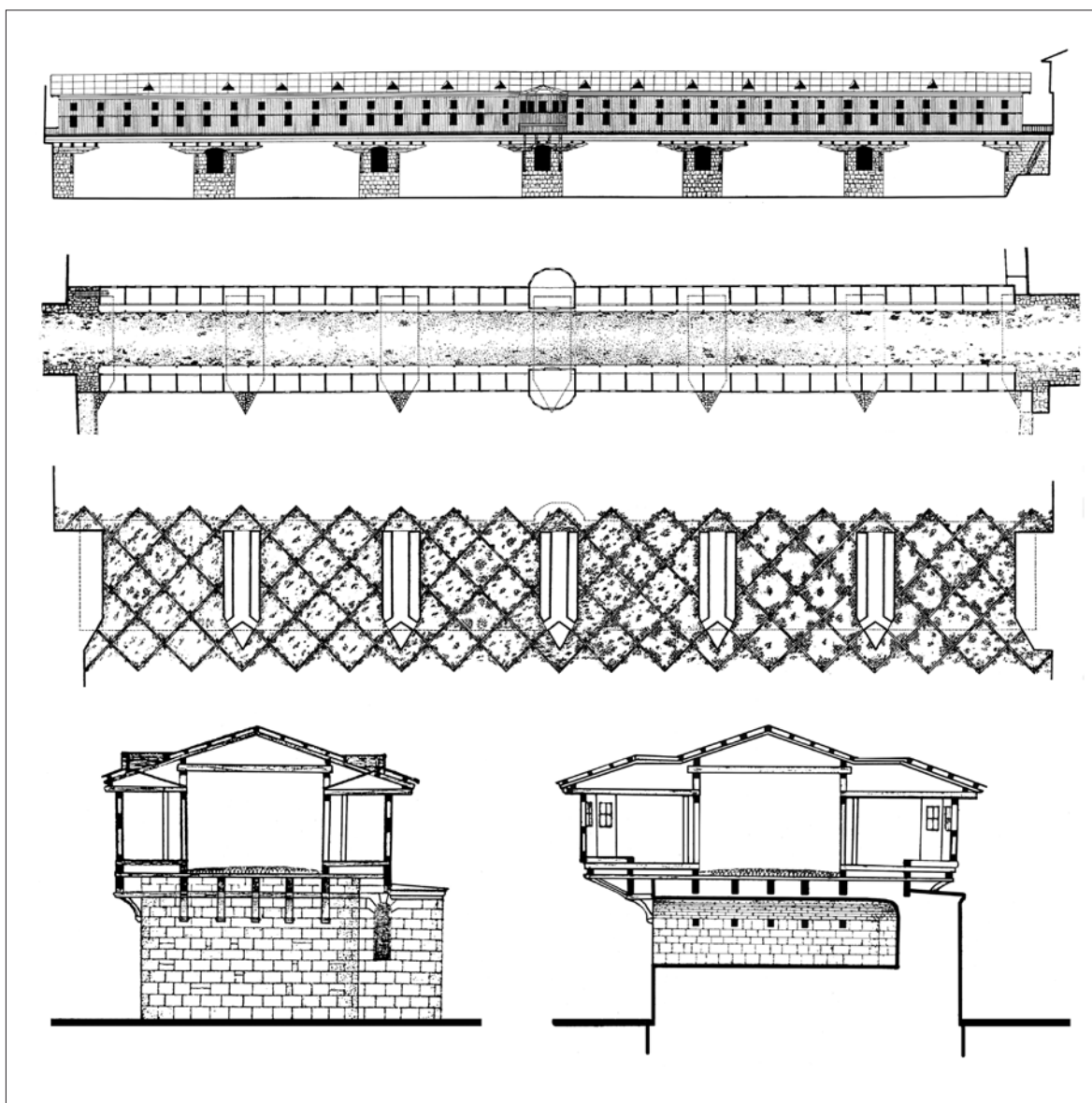


Lovech, Bulgaria. The Covered Bridge over the Osam River (1874).
General views of photographs from the early twentieth century

These three documents show the complete chronology of this construction, which has so far been referred to as being carried out from 1874 to 1876. It turns out that during the first of these years only projects and bills are drawn up, and the construction itself takes place from 1875 to 1876. Arch. Georgi Kozarov learns from the local people that projects and a wax model have been made for the bridge.²⁷

²⁷ Kozarov, G. Master Nikola Ivanovich Fichev (life and activity). - In: Master Nikola Fichev (Kolyu Ficheto) 1800 - 1881. S., 1953, p. 40.

According to Felix Kanitz, "the new bridge rests on seven limestone stone pillars ... decorated with lions and other sculptures."²⁸ From archival photographs and some paintings taken before it burned in 1925, we know its architecture in greater detail. His description in Kozarov's writings is also quite detailed. A relatively successful attempt at reconstruction is made by Arch. Emil Momirov, but in the drafting it was no detailed that according to the Ottoman-Turkish documents cited above, the shops built were only 46 in number, not 68, as the author thinks, based on the visible axes in the façade. This means that not all of them are created equal in size, but as small and large stores. That is why, as Kozarov points out in the same book, each shop has "one or two small windows", i.e. it covers one or two planning axes.



Lovech, Bulgaria. The Covered Bridge over the Osam River (1874). Planning reconstruction of the bridge by arch. Momirov (1954). Foundations plans with reinforcement at the bottom around them and the main level, facade and sections

²⁸ Felix Kanitz, Danube Bulgaria and the Balkans. T. II ... p. 26.

However, the question is unclear whether the shops are built as one-storey, with two rows of windows above each other, or two-storeyed. In the famous etchings of Peter Morozov it is clear that the central kyoshk on the side of the stream is two-storeyed. There is also an intermediate structural division that runs horizontally between the two rows of windows. And all this speaks of two floors. But at the same time, it is evident from the archival photographs of the bridge that there is a single storey kyoshk on the other side. Having two-storey shops here would not be strange considering their small area at the bottom (2.5 m x 2.5 and 2.5 x 5.0 m). Moreover, the traditional shop at the time was mostly two-storeyed throughout the Balkans, for example the Hadzhikonov shop in Sevlievo and the Turnovo shops, again built by Fichev. So the presence of an upper storage level is quite logical. The third row of openings, raised in dormers above the roof, illuminates and ventilates the street lane in the same way as in Bursa's Irgandi.

In this bridge-bazaar Nikola Fichev demonstrated not only virtuoso construction mastership and original ideas in detail, but also highly artistic views. The architectural image is remembered for its vertical and horizontal articulation, with colorful bay windows and stone-cut cornice on the breakwaters. The pantheon of beastly images, similar to those of the bridge to Byala, has not only security functions in the sense of popular cultural beliefs, but also includes encoded messages, among which the symbol of the Bulgarian revolution - the lion - is central. Saturnino Jimenez in 1877 puts it this way: "Before completing his grandiose work, the artist placed on the central vault a sculptural symbol of patriotism - the Bulgarian lion. Representatives of the Ottoman authorities tried to oppose it, based on either the political significance of this emblem or the Muslim belief not to paint or draw figures of living beings. But the architect succeeded in proving to the Lovech Kaymakamin that in this case the lion is a symbol of strength and that, therefore, in the interests of strength, the bridge cannot be passed without a lion."²⁹ Also, this text confirms the authenticity of the identical one, recorded by Georgi Kozarov 40 years later, already a legendary story-dialogue between the Protomaster and the Lovech authorities.

Contemporary historiography considers this to be the last building of Nikola Fichev, with which he discontinued his architectural practice, but has several of his churches, which were then built until 1880³⁰.

²⁹ Saturnino Giménez, *Mis viajes en la Peninsula de los Balkanes y el Asia Menor*. - In: *Boletín de la Real Sociedad Geográfica*, vol. XIV, 1883, p. 248.

³⁰ Much of the text on the Lovech Covered Bridge was published in: Tuleshkov, N. *Protomaster Nikola Fichev Life and Activities (1800–1881)*. - In: *Protomaster Nikola Fichev Creator of the Bulgarian National Revival*, S., 2000, 77–80.