THE MAIN FEATURES OF THE SELJUK, THE BEYLIK AND THE OTTOMAN BRIDGES OF THE TURKISH ANATOLIAN ARCHITECTURE FROM THE XII th TO THE XVI th CENTURIES*

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The period from the XII th to the XIV th centuries is generally accepted to the period of the Turkish settlement in Anatolia. In which ever field they appear, the artistic products of this era should be evaluated in the light of various factors such as the social necessities, the diverse religious and cultural influences, the existing artistic traditions and the artists responsible for the works themselves.

The Turks had already adopted the Islamic culture and traditions when they started the settlement of Anatolia; here, they came across the well established centers of the Christian culture. The resulting interaction with the Byzantine and Armenian civilization had inevitable effects on the formation of the Turkish Anatolian art and led to a continual exchange of artists and artistic ideas.

The political unity of Anatolia was not achieved in the sense we understand today during the early Turkish Anatolian period, which covers the time until the Ottoman domination. The Turkish culture was effective in an extensive geographical area extending from Iran, Iraq, Syria, Caucaus, Turkestan and even to India. All the new artistic products in Anatolia were influenced and enriched by the old Turkish and Islamic traditions, as well as by the local cultures.

This extensive region was largerly under the dominion of the Seljuk empire; although some independant or semi-dependant political entities were also present, the characteristics of the art and culture were defined by a shared civilization with common beliefs and aims.

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The creative human element of the era, the architects and the artisans representing the technical and artistic potential, was in motion throughout the empire[1]. It was quite possible to find a mescit in Ankara built by an architect from Isfahan, another one in Konya built by an architect from Tebriz. An artisan from Farab could work at Hasan Keyf[2]; another one from Azerbaijan or possibly from Damascus could equally well work at Divriği. It was not surprising to find the work produced by the same group of artisans in completely different and far off locations. Bretanitskiy supports this observation by pointing out that the architectural decorations of the historical buildings in Bursa, Konya, Bağdat, Maşhad, Semerkand and many other principal cities of this era were the work of architects and artisans from Azerbaijan[3].

By the end of the XIII th century, the diminishing power of the Seljuk state in Anatolia resulted in the appearence of small, independant feudal entities. Before being absorbed into the Ottoman state after the XIV th century, they distinguished their short existence by causing various buildings of artistic value to be built in diverse regions. The architecture of the Western Anatolian region was of particular significance in providing the most important synthesis in the formation of Ottoman architecture.

Kuban defines the Anatolia of the Middle Ages which relates to this period, as follows: "..Artistic styles require a long time to be properly established. The typical unrest of this period could not provide this chance. However, when the Anatolia of the Middle Ages (after the IX th century) is evaluated as a whole, the common essence of the artistic products is of innumerable traditions unified under the ıslamic cultural context[4].

In spite of the common language and religion, the absence of a homogenous culture is natural in a period of settlement which lasted, to a great extend, until the XVI th century.

The conquest of Istanbul was a step into the modern age which introduced the Anatolian art to the Mediterranean and Western culture and

[1] Kuban, D., "Anadolu Türk Mimarisinin Kaynak ve Sorunları." İstanbul, 1965, p.100.

[2] Mayer, L.A., "Islamic Architects and Their Works. Genève, 1956, p.137.

[3] Bretanitsky, L.S., Zodgestvo Azerbeydjana XII-XV. VV. İ Yevo Mesto v Arhitekture Peredne vo Vostaka. Moskva, 1966, p. 545.

[4] Kuban, D., "100 Soruda Türkiye Sanatı Tarihi." İstanbul, 1970, p. 154.

caused in to acquire new dimensions. Istanbul became the dominant cultural center influencing the future development of the Ottoman art. In the distant regions where the influence of the capital was not felt, the local and regional cultures and their rate of development shaped the art, the life style and the other social features, giving them a distinct character of their own[5].

We have attempted here to give an outline of the main characteristics of the origins and development of the Turkish Anatolian art and culture; many architectural edifices from this context have survived. We intend to discuss here the bridges which were a vital part of the main transportation routes.

Being an entirely functional construction the bridge is not rich in architectural elements. For this reason, although it is possible to point out the characteristics of the different periods, there is not sufficient material to reach definite syntheses through comparision of elements, as we can do with other types of buildings. However some observations on the limited constructional elements of the bridges enable us to reach some syntheses on the characteristics of the period.

The main determinant of the type of bridge to be built is the topography of the river bed. On a wide, shallow river bed the span of the arches need not be long (Dicle Bridge) (Fig. 1)[6]; on the other hand, when the river has a deep strong flow, a high arch with a long span becomes a technical requirement (Malabadi Bridge 1145-1154)[7]. In its simplest

[5] For the dominant architectural styles in regions where the influence of the artistic movements which developed in the cultural centers was not immediately felt, see İlter, F., "Doğu Anadolu'da Timur devrinden bir yapı: Yelmaniye Medresesi (An East Anatolian Building from the Age of Timur: Yelmaniye Medresesi) Anadolu (Anatolia), Vol. XVII. Ankara, 1975, pp. 91-121.

[6] The road from Silvan crosses the Dicle river across a great bridge, turns north and reaches Diyarbakır through the Mardin gate. This is the famous Dicle bridge (1065-1067), the earliest Islamic bridge in Anatolia.

[7] On the Diyarbakır-Silvan-Bitlis road, the bridge between Silvan and Bitlis is built across the Batman stream, an estuary of Dicle. It was believed to date to 1147 until quite recently (Çulpan, C., "Türk Taş Köprüleri", Ankara, 1975, p.41) but research on historical documentation (Ibn-ül Ezrak, Tarih-ü Meyyafarıkin ve Amid, H. 572, v. 172 a, 172 b, 179, 179 b) has revealed that the building was not completed until 1154. For details see, İlter, F., "Güney-doğu Anadolu Erken Devir Türk Köprülerinin yapısal ve süsleyici ögeler yönünden değerlendirilmesi" (A Structural and ornamentational evaluation of the early Turkish period bridges in south-eastern Anatolia) Anadolu (Anatolia), Vol. XVIII, Ankara, 1977, p.37,38.

form, the single span bridge with steep approaches from both ends is the most common form of the early Anatolian bridges (Fig. 2, 2A). Naturally, the prominence of transportation using animals rather than the carriges was an important determinant in developing this "Steep bridge" form (Tekgöz "1203"[8] Çeşnigir[9] bridges). (Fig. 3, 4).

As the forms of the Anatolian bridges were generally determined by natural requirements, we find that they shared a similarity of their main elements. During the Beylik period which followed the decline of the Seljuks and even during the classical period of the Ottomans the general bridge shapes from the XII th century continued in the two basic forms: a) The bridges with one main arch and with steep approaches from both ends to the center, b) The flat bridges with several arches where the spans are fairly equal[10]. This classification is also derived from the architectural presence of the bridges.

The basic form of the bridges do not deviate under the effect of the local or regional artistic influences, however, the influence of the artistic traditions can be traced in the architectural elements.

The foremost architectural element of the bridge is the "arch". Its shape is usually "pointed" on the early Anatolian bridges. However, although the main span of the bridge is pointed the secondary openings can be semi-circular in shape (Malabadi, Tekgöz bridges). The mixed use of different arch shapes could reflect a desire for "variations". This characteristic has a unifying significance as it is a common feature of the early Turkish period architecture, known as the Seljuk period.

[8] Tekgöz bridge is built across Kızılırmak on the Kayseri-Ankara road and is 30 km to north-west of Kayseri; it is on the old road, now disused after the construction of the modern highway. For an initial explanation of the inscription see, Halil Edhem, "Kayseriye Şehri, Mebaniyi İslamiye ve Kitabeleri". İstanbul, 1332, pp.8-16. Also, Gabriel, A., "Monuments Turcs d'Anatolie, I," Paris 1934, p.31.

[9] Built across the Kızılırmak, 100 km from Ankara on the Ankara-Kırşehir road.

[10] E. Herzfeld has classified the early bridges according to a criterion which is close to our own grouping. (Sarre, F., -Herzfeld, E., "Archäologische Reise im Euphrat und Tigris Gebiet". Berlin 1920 Band II, p. 324). We are unable to agree with some of the definitions in the Herzfeld grouping; according to Herzfeld the bridge types are a factor of the shapes of the banks (op.cit.p.324). We think that the main determinant of the type of bridge is not the banks but the breadth and depth of the river bed.

A significant change in the shape of the main arch occurs in the XIV th century which is the period of the Beylik entities. Usually pointed in shape so far, the main arch now becomes semi-circular in many instances. Apart from the semi-circular arch of the Ala (Görmeli) bridge "1302"[11] (Fig, 5), which is different from the earlier examples in its general form as well, the main arch is semi-circular in shape on the Bıçakçı (XIV th cent.)[12], Bıçkıcı (XIV th cent.)[13], Çağlayan[14], and Alaca bridges (Fig. 6-8).

After the XIV th century, the Ottoman bridge architecture did not adopt the semi-circular arches of the Beylik period and went back to the "pointed" shape of the earlier period (e.g.Koyunbaba "1483"[15] (Fig. 9), Geyve Ali Fuat Paşa bridges). The pointed arch shape was unaltered on the classical period Ottoman bridges (Büyük Çekmece bridge "XVI th cent."; Alpullu Sinanlı bridge "XVI the cent"[16] (Fig. 10-10A).

The pointed arch of the early Turkish bridges appears on the Roman and Byzantine bridges, especially in the eastern and southeastern Anatolia. The Cendere Bridge from the Roman period (near Adıyaman, on the ancient Kahta road, built in 198-200 A.D.)[17] (Fig. 11) and the Karamağara bridge which has a Byzantine inscription (10 km. from Ağın near Elazığ, the first half of the VI th cent.)[18] have pointed arches (Fig. 12).

[11] The bridge is in the Konya province, built on the Ermenek-Anamur road and spans a narrow, rocky gorge through which the Göksu flows.

[12] Built across the Göksu on the Karaman-Ermenek road.

[13] On the Alanya-Gazipaşa road, 3 km. from Gazipaşa.

[14] Built across Yeşilırmak at Amasya, on the Amasya-Çorum road.

[15] For details of Koyunbaba bridge on the Çorum-Osmancık-Tosya road, built across Kızılırmak at Osmancık see, İlter, F., "Über einige bedeutende Türkische Bauten in Osmancık und İskilip". Fifth International Congress of Turkish Art, Budapest, 1978, p.p. 433-456. Also see, Çulpan, C., "Türk Taş Köprüleri". Ankara, 1978, pp. 112-115.

[16] Both bridges are the work of Mimar Sinan; See, Bozkurt, O. "Koca Sinan'ın Köprüleri. İstanbul 1952 (Büyükçekmece bridge pp. 52-70, Alpullu Sinanlı bridge, pp. 71-80).

[17] Gazzola has mistakenly described the location of the bridge as in the vicinty of Kahta in Northern Syria (Gazzola, P., "Ponti Romani". Firenze 1963 "Olschki Editore", p. 172).

[18] For the bridge dismantled due to the construction of the Keban dam, see, İlter, İ. "Karamağara Köprüsü Sökümü" (Dismantling of the Karamağara bridge). Keban Projesi 1972 Çalışmaları. Ankara, 1976, pp. 195-205, Pl. 120-131.

We therefore find that the Roman and Byzantine bridges are not always built with semi-circular arches as it is mistakenly assumed so far and put forthin some publications. Naturally other examples do have semi-circular arches.

The study of the bridge architecture in the neighboring countries does not supply a definite idea to the possible extent of influences on the bridge forms. In our eastern neighbor, Iran, the bridges have distinct differences of form in the shape of the arches. The archs of most of the bridges dated to the Islamic era are shaped in the Iranian arch form[19]. On the other hand, the elliptical arch[20], one of the characteristic elements of the pre-Islamic Sassanide art, is used for the spans observed on the remains of the sassanide bridges (e.g.Pul-i Zar bridge)[21].

On two Iranian bridges whose superstructures were changed through repairs done in a later period, pointed arches are notable. These are the Kırmızı and the Kaflan Kuh bridges in northern Azerbaijan[22]. The construction of Kırmızı bridge is dated by Severov to the XI-XIII cent. and to XVI cent., which are rather distant dates in relation to each other[23].

Our discussion of the possible influence of the bridges in neighboring countries on the "pointed arch" shape of the Anatolian bridges can be continued with the examples from other regions. On two examples from Iraq in the south, the Altın bridge from the IX th cent[24]. and the Habur

[19] The Fars, Horasan and Bahtiyar provinces contain monumental bridges which are also the earliest Islamic bridges in Iran. The foundations of most of these bridges date to the Sassanide period. The contributions of the Roman engineers are apparent on some bridges. (Pope, A.U., "Bridges, Fortifications and Caravanserais" -A Survey of Persian art- II. London, New York, 1939, pp. 1228, 1229, Fig. 435). For the Iranian bridges, also see, Ghirsman, R., "İran, Parthians and Sasanians". London, 1962, p. 137.

[20] Wiesner, J., "Die Kunst des Alten Orients". West-Berlin, 1963, p. 152, Fig 34. Also see, Godard, A., "Die Kunst des Iran". Berlin, 1964, p.137, Taf. 110, 113.

[21] Pope, A. U., "Bridge, Fortifications and Caravanserais". A Survey of Persian Art, II. London-New York, 1939, p. 1232.

[22] Bretanitsky, L. S., Zodçestvo Azèrbeydjana XII-XV vv. i. Yevo Mesto v. Arhitekture Perednevo Vostoka, Moskva, 1966, p. 132.

[23] Severov, N. N., "Pamiyatniki Gruzinskovo Zodtchestva".*Moskva,* 1947. Bretanitsky, L. S., Op.cit., footnote on p. 133.

[24] For details see, Streck, M., "Altın Köprü" article. İslam Ansiklopedisi I, pp. 389-390. Also see, Sarre, F., -Herzfeld, E., Archäologische Reise im Euphrat und Tigris Gebiet, Berlin 1920, Band II, p. 326; Buckingham, J. S., Travels in Mesopotamia, London, 1827, p. 328.

bridge[25], we find that the main arch is pointed but that other arch shapes are also used on the secondary openings.

It is possible to wonder if these two bridge, especially the Habur bridge could be the prototypes of the early Anatolian Turkish bridges, with respect to the general form and the shape of the arches. However, caution must be exercised in considering the Habur Bridge, whose dating is not precise. In a region where bridges with pointed arches were built even during the Roman period, the two bridges in question should not be considered as prototypes, but as examples of a regional architecture where buildings with pointed arches were traditional.

Our knowledge of Armanian architecture in Anatolia is much more limited. Our entire data is based on an example introduced by Brosset[26] and Lynch[27]; the bridge on Arpaçayı, dated to the X-XI cent. at Ani. Judging from the information provided and the drawing based on the remains, this is a flat bridge with one main arch, semi-circular in shape. The arch has an interesting structure composed of narrow arches arranged in echelons around the main arch.

The Armenian influence is especially prevalent in Eastern Anatolia and can be traced in the repetiton of the arch structure of the Arpaçayı bridge. An example to the same kind of bridge construction is the Hatuniye bridge at Bitlis, built in the Ottoman period.

The observations outlined so far lead us to the following conclusion: whatever the period in question, the Turkish Anatolian bridges developed their own styles and arch shapes in accordance with the local and regional architectural influences, rather than showing the stylistic influence of one or more particular neighboring country.

The pier, one of the architectural elements of the bridges, does not have a well established placement on the Turkish Anatolian bridges until the Ottoman period. Piers are especially important for flat bridges with several spans. We find that in every instance the most convenient form for the individual case was found and adopted. The "pier-noses" are usually

[25] Preusser, C., Nordmesopotamische Baudenkmäler. Leipzig, 1911, pp. 22-23. Also, Bell, G. L., Amurath to Amurath. London 1911, p. 289.

[26] Brosset, M., Les ruines d'Ani, St. Petersburg, 1860, p. 10, Pl. 11.

[27] Lynch, H. F. B., Armenia: Travels and Studies, Vol. I. London, 1901, p. 76.

triangular prismic in shape, while the "pier-backs" are cylindirical or polygonal prismic. On a few bridges we observe pylons set on the pier-noses and the pier-backs. An example is the Hasan Keyf bridge (1155-1175), one of the very first Turkish bridges in Anatolia and notable for its monumental construction and its decorative figures in relief[28]. (Fig. 13-16). Naturally, the pylons set on the piers are reminiscent of the Iranian bridges. Being one of the main elements of the bridge in Iran, the pylon has been developed into many different forms and variations (e.g.Erdebil-Çelhoren, Kermanşah-Köhne bridges).

The pier was used on the Roman and Byzantine bridges in the same way as it was used on the Turkish Anatolian bridges. The variations required by natural condit ons were the paralels of the variations that appeared in the seljuk preiod (e.g. Ankara-Ak Köprü "1222", Halil Viran bridge-Diyarbakır-Eğil "1220", Kırşehir-Konya-Kesik Köprü "1248") (Fig.17). and in the Beylik period (Ceyhan-Göksu bridge "XIV th cent", Karaman-Ermenek-Bıçakçı bridge and Gravga bridge "XIV th cent. (Fig. 6), (Fig. 18-19).

The placement of the pier and the shape of the pier-nose and the pier-back finally were given a set pattern on the Ottoman bridges. The triangular-prism shaped pier-nose and the semi-cylindirical or the polygonal pier-back were almost invariably used.

Whether it was the Seljuk, the Beylik or the Ottoman period, the size of the pier remained within reasonable bounds, as it was true with the other elements of the bridge, an unnecessary show of grandeur was not adopted. The only exeptions are some early bridges built on ancient foundations where the pier has considerable volume (Köprüpazar[29], Tokat-Hıdırlık bridges) (Fig. 20).

Another important element of the bridge, the "parapet", is rather hard to distinguish on Turkish Anatolian bridges up to the Ottoman period. However, we can say that it was built according to an unchanging

[28] The bridge is built across the Dicle on the Batman-Gercüş-Midyat road; for the structural characteristics, ornamentation and dating of the bridge, see, İlter, F., "Eine Gruppe der frühtürkischen Brücken in Südostanatolien", IVème Congrès International d'art Turc. Aix-en-Provence, 1976, pp. 97-104; also, İlter, F., Osmanlılara kadar Anadolu Türk köprüleri, 1978, Ankara, pp. 49-58.

[29] On the Antalya-Manavgat-Alanya road, near the Belkıs ruins.

form until the Ottomans. This consisted of the spandrel wall built up to the top of the parapet without a break. Its beginning was not delineated on the outer face of the spandrel. Although, due to its exposed position, it is the most vulnerable part of the bridge to the force of outside elements and can easily be given a different shape, we are able to form an opinion from the surviving examples. The inscription on the parapet of the Pazar Suyu bridge proves that it has reached us in its original form. On the other hand, the inscription appears set in a construction which is different in the shape of the parapet stones from the rest of the bridge on the Tokat-Yeşilırmak bridge. On some bridges where definite dating is possible owing to the presence of the inscription, these elements are definitely not the originals; the examples are the Tekgöz bridge on the old Kayseri-Ankara road; the Kesik Bridge of Kırşehir "1248"[30], the Ak Köprü of Ankara "1222"[31] (Fig. 21-22).

We also find that some bridges were built without the parapet in the Seljuk Period. An example is the Haburman Bridge, from XII th century[32] (Fig. 23). Another example, according to Evliya Çelebi is the Malabadi bridge which had iron railings instead of a stone parapet[33]; the present ones were built quite recently.

The variations of the parapets are easily summarised. They were above all also functional and adorned. The cross-section was rectangular; their top was slightly rounded in shape.

[30] The inscription of the bridge, together with the inscription of the neighboring caravanserai was first published by Özgüç, T. Akok, M.; the bridge was accordingly dated to H. 646 (1248 A.D.) to the reign of Keykavus II, son of Keyhusrev II ("Üç Selçuklu Abidesi, -Dolay Han, Kesik Köprü Kervansarayı ve Han Camii". Belleten XXII, 86. Ankara, 1958, p. 251 cont.).

[31] The bridge has two inscriptions: one gives the date of the building (Mübarek Galip, Anadolu'da Türk Aşar ve mahkukat Tetebbuatına Esas, Ankara II, İstanbul, 1928, p.5); the other inscription is supposed to belong to the architect who built the bridge (Akyurt, Y.Türk İslam Kitabeleri, I. Kısım, "Ankara Kitabeleri". Cilt XI, Ankara 1942,p.57-In the archives of the Turkish Historical Association, unprinted). We agree with the interpretation of the latter inscription.

[32] The Haburman bridge is on the Ergani-Çermik-Siverek road, built across the Sinek stream, an estuary of Fırat. see, Konyar, B., "Diyarbakır Yıllığı" Cilt III 1936; Gabriel, A., "Voyages Archaeologiques dans la Turquie orientale I". Paris, 1940, pp. 258-259, Kırzıoğlu, F., "Çermik Kasabası üzerine notlar." Kara Amid, No. 1, İstanbul 1956, pp. 277-278; İlter (Tunçdağ), F., Artukoğulları Sanat Eserleri, Ankara, 1963, Ph. D. thesis presented to the faculty of Letters, Ankara University -unprinted- pp. 114-116; Çulpan, C., op. cit. p.49 (desscribed as the Çermik bridge).

[33] Evliya Çelebi, "Seyahatname", V, p.78.

This generalization is valid for both the Seljuk Anatolian bridges and for those built in the Beylik period (e.g.the "Ala Köprü" across the Dragon stream on the Anamur-Ermenek road, the Ceyhun, Bıçakçı and Gravga bridges.).

Due the small number of the surviving examples, our data on the parapets of Roman and Byzantine bridges is Anatolia is limited. Although their presence are discernible on the few examples, due to evident alterations it is not easy to make an evaluation.

This element of the contemporary Iranian bridges is similar to the Early Anatolian bridges in being simple in form but varied in constructional characteristics.

It was finely perfected by the Ottomans. A cornice deleniated the level of the floor of the bridge on the outer surface of the spandrel wall and therefore it marked the presence of the parapet (Some examples are the Edirne Bayezid bridge "1488"[34], Osmancık Koyunbaba bridge "1483", Edirne Fatih bridge "1452"[35] (Fig. 24, 25).

Although there are signs of a special placement for the inscription or of inscription pavillions on the pre-Ottoman Turkish bridges, this part of the bridge was not yet well defined in all its elements. On the early bridges the inscription can be carved directly into the spandrel wall (e.g. Tekgöz, Malabadi and Haburman bridges); or it may be an undistinguished constructional element which doubles as the parapet (Köprüpazar bridge). The special place set apart for it, discirnible on the Kırşehir-Kesik bridge, appears in a better developed form on the Tokat-Hıdırlık bridge (Fig. 25A).

In the Ottoman bridge architecture the treatment of the inscription achieved its final form; it was set in a special pavilion. Although the monumental inscription of the Koyunbaba bridge at Osmancık is built seperately from the bridge, the inscription of the Geyve Bayezid bridge is placed into a special pavillion which contains a mihrabiye as well as the inscription and therefore acquires the character of a namazgah[36]. The Selçuk Hatun bridge at Bursa also has a pavillion (1465)[37]. As for the

[34] Çulpan, C., op.cit., p.115-116, fig. 66.
[35] Çulpan, C., op.cit., p.109.
[36] Çulpan, C., op.cit., pp. 116-119, figs. 67/3, 67/5-a.
[37] Çulpan, C., op.cit., pp. 110-111; fig. 64/1.

Uzunköprü of Edirne, which went through several phases of building, we feel that the original construction probably had a special place for the inscription (1443).

The primary building material of the Turkish Anatolian architecture, stone is the main material of the bridges as well. In some bridges, bricks was used along the stone under the influence of near neighbors, or rather, by adoption of the traditional use of bricks in some regions.

The bridges built in the eastern and southern Anatolia in the pre-Seljuk Islamic period use varied materials. Brick is the basic constructional material of Altın bridge and of the other examples we gave from Iran. As for the Anatolian bridges, the example of Nasraddin has a brick superstructure[38] (Fig. 26).

In some bridges, the inner construction of the arches are made with bricks. The Haburman and the Hasan Keyf bridges are examples (Fig. 27). On the Hasan Keyf bridge, the glazed bricks on the outer surface of the arches is another Iranian characteristic. Brick was also used to fill in the gaps on either side of some pylons and main openings and in the filling of some small volumes (Fig. 28).

We can safely assume that the use of stone in Anatolia, rather than the brick used by the Iranian Seljuks, reflects the true influence of a regional tradition.

The main representatives of the tradition of stone construction is of course the Roman buildings, the products of the Armenian art are also notable. The use of stone material was continued with the Byzantine architecture; the influence of Iranian brick buildings are significant but limited to a narrov region.

Up to the XVI th century, the building material of the bridges were rationally determined by using the most available materials: extravagence

[38] The Nasraddin bridge is built on the old Siirt-Kurtalan road across the Botan stream. Although it is completely restored we think that the four-arched bridge can be dated to the XII. century or to the beginning of the XIII. century. Most of the early Turkish bridges in south- eastern Anatolia were built during the time of the Artukoğulları beylik. According to a historical document (Ibn-ül Ezrak, Op. cit., varak 179 b). Fahrettin Kara Arslan who caused the building of the famous Dicle bridge at Hasan Keyf subsequently built a bridge further down Siirt at the banks of (Banaris ?) and another one between Ersin and Siirt (at Ecvensebuh). It is not unreasonable to assume that the latter construction is the Nasraddin bridge.

was avoided. The bridge was simply built at whereever it was possible to put a firm foundation into the stream-bed or whereever there was some sound architectural remains from an earlier period. As a result, the bridge sometimes has a bent or broken appearence.

Especially on the spandrel wall, the stone masonry does not always consist of well-dressed stones. The building is functionally determined by the available material.

From the decorative point of view the Turkish Anatolian bridges are plain in appearence. However, a group of bridges in the south-eastern Anatolia is the exception; on these examples (e.g. Malabadi, Hasan Keyf, Ceziret ibn Umar) we come across a rich program consisting of human and animal figures, presented within limited possibilities of the bridge structure. The reliefs on these structures are similar in theme; they all represent the constellations and the planets[39] (Fig. 29-32).

On leaving the south-east progressing into Anatolia we find that the bridges become plainer by abondoning the use of reliefs. The bridges that are ornamented with the representation of the constellations and planets are the earliest ones, built in the XII th century.

The symbols of the constellations and planets form an important part of the decorative program of the Anatolian Seljuk architecture. It is not surprising that the middle ages belief in the astrological determination of human destiny was reflected with abundant and varied examples on the south-eastern bridges.

The XIII th century Anatolian bridges were almost wholly unadorned with figures. However, the Ilhanlı artistic style had a strong effect on Anatolian art beginning from the second half of the XIII th century; this influence is evident on the Çobandede bridge (the end of XIII th cent.-beginning of XIV th cent.) and notable in its "Baroque" plastic, geometrical and plant figures[40] (Fig. 33, 34).

[39] For the astral values of the planets and the constellations figures see, Hartner, W., "The pseudoplanetary nodes of the Moon's orbit in Hindu and Islamic Iconographies". Ars Islamica, Vol. V, Part 2, Ann Arbor, 1938, pp. 119-122. For the place of the figure in stone ornamentation during the Anatolian Seljuk period, see, Ögel, S., Anadolu Selçuklularının Taş Tezyinatı. Ankara, 1966, pp. 90-93.

[40] The bridge is on the Erzurum-Karayazı road, 15 km to the east of Hasankale and built where the Bingöl stream flows into the Hasankale stream. Beyond this point the flow

Among the early Islamic bridges, we are unable to suggest any prototypes for the kind of ornamentation on the Anatolian bridges mentioned above; we are even unable to give any comparable examples from Iran, Iraq, Syria or the Caucauses. The bridges of these neighboring countries have a similarity to the pre-Ottoman Türkish Anatolian examples, with the exception of the south-eastern region, in having a "plain construction".

The unadorned style of the Seljuk bridges continued in the Beylik period. However, on some examples cycloid gaps were built into the spandrel wall over the pier; even though they are constructional in nature, they are notable elements in bringing variation to the appearence of the bridge. The Bıçakçı and the Gravga bridges within the boundaries of the Karaman Beylik are very good examples. However, a trend towards the use of figures and figures and motifs appeared with the Ottomans, although it was limited. It usually consists of relief decorations representing rosettes or animal heads, set upon the key-stone of the arch or upon the spandrel wall above the key-stone.

The richest example to the decorative school resumed by the Ottomans is the Uzunköprü of Edirne. This bridge is a valuable product of the Ottoman art, both with respect to its architectural construction and its decoration (animal heads, rosettes, intertwined plant figures)[41].

A generalization of the constructional techniques of the Turkish bridges built until the Classical Ottoman period leads us to conclude that the tendancy to remain within rational bounds, valid for the entirity of the structure, was also apparent in the constructional techniques that were applied. This technical tendancy led to the abondenment of the semi-circular Roman arch and to the adoption of the "pointed arch", the most durable type of arch which is also the most economical with respect to the required material. Moreover, the structures acquired finer and more delicate lines.

Until the end of the XV th century, the Turkish bridges do not have a symmetrical arrangement. However, the lack of symmetry cannot over-

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is called the "Aras". For the dating of the bridge, see Ünal, R.H., "Les Monuments Islamiques Anciens de la ville d'Erzurum et de sa région". Paris, 1968, p. 157.

[41] Çulpan, C., op. cit., pp. 98-105, Fig.59/4-59/12.

shadow a perfectly balanced structure. Eventually, the buildings did acquire an increasingly symmetrical arrangement; this chracteristic can be evaluated as the forerunner of the transition to the Classical Ottoman architecture (A good example is the Osmancık Koyunbaba bridge).

In addition to being assymmetrical, the bridges of the Seljuk and Beylik periods are not built in a straight line, but curve and break as it is convenient. However, by the XV th century, the Ottoman bridges had an increasing tendancy to acquire a regular structure and to be built on a straight line without deviations.

As the final conslusion of our evaluations, we can say that the attempt towards rationalism is the foremost consideration in the formation of the Turkish Anatolian bridges. For this reason, on the Seljuk, Beylik and Ottoman bridges, the elements were present only in a context where they contributed to the final unity and stability of the entire structure. Functionless secondary elements and unnecessary ornamentation were not adopted in an attempt to create a vision of grandeur.

With these chracteristics, the bridges form a consistant whole with the other contemporary buildings, in sharing the explorative, experimental and variable character of the Türkish Anatolian art.

Fig. 1 — Dicle bridge.

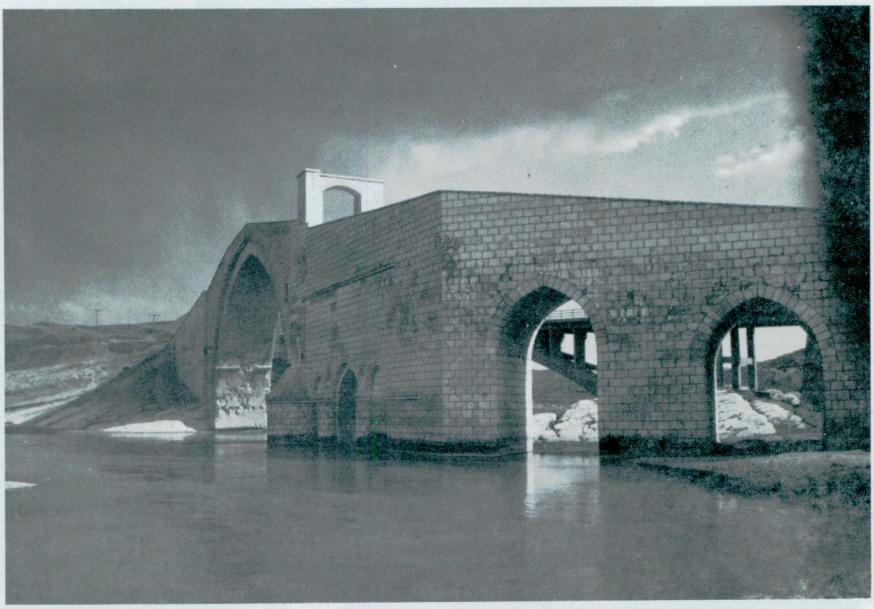

Fig. 2 — Malabadi bridge.

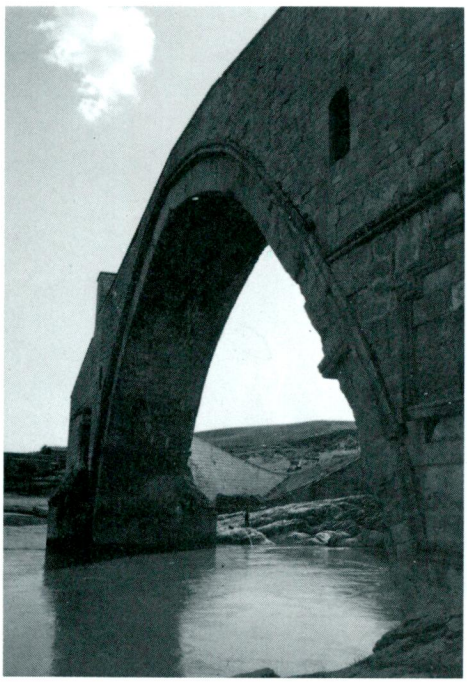

Fig. 2a — Malabadi bridge.

Fig. 3 — Tekgöz bridge.

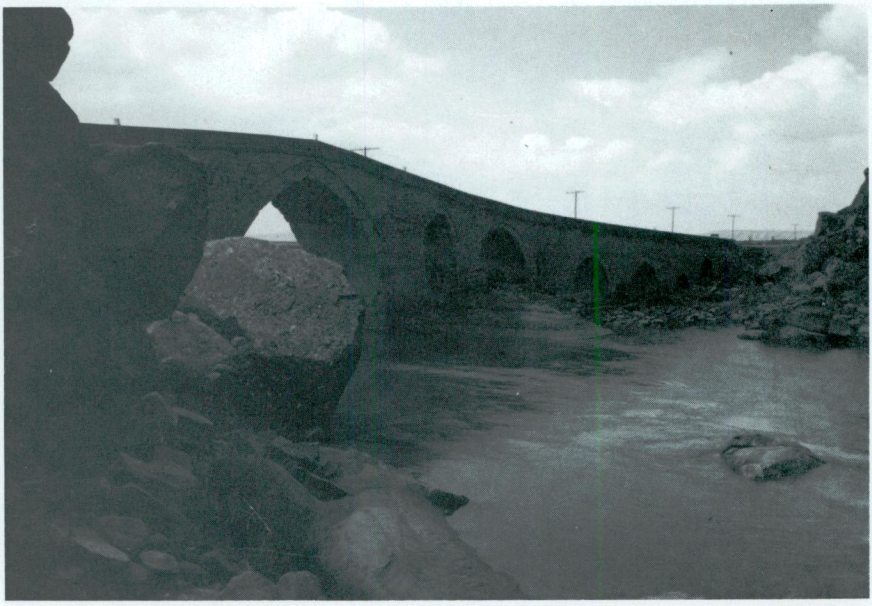

Fig. 4 — Çeşnigir bridge.

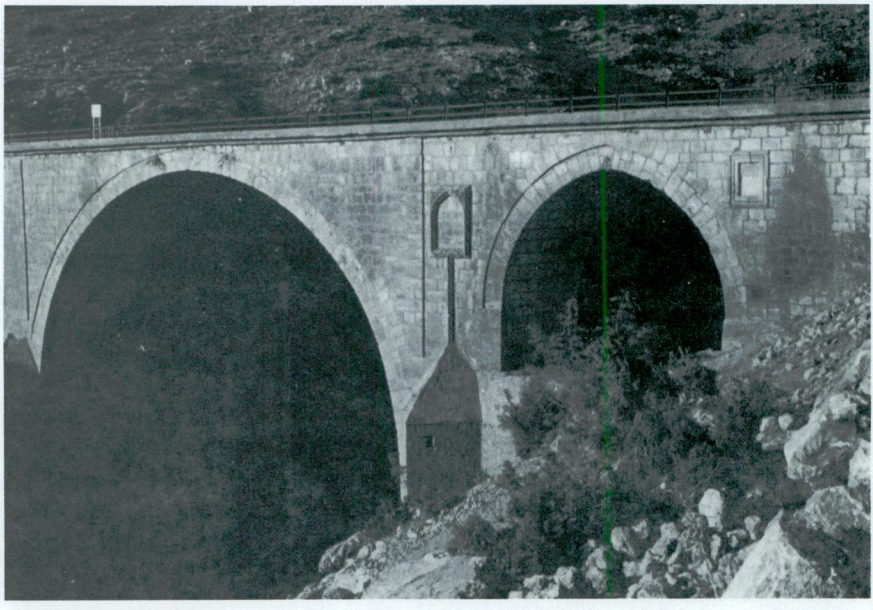

Fig. 5 — Ala (Görmeli) bridge.

Fig. 6 — Bıçakçı bridge.

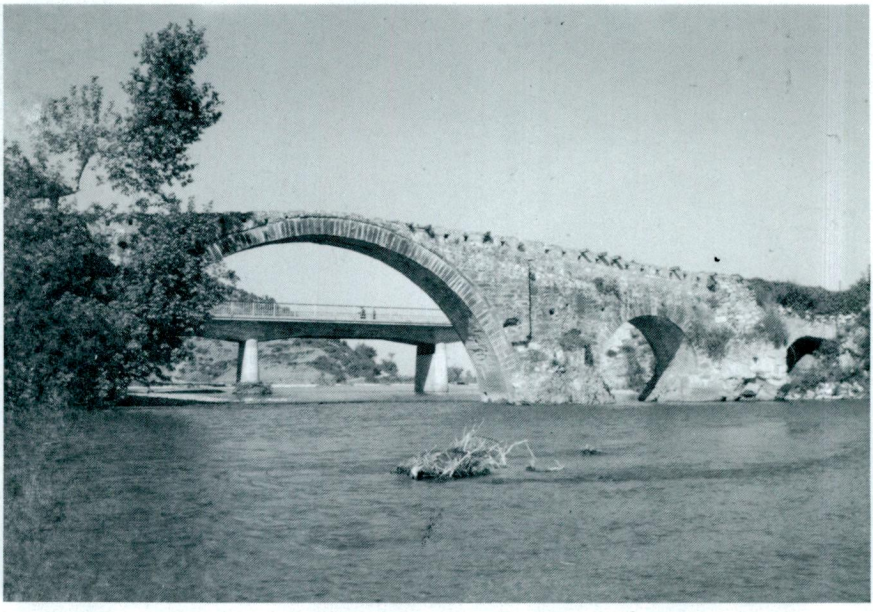

Fig. 7 — Bıçkıcı bridge.

Fig. 8 — Çağlayan bridge.

Fig. 9 — Koyunbaba bridge.

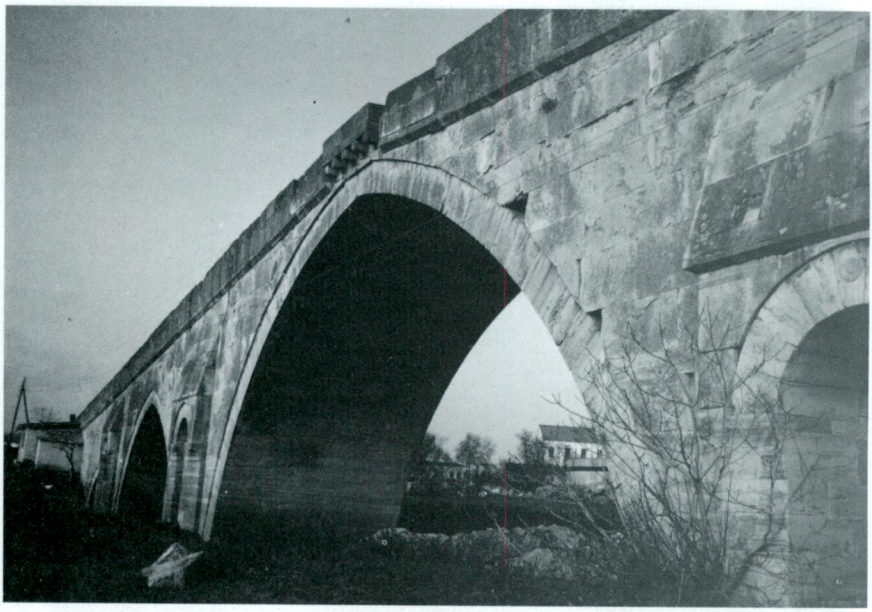

Fig. 10 — Sinanlı bridge.

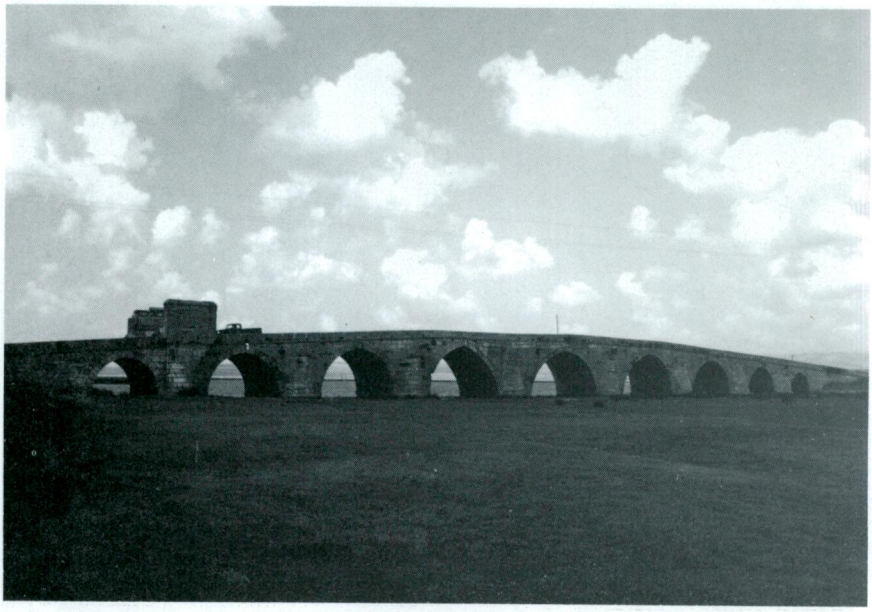

Fig. 10a — Büyük Çekmece bridge.

Fig. 11 — Cendere bridge.

Fig. 12 — Karamağara bridge.

Fig. 13 — Hasan Keyf bridge.

Fig. 14 — Hasan Keyf bridge.

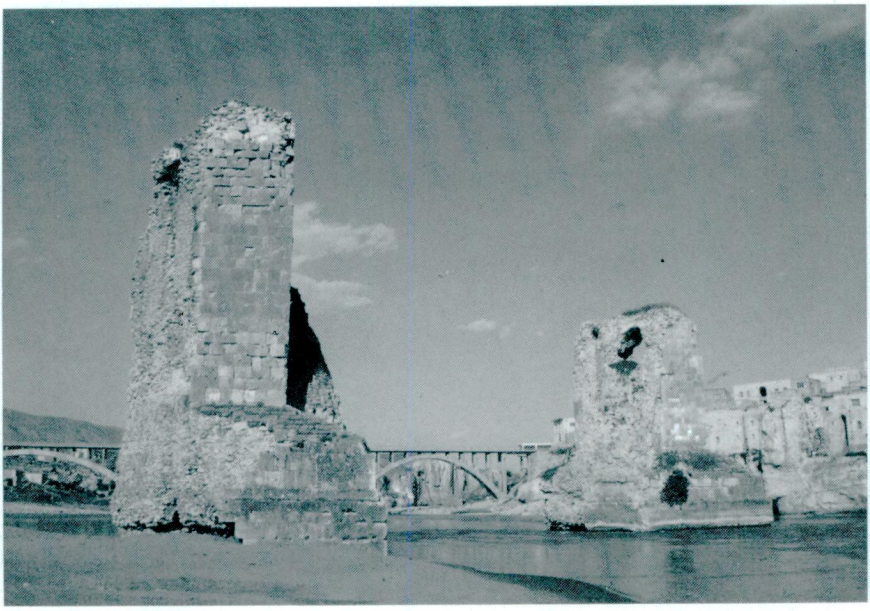

Fig. 15 — Hasan Keyf bridge.

Fig. 16 — Hasan Keyf bridge.

Fig. 17 — Kesik bridge.

Fig. 18 — Göksu bridge.

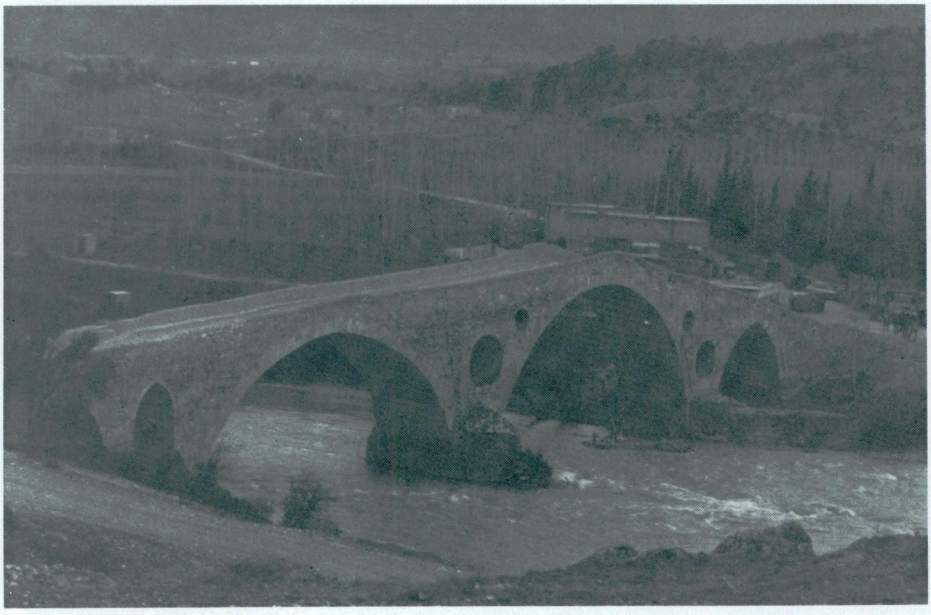

Fig. 19 — Gravga bridge.

Fig. 20 — Köprüpazar (Belkıs) bridge.

Fig. 21 — Tekgöz bridge.

Fig. 22 — Ak bridge.

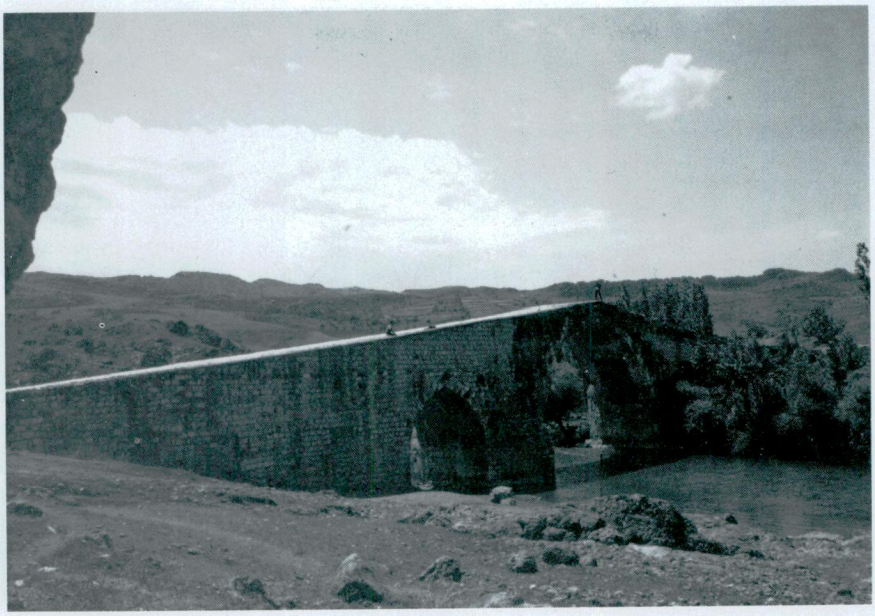

Fig. 23 — Haburman bridge.

Fig. 24 — Yeni İmaret (Bayezıt) bridge.

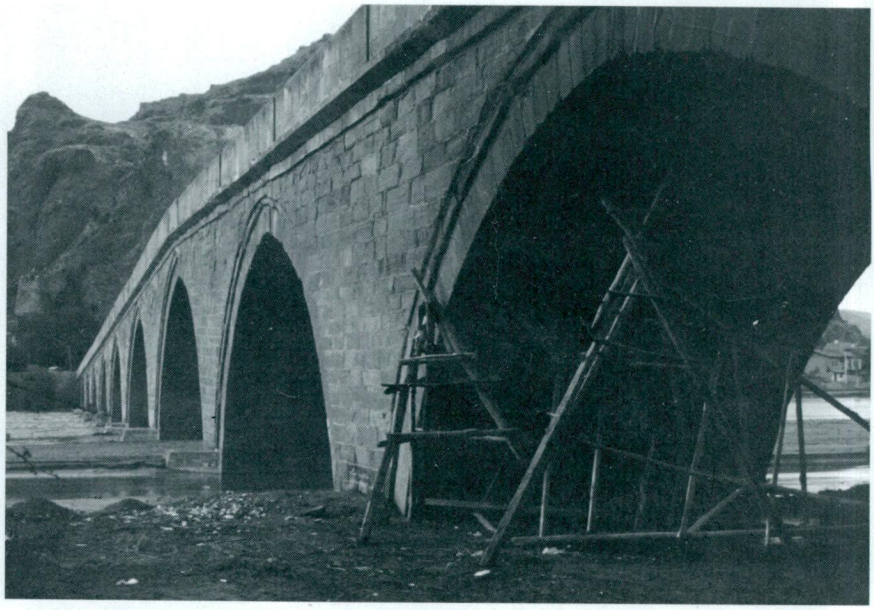

Fig. 25 — Koyunbaba bridge.

Fig. 25a — Hıdırlık bridge.

Fig. 26 — Nasraddin bridge.

Fig. 27 — Haburman bridge.

Fig. 28 — Hasankeyf bridge.

Fig. 29 — Malabadi bridge.

Fig. 30 — Hasankeyf bridge.

Fig. 31 — Ceziret İbn Umar bridge.

Fig. 32 — Ceziret İbn Umar bridge.

Fig. 33 — Çobandede bridge.

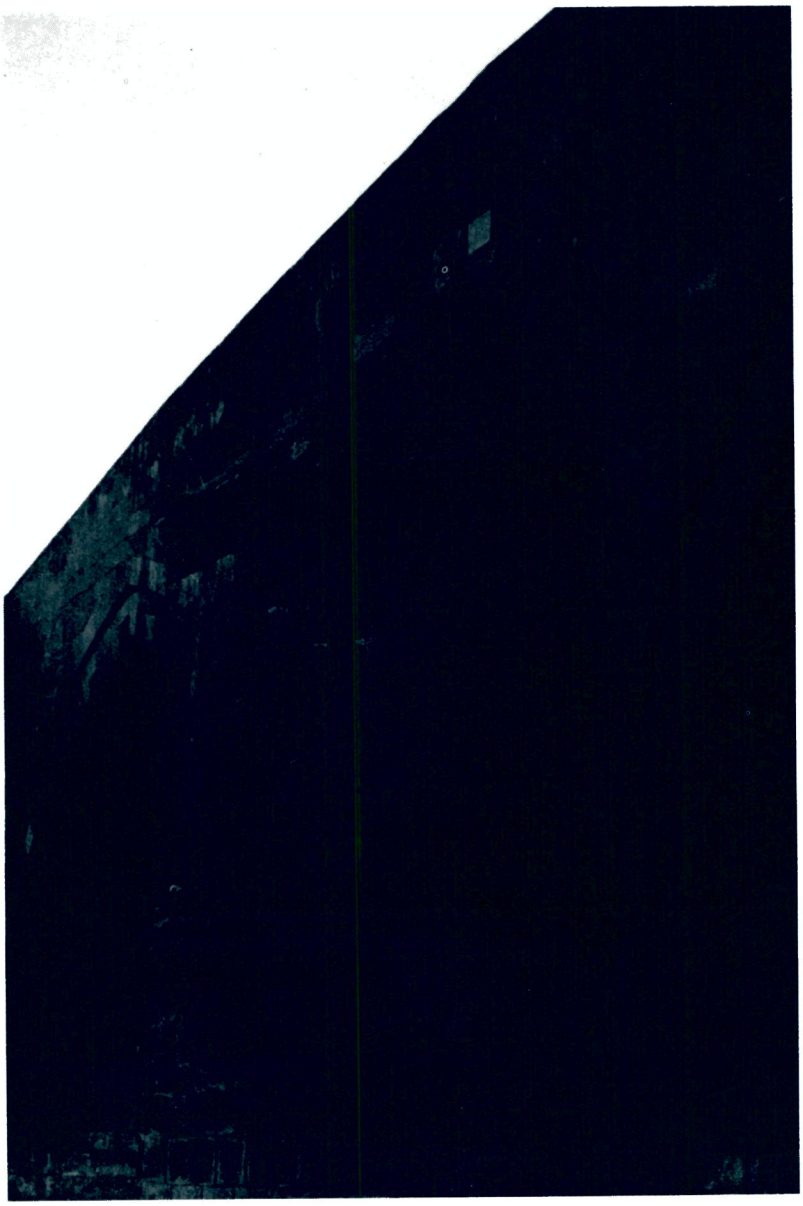

Fig. 34 — Çobandede bridge.