

Taming Nature – Riverine Connectivity in the Middle Danube Region

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The Danube as an Economic Corridor

Today, the Danube serves as a key economic artery for the wider Region, if not all of Europe – mainly in terms goods transport and tourism. This vital role of Europe’s longest river is reflected in the numerous EU initiatives that focus on the Danube or its catchment area, and is a development that can generally be traced back across the last centuries – to think only of the “Donaumonarchie” of Austro-Hungary or the “Donauschwaben” of the 18th century. This notion of the Danube as a major economic corridor is fixed in modern minds, and economic policy – particularly as, linked up with the Rhine by canals, it forms a water-based east west link between the North Sea and the Black Sea.

More or less the same link was created in the Roman period by the northern frontier of the Roman Empire, which largely followed the two great European rivers and, wherever it did not, at least consisted of a road running along, and possibly defining, the frontier (fig. 1).¹ In this, it is important to note that in earlier historical periods, far smaller rivers were considered navigable for transport vessels. This is particularly true for antiquity, and the stretch of land between the uppermost reaches of the Danube and the Rhine or Lake Constance that divided these two riverine systems would have been far less of an obstacle than the “missing link” that is bridged by artificial canals today. In Roman frontier studies, there are new trends that argue that the frontier zone would have acted as a key economic zone of the Roman Empire: the presence of large numbers of soldiers who were paid in hard currency, but who also needed to be housed and fed and had animals that needed to be cared for and equipment to maintain, would have provided an economic stimulus rivalled only by the great cities at the core of the Mediterranean world.² In this, the Danube and Rhine would have acted as economic corridors in antiquity as they do today. Added to this is the newly emerging observation that the road running along the frontier provided an important communication route through this frontier zone.³

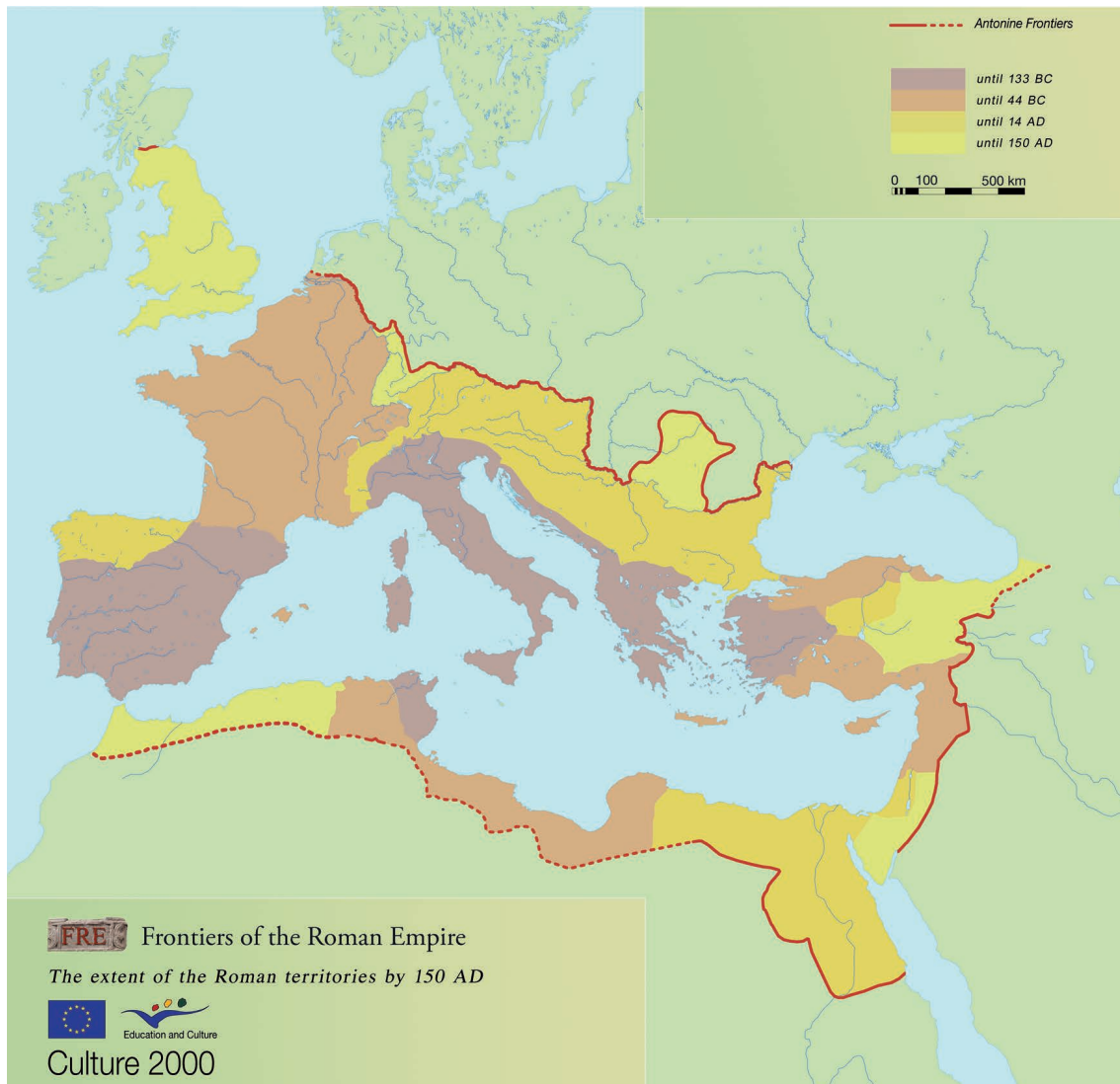


Fig. 1: The Roman Empire at its greatest extent in the 2nd century AD, showing how the northern frontier follows the courses of the Rhine and Danube rivers.

Evidence for Danube Connectivity in Antiquity

At first sight this is reflected in several aspects that we use to analyse the economic potential of rivers. To date, archaeological remains of 15 harbours have been identified along the Danube – of varying types and far too few to make any overall assessments in view of the 2780km of river (on average one Roman harbour to every 200km). But in view of the changing river course particularly in the lower reaches and severe erosion in the more central parts, this is actually quite a significant number of identified sites. They range from artificially constructed harbours, such as at Aquae/Prahovo in Serbia⁴ to constructed riverside revetments and quays, such as at the legionary fortress of Novae/Švištov in Bulgaria⁵ and simple wooden reinforcements of a riverbank as identified together with the Roman patrol boats at Oberstimm in Bavaria.⁶ In addition to this archaeological evidence for naval activity on the Danube, literary sources and epigraphic data indicate further sites relevant to shipping. These include, amongst others, two sites in modern Bulgaria: Ratiaria, now Arčar, which was named the ratis, a type of ship that is identified on the Tunisian Althiburbus mosaic,⁷ and Sexaginta Prista, now Ruse, its name referring to the Greek pristis, a type of military vessel.⁸

The economic role of the Danube is further underlined by individuals such as Aurelius Martialis, identified in a sarcophagus inscription found at Brigetio, modern Komarom on the border between Hungary and Slovakia, AE 2000, 1197/RIU 0595.⁹ On this sarcophagus for his departed wife of 40 years, Martialis identifies himself as a 'naulerus portus Pontis Aeni'. Pons Aeni is a town well known to those working in the German Provinces, modern Pfaffenhofen am Inn, located on the river Inn near Rosenheim just south of Munich.¹⁰ This nauclerus or shipowner – who presumably shipped goods along the Danube, therefore evidently moved between the Bavarian, Austrian and Slovakian/Hungarian parts of the Danube, as well as tributaries such as the Inn, regularly enough for his wife to travel with him, as she was buried at Komarom rather than the home town of Pons Aeni.

On a less individual level, economic activity along the river becomes evident when looking at material culture, particularly in the form of ceramics distribution from production centres in southwestern Germany. This was shown clearly by the Transformation Project of the Römisch-Germanische Zentralmuseum at Mainz that mapped different finds distributions across Europe. In this, it is particularly evident for certain ceramics workshops, particularly those operating from the 2nd century AD onwards.¹¹ A key factor in this movement of material culture along the Roman frontier line will have been the Roman army, which possessed significant buying power as the soldiers were paid in hard currency and would have created an economic hot zone along the fringe of the Empire. The army itself, however, provides further evidence for the use of the Danube as a transport corridor, with Roman military units moved along the river between modern southern Germany and the middle Danube on a regular basis – particularly so in the context of the Dacian Wars of Domitian and Trajan.

The pre-Roman Middle Danube Region

It is interesting to note, however, that up to the early 2nd century AD, i.e. the Dacian Wars of Trajan, material culture and military unit movements appear to have been limited to the Upper and Middle Danube (i.e. the course between modern southern Germany and Serbia and Romania), and only rarely reach the lower reaches of the river, an observation particularly noteworthy when seen in the wider context of distributions of material culture in the Balkans before the arrival of the Romans.

Recent research has shown that most prehistoric cultures, from the late Neolithic Vinča culture or different Iron Age cultures¹² to the distribution of Thracian hoard finds,¹³ to name only a few examples, can be divided into distinct eastern and western groups separated by the major mountain ranges of the Carpathians and their connecting foothills into the Stara Planina. These mountains generally appear to have served as a major divide that affected prehistoric communications, cultural exchange and movement, separating the Balkan peninsula into an eastern and a western part.

Where these mountains meet the Danube, the river enters the so-called “Iron Gates”, one of the most dramatic landscapes of Europe (fig. 2). On either side of the river course, steep cliffs rise several hundred metres into the air, the river itself is channelled into three stretches of narrow gorges called “Klisura” or “Kazan”, depending on linguistic preference, both basically meaning cauldron. In total, these narrows and shallows extend over a distance of nearly 140km along the river course. At its narrowest point, the Danube, today regulated following the construction of two hydroelectric dams in the 20th century and with a water level c. 30m higher than before this regulation, was originally reduced to a course 150 m wide and more than 50 m deep. This so called “Great Kazan” or cauldron originally formed a continuous run of rapids and shallows extending over a stretch of 20 km.¹⁴ Until the late 19th century, the area was hardly navigable and at times, such as during winter floods or summer shallows, thoroughly impassable by boat. Regular navigation by larger vessels only became possible following major Austro-Hungarian regulation works that involved blasting navigable channels through parts of the difficult sections. Even following this work, larger vessels had to be towed upstream by train until the creation of two dams, with resulting rises in water levels and construction of two locks, in the 20th century.¹⁵ It is apparent therefore, that river navigation in this stretch would have been difficult, verging on the impossible, in pre-history and antiquity.

The natural barrier posed by the southern Carpathians and northern foothills of the Balkan range, as indicated by material culture distributions, is furthermore reflected in the Roman occupation of the region. The general advance towards the Danube around AD 6 followed two entirely separate prongs, one from the west following the course of the Sava and moving up along the Drin and Morava valleys from what are now Greece and Albania, and an eastern advance heading up the Danube from the Black Sea and supported by a movement across the Haemus mountains.¹⁶ The implication of this



Fig. 2: The narrowest point of the Iron Gate gorge near Golubinje in 2011, view from the southern bank towards the West.

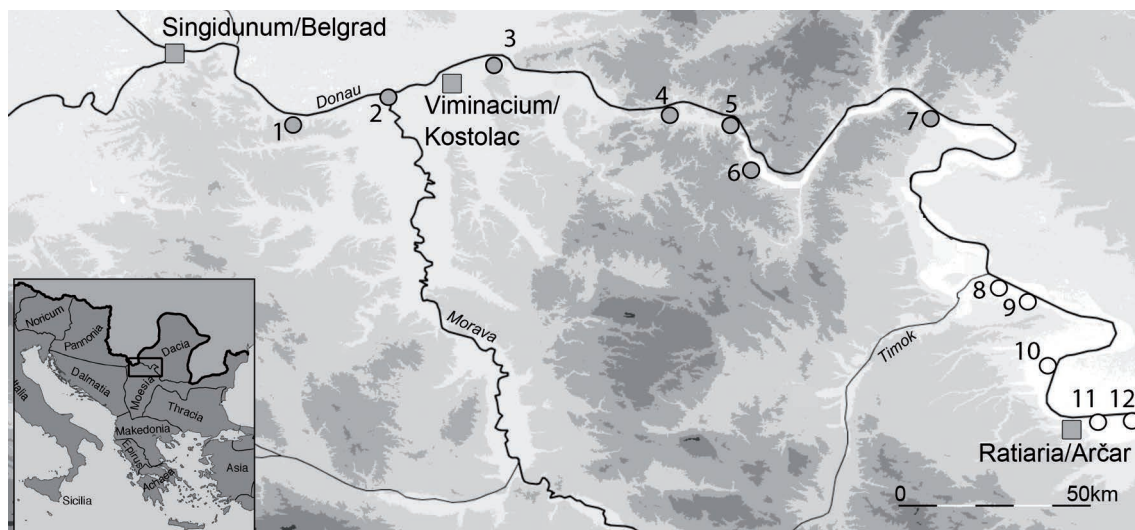


Fig. 3: Pre-Flavian Roman Military sites on the Middle Danube. Legionary Fortresses marked as rectangles, auxiliary forts circles. White: site not investigated archaeologically. 1 Aureus Mons/Seona, 2 Margum/Dubravica, 3 Lederata/Ram, 4 Novae/Česava, 5 Saldum/Gradac, 6 Smorna/Boljetin, 7 Diana/Karataš, 8 Dorticum/Vrav, 9 Novo Selo, 10 Vidin/Bononia, 11 Dobri Dol, 12 Remetodia/Oršolja.

two-pronged Roman occupation, which largely followed existing prehistoric routes, is that the pre-Roman Balkan peninsula consisted of two separate spheres, and that the Danube, at this time at least, did not unite and serve as one linking corridor in the way we see it today and is implied by the Roman material culture distributions referred to above.

This is also shown by an overview of Roman sites predating the Flavian period in the Middle Danube region and the area around the Iron Gates, which cluster around major river confluences where the Danube can be reached from the southern hinterland – such as the Sava at modern Singidunum/Belgrade, the Morava at Viminacium/Kostolac and the Lom at Ratiaria/Arčar (fig. 3). Relatively regularly spaced sites can be found along the Danube, but not in the Iron Gates region itself. Here, only four sites (4–7) have been identified for this period, despite large-scale survey and excavation programmes preceding the construction of the two hydroelectric dams – both at possible crossing points of the river.

Roman Infrastructure Projects to Create Danube Connectivity

Epigraphic and archaeological evidence shows that from Tiberius onwards, the Romans undertook a concerted effort to create a road link through the difficult sections of the Middle Danube, in order to create a continuous east-west link along the river. To this

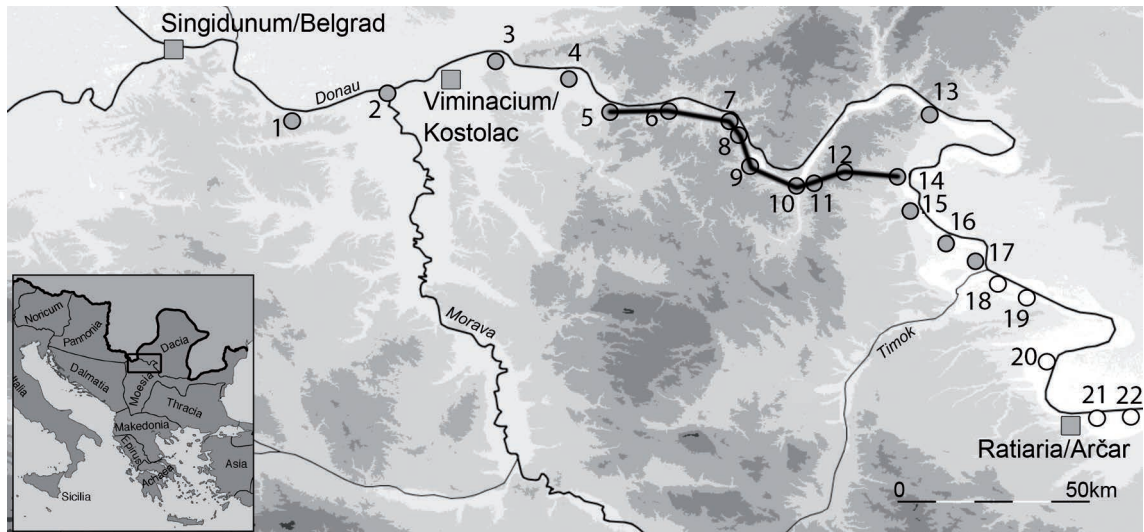


Fig. 4: Roman Military sites on the Middle Danube and the state of the Danube Road at the time of Domitian (post AD 92). Legionary Fortresses marked as rectangles, auxiliary forts circles. White: site not investigated archaeologically. 1 Aureus Mons/Seona, 2 Margum/Dubravica, 3 Lederata/Ram, 4 Pincum/Veliko Gradište, 5 Cuppae/Golubac, 6 Novae/Česava, 7 Saldum/Gradac, 8 Gospođin Vir, 9 Smorna/Boljetin, 10 Taliata/Donji Milanovac, 11 Gradač, 12 Gerulatis/Miroć, 13 Diana/Karataš, 14 Egeta/Brza Palanka, 15 Mihajilovac, 16 Aquae/Prahovo, 17 Kurvingrad, 18 Dorticum/Vrav, 19 Novo Selo, 20 Vidin/Bononia, 21 Dobri Dol, 22 Remetodia/Oršolja.

end, an artificial road was cut into the rock-faces of the southern bank of the Iron Gates from the east towards the west from the late Julio-Claudian period onwards by the IV Scythica and V Macedonica legions.¹⁷ A first road link through the area in question appears to have been completed by the VII Claudia Legion under Domitian,¹⁸ though part of it ran overland, cutting across the northern foothills of the Stara Planina via the fort of Gerulatis/Miroć and avoiding the most difficult stretch of the Danube between Gradač and Egeta/Brza Palanka (fig. 4).

A continuous, largely artificially created roadway along the Danube itself was finally completed under Trajan in AD 101, as commemorated in the famous *Tabula Traiana*.¹⁹ This Roman Danube Road was a unique engineering project that lasted for nearly a century. It remained in use until the water level of the Danube was raised as a result of the construction of the first hydroelectric dam, Đerdap I, and was studied in detail by Yugoslav scholars as part of the large-scale archaeological research programme that took place in the Iron Gates region in preparation for the dam project.²⁰ The road consisted of an artificial roadway up to 2 m wide that was cut into the rockfaces in several places and for long stretches.²¹ In other parts it was either extended or replaced in its entirety by beams slotted into holes cut into the cliff-faces that would have supported a roadway of up to 4 m width, directly above the water.²² Overall, the Danube Road is

a unique monument of Roman engineering. Traces of wear on the riverside of the cut sections of road have repeatedly been interpreted as wear by ropes, suggesting that the road was used to tow ships upstream – much like the modern equivalent in the form of a railway in the 20th century, as discussed above.

However, Trajan did not just complete the Danube road, he also, apparently, initiated the construction of canals to bypass some of the worst rapids in the river, as attested by Procopius.²³ Traces of such a Roman canal were identified near the fort of Diana/Karataš as part of Austro-Hungarian river regulation works in the 19th century, and the large-scale Yugoslav archaeological project carried out prior to dam construction in the Iron Gates unearthed an inscription related to this project, stating that Trajan “made navigation safe on the entire Danube by rerouting the river”.²⁴ All of these infrastructure works appear, therefore, to have completed the east-west link through this difficult central stretch of the Danube – shipping and goods could now move from the Upper to the Lower Danube stretches with some reliability, and the transport and economic corridor we take for granted today was established for the first time.

It has been argued in the past that the late 1st century engineering works in the Iron Gates region, which also include two river harbours as well as the famous Trajanic Danube Bridge between Pontes and Drobeta, should be seen in the context of the general troop concentration in the region as part of the preparations for Trajan’s Dacian Wars.²⁵ This appears true for the Danube bridge, but it is less likely that the general build-up of infrastructure in this region over the best part of a century, as shown by inscriptions, was related to these military campaigns alone. Such a large-scale and long-term project ought rather to be seen within the wider framework of the establishment of linear Roman frontiers at the time, and with a view towards creating a direct and reliable transport and communication route along the river in particular. Indeed, an economic rather than purely military basis for the engineering works that can be identified in the middle Danube region at this time has been suggested as early as the 1930s.²⁶

As shown at the outset of this paper, the Danube served as a major economic link and corridor in the Roman Period as it does today. However, this seems only to have been the case from the 2nd century onwards. To fully provide the link between east and west that it came to be from then onwards, a century of concentrated infrastructure development on the part of the Romans was required. As such, this case study is not so much one of a natural river course defining economic patterns, as is usually found in archaeological investigations – although in an inverse way that could be said to be true for the prehistoric periods that show separate cultures to the east and west of this region, as indicated above. Instead, it is an example how human strategic planning on the part of the Roman Empire resulted in the modification and overcoming of a natural barrier that had defined cultural contacts for previous centuries if not millennia. It is the major infrastructure works in the Iron Gates outlined in this paper that ultimately made the development of a common material culture on the Upper and Lower Danube possible for the first time.

Notes

¹ See Breeze 2011, 167–171.

² Breeze – Jilek 2014, 8. 21 ff.

³ See Rummel 2015, 148.

⁴ Petrović 1991, 209.

⁵ Sarnowski 1996, 197.

⁶ Bockius 2002, 13 ff.

⁷ For the mosaic, see Bardo Museum, Inv. Tun. 576. See also Bounegru – Zahariade 1996, 21.

⁸ See Stanchev 1987, 87.

⁹ AE 2000, 1197 = RIU 0595: D(IS) M(ANIBVS) / VALERI(A)E LVCILL(A)E Q(VONDAM) Q(?) / VAE VIXIT ANN(OS) XL / AVREL(IVS) MARTIA / LIS NAVCLER(US) PORTVS / [PON(TIS)] (A)ENI CONIVGI / CARISSIM(A)E F(ACIENDVM) C(VRAVIT).

¹⁰ For a recent overview, including earlier literature, see Steidl 2011.

¹¹ <<https://www2.rgzm.de/transformation/home/FramesDE.cfm>> (17.09.2020). For particular evident distributions along the northern frontier of the Roman Empire, see the distribution maps for the ceramics from Heiligenberg, Schwabegg, Rheinzabern or Westerndorf. These are found under the heading “Entstehung der Produktion” in the subgroup “Töpfereien”. Rheinzabern and Heiligenberg are located in Germania Superior, Schwabegg and Westerndorf in Raetia. Amongst them, the Westerndorf ceramics deserve particular attention, as the production site is located close to Pfaffenhofen am Inn – the hometown of the naucerus Aurelius Martialis discussed above and presumed port of origin for all Westerndorf ceramics that travelled along the Danube by ship. The Westerndorf and Rheinzabern workshops, whose distributions range all the way to the lower Danube, were in operation only from the 2nd c. AD onwards.

¹² See Tasić 2005 for a summary of Iron Age cultures in the middle Danube region.

¹³ For a distribution see v. Bülow 2015.

¹⁴ Korać et al. 2014, 53–57.

¹⁵ Veresić 2007, 42 ff.

¹⁶ For a full discussion with further references, see Rummel 2015, 142 ff.

¹⁷ For a detailed discussion of all early inscriptions to the road, see Gabričević 1972.

¹⁸ An argument first presented by V. Kondić 1989, based on CIL III, 13813. See <<http://danube-cooperation.com/danubius/2012/06/12/roman-limes-frontier-line-of-the-roman-empire-in-the-iron-gate-area/>> (17.09.2020).

¹⁹ For a full discussion of the Tabula Traiana inscription, CIL III, 1699/8267, see Petrović, 1968. For continued use of the Roman Danube road into the 20th c. see Korać et al. 2014, 84.

²⁰ Published in the Đerdapske Sveske/Cahiers de Portes de Fer Monograph Series.

²¹ The artificially cut roadway has been documented for a 210 m stretch near Gospođin Vir, stretches near Lepenska Stena and Greben (lengths not given), 43 m near Pečka Bara, 620 m + 8 m near Hajdučka Vodenica. See Jordović 1996.

²² Petrović 1986.

²³ Procop. De Aed. IV.6.8.

²⁴ AE 1973, 0474 = ILJug 0468: IMP(ERATOR) CAESAR DIVI NERVAE F(ILIVS) / NERVA TRAIANVS AVG(VSTS) GERM(ANICVS) / PONT(IFEX) MAX(IMUS) TRIB(VNICIA) POT(ESTATE) V P(ATER) P(ATRIAE) CO(N)S(VL) IIII / OB PERICVLVVM CATARACTARVM / DERIVATO FLVMINE TVTAM DA / NVVI NAVIGATIONEM FECIT. For a detailed discussion of this inscription, the references in Procopius to Trajanic canals in this region, and earlier archaeological traces see Šašel 1973, 80–81. For a summary, see Rummel 2015, 147.

²⁵ E.g. Gudea 2001, 25 including an overview of earlier literature.

²⁶ Swoboda 1939, 9. Following this argument, see also Petrović 1990, 884.

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Fig. 1: Open source map supplied by the Frontiers of the Roman Empire Culture 2000 Project 2005–08. – Fig. 2: C. Rummel/RGK. – Fig. 3: C. Rummel/RGK, based on ASTER-GDEM Data (original data of ASTER GDEM is the property of METI and NASA) and an open source map base supplied by the Frontiers of the Roman Empire Culture 2000 Project 2005–08. – Fig. 4: C. Rummel/RGK, based on ASTER-GDEM Data (original data of ASTER GDEM is the property of METI and NASA) and an open source map base supplied by the Frontiers of the Roman Empire Culture 2000 Project 2005–08.

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