KARL GOOSS AND A TEMPLE OF JUPITER FROM APULUM

Abstract: Karl Gooss (1844-1881) was one of the few intellectuals of his time who witnessed personally the building of the railway and the ditch of Alba Iulia between 1865 and 1868. The construction was the biggest project of the city since the building of the Vauban fort and destroyed the most significant part of the Colonia Aurelia Apulensis, one of the biggest urban centres of the province. During these works, Gooss witnessed the discovery and destruction of the first Jupiter temple attested in Dacia, the biggest silver deposit ever found in Transylvania and the first coin hoard of Apulum. His German publication was ignored by the later historiography, although it is the first and only detailed account of the archaeological finds discovered in the Partoș in the end of August, 1867. His detailed account helps us to identify the context of some well-known artefacts and to reconsider the topography of the Colonia Aurelia Apulensis.

Keywords: Apulum, Karl Gooss, Jupiter temple, ancient topography, Roman heritage

The main obstacles and issues of urban archaeology in the end of the 19th century were similar in most of the cities of Europe in the Belle ÉpOque. One of the problems, which affected severely the Roman archaeological heritage of Alba Iulia was in fact, the greatest industrial project of the Austro-Hungarian Empire: the building and expansion of the railway system.

Although, it was one of the major motors of urbanization and modernization in Central-East Europe, one of the negative effects of its fast expansion was the catastrophic impact on the archaeological sites. Many of the railway routes passed rarely habited parts of the cities, meadows and crop fields or valleys, where archaeological material was unearthed and perfectly preserved. Many of the Roman sites, preserved relatively well till the end of the 19th century, were severely damaged in the 1860’s and 70’s when the

---

1 This article is an extended version of a subchapter from the monograph on Béla Cserni’s life: Szabó 2016 forthcoming. See also: Szabó 2015. I’m most grateful to dr. Ute Klatt and Peter Bibinger from the Römisch-Germanisches Zentralmuseum from Mainz for their kind help regarding the rights for the photographic material. I owe special thanks to Dr. Robert Conrad from the University of Erfurt for his help in translating the German text of Karl Gooss. I am also thankful to Róbert Bodnár from the Lucian Blaga University Library from Cluj-Napoca for his help.

railway system was built. Brigetio (Ö-Szőny) was one of the most affected sites, numerous buildings described by the earlier travellers were practically destructed to the ashes. The same happened with the ruins of the Colonia Aurelia Apulensis. The territory was well preserved, because the modern city is well in a different area, avoiding a great part of the Roman civil settlement. This had multiple reasons: the still visible ruins of the Roman city preserved the memory of Apulum in the collective mentality and this area was also very unsecure because of the numerous floods of the Mureș (Maros) River.

The plan of the first Hungarian Railway System was established by István Széchenyi in 1848, however it was extended to Transylvania much more later in 1865. The so called First Transylvanian Railway system (EEV) practically sliced the very heart of the Colonia Aurelia Apulensis. The railway affected 1290 m long the Roman city an it’s territory. It enters in the NW corner of the city, passing through the possible city wall and a highly urbanized, domestic area, where later numerous kilns and ovens were discovered. It is also very close to the Liber Pater shrine and the sacred area of the Asklepeion, where a high concentration of religious material was attested. The railway continues in a straight line to the SW part of the Roman city, affecting especially the Western part of the settlement. The Roman town suffered serious damages also during the building of the Brick factory and later, the main road, which follows the path of the Roman road and pass the very heart of the Roman settlement. Béla Cserni, the first archaeologist of the city noticed numerous times, that he witnessed personally the destruction of the Roman walls, the aqueduct and the houses of the colonia. Several altars and votive monuments were also find in this short period, which means, that the Northern part of the city with the sacred area was the most severely affected. In less, than 1,5 years, the workers moved more than 63000 m² of soil, probably the biggest project since the construction of the Vauban fort, which had the same catastrophic impact on the other settlement, the Municipium Septimium Apulense. Similar, massive destructions will happen only during the 20th century, when the large urbanization and monumentalisation of the buildings expand also in the Partoș area and in the rest of the Municipium or the necropolis on the Dealul Furcilor. Although, Cserni witnessed personally the destruction of the Colonia Aurelia Apulensis in the 1860’s, the most detailed and most vivid report was made by Karl Gooss.

**GOOSS’ REPORT ON THE DESTRUCTION OF THE COLONIA AURELIA APULENSIS AND THE DISCOVERY OF THE TEMPLE**

Karl Gooss (born on the 9th April, 1844, died on the 23rd June, 1881), a German teacher from the Lutheran school of Sighişoara (Schäßburg, Segesvár) was a well-known intellectual in the 1870’s in Transylvania, publishing extensively on the archaeological and epigraphic material of the region. As a student of renowned historians from the universities of Jena and Berlin, his activity between 1870 and 1878 produced numerous important catalogues and articles, serving as a supplement for the monumental work of the Corpus Inscriptionum Latinarum III. Among his many important works we also find a short synthesis on the Roman fort of the XIII Gemina legion, with a detailed introduction on the Roman history of Apulum, the first published before the monograph of Király from 1892 and Cserni from 1901. His focus on Apulum intensified after his remarkable eye witness from the end of August, 1867, published in details in his long article from 1871 and mentioned shortly again in 1874. His detailed report on the finds and the destruction of the Roman contexts were cited also by Cserni and numerous later sources, although never with a contextual analysis or a careful reading.

Gooss, who visited for some days Alba Iulia (Gyulafehérvár, Karlsburg) in 1867 for examining the inscriptions of the Bathyanaeum, was present personally in the last days of August, 1867 in the territory of the Partoș (Maros-Porto). After finishing his research in the fort and the Bathyanaeum, Gooss had a long and careful walk along the river Mureș (Mieresch)4, where the railway and the dig was under construction (fig. 1).

He describes the place of the discovery and the most affected area in the following way: “these works were carried on in the very heart of the ancient Apulum. 35 fathom below the Maros-Porto, on the right side of the Mieresch, should lead directly to the train station in front of the lower city of Karlsburg, while cutting the street from Apulum to Karlsberg in a sharp angle. During these days, as I took these notes on location, where they worked on the last third of those 600 Klafter length of embankment between the river and the street. However, there were 400 Klafter of the route from the river to the amased embankment section not started and even the worked on section had not totally proceed to the street45. The exact location of the described place is hard to establish, although the topographic references suggest, that the area must be in the Western part of the Roman city. If the distance of 600 fathom (wiener Klafter) is around 1096 m, it must refer to the section from the river till the area of the Galenberg. After the map of the Second Military Survey finished in 1869, only two years after Gooss’ report, the distance of 600 fathom corresponds perfectly with the river-Galenberg distance. His account

1904.

10 His bibliography was partially collected by Károly Torma: TORMA 1881, 26-28, cat. nr. 238-251.
11 GOOSS 1878. SEE ALSO: KIRÁLY 1892, CSERNI 1901.
12 GOOSS 1870, 33-63. See also: GOOSS 1874, 167-175.
13 Cserni 1901, PISO 2001 based on Mommsen’s contribution from the CIL III.
14 GOOSS 1870, 35.
15 GOOSS 1870, 35.
16 See also Cserni 1901, 275-276, PISO 2001, pl. III. nr. 11. Piso interpreted the description of Gooss as referring to the intersection of the railway with the contemporary Daciilor street. In this case, the sanctuary of the supreme Roman god would be in the southern periphery of the city, far from it’s economic center and the forum itself.

17 http://mapire.eu.hu/map/collection/secondsurvey/.
Last accessed: 17.11.2015.
states, that the discovery was made around the first 200 fathom (365 m) from the Galgenberg. This area corresponds with the NW corner of the Colonia Aurelia Apulensis, where the most intensive concentration of ruins and finds were attested (fig. 2)\(^\text{18}\). Later Cserni also mentioned, that in this area the builders of the railway moved a significant amount of soil for the dam\(^\text{19}\).

Gooss described the building of the dam in details. He mentions, that the earth foundation of the railway dam was made of the soil looted and removed from 3 to 9 feet deep from the ancient ruins. He observed, that the soil was already mixed and disturbed in the past, which – after him – suggest previous lootings for ancient ruins in this area of the Roman city. Later research proved, that the looting of the Colonia Aurelia Apulensis had indeed, a much longer history. Due to the finds mentioned by Gooss, important to mention, that an inscription dedicated by a certain Tenax, slave of A. Tapetius Antoninus to Diana, described in the 16\(^\text{th}\) century by Mezerzius (IDR III/5, 55) could belong to the same context described above. The

\(^{18}\) SZABÓ 2015.  
\(^{19}\) CSERNI 1912B.
reused soil contained not only countless bricks, stones and wall fragments, but also mortar and red or yellow coloured gypsum. Gooss vividly described, that in some cases even the brick elevation of the buildings was preserved. The walls showed a very irregular shape and structure, which corresponds with the structure of a usual Roman insulae, revealed also in the case of the Colonia Aurelia Apulensis during the geophysical survey of the Apulum Project. He described in details the *stratigraphy* of these ruins, highlighting that numerous layers of mortar, brick, pavements and earth covered the walls. In two of the compartments he described, large parts of cocciopesto (opus signinum) were attested.

Among the ruins, Gooss remarks a particular one: a “temple of Jupiter Capitolinus”. He noticed, that the ruins were so monumental, that the building must have large dimensions. The foundation of it was formed by large construction blocks (38 zoll length, 20 zoll width), two of them being intact and connected with iron installations. Gooss mentioned, that he observed similar construction blocks all over the gardens and buildings of Alba Iulia in secondary, reused position. He describes also a perfectly preserved, standing column, which was one of the architectural features to identify the building as a “temple”. The basis of the column was 30 zoll width (76,2 cm), while at the upper part of the abacus was 22 zoll (55.8 cm). From the details served by him we can presume, that the standing column was at least 300 cm high. In the same site he saw also a Doric column capital, although he presumed, that such a temple should have Ionic or Corinthian columns. As analogy, he gives the Roman Corinthian capital which decorated the garden of the major. In the interior of the building, Gooss observed numerous column bases. A particularly large quadrate stone (37 x 16 zoll) was standing also in the building, interpreted by Gooss as the statue base of the cult image.

Near the base, he found a splendid statue of “Jupiter Capitolinus sitting on a throne”. Although, he didn’t publish a drawing of the statue, his detailed description serves as an essential report for the identification of the monument. Gooss mentions, that the bust of the divinity was nude, the right shoulder was covered by a fine mantel which lied till the legs of the god, leaving free only the sandal of the divinity. Important to notion, that Gooss remarks especially the fact, that Jupiter wears a sandal. Left to his legs there is a fragmentarily preserved eagle. The head of the animal and the divinity is intentionally destroyed. The height of the statue is 3.2 feet (94.8 cm), the width of his throne is 21 zoll (53.3 cm). Gooss presumed, that the statue was made of marble. Unfortunately, he didn’t mention the fate of the statue and where was it transported. Although, it is one of the most detailed description of any Jupiter statues discovered in the territory of the Colonia Aurelia Apulensis, the later historiography ignored totally his report, none of the studies focusing on the stone representations of Jupiter will cite his article. Without a precise drawing, the identification of the statue is possible only based on some particular features mentioned by Gooss. From the 13 statuary representations known in 1980, only two marble statues were known from the two cities of Apulum: one discovered in the territory of the Colonia Aurelia Apulensis between the two world wars and another from the territory of the Municipium Septimium Apulense discovered in 1976. This could indicate that Gooss identified wrongly the material of the statue. The decisive details are served by the date and place of discovery, the mutilated face of Jupiter, the height of the statue and the detailed sandal of the divinity. From the few Jupiter statues discovered in the territory of the Colonia Aurelia Apulensis before 1920, only one have a mutilated face, a long mantel and a beautifully decorated sandal (figs. 3a, b, c).

The statue today is preserved in the Brukenthal Museum (inv. no.) which replaced the Batthyanaeum, as the leading institute for preserving the archaeological heritage of Transylvania between 1800 and 1886. Many of the monuments from the Batthyanaeum, such as the splendid Mithraic site and date of discovery, verbal confirmation of Claudiu Munteanu. See also: SZABÓ 2014, SZABÓ 2016.

![Fig. 3a-c: Statue of Jupiter from the Brukenthal Museum, Sibiu. Photos by Ortoff Harl: Lupa 17354.](Image)
Studies in Ancient History and Archaeology

No. 2.4/2015

140 Journal of Ancient History and Archeology  No. 2.4/2015

The statue of Secundinus and the material of the so-called “Kaftal mithraeum” were transported in the Brukenthal Museum in the second half of the 19th century. The dimensions of the statue (105 x 63 x 47 cm), the intentionally mutilated face of Jupiter and the details of the sandal and the eagle correspond with the description of Karl Gooss.

Other arguments, which prove that the statue from the Brukenthal is identical with the one described by Gooss, are the altars found in the same building, near the statue. Gooss reports, that he found 5 altars in the compartment: three inscribed and two unepigraphic. He published for the first time the inscriptions and described in details their appearance and side-decorations. Today, only two of the altars are preserved (IDR III/5, 167, 168) both of them in the Brukenthal Museum (inv.no. A 3419, A 3420, figs. 4-5), acquisitioned by Ludwig Reissenberger (1819-1895). The altar of Aurelianus Aelianus (IDR III/5) today is missing, the description of Gooss is the only detailed report about this monument. Both the statue from the Brukenthal and the five altars show a particular iconography and possibly, external influences or workshops as it was already highlighted. Beside the statue and the five altars, Gooss observed in the building also a channel and a cylindrical water reservoir (or fountain) which was deeply excavated and used as potable water for the workers of the railway (more than 100 persons could use it daily).

LOCATING THE BIGGEST SILVER TREASURE OF APULUM AND THE COIN HOARD APULUM I.

Beside the so-called Jupiter temple and its relatively well preserved inventory, Gooss reports numerous other, exceptional finds discovered in 1867 and 1868. Among these, we find numerous inscriptions dedicated to a large variety of divinities (IDR III/5, 5, 22, 45, 50, 122, 123, 136, 167, 168, 218, 245, 268, 277, 320, 389). Unfortunately, none of these finds were precisely located. Two of the finds need however, a more careful attention.

Gooss mentioned, that four silver objects (two plates, a lid and a cup) were discovered in the nearby of the above mentioned temple. One of the pieces, published by Gooss in 1870 was republished in 1980 without the citation of his work as editio princeps. Cserni himself cites the work of Gooss and gives the dimensions of the silver objects in his monograph, although without the drawing published by the German teacher (fig. 6a-d). The two plates (cca. 5.2 x 9.5 cm) unfortunately were melted in the same year in the mint of the Vauban fort for 97 forints. The beautifully decorated silver cup was transported later in Cluj (Kolozsvár) where

35 SZABÓ 2013.
36 GOOSS 1870, 37-38.
38 ISAC 1974, 78. Isac enrolled the statue as “from Transylvania”, citing the work of Paulovics.
39 Some of these were found in 1868. Gooss reports only 3 inscriptions found in the summer of 1867: GOOSS 1874. See also: SZABÓ 2014.
40 Although they certainly belonged to the Colonia Aurelia Apulensis, their exact context is unknown and it seems that they are not from the same spot.
42 CSERNI 1901, 275.
seems to be lost after 1937\textsuperscript{44}. Beside the silver artifacts, a beautiful bronze statuette of Venus, numerous fibulae and other small finds was also among the objects which later disappeared\textsuperscript{45}.

Among the finds from the colonia discovered in 1867, another important one was reported later by Béla Cserni in 1901. In his seminal work on the Roman history and topography of Apulum, he mentions an intact moneybox with 612 Roman coins, dated from Nero till around 185 AD\textsuperscript{46}. In this area numerous moneyboxes were identified in the 1990’s during the excavation of the Liber Pater shrine\textsuperscript{47}. The hoard was published in the Latin article of Henrik Finály in 1873\textsuperscript{48}. The famous classical philologist mentioned in the title of his article, that the hoard was discovered “inter ruderam municipii Apulensis” in September, 1867. No further topographic details were given. The date corresponds exactly with the construction of the railway, described by Karl Gooss. Recently, this hoard is known as “Apulum I”\textsuperscript{49}, as the first numismatic hoard ever found in Apulum. The latest publisher mentioned, that it was found in the “ruins of the palace of the prince” in the territory of the Roman fort\textsuperscript{50}, probably based on Finály confusing reference to the “municipium” and on the topography of later coin hoards from Apulum. The last publisher mentioned, that it was found in the “ruins of the palace of the prince” in the territory of the Roman fort\textsuperscript{50}, probably based on Finály confusing reference to the “municipium” and on the topography of later coin hoards from Apulum. Important to mention however, that in 1873 when the hoard was published, the topography and administration of the conurbation was not known, and the silver cup was last photographed in 1937 and in 1959 was already mentioned as missing object. It is possible, that it disappeared – as many of the archaeological material – during the Second World War.

Gooss saw the statuette in 1867, but in 1901 it does not exist as Cserni’s report mention it as “missing object”:\textsuperscript{GOOSS 1870, 42, CSERNI 1901, 275-276.}

CSERNI 1901, 276.

Gooss published also an important list of coins found or observed by him during these days, although it does not consist probably a treasure or hoard, but more sporadic finds: GOOSS 1870, 44.

CONTEXTUALIZING THE TEMPLE AND THE FINDS WITHIN THE TOPOGRAPHY OF THE COLONIA AURELLA APULENSIS

Although Gooss diligently reported the finds and the ruins, the first who located on a map was Béla Cserni in his monograph on the Roman city in 1901\textsuperscript{54}. Although the father of urban archaeology in Transylvania mentioned the silver treasure and the coin hoard, he forgot to mention the Jupiter temple. The first who will observe again, that Gooss identified a possible temple was Ioan Piso who copied the reference from the 

“municipium Apulensium” is referred to the territory of the later Colonia Aurelia Apulensis\textsuperscript{51}. Cserni’s short reference to the topography of this find is crucial: although he doesn’t cite Finály’s work, helps us to locate exactly the first hoard found in the civil settlement. The chronology of the find indicates a turbulent period of the settlement in the early Septimian age, before it was transformed and expanded into a colonia\textsuperscript{52}.

Unfortunately, the fate of the temple, the fountain, the numerous stamped bricks and the numismatic material\textsuperscript{53} is presumable: the railway was opened soon after 1868 and with that, a large part of the Colonia Aurelia Apulensis was destroyed forever.

\textsuperscript{44} The silver cup was last photographed in 1937 and in 1959 was already mentioned as missing object. It is possible, that it disappeared – as many of the archaeological material – during the Second World War.

\textsuperscript{45} Gooss saw the statuette in 1867, but in 1901 it does not exist as Cserni’s report mention it as „missing object”: GOOSS 1870, 42, CSERNI 1901, 275-276.

\textsuperscript{46} CSERNI 1901, 276.

\textsuperscript{47} HÖPKEN/FIEDLER 2007, HÖPKEN 2008.

\textsuperscript{48} FINALY 1873, 24.


\textsuperscript{50} GĂZDAC 1995, 133.


\textsuperscript{52} See DIACONESCU 2004.

\textsuperscript{53} Gooss published also an important list of coins found or observed by him during these days, although it does not consist probably a treasure or hoard, but more sporadic finds: GOOSS 1870, 44.

\textsuperscript{54} See chapter V in: SZABÓ 2016.
detailed description. None of the studies focusing on Roman temples and sanctuaries mentioned Gooss’ or Piso’s observation. The location of the site – although it is the most precisely reported from all the main discoveries of 1867 – is uncertain. What is sure, that we are talking about a waste area of approx. 1100 m long and 300 m wide, which consists the NV corner and the V part of the Roman city (fig. 2). As we mentioned, the topographic features given by Gooss suggests that the temple was found in the first half of the str. Regimentului V. Vânători, which consisted the NV corner of the Colonia Aurelia Apulensis. Contrary to this, Ioan Piso suggested, that the area must be in the SV part of the city. Other finds, such as the inscriptions dedicated to Liber Pater (IDR III/5, 245) suggest also, that the area of the Liber Pater shrine was also affected by the railway building. It seems plausible, that this area (the NV corner and the V periphery of the Roman city) was highly populated with sanctuaries of small group religions (mithraea, dolichenum, Liber Pater shrine) and was also a very rich, domestic area, as the silver plates and later, Cserni’s discoveries will prove this

The role and identification of the temple with a possible Capitolium is problematic. Although, based on the epigraphic and statuary material known from the conurbation, the existence of a Capitolium was long time ago presumed and recently the vicinity of a possible Forum could indicate the existence of a public Roman temple dedicated to the supreme triad, the lack of the archaeological evidence, the rarity of the Capitolia in Danubian provinces and the omnipresent nature of Jupiter monuments in urban contexts makes it difficult to identify the temple attested by Gooss with a capitolium. The chronology of the finds represents also great homogeneity and variety, some of them (such as the Apulum I hoard) predates the Colonia Aurelia Apulensis, others (such as the silver cup) was dated to the end of the 3rd century. Although it is uncertain if the temple attested by Gooss is a capitolium, it was surely, a public Roman templum. This is indicated by the nature of the monuments and the monumental quadrate blocks, which is attested in Apulum only in public buildings protected by law (res sanctae). The presence of the Tapetii

57 PISO 2001, fig. III.11.
59 About the topography of Cserni’s excavations in this area see chapter V in SZABÓ 2016.
60 Without knowing the context of the discovery and Gooss’ description, Paulovics identified the statue from the Brukenthal with a capitolium: PAULOVICS 1940.
63 GĂZDAC 1995.
64 KÜNZL 1980.
65 On the notion see: SZABÓ 2015, n. 3. with further bibliography.
66 Till now in the case of the principia, the wall of the fort and possibly, the city wall of the Municipium Septimium.
family (represented by multiple inscriptions) indicates, that sacred spaces dedicated to the supreme god worked similarly as in the case of some shrines of small - group religions. The foundation and the maintenance of the building was ensured by a prominent family or religious entrepreneurs of the conurbation, connected with familial bounds, securing their important role on the so called religious market of the Roman city with an accumulation of titles and an intense implication in the economic life of Apulum⁶⁷.

Gooss already highlighted, that the face of the statue was mutilated intentionally⁶⁸. The statue from the Brukenthal Museum shows indeed, a violent intervention on the surface of the face. This could indicate an intentional mutilation and iconoclasm. Similar cases are interpreted in the Romanian literature as act of Christian mutilations from Late Antiquity, although none of these can be proved with solid arguments or contexts⁶⁹. It is very probable, that the temple attested by Gooss was still visible on the surface in the late Byzantine period (8-10th centuries), when the first organized Christian communities emerged in the territory of the ex-Roman city.

*The report of Karl Gooss about the destructions on the territory of the Colonia Aurelia Apulensis is one of the most important testimonies of this kind from the 19th century literature in Transylvania. Its importance consists in the exceptional and in many sense unique finds: the first Roman silver treasure and the first coin hoard from Apulum. His article influenced also Béla Cserni’s work and was the most important testimonies of this kind from the 19th centuries, when the first predecessor of urban archaeology, which began with the activity of Béla Cserni, few years later.

References

**PESCARU/ALICU 2000**
Pescaru, A./Alicu, D., Temple romane din Dacia (Deva: Acta Musei Devensis, Deva).

**ALICU 2002**
Alicu, D., Addenda la repertoriul templelor romane din Dacia, Apulum 30, 201-236.

**BARTON 1982**
Barton, I.M., Capitoline temples in Italy and the provinces (especially Africa), Aufstieg un Niedergang der Römischen Welt 2.12.1 (Berlin: de Gruyter), 259-342.

**BĂLŢĂ 1978**

**BĂLŢĂ 1980**
Bălţă, C., Statui reprezentând pe Jupiter Tronans descoperite la Apulum, Apulum 18, 101-106

**BĂRBULESCU 1984**

**BĂRBULESCU 1993**

**BENEA/HICA 2004**
Benea, D./Hica, I., Damnatio memoriae in architectura romană târziei de la Dunărea de Jos (Timișoara: Excelsior)

**BOGDAN-CATĂNICIU 2000**

**CIOBANU 2014**
Ciobanu, R., Statueta lui Hercule „Farnese” recent descoperită la Apulum – elemente de mitologie comparată, iconografie, tipologie și stil ale unei piese exceptionale de artă română, Apulum 51, 491-526.

**CIUTĂ 2013**
Ciută, M., Recovering the past. The case of Hercules Apulensis, Acta Terrae Septemcastrensis 12, 65-84.

**CIUTĂ 2014**

**Cserni 1901**
Cserni B., Alsó-fehér vármegye története a római korban (Nagynyed: -).

**Cserni 1912A**

**Cserni 1912B**
Cserni B., Jelentés a Colonia Apulensis területén végzett ásatásokról II, Múzeum és Könyvtári Értesítő 4, 257-283.

**Daicoviciu 1941**
Daicoviciu 1941

**Daicoviciu, C./Oargă, O./Găzdac-Alföldi Á.**
Daicoviciu, C., Neue mitteilungen in Dazien, Dacia 7-8, 299-336.

**DIACONESCU 2004**

**FINÁLY 1873**

**FRISNYÁK 2001**

**GÁZDAC 1995**
Gázdac, C., Tezaurul monetar imperial Apulum I restudiat, Revista Bistriței 9, 133-144.

**GÁZDAC et al. 2015**
Gázdac, C./Oargă, O./Gázdac-Alföldi Á., It Was Supposed to Be Silver! The Scrap Coin “Hoard” Apulum VI (Cluj Napoca: Mega)

**GIDŐ 2013**

**GIDŐ 2014**
Gidő, C., Vasszékér és gőzmődony (Csikszereda: Pro Print)

**GOOSS 1870**
Gooss, K., Archäologischen Analekten, Archiv für Siebenbürgische Landeskunde 9, 33-63.


^68 GOOSS 1870, 45.

^69 BENE/A/HICA 2004. See also: ZUGRAVU 2007, 323-324.
Studies

GOOSS 1874
Gooss, K., Archäologische Analysen, Archiv des Vereins für Siebenbürgische Landeskunde 12, 167-175.

GOOSS 1878
Gooss, K., Die römische Lagerstadt Apulum in Daciien (Schässburg: -).

GORDON 2013

GORDON 2016

HAMPEL 1911
Hampel J., Apulumii oszlópú, Archaeológia Értesités 31, 228-253.

HAYNES 2005

HAYNES 2014

HORVÁTH 2001
Horváth F., Az erdélyi vasútépítés előzményei I., Műszaki Szemle 13, 3-9.

HORVÁTH/KUBINSZKY 2001
Horváth F./Kubinszky M., Az erdélyi vasútéptéteszet előzményei IV, Műszaki szemle, 3-6.

HÖPKEN 2008

HÖPKEN/FIEDLER 2007

ISAC 1974

KIRÁLY 1892
Király P., Gyulafehérvár története I. Apulum. Gyulafehérvár a római korban (Gyulafehérvár: -).

KUNZL 1980

MACREA 1937
Macrea, M., Institutul de Studii Clasice. O scurtă prezentare a activităţii şi a colecţiilor sale, Gazeta Ilustrată 9/10, 107-120.

MOGA 1974
Moga, V., Un nou monument de la Apulum reprezentând pe Jupiter Tronans, Acta Musei Napocensis 9, 81-83.

NORTH 1992

OTA 2012
Ota, R., De la canabele legiunii a XIII-a: Genima la Municipium Septimium Apulense (Alba Iulia: Altip).

OTA 2013

PAULOVICS 1940
Paulovics I., Savaria capituliuma, Archaeológia Értesités N.S. 3/1, 19-47.

PISO 2001

QUINN/WILSON 2013

SCHULLER 1990

SZABÓ 2013
Szabó Cs., The Mithraic statute of Secundinus from Apulum, Revista Doctoranzilor de Arheologie și Istorie Antică 1, 45-65.

SZABÓ 2014
Szabó Cs., Discovering the gods in Apulum: historiography and new perspectives, Revista Doctoranzilor de Arheologie și Istorie Antică 2, 53-82.

SZABÓ 2015

SZÁMÁDÓ 1997
Számadó E., Brigetio kutatástörténete, Komárom-Esztergom Megyei Múzeumok Közleményei 5, 149-174.

TORMA 1881
Torima K., Repertorium Dacia régiség és felirattani irodalmához (Budapest: -).

TUDOR 1959
Tudor, D., Ein im Süden Dakiens gefundenen hellenistisch-römischen Silbergefäße, Germany 37, 238.

ZUGRAVU 2007