

SIMILARITIES AND DIFFERENCES IN THE CONSERVATION AND SETTINGS OF THE GREAT WALL IN CHINA AND THE LIMESROMANUS AS LISTED AND PLANNED WORLD HERITAGE SITES

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The classical world, crowned by the Roman Empire and China are genesis and source for the modern civilization. It is worth to compare the two big cultures, the two huge concentration of power, of knowledge and of the way of thinking. They lived and flourished temporally parallel, always about on the same level, but principally and for a long time divided, almost nothing knowing about each other. Or? Although antique sources are very scarce and laconic, new investigations have revealed a lot of information about the different kind of their indirect, sometimes direct connections. In this respect first of all the great increase of the archaeological sources is to be emphasized.

One of the most noticeable examples is the Great Wall and the Roman Limes. They are the longest built constructions of the world and it is told that the Great Wall is the only human construction visible to the naked eyes from the Moon. They represent not only the human creativity, but also testify the wide range of historical, cultural and social relations and connections in far ends of Eurasia. Both of them divided peoples, but at the same time connected them and created many kinds of cultural interactions. Both of them belong to the ancient times, but the Great Wall was established earlier. While the Great Wall is a continuous built defense line, the Roman limes runs along rivers or roads (in the desert), and has only in some sectors a built construction, like the Hadrian's Wall. It is therefore no surprise that this sector of the Roman frontiers and the Great Wall were inscribed into the World Heritage list as early as 1987.

The Great Wall

The intention with the construction of the Great Wall was to exclude nomadic peoples, to prevent them from invading and penetrating Chinese territories. It was built in a length of more than 10000 km in different lines and times between the Tarim basin and the Yellow sea (**Fig. 1**). Its origins go back to the 7-6th centuries BC. A further section was newly found

in Henan Province, which could be dated around 688 BC¹. The first walls were built partly against rival kingdoms, partly against nomadic invaders. Qin Shi Huang, the greatest king of the Qin Dynasty, established the united Empire, and created the Great Wall against the Huns through connecting older walls (221-206 BC). During the inner turbulences after his death, the Huns succeeded to occupy huge territories and only Wu Di (140-87 BC) could reorganize the Chinese supremacy in the western and northern regions. Even the extension of the wall was ordered and made by him in the last quarter of the 2nd century BC. Apart from Inner Mongolian territories he occupied the Gansu corridor and a new wall was built up to the region of Lop Nor². These frontiers belonged to the empire for many centuries and were abandoned only in the 9th century AD during the decline and fall of the Tang Dynasty. The later, mainly under the Ming Dynasty built, beautiful and well preserved sectors are out of the range of this paper.

The Great Wall was built by peasants and convicted criminals who were compelled to carry out the task. At the time of the unification of the walls Qin Shi Huang had some 1,4 million people made the hard work. The consequence was often rebellion as also in this case. The topographical characteristics were always utilized at a maximum level in planning the line of the wall. The huge construction was erected from available local material, as from stone, brick, stamped earth, loess and organic material. The earthen walls were generally very thick and reinforced with log piles, in the desert region using bundles of reeds, tamarisk twigs, earthen bricks and sand (**Fig. 2**). The height of the 3-6 m wide wall could reach 10 m. There were beacon towers built from the same material along the wall, too. The watch

¹ J. Vieges: Oldest Section of Great Wall Identified. Discovery News: <http://dsc.discovery.com/news/briefs/20021111/greatwall>.

² Ma Yong – Sun Yutang: The Western Regions under the Hsiung-nu and the Han. In: Harmatta, J. (ed.): History of Civilizations of Central Asia. II. Paris 1994, 227-246.

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towers of the Great Wall in the Han Dynasty are known first of all from the clay models representing the two-three storey buildings (**Fig. 3**). They played an important role in the guarding and in the communication (**Fig. 4**). The square towers were 5-10 m wide at the base and about 5-12 m high. Many of them could be entered through ladder. For giving signals to the neighbouring towers in about 2-5 km the soldiers used drums, flags, torches and fire. Information and reports for the bigger forts and for the military centres could be written on wooden tablets. According to Tang sources the military service was long, but the veterans got land in the vicinity of their garrison. The military service was hereditary.

The first scientific investigation of the Great Wall in the desert is due to Sir Aurel Stein – he was of Hungarian origin – in the first decades of the 20th century. He identified and described the “limes” system in the region of Lop Nor and Dunhuang, and found a lot of important finds and inscriptions. Later Chinese archaeologists made more investigations and excavations, as in Majuanwan, Yumenguan or Yangguan (**Fig. 5**). They revealed new sections of the wall as well. In the last decades more hundred thousand wooden tablets came to light in the Gansu region from the age of the Qin and the Han dynasties³. The abundant scientific information of the newly gained huge material will contribute to the present knowledge of the history and organisation of the Wall.

The Limes Romanus

The state of Rome extended its supremacy onto the whole Mediterranean region during the reign of Augustus (31 BC – 14 AD). The political system of the *principatus* provided a solid structure for the Empire and determined its geographical extent. The coastal region was its core, and it only conquered mainland areas permanently where the Atlantic Ocean, the Black Sea, or the great rivers, the majority of which flow across Europe, Asia and Africa, provided lines of communication for information exchange, merchants, armies, and others. Consequently, the Empire became the strongest power and encompassed the Mediterranean World.

We know from Tacitus that Augustus urged his successor not to increase the size of the Roman Empire but merely to

³ Tsien, T. H.: *Written on Bamboo and silk. The Beginnings of Chinese Books and Inscriptions*. Chicago 1962; Tsien, T. H.: *Paper and printing*. In: Needham, J.: *Science and Civilisation in China V/1*. Cambridge 1985; www.china.org.cn/English/2003/Jun.

keep it within its frontiers. It is noteworthy that regardless of the advices of Augustus and of the ambition of his followers the extent of the Roman Empire did not change in essence during the next centuries. Though Rome never gave up to conquest of new territories, by the end of the 1st century AD she created a linear defence line along the frontiers. According to the Trajan’s Column, rows of wooden towers became general alongside the boundaries, also the legions and auxiliary troops, the greatest part of the imperial army, were stationed there. These lines were deliberately chosen at rivers, at the edge of the deserts in Africa or in the East, in hilly regions on the edge of the plateaus or mountains. It means they tried to make use of any natural barrier. It was Hadrian who decided to build artificial barriers in places where no rivers or other bigger obstacles could be incorporated into the defence (**Fig. 6**). One can read in his biography that in those times he let posts hit deep into the earth and timber walls made in such places where the barbarians were divided not through rivers but *limites*⁴. It fits perfectly to the German limes, which connected the Rhine and the Danube, and according to the archaeological investigations⁵ its palisade wall was built under his rule about the 2nd-3rd decades of the 2nd century AD. However, his great work was the big wall in Britannia, named also today Hadrian’s Wall (**Fig. 7**). It was built on the north boundary of the province. Again a quotation from his biography: he went over to Britannia ... and as first let a stone wall built in a length of 80 miles (some 120 km) to divide Romans and barbarians⁶. It is worth for noting that it is emphasised that he was the first who built walls to separate the two people. Apart from these two sections there is only one place in Europe where one can recon with a kind of built limes: it is Dacia, which was occupied by Traian north of the Danube. Otherwise the boundary ran along the Rhine and the Danube. In the East partly the Euphrates, partly the desert itself formed the limes, and so was in Africa as well (**Fig. 8**). One can speak about a special case in Egypt where a deep territory counted as boundary south of Assuan, and about some sectors in Algeria and Tunis where built defence lines existed, too (*fossatum Africae*). The different types of the boundaries were united by the limes road, which

⁴ *Per ea tempora et alias frequenter in plurimis locis, in quibus barbari non fluminibus sed limitibus dividuntur, stipibus magnis in modum muralis saepis funditus iactis atque conexas barbaros separavit* (SHA vita Hadriani 12.6).

⁵ Baatz, D.: *Der römische Limes*. Berlin 1993, 47.

⁶ *Ergo ... Britanniam petit, in qua multa correxit murumque per octoginta milia passuum primus duxit, qui barbaros Romanosque divideret* (SHA vita Hadr. 11.2). – See Breeze, D.: *Hadrian’s Wall*. London 2003².

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ran always exactly along the limes, and so it was one of the most important construction of the system.

All military structures were built according the same, unified plans, so they have a very similar form and proportions. Legionary fortresses could have a perimeter wall of about 2 km, auxiliary forts of about 400-1200 m (**Fig. 9**). The basement of the towers generally had a measurement with 5-16 m side walls (**Fig. 10**).

The case of Pannonia⁷ can represent this military system. The complete and hereafter permanent occupation of the frontier line took place under Trajan. The legionary fortress of Brigetio (Szöny) was built around 100 AD, that of Aquincum ten years earlier (**Fig. 11**). All of the known *auxiliary* forts can be dated to that time, too (**Figs. 12-13**). The almost evenly distributed auxiliary camps were able to protect the borders of both Pannonian provinces. The forts of the first century AD had turf and palisade walls with a mound inside which was made of the earth exploited from the *fossa* outside the wall. Stone structures came to general use in the 2nd century AD. At the moment altogether some 200 watch towers are known in Pannonia. Only a few wooden towers from the 1st century became known and their number in the second century is low, too. Some of them were already a stone built one, but there are timber towers from the 4th century AD as well (**Fig. 14**).

The Limes road of Pannonia is described by both *Itinerarium Antonini* and *Tabula Peutingeriana* to some extent, however neither of them can be applied to locate the accurate line of the road. On the basis of archaeological data from the past and recent years and also on the ground of aerial archaeological observations, now we are able to follow the road in some cases for as long as 30-40 km. Marshlands were avoided, or on these lands the road was supported by an additional embankment underneath. It can be observed, too, that the Limes road had some very long straight sections. These 10-20 km long road sections praise the very precise and careful engineering work. On the ground of several cross sections it can be said that the average width of the road was 7 m. It had some 80 cm deep base consisted of few layers of soil and stone, with gravel covering on the top.

The frontiers obviously were not only the accommodation site of the soldiers or simply a system of forts, but also an economic and cultural background, with a significant impact on the entire provincial life. It was a lucrative territory for

the Romanisation, too, where native inhabitants encountered with military people. The vast majority of retired soldiers settled down in civilian settlements situated around the forts.

Connections between Rome and China

One of the biggest questions is, whether any connections existed between the two great ancient empires. The long distance, the great number of different peoples and cultures in Central Asia made any connections almost impossible. However, the curiosity and the challenge of great distances and remote lands excited people in each era, not to speak about political and economic aspirations. Indeed, we can realize that more information about each other could be gain exactly in times as the one or the other became stronger and could start some programs toward the other.

The campaigns of Alexander the Great and the activities of the states with Hellenistic characteristics in Central Asia, first of all the Greaco-Baktrian kingdom⁸, brought a lot of information about Persia, India, Sogdiana. The first known note about silk (σηρικόν) is due to Nearchos, general of Alexander⁹. According to Plinius the Skythian *oceanus* extends to the East, then goes to the South as *Eous oceanus* (nat. hist. 6.53), but known also as *Sericus oceanus* (nat. hist. 6.37). It means silk and it was the Greek name for Chinese people, too¹⁰.

The historian Sima Qian noticed the report of Zhang Qian, who went to the West in diplomatic journey and reached the territory of today Turkestan during the reign of Wu, short after 138 BC. He reported about a civilization of high developed agriculture, about houses made of stone and brick. These were the former Hellenistic colonies of Sogdiana and Fergana. He noticed the bigger horses of the region, too. He wrote also about the possible traffic and commercial route to India¹¹. In 119 BC he was sent again with an army to gain horses for breeding. The undertaking was successful¹².

⁸ Bernard, P.: The Greek kingdoms of Central Asia. In: Harmatta, J. (ed.): History of Civilizations of Central Asia. II. Paris 1994, 97-129.

⁹ Strabon: Geographiké 15, c. 693.

¹⁰ F.F. Schwarz: Seres. In: Der kleine Pauly 5, 134. – F. Altheim thought that they were a nomadic people which carried on trade with silk (Weltgeschichte Asiens, I. Halle (Saale) 1947, 56.

¹¹ P. FitzGerald: Ancient China. Lausanne 1978. Hung. edition 1989, 111-112.

¹² P. FitzGerald: Ancient China. Lausanne 1978. Hung. edition 1989, 115.

⁷ Visy, Zs.: The ripa Pannonica in Hungary. Budapest 2003.

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The silk trade started during the reign of Augustus, and there are some silk finds as well¹³. The trade became intensive both on the Silk Route and in the sea. The chief commander Banchao led an army up the Caspian sea in the 1st c. AD and sent a delegation to the west to get information about Rome¹⁴. Gān Yīng reached the sea, but as he did not undertake the at least three months long journey, returned from the Persian gulf, but gathered some data about the western lands and about Rome (Dà Qín)¹⁵. Short after the end of the Parthian War in 162-163 and just before the Marcomannic War in 167-180 Marcus Aurelius (An-tun) sent a delegation to the Han emperor from Rome (Daqin)¹⁶. It was the first and the last presence of a Roman delegation in China.

It seems that from Augustus to Marcus the Roman-Chinese connections – first of all trade connections – became intensive. It was supported by the intensive Eastern politics of Rome against the Parthian empire. A war under Nero, the occupation of Mesopotamia up to the Persian gulf under Traian, and again a Parthian war under Lucius Verus und Marcus Aurelius are the stages of this process. It can be no surprise that also Ptolemaios knew much more about China

¹³ Vergilius, georgica 2.121; Horatius, epod. 8.15. Tacitus, annales 2.33.

¹⁴ P. Fitzgerald: Ancient China. Lausanne 1978. Hung. edition 1989, 126.

¹⁵ Pulleyblank, E. G.: The Roman Empire as Known to Han China. Journal of the American Oriental Society 119, 1999, 77-78: In the preamble to the chapter on “Western Region” in the Hòu Hànsū can be read: “In the ninth year (97 C.E.) Bān Chāo sent his aide Gān Yīng who got as far as to look upon the Western Sea and return. These were all places that had not been reached in previous ages and are not described in the Classic of Mountains [and Sees] (*Shān[hǎi] jīng*). He gave a full account of their land and customs, telling of their precious and strange products.” In the same chapter: “The Protector General Bān and Chāo sent Gān Yīng on a mission to Dà Qín. He reached Thiazoi, looked upon the Great Sea and wished to cross, but the mariners of the western edge of Ānxí said to Yīng: “The sea is very broad and vast. With favourable winds those who come and go on it can cross in three months but if they encounter delaying winds it sometimes takes two years. Therefore those who set out on the sea always take supplies for three years. Voyaging on the sea makes people long for land and suffer for homesickness, and many perish.” When Yīng heard this he gave up his plan.” – See also Zhang, 2003, 61; Bai, 1982, 155.

¹⁶ Annals of the Han Dynasty, see Altheim, F.: Weltgeschichte Asiens, I. Halle (Saale) 1947, 49-50.

in the middle of the 2nd century AD than his predecessors¹⁷. Obviously, he got a lot of fresh information from his agents. He could describe and draw on his map not only India and Indo-China up to Sumatra, but also China (**Fig. 15**). Later in the 4th century Ammianus Mercellinus wrote about *Seri* as Chinese people, and mentioned also the Great Wall: *celsorum aggerum summitates / tops of the high walls* (23.6.14).

Comparison of the Great Wall and the Roman Limes

There are a lot of similarities between the two constructions. Both empires wanted to launch a strong barrier against “barbarians”, to prevent their invasions. In doing so, the Han Dynasty built a continuous wall, but Rome built a wall only in special cases. If topographical features, first of all big rivers or desert lands could be integrated, no wall was built. It was an important point in both systems the building of a military road along the limes, as well as the row of beacon towers in a strict sequence. Also the military centres and bigger forts are similar in the Roman and in the Chinese construction. Archaeologists found almost the same method for giving signs at the Great Wall and the Roman limes (**Fig. 16**). Quite peculiar is the similarity in the military organisation and in the social relation, as it was pointed out on the basis of the inscriptions of the Chinese and Roman wooden tablets¹⁸.

Apart from the last point which can be interpreted as similar solutions in similar cases, it is worth to think about the others, especially if one remembers the following points:

- the Westernmost sector of the Great Wall was built in the last decades of the 2nd century BC during the strong rule of emperor Wu;
- the Chinese Empire seems to be interested in the Western connections, at least in Central Asia;
- the silk (and other) trade connections between Rome and China were started under the rule of Augustus;
- they were quite intensive in the first century and at least in the first half of the second one – it is worth for noting that the North line of the Silk Road was opened also at the beginning of the 1st century AD;
- Rome got nearer to China through her more times reiterated wars and occupations in Mesopotamia;

¹⁷ Altheim, F.: Weltgeschichte Asiens, I. Halle (Saale) 1947, 48-49.

¹⁸ Graf, D. F.: Rome and China: Some Frontier Comparisons. In Zs. Visy (ed.): Proceedings of the XIXth Congress of Roman Frontier Studies. Pécs 2005, forthcoming.

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- there is information at least about one Chinese and one Roman delegation towards or into the other state;
- The towers with stack for giving sign by fire on the Traian's column are very similar to the finds and descriptions on the Great Wall, according to the investigations of A. Stein and other scholars especially in the region of Dun Huang and Lop Nor.

Taking all these points into consideration one can put the question if all these are of pure chance or there is a connection between the two systems. It is quite different from the system used before in Rome. The *praesidia*¹⁹ of Augustus cannot be compared with the regular system of beacon towers, which came to use by the end of the first century AD. There are a lot of examples that merchants were Rome's first class informants and spies among alien peoples, and though there are no sources for a direct trade between Rome and China, they could make use of the indirect trading connections, too. It is then quite obvious to suppose that Rome gained information about China and about their special and never heard complicated structure of frontier defence. Could the idea of the strong *limes* not come from the well-tried system of China?

Comparison of the setting and the state of conservation of the Great Wall and the Roman limes

Both structures played a decisive role in the life of the peoples living in- or outside of them, and both influence our life, too. The Great Wall was and is in the territory of only one state, but the about similar long perimeter of the Roman Empire can be found now in many countries. There are several differences in their elements. Both were built for about a similar purpose, but the exact solution was not the same. It depended from the geographical features, from the exact plans and purposes, from the available building material and methods. An important point is, that the Roman frontiers run in Europe through densely populated areas, especially where the wall was substituted by rivers like the Rhine or the Danube. Most Roman settlements in this area are covered by medieval and modern towns, settlements. Another threatening effect is the strong industrialization of the line of the limes, so the newly initiated multinational project of the Roman limes as a World Heritage site – now for six European countries – can not be prepared easily.

¹⁹ Florus, epitomae II 28.19: *citra praesidia constituta* – in the left bank of the Danube in front of Moesia.

The Great Wall was built and rebuilt in the same or different lines during about two thousand years, and used almost up to the last centuries. Its best preserved part is the some 600 km long Eastern sector built during the Ming Dynasty (**Figs. 17-20**), but also this is more than 300 years old. In the last 50 years great programs have been launched for restoration and conservation of the Great Wall. However, the menace is strong. According to the report of the China Great Wall Academy in 2002 “the forces of nature and destruction at the hand of mankind were bringing about the gradual reduction of its extent with the result that less than 30% remained in good condition”²⁰. There is an international program of "Love China Repair Her Great Wall". Donations from over 20 countries got underway. The Great Wall has got a museum, too. It was opened in Jiayuguan as the Museum of the Great Wall in 1987 and presents the whole chronology, topography and every important elements of the Wall²¹. Some years ago a new program was started under the name of ‘Salvage the Great Wall’²². The aim of the program is first to prepare a photographic database about the Great Wall, and then to make exhibitions all over the world which can call attention and help to salvage the Great Wall.

The preservation of the Roman Limes is quite different from region to region. Its best preserved and managed sector is the Hadrian's Wall and the German Limes which was inscribed into the World Heritage List in this year as an extension of the property Hadrian's Wall, under the name of Frontiers of the Roman Empire. A great number of the military sites have been known, and thousands of excavations have enlarged the scientific knowledge about the Roman frontiers in Europe and in the Mediterranean. Many reopened sites remained uncovered and could be conserved and restored. Some sectors and sites are not visible because modern settlements cover the monuments. The limes road can be preserved almost only in its line, because often modern roads run above it. Also the climate is not favourable for the archaeological remains of the limes in Europe, because frost causes considerable damages in them. However, forts and other monuments of the *Limes Romanus* in the desert areas of Asia and Africa are in a quite good condition. Their walls stand sometimes up to the 2nd-3rd floor.

²⁰ www.travelchinaguide.com/china_great_wall (27.01.2005).

²¹ Bárdi L.: Homokba temetett karavánutakon. Budapest 2005, 92. – In the book the author describes his expedition in China in 2003.

²² www.meet-greatwall.org/english/ – Beijing CXXT Cultural Publicizing Co. Ltd., Meet Great Wall Studio Nov. 14. 2001.

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Visible or not, conserved or detected only under the surface, the thousands of forts, towers and other remains of the Roman Frontiers represent one of the biggest empire of the history. They demand to be protected and to be presented for a better knowledge and understanding our past. "The Frontiers of the Roman Empire are therefore well suited to convey the message that the protection of archaeological sites whether visible or invisible is vital for the preservation of the collective memory of mankind"²³.

The Great Wall and the Roman Limes as World Heritage Sites

The qualification for inscribing in the World Heritage List gives for every owner an imperative demand for better conservation, preservation, presentation and management of the property. Important points are to create and to improve the legal background, to organize the management and prepare the management plan, to ensure the enduring usage of the property by visitors and investors, to preserve and enhance the site for later generations. These demands were and are ensured in China, in the United Kingdom and newly in Germany. But modern boundaries have not made possible to nominate the Roman Limes for a World Heritage Site as a whole like in China. That was the reason that it was initiated by me in the World Heritage Commission for some delegates in 2000 to create a common, unique, transnational World Heritage Site for the Frontiers of the Roman Empire through extension of the already listed limes section, the Hadrian's Wall. On the basis of this idea the Bratislava Group was created in 2003 from representatives of countries which had or put their limes-section on the tentative list. They are at present the United Kingdom, Germany, Austria, Slovakia, Hungary and Croatia. The Group is open for every country to join with its limes section. The group agreed in the following definition of the Roman limes as planned to be listed in the World Heritage List: "The Frontiers of the Roman Empire World Heritage Site should consist of the line(s) of the frontier at the height of the empire from Trajan to Septimius Severus (about AD 100 to 200), and military installations of different periods which are on that line. The installations include fortresses, forts, towers, the limes road, artificial barriers and immediately associated civil structures." The limitation in time and extension is an important element to make the nomination and the site of the limes as clear as possible. The common, transnational World Heritage Site demands already on this stage a very

sophisticated common work by the partners which extends to the principles of choosing sites, to a common database, to the questions of conservation, management and presentation and others. As a common Culture-2000 application was successful at the European Union, the work can be done within 2 years. It would be greeted if other countries which are in possession of any limes section of the Roman Empire would join to this project, and if once the whole Roman limes would be a sole integral World Heritage Site.

Abstract

The Great Wall and the Roman Limes are the longest built constructions of the world. The Great Wall was established earlier and it is very likely that it influenced somehow the concept of the Roman limes. While the Great Wall is a continual built defense line, the limes runs along rivers or roads (in the desert), and has only in some sectors a built construction, like the Hadrian's Wall. This sector and the Great Wall were inscribed into the World Heritage list in 1987.

Both played a decisive role in the life of the peoples living in- or outside of them, and both influence our life, too. The Roman frontiers run in Europe through densely populated areas, especially where the wall was substituted by rivers like the Rhine or the Danube. Most Roman settlements in this region are covered by medieval and modern towns, settlements. Another threatening effect is the strong industrialization of the line of the limes, so the newly initiated multinational project of the Roman limes as a World Heritage site – now for 6 European countries – can not be prepared not easily.

It is worth comparing their settings and conservation, discussing their similar and different features, and to give an account about the preparations as a WHS in Hungary.

²³ Breeze, D. – Jilek, S. – Thiel, A. – Rajtár, J.: Frontiers of the Roman Empire. London 2005.

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Section I: Définir le milieu des monuments et des sites-
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SIMILARITIES AND DIFFERENCES IN THE CONSERVATION AND SETTINGS OF THE GREAT WALL IN CHINA AND THE LIMESROMANUS AS LISTED AND PLANNED WORLD HERITAGE SITES

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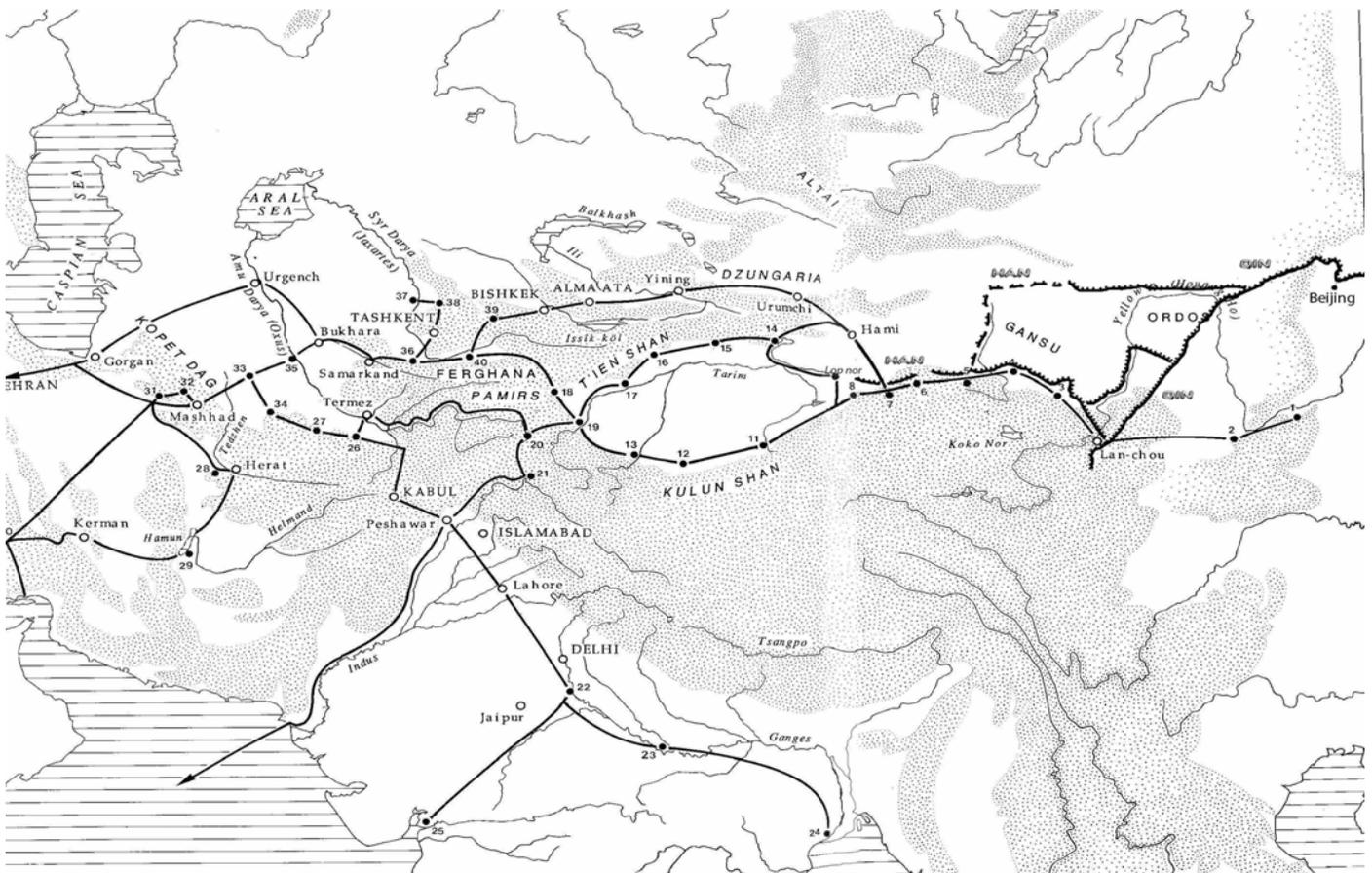


Fig 1 – Map of the Great Wall and the Silk Road. - After Harmatta (ed.), History of civilizations of Central Asia, map 5, with additions by the author.

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Fig. 2 – The Great Wall in the Gobi desert, made of stamped earth and tamarisk twigs –photographed by L. Bárdi.



Fig. 4 – Beacon tower in the region of Dunhuang – photographed by L. Bárdi.



Fig. 3 – Clay model of a watchtower from the Han dynasty with representation of a Hun warrior with a bow in the British Museum – after P. FitzGerald 1989, fig. 101.



Fig. 5 – The fort of Yumenguan – photographed by L. Bárdi.

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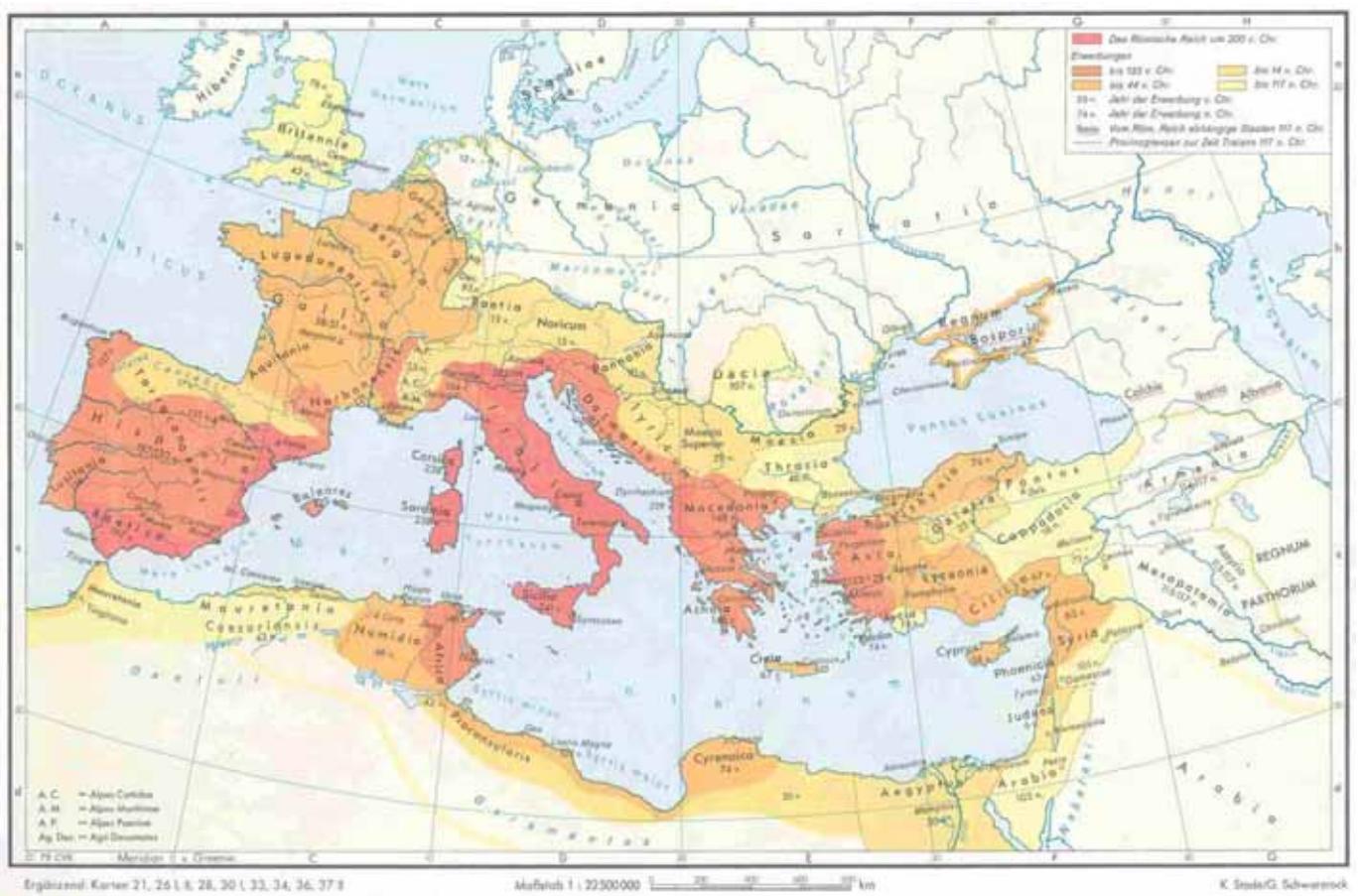


Fig. 6 – Map of the Roman Empire in the 2nd-3rd centuries – After K. Stade / G. Schwarzrock (Putzger 1992), modified by the author.



Fig. 7 – The Hadrian's Wall – photographed by the author.



Fig. 8 – The fort Quasr Bsirr in Jordania – photographed by the author.

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Fig. 9 – The reconstructed gate of the auxiliary fort at Saalburg – photographed by the author.



Fig. 12 – The auxiliary fort at Intercisa – photographed by the author.



Fig. 10 – Reconstructed tower on the limes of Raetia – photographed by the author.



Fig. 13 – The late Roman fort at Lussonium – photographed by the author.



Fig. 11 – The south gate of the legionary fortress of Aquincum/Budapest – photographed by the author.



Fig. 14 – Watch tower in Leányfalu – photographed by the author.

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Fig. 15 – Maps of Ptolemaios about Asia as drawn in the Middle Ages.

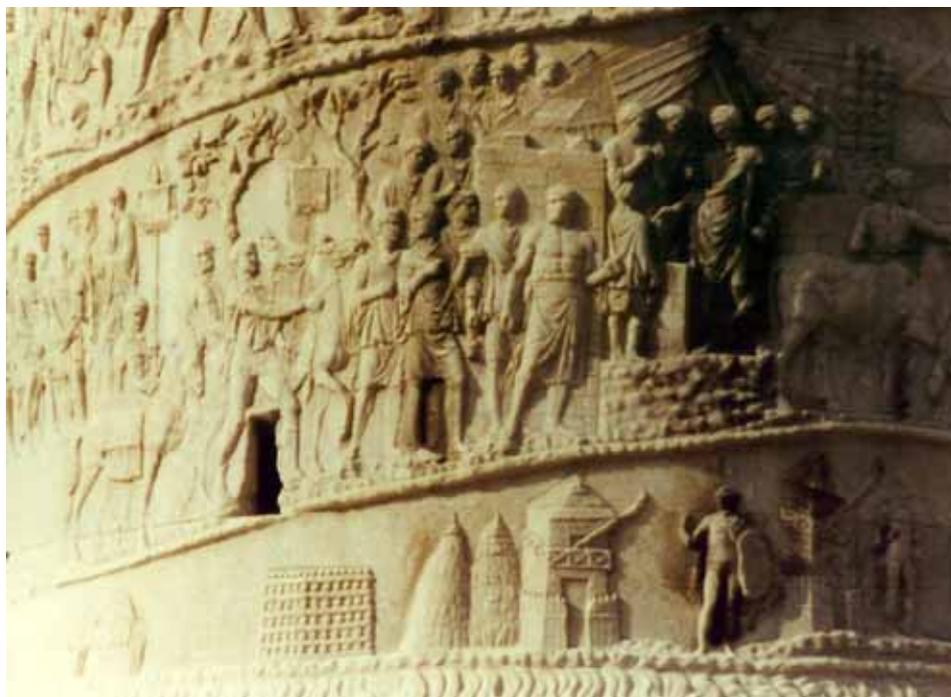


Fig. 16 A beacon tower with a stack prepared for giving sign by fire, represented on the Traian's column in Rome – photographed by the author.

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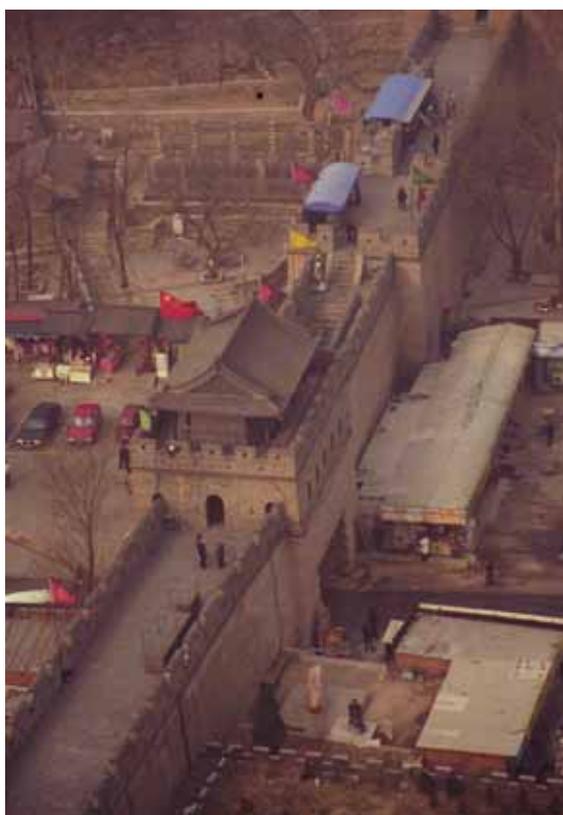


Fig. 17 – 20 The Great Wall in and near to Beijing – photos of the Geographical Institute of the University of Pécs.