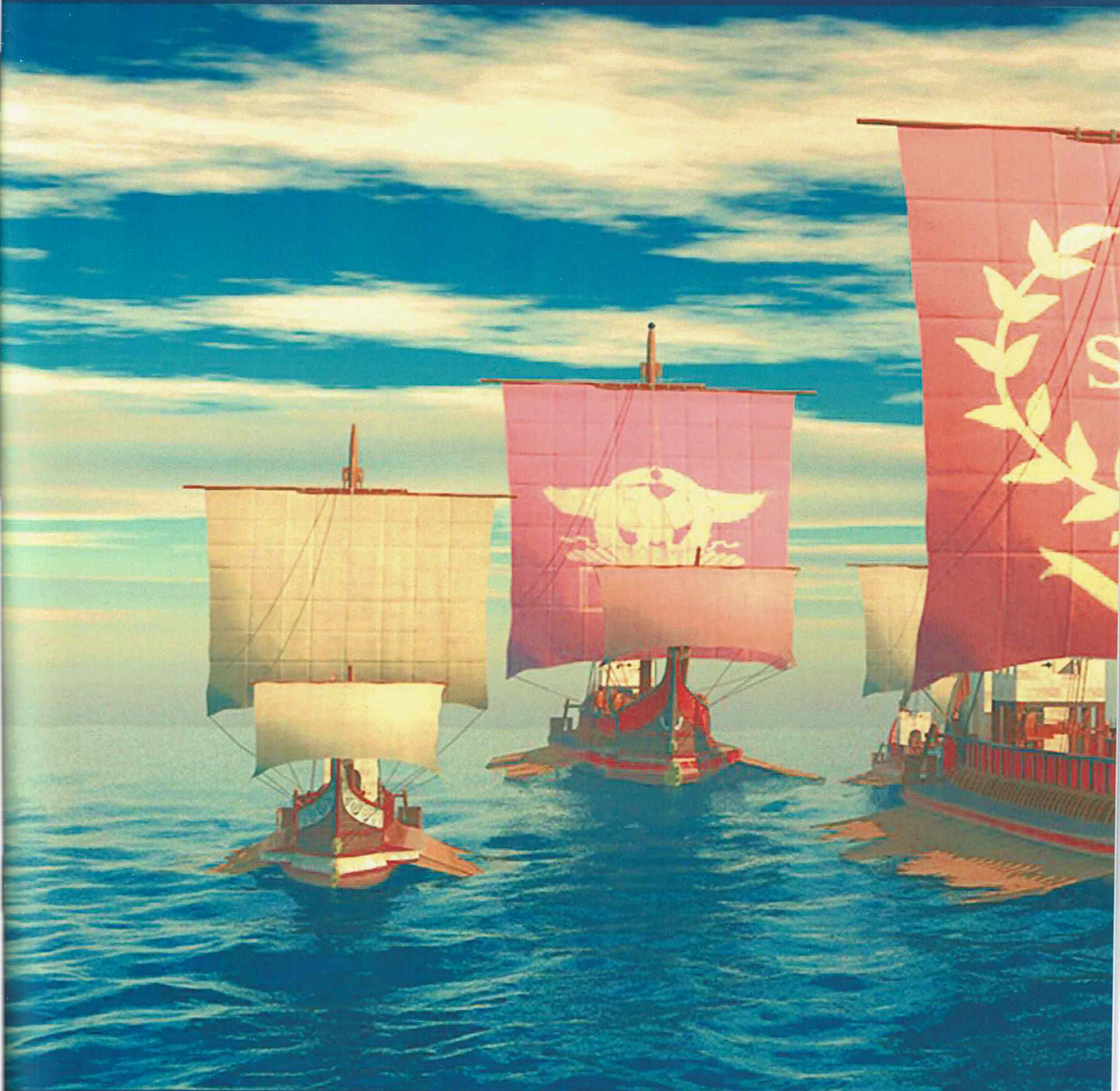


Issue 334

January/February 2021

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SEA EAGLES OF EMPIRE • T'ANG FASTIC OUTPOST • ARTHURIAN CAMPAIGN
GOTHIC WAGON LAAGER AT ADRIANOPE • ROMAN TACTICAL ACUMEN AT CANNAE

The Journal of the Society of Ancients

THE GOTHIC WAGON LAAGER AT ADRIANOPLE

by Jens Peter Kutz

How big was the Gothic laager at Adrianople? What was its shape? How was it constructed? How many warriors could it accommodate? Jens Kutz investigates these questions using careful historical research and comes up with some fascinating answers.

On the occasion of some preliminary considerations and brainstorming for a DBMM scenario in which the Battle of Adrianople was to be re-fought,¹ a lengthy and controversial discussion arose about the wagon laager in which, according to the sources, the barbarians had barricaded themselves during the battle. The discussion was mainly about its shape and its size. Therefore, I have dealt intensively with the topic and want to summarize here the result of my considerations, which are based on literature research, study of the sources, my own thoughts and mathematical calculations.

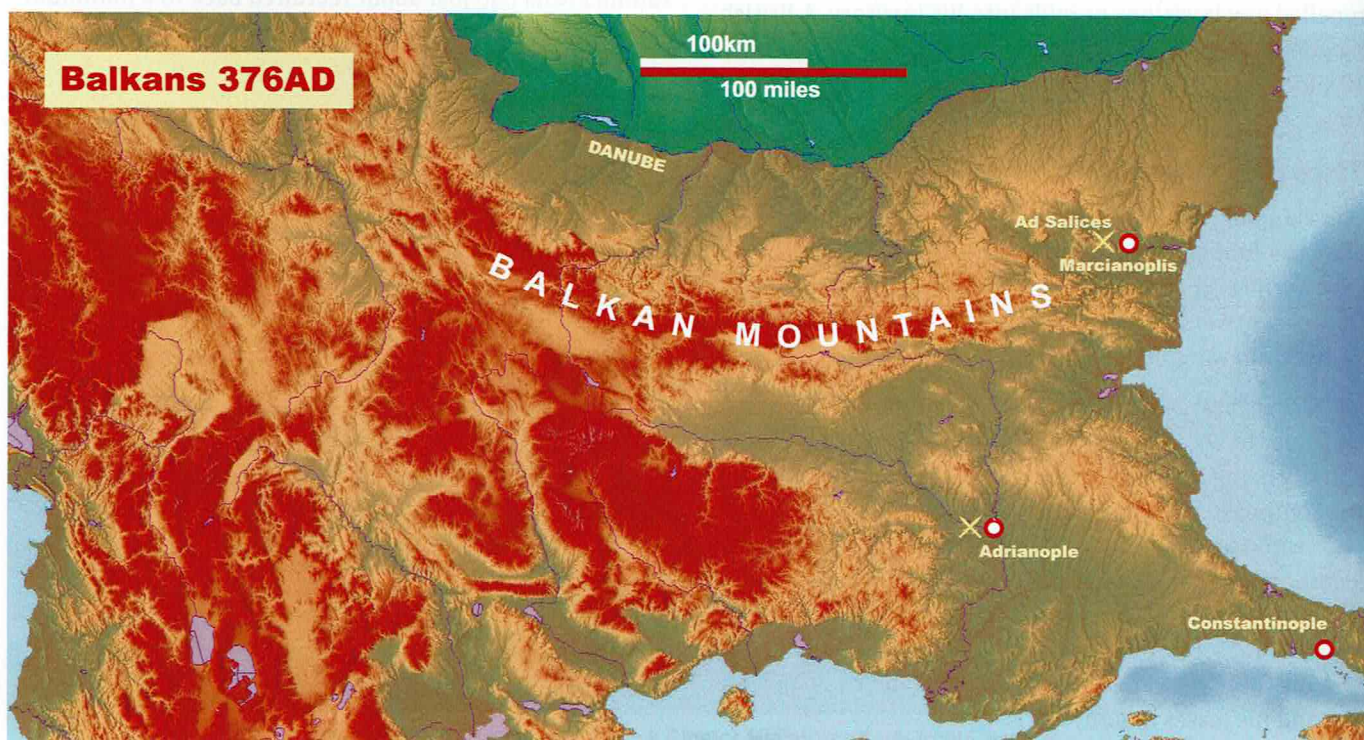
The Battle of Adrianople between the Eastern Roman army and a united army of barbarians consisting of several heterogeneous groups resulted in one of the biggest disasters for the Romans since Cannae in 216 BC. The events that led to the Battle of Adrianople and the course of the battle can be assumed to be known. Nevertheless, a brief summary is given in the following.²

The Battle

In the late summer of 376 AD the Gothic tribe of the Tervingi, fleeing the Huns, were allowed into the eastern half of the Roman Empire across the Danube after a formal surrender. Since the Tervingi were only able to take limited supplies with them on their escape, supply shortages soon arose. The Roman officials tried to profit from the Barbarians' dreadful plight with inflated prices.

When the Roman commander (*comes rei militaris per Thracias*) Lupicinus withdrew troops from the Danube in order to push the Tervingi to his headquarters in Marcianopolis, parts of the Gothic tribe of the Greuthungi, who had also fled to the Danube, took the opportunity to cross the river. The Tervingi and Greuthungi then joined together to form a large group. Open rebellion of the Goths occurred when Lupicinus tried to have the leaders of the Tervingi and Greuthungi killed at a diplomatic banquet. This attempt failed, however, and the Roman troops hastily drawn together by Lupicinus were thereupon defeated by the Goths. The Goths then first plundered the area around Marcianopolis, later they crossed the Balkan Mountains to the south.

In the meantime the Roman Emperor of the eastern half of the Empire, Valens, had made peace with Persia in order to be able to withdraw troops from Armenia. These troops reached the Balkans in the summer of 377 AD. As a result of this the Barbarians withdrew to the area north of the Balkan Mountains. At the village of Ad Salices there was a first major battle when the Romans attacked the Gothic wagon laager. This battle ended without a clear winner and with heavy losses on both sides, whereupon the Romans now started to secure the passes of the Balkan Mountains. However, since they were outnumbered and the Goths were reinforced by groups of Huns and Alans greedy for prey, the Romans had to withdraw. In the following time the Bar-





Solidus depicting Valens. Wikimedia Commons licence.

barians were able to plunder the areas south of the Balkan Mountains again.

At the beginning of 378 AD, Emperor Valens finally gathered his Field Army near Constantinople. The western Emperor Gratian had promised to pull his Field Army into the area as well, but had to turn back when a group of Alemanni crossed the frozen Rhine and threatened the Empire.

When in August, despite repeated promises, still no troops came from the west, Valens decided to venture the battle without Gratian. He probably also didn't want Gratian to have a share in the expected victory. Valens' troops marched towards Adrianople, where the leader of the Tervingi, Fritigern, had meanwhile gathered his troops.⁵ On the night of 8th to 9th August, Fritigern sent an offer of peace, which Valens refused. The Roman army marched north at dusk on 9th August and reached the Gothic wagon laager in the early afternoon.

When the opponents after further negotiations and two more peace offers were already in the process of exchanging hostages, two regiments of the *scholae palatinae* of the Roman left wing (some authors also suggest that it was on the right wing) began to attack the Goths in their wagon laager without having received proper orders.

At the beginning of the battle, the Romans initially had big problems with organizing and coordinating their troops and needed some time to deploy. Shortly after the start of the battle the Romans were then surprised by the totally unexpected intervention of the cavalry of the Greuthungi along with allied detachments of the Alans and Huns, who had been in hiding. Under their onslaught, the Roman left wing (or, depending on the interpretation, the right wing) collapsed and exposed the flank of the Roman center. The heavy infantry there was far too tightly packed to defend itself against the charge of the Barbarian cavalry. Eventually, the battle turned into a disaster for the Romans—Emperor Valens died on the battlefield with two thirds of his army.

The most detailed contemporary description of the Battle of Adrianople comes from the Roman historian Ammianus Marcellinus (c. 330-395 AD). “Ammianus was a well-educated staff officer and was competent in battle tactics, although he had not had any actual experience on the field.”⁴ Many modern historians attest to him being exceptionally reliable (compared to other authors of his time) and reasonably neutral in his reportings.

Let us now in the following, based on the report of Ammianus⁵ and with reference to relevant research literature, ask some specific questions on this subject:

1. What shape and function did the Gothic wagon laager have? How can we describe its character?
2. What was the size and area of the wagon laager and how was it organized?

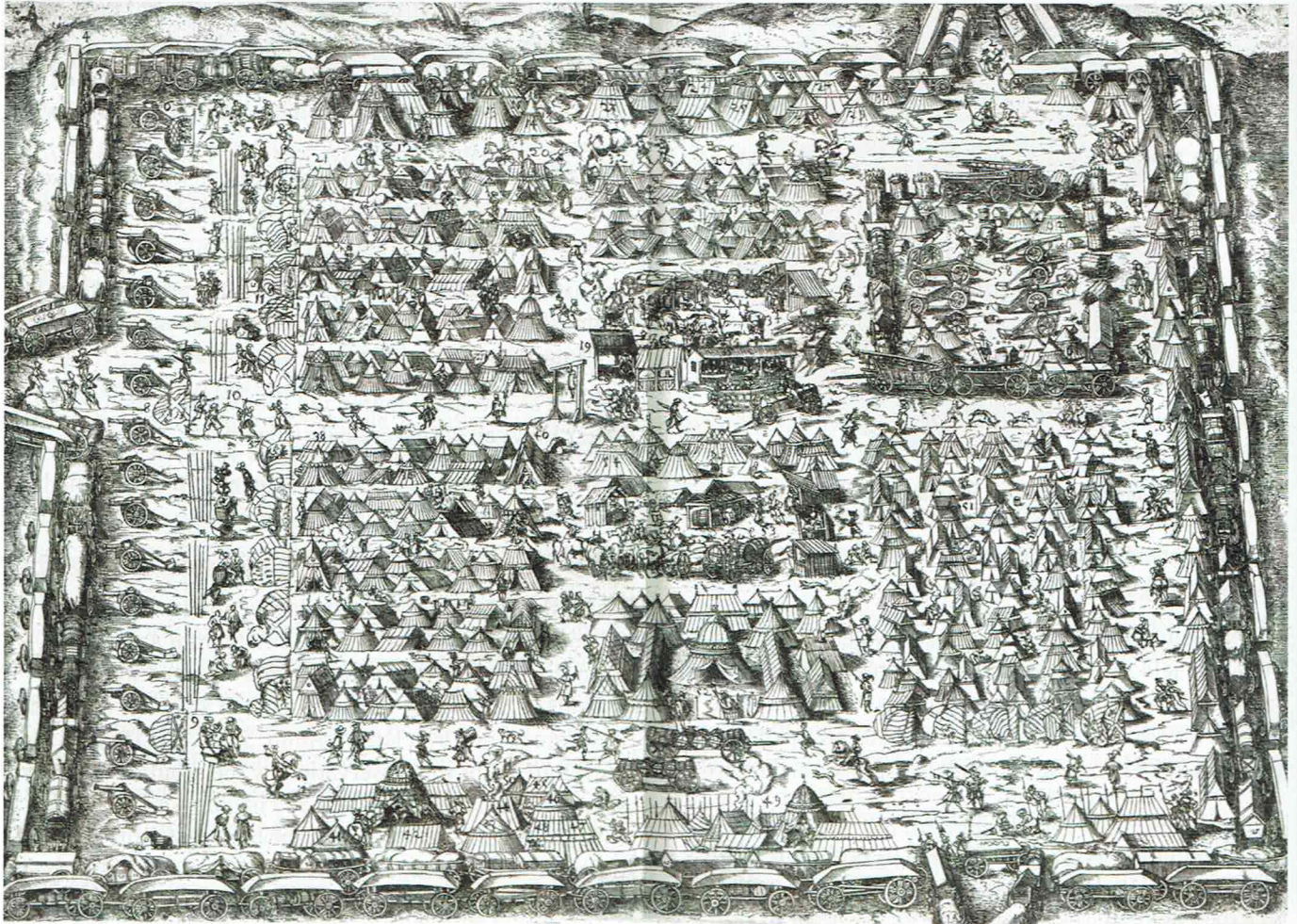
The Wagon Laager's Shape and Character

As for the shape of the wagon laager and its visual effect on the onlooker, we learn directly from Ammianus. According to him, the Roman scouts reported that the wagons of the enemy were arranged in a perfect circle “as if it were turned by a lathe” (Amm. 31.12.11). There is no reason to doubt this observation by the scouts, especially since the Roman soldiers actually had physical contact with the wagon laager later in the battle.⁶ At this point in time at the latest, the Romans would have been able to tell whether the reported observation of a single circular wagon laager was true or whether it was a different type of fortification instead.

It is noteworthy that Ammianus already describes at the Battle of Ad Salices, which took place a year before Adrianople, that the Goths camped for a week within their circular wagon laager and did not dare to come out (Amm. 31.8.1). Ammianus compares this fortification with the walls of a city: “[The Goths] had arranged their numerous wagons in the form of a circle ... as if enclosed in a space between city-walls” (Amm. 31.7.5).

In contrast to Adrianople, the Romans did not face the united Barbarian army here, but probably only the Tervingian group under the command of Fritigern. So it seems quite possible and perfectly plausible that in the following year at Adrianople this apparently common practice of camp fortification was used by the Goths again.

It is noticeable that Ammianus emphasizes the essential characteristics of a wagon laager very clearly through repeated descriptions: The round shape and the city wall-like external effect. Ammianus uses the word *castra* (camp) several times to describe the Gothic wagon laager (e.g. Amm. 31.7.6). He hereby makes it clear that it is a secured, closed structure made up of wagons in a row, which has all the characteristics of a conventional fortified camp. It is explicitly not just a fleet or pool of wagons of any kind (for this, we find the words *carri* and *plaustra* in Latin literature) nor a mere barrier that is directed linearly forward or



There are no depictions of wagon laagers from antiquity. This illustration shows a (very small) rectangular camp from the 16th century built from two rows of wagons. Wikimedia Commons licence.

serves to limit the side and rear of the battlefield (for this, the word *vallum* is usually used in literature).⁷

Carrago

In addition to the word *castra*, Ammianus uses the strange word *carrago* to describe the Gothic wagon laager (Amm. 31.7.7). Johannes Straub points out that this word is introduced by Ammianus as a new word in Latin literature—a word that up to this point could not be found anywhere else in the sources.⁸ It apparently describes a specific, extraordinary and remarkable phenomenon in the eyes of Ammianus and his contemporaries, which is why a previously unknown foreign word is used. The word *carrago* is probably a word that the Goths themselves used, in their own language, to describe their wagons assembled to a circular camp. It is derived from Gallic *carrus* and Germanic *hagas* or *hago* and can literally be translated as “fence of wagons”. Straub points out that Ammianus, in his function as *protector domesticus* (a kind of military attachée), was highly interested in military matters, so it seems plausible that he recognized the peculiarity of the Gothic wagon laager and named it with a specific, new word.

Historical Evidence

Even if, as stated, the specific structure of the Gothic wagon laager was a remarkable, novel phenomenon for the

Romans of the 4th century AD, wagon laagers are not in themselves a unique historical phenomenon. Ulrich Wanke deals with this topic in his detailed study of the anti-barbarian campaigns of Emperor Valens on several pages.⁹ He does not question the circular shape of the wagon laager described by Ammianus and cites other historical evidence.

For example, a few decades after Ammianus, the Roman poet Claudian (c. 370-404 AD) also describes a large wagon laager of the Goths:

*[They] gathered together in the plain and enclosed their pasture lands within a defensive ring. They then built an impregnable fortification with a double moat, planted stakes two deep at intervals along its summit and set wagons rigged with ox-hide all round (orbis rotundus) like a wall - In Ruf. II, 125-129).*¹⁰

The main characteristic of a wagon laager, the arrangement of the wagons in a circle, has also been reported from much earlier times. For example, the Roman historian Arrian (c. 86-146 AD) mentions in his work on the campaign of Alexander the Great a wagon laager made of three concentric rings, which the Indian Cathians had set up to defend against Alexander’s army (Anab. V, 22,4-23,5).

For the period after antiquity we know examples of wagon laagers in the 15th century from the Hussites, who com-

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bined 3,600 wagons into a ring-shaped fortification in the Battle of Tachau (1427). During the Thirty Years' War, Margrave Georg Friedrich von Baden-Durlach gathered his almost 10,000 foot soldiers within a large wagon laager in the Battle of Wimpfen (1622). Further examples can be found in the Boer War and, of course, in the Wild West, although the dimensions of the wagon laagers here were of course much smaller.

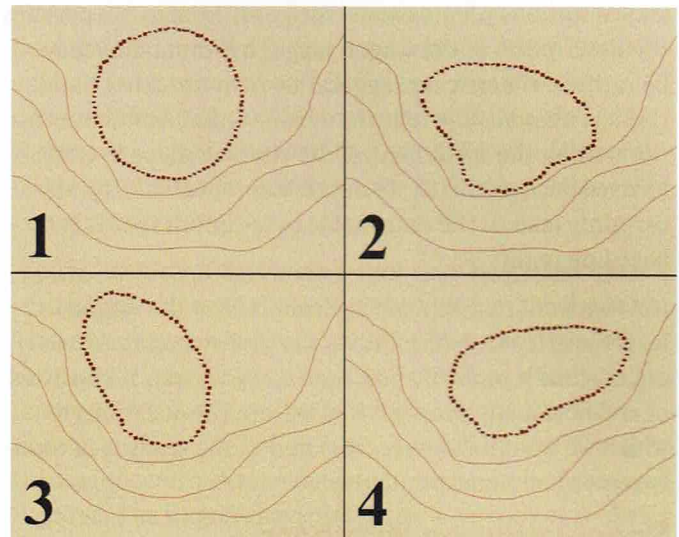
Wagon laagers are thus a phenomenon that has been documented in history over a period of more than 1,500 years among different peoples and in different epochs. In particular for migrant peoples (like the wandering barbarians in late Antiquity) or armies with a large baggage train which already carry many wagons with them, it is a obvious idea to use the vehicles to fortify the camp in the event of an attack. The tactical benefits of such fortifications thus lies mainly in the fact that the usually cumbersome supply vehicles can fulfill a positive benefit in combat. Moreover, the time required to erect this type of camps is significantly shorter than that required to erect a fortified camp like, for instance, that of the Roman legions and requires less effort.

Wagon laagers are purely defensive fortifications in (more or less) completely, i.e. all-around, closed form. They usually have the shape of a circle, as described by Ammianus, because the natural defensive organization of vehicles lined up in a row is a circle that offers optimal protection on all sides. This is particularly evident in the case of Adrianople, because the Goths could not yet have known the exact direction and organization of the deployment of the Romans at the time they set up their wagon laager. In this unclear situation, a defensive position that is closed on all sides offers the best protection. The hill on which the wagon laager was built reinforces this all-round defensive position additionally.¹¹

Ammianus and other contemporary sources are silent about how the practical construction of the wagon laager actually took place, so this question must remain open. Johannes Straub¹² refers to a passage in the *Histories* of the Byzantine historian Agathias Scholasticus (c. 530-582 AD), where it is described how the Germanic tribe of the Alemanni built a wagon laager near Casilinum in 553 AD:

He [Butilinus, the leader of the Alemanni] had brought great numbers of wagons with him. Taking off their wheels and fitting them together rim to rim in a continuous line he stuck their felloes into the ground and covered them with earth right up to the hubs, so that only a half circle of wheel protruded above ground-level in each case - Hist. 2.4).

It is, however, questionable, whether the Gothic wagon laager at Adrianople was fortified as strongly and elaborately as described by Agathias, or whether the wagons were simply parked next to each other with front edge to rear edge without digging them in. Both possibilities are



Possible forms of the wagon laager (schematic, not to scale). In Figure 1 the wagon castle is—as described by Ammianus—circular, in Figure 2 it is adapted to the terrain, in Figure 3 you can see an oval variant, in Figure 4 an irregular variant. Drawing by author.

conceivable due to the rather temporary nature of the wagon laager at Adrianople and given the overall situation in which the restlessly wandering Barbarian peoples found themselves in the years 376-378 AD, however, the latter variant is more likely to be assumed.

Although the majority of the literature on this subject does not question the fact of the single large, circular wagon laager, it is quite possible that the Goths at Adrianople also blocked the easily accessible ascents to the hill with some of their wagons, or perhaps set up some wagons in a linear formation as flank cover.¹⁵ It is also possible that a few trenches were dug as additional obstacles. Nevertheless, there can be no doubt that despite any obstacles and barriers positioned outside the wagon laager, this laager was the central and most important location of the Gothic defensive position, as Ammianus points out several times.

One can of course wonder whether the Gothic wagon laager actually formed a perfect, ideal-typical circle on all sides, as the Roman scouts reported. Whether the scouts had actually spied out the wagon laager all around before the battle, must remain open. During the battle, the Roman soldiers certainly saw the wagon laager only from the front or maybe obliquely from the front. It may be that the wagon laager was not perfectly circular all around, because e.g. the wagons of latecomers had to be integrated or passages were kept open in some places to lead animals to watering holes.

Also, one may wonder whether it is organizationally and logistically possible at all to form a—in Ammianus' words—circle "as if it were turned by a lathe" from a very large number of wagons and under probably somewhat chaotic and hectic circumstances. Thus, an oval or a closed structure of some other shape would also be conceivable.

Furthermore, it is difficult to deny that the shape of the wagon laager might have to be adapted to the topograph-

ical conditions (depressions, rocks, cliffs, etc.). So perhaps the description of the wagon laager by Ammianus may be rather a rhetorical exaggeration? On the other hand, there is no plausible reason to believe that Ammianus is not writing the truth here. If the circular shape is emphasized such explicitly, in detail and repeatedly, it may certainly lead to the reasonable assumption that it is based on reality.

Now we want to take a much closer look at the wagon laager and try to determine its size and structure. What dimensions it probably had, how many wagons it consisted of and how many people it housed, are the questions to which we want to address. This part of the study is naturally somewhat more speculative.

Speculation on Numbers

The size of the Gothic wagon laager depends, of course, on how many barbarians crossed the Danube in 376 AD and how many wagons they presumably had with them. The wandering barbarian people consisted of several heterogeneous groups: there were the Tervingian Goths under their leader Fritigern, there were Greuthungian Goths under their leaders Alatheus and Saphrax, but there were also several groups of Alans and Huns as well as a steadily increasing influx of escaped slaves and deserted Roman soldiers, impoverished and dissatisfied people, etc. Ammianus and other contemporary sources do not provide any specific numbers. In historical research, too, there is neither consensus regarding the size of the various wandering groups nor, specifically, regarding the size of the armies involved in the Battle of Adrianople. Thus, there are strongly diverging estimates from different authors with regard to the numbers. It only seems certain that more than 10,000 men fought on the Barbarian side at Adrianople—this clearly results from the remark by Ammianus according to which the Roman scouts had misjudged the size of the Barbarian army at just 10,000 men as too small (Amm. 31.12.3).

Dariusz Brodka,¹⁴ provides a detailed discussion of the army strengths which, in my opinion, is very well argued and seems coherent. He estimates the total number of barbarians who crossed the Danube in 376 AD at around 100,000-150,000 people. According to his assumed ratio of civilians to warriors of 4:1,¹⁵ this number can be broken down into about 20,000-30,000 soldiers and 80,000-120,000 civilians.

It is undisputed that shortly before the Battle of Adrianople, the Gothic leader Fritigern united all the scattered barbarian groups (who at that time were plundering the Roman provinces of Dacia and Thrace) with the Tervingi, who were directly under his command, into a single large army (Amm. 31.11.5). However, I assume that the wagon laager at Adrianople was only built by the Tervingian “core group” under Fritigern and that the wagons that made it up belonged only to this specific group, and only the mem-

bers of this group actually were encamped within the wagon laager. The other barbarian groups were probably not based on the hill where the battle took place, but camped in the rear. Both organizational and logistical challenges as well as the heterogeneous, informal command structure of the barbarians give legitimate reason for this assumption—and the results of the calculations below in this study also give an indication of this.

It is unclear where the many civilians (most likely the family members of the warriors) were staying during the battle. We neither find out anything about their whereabouts from Ammianus nor from the research literature. The presence of the wagons, at least some of which were used by families to transport their belongings, suggests relatively certain that civilians were also present during the battle or at least until immediately before the battle begins.

Assuming that the wagon laager was built as a camp only for the Tervingi, the civilians who were encamped within the wagon laager must naturally have been the families of those Tervingian warriors. (It is not known whether the various other barbarian groups who united with Fritigern’s army before the battle were traveling with their families and brought them to the site of the battle too. It is possible that they just united their warriors with Fritigern’s group for the upcoming battle, while the civilians camped in the cover and security of the rear terrain. At least the Greuthungian mounted group of Alatheus and Saphrax were presumably, as well as the Huns and Alans, traveling without their families.)

For the immediate period up to the start of the battle, the following—speculative, albeit believable—scenario would be possible: after reaching the place where the battle would take place a few days later, the Tervingi of Fritigern built a wagon laager with the vehicles with which they traveled and camped in its safety. On the morning of the battle, when the approaching Roman army announces itself with a large cloud of dust, the majority of the Tervingian civilians are led from the battlefield to the rear area, while other barbarian warrior groups join in at the same time and take up positions in the wagon laager (or, the lightly armed ones, possibly also in front of the laager).

People...

Against the background of these thoughts the question arises, how many people the wagon laager was built for? In other words: How big was the Tervingian group of Fritigern? The number of soldiers who belonged directly to Fritigern’s Tervingian “core group” can be estimated at around 10,000.¹⁶ (This is, incidentally, exactly the size at which the Roman scouts estimated the barbarian army before the battle, from which it can be concluded that the scouts have seen only the warriors directly belonging to Fritigern’s group. From this it can be concluded that at this point in time the barbarian army that faced the Romans at Adrianople was not yet fully united.) With the

ratio of civilians to warriors of 4:1 (see above), it can be assumed that about 40,000 civilians belonged to the Fritigern's Tervingi. This leads to the assumption that some 50,000 people were encamped within the wagon laager at Adrianople.

...and Wagons

It is not known how many wagons the Tervingi had with them. Here again we can refer to Dariusz Brodka, who came across a note in the (only fragmentarily preserved) work of the church historian Malchus, who lived in the late 5th century AD.¹⁷ According to Malchus, 10,000 Goths were traveling with 2,000 wagons. However, it is not clear how to interpret this information: Was it 10,000 warriors or was it—again in accordance with our familiar 4:1 ratio—2,000 warriors plus 8,000 civilians?

If one understands the statement in such a way that 10,000 warriors traveled with 2,000 wagons, this would also result in 2,000 wagons at Adrianople, where Fritigern's group consisted of approximately 10,000 warriors. If one understands it in such a way that 2,000 warriors plus 8,000 civilians traveled with 2,000 wagons, this would result in 10,000 wagons at Adrianople. Such a large train of wagons would be hard to imagine, not only, but also for organizational reasons.

With the first assumption—2,000 wagons—we would only come to a ratio of 25 people per wagon, what appears very large. But that in itself is not a valid objection, because it may well be that a quite large number of people had to share a wagon or that many people were traveling without a wagon at all. If we look at historical photos of the German refugee trek which fled East Prussia from the Red Army in 1945, we can see there, too, a lot of people walking

next to the wagons (the East Prussian refugees, like the fleeing Goths in 376 AD, also used wagons drawn by draft animals to transport their belongings). It is therefore quite possible that the Tervingi were traveling with 2,000 wagons or—if the corresponding passage in the fragment by Malchus is not interpreted quite so dogmatically—with perhaps a maximum of 3,000 wagons.¹⁸

A pictorial idea of Barbarian wagons can be gained from various stone images (so-called Metopes) on the Tropaeum Traiani, a Roman victory monument from the early 2nd century AD. They show, among other things, a barbarian family with a wagon pulled by an ox (Metope IX). Three people, presumably father, mother and child, are sitting on the wagon, and a chest can be seen in the back of the loading area. The wagons have four wheels with eight spokes each, the floor is shown as a simple board, a railing cannot be seen. Ulrich Wanke estimates the length of the wagons (excluding draft animals) to be more than two meters.¹⁹ To me, a maximum length of three meters seems realistic, as longer wagons would be too impractical.

The construction of a circular wagon laager consisting of 2,000 to 3,000 wagons is certainly a major organizational challenge and takes a lot of time. The question is therefore how much time had the Goths to set up their wagon laager? This is not directly apparent from the description of Ammianus, but we can read about the Romans there:

[...] *advancing in square formation, he [the eastern Emperor Valens] came to the vicinity of a suburb of Adrianople, where he made a strong rampart of stakes, surrounded by a moat, and impatiently waited for Gratian. [the western Roman Emperor]*" - Amm. 31.12.4

All these activities could well have lasted several days, which would also give the Goths several days to establish their fortified on-hill position. That the Goths had at least 24 hours to build their wagon laager can be concluded from the fact that the battle took place on 9th August, but according to Ammianus the first negotiators were sent to the Roman camp by the Goths the day before, on 8th August (Amm. 31.12.8). Both periods of time seem long enough to build a wagon laager consisting of several thousand wagons.

Another logistical issue related to the large number of wagons is the length of the marching column. Including draft animals, we can estimate the length of a single wagon to be 6 m. With a distance of only 1.5 m between the wagons, this results in a column of 15 km for 2,000 wagons, and even 22.5 km for 3,000 wagons! Both values appear incredibly large. It is therefore more plausible that the Goths were traveling in several parallel columns. With only two parallel columns, the length of the wagon train is reduced to 7.5 km or a little more than 11 km respectively. With three columns the lengths are 5 km or 7.5 km respectively. The following calculation shows that three columns traveling in parallel doesn't seem unrealistic: Assuming



Barbarian family in a four-wheel wagon depicted on the Tropaeum Traiani. Wikimedia Commons licence.

THE GOTHIC WAGON LAAGER AT ADRIANOPOLE

that each wagon is 1.5 m wide and the distance between the columns is 1 m, this results in a total width of 6.5 m for three columns. The Roman legionaries usually marched in a group of six people next to each other—assuming a space of 1 m per person, the width of the legionary marching column is 6 m, which is almost as wide as the estimated width of a three-column Gothic train of wagons.

With the knowledge gained so far—10,000 warriors, 40,000 civilians, 2,000-3,000 wagons, 3 m wagon length, circular wagon laager—we can now make some calculations to determine the size of the wagon laager and to estimate how much space was available within the wagon laager for those encamped.²⁰

The Wagon Laager's Size

Let us now calculate the size—specifically: the diameter—of the wagon laager for two variants, depending on the number of wagons with which the Tervingi were traveling.

Variant 1: A circle of 2,000 wagons gives a diameter of 1,910 m.

Variant 2: A circle of 3,000 wagons gives a diameter of 2,865 m.

Both variants appear implausible, because a wagon laager with a dimension of almost two or three kilometers respectively seems unrealistically large. A solution to this problem is the assumption that the wagons were arranged in two concentric, parallel rings.²¹ This structure would also have the military advantage that several rows of wagons—especially if they are offset from one another so that there is an overlap—offer better defensive protection for the entire fortified hill position. Furthermore, several examples can be found in history of such wagon laagers consisting of several concentric rings.

Therefore we do a new calculation for a wagon laager made up of two concentric wagon rings (of course, the outer ring would have to be made up of—albeit insignificantly—more wagons than the inner ring, because its diameter is slightly larger, but that shouldn't matter here):

Variant 1: A circle made up of two rings with 1,000 wagons each gives a diameter of 955 m.

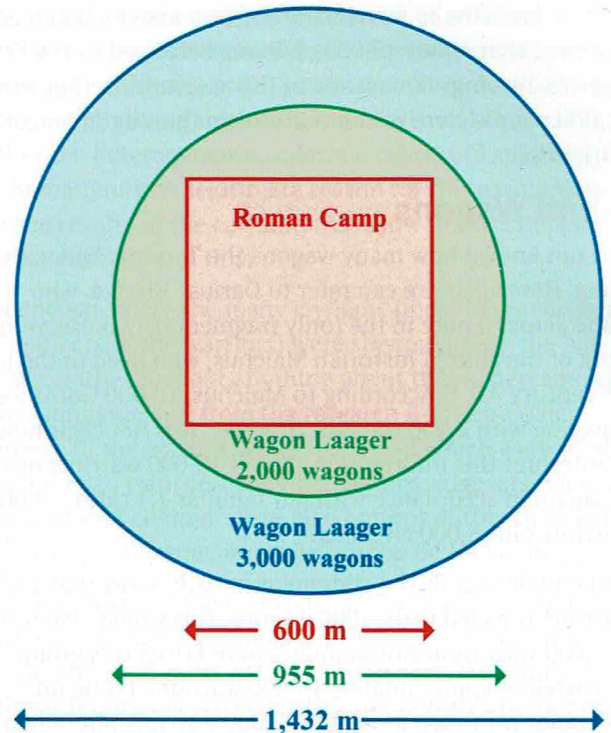
Variant 2: A circle made up of two rings with 1,500 wagons each gives a diameter of 1432 m.

The results of this calculation actually give a realistic, plausible and believable size of the wagon laager!

The Wagon Laager's Area

Now we can go a step further and calculate the area for these two variants in order to get an idea of how much space was available for the people encamped within the wagon laager.

Variant 1: A circle with a diameter of 955 m covers an area of 716,195 square meters—that's 14.3 square meters per person.



Comparative illustration of two wagon laagers of different sizes with a Roman marching camp. Drawing by author.

Variant 2: A circle with a diameter of 1432 m covers an area of 1,611,441 square meters—that's 32.2 square meters per person.

For a better assessment of this results, a comparative calculation can be made: The Roman historian Polybius describes in great detail a Roman marching camp, as it was common among the Romans during the Second Punic War in the 3rd century BC (Hist. VI, 26-32). It had a square floor plan with an edge length of 600 m and housed two legions plus auxiliary troops, a total of 18,600 men and 1,800 horses.

A square with an edge length of 600 m covers an area of 360,000 square meters—that's 19.4 square meters per person.

In comparison to the dimensions of a Roman marching camp, the results for the Gothic wagon laager do not just seem realistic—they are astonishingly close to those of the Roman camp!

Of course, the people encamped within the wagon laager also needed some space for animals (oxen, horses), provisions, fireplaces, booty, etc., but the calculated square meter space per person is in any case sufficiently large. And even a Roman marching camp contained paths, walls, tents, provisions, equipment, etc. within its fortifications.

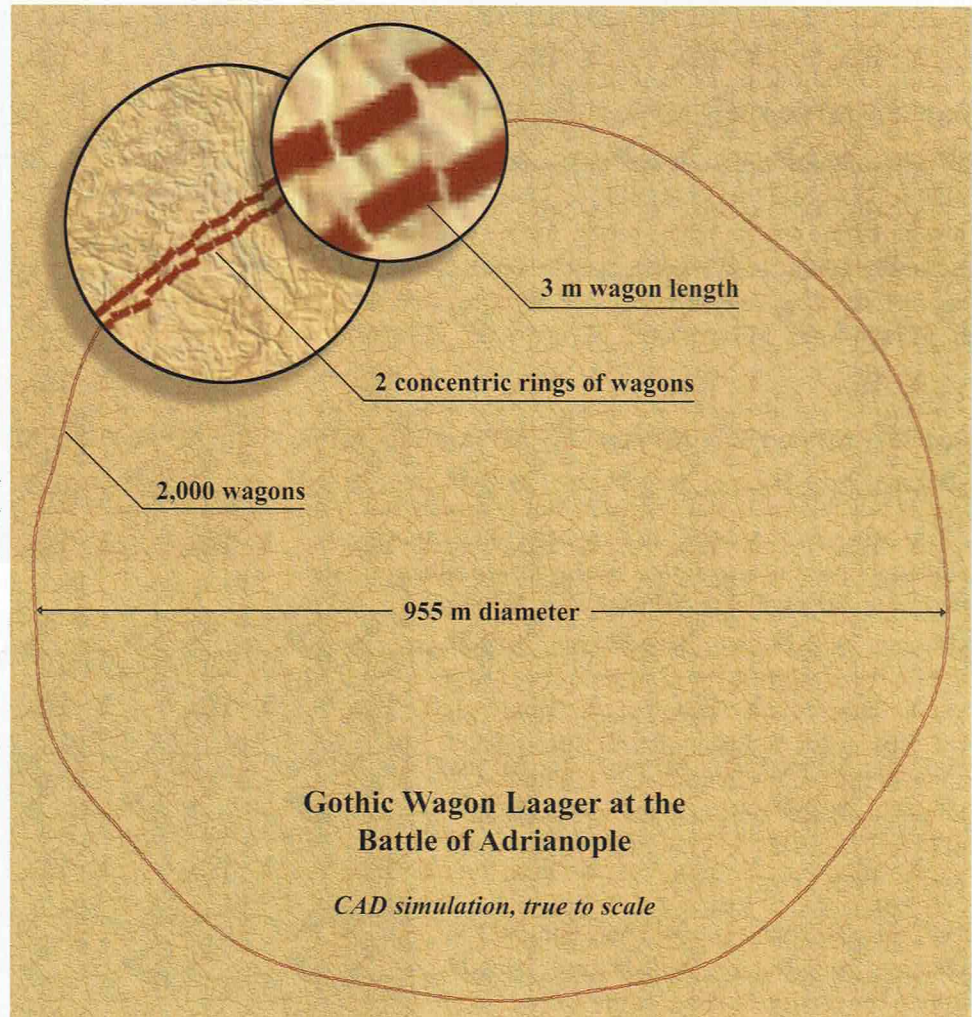
If one assumes—deviating from the numbers estimated above—a larger number of people or a smaller number of wagons, the more cramped and uncomfortable the space within the wagon laager naturally becomes. But the migration period of the Gothic tribes from 376-378 AD was indeed an exceptional historical situation with poor living conditions

overall. Ammianus describes e.g. such terrible things like the case that some barbarians sold their own children in exchange for food and even being served dog meat for it (Amm. 31.5.11). In comparison, even camping in blatantly cramped conditions would seem rather comfortable as long as supplies were at least secured at this point in time due to the successful raids.²²

In summary, the following can be stated: The hypothetical calculations suggest that the Gothic—specifically: Tervingian—wagon laager at Adrianople could have consisted of two concentric rings of wagons. The diameter would have been between approx. 1,000 m and approx. 1,500 m, depending on the number of wagons.²³ Such diameters seem realistic and plausible. If Ammianus explicitly compares the impression that the wagon laager evoke in the observer with that when looking at the walls of cities (Amm. 31.7.5), then it had certainly an enormous size. In any case, the Romans of the late imperial era were obviously impressed by this strange phenomenon—but not so strongly as to be tempted to be more cautious, which might have saved them from one of their greatest military defeats...

Notes

1. This was planned for the “Rhein Main Multiversum” tabletop convention organized by my local club near Frankfurt, but had to be canceled due to Covid-19.
2. The exact course of the battle is controversial in research. Good, although partly dissenting overviews offer: Thomas S. Burns, *The Battle of Adrianople. A Reconsideration*, in: *Historia* 22, 1973, pp. 336-345; Dariusz Brodka, *Einige Bemerkungen zum Verlauf der Schlacht bei Adrianopel* (9. August 378), in: *Millenium* 6, 2009, pp. 265-279; Simon MacDowall, *Adrianople AD 378. The Goths Crush Rome’s Legions*, Oxford 2001; Noel Lenski, *Failure of Empire. Valens and the Roman State in the Fourth Century A.D.*, Berkeley 2002, pp. 320-367; Martijn J. Nicasie, *Twilight of Empire. The Roman Army from the Reign of Diocletian until the Battle of Adrianople*, Amsterdam 1998, pp. 233-256; Herwig Wolfram, *Die Schlacht von Adrianopel*, in: *Veröffentlichungen der Kommission für Frühmittelalterforschung*, Vol. 1, Wien 1977, pp. 227-250.
3. The exact location of the battle is not known. Ulrich Wanke, *Die Gotenkriege des Valens. Studien zu Topographie*



True to scale illustration of a round wagon laager made of 2,000 wagons, made up of two concentric rings. Drawing by author.

und Chronologie im unteren Donauraum von 366 bis 378 n. Chr., Frankfurt am Main 1990, pp. 214-217 in my opinion provides the most plausible investigation. He suggests the region near the place Demiranli / Demeranlia / Demeranliga / Demirhanli (depending on the spelling) about 17 km northeast of Adrianople.

4. Mark Shchukin/Petr Shuvalov, *The Alano-Gothic cavalry charge in the battle of Adrianople*, in: *Geografia e viaggi nel mondo antico*, Ancona 2007, p. 233.

5. For this study, the edition that was published in the “Loeb Classical Library” and translated by John C. Rolfe was used. Ammianus describes the Battle of Adrianople in the very last book, Liber XXXI, of his historical work *Res gestae*, written around 390 AD. The text is also available online at <http://penelope.uchicago.edu/Thayer/E/Roman/Texts/Ammian/home.html>

6. According to e.g. Burns, p. 343 and Brodka, p. 273.

7. See the begriffsgeschichtliche study by Johannes Straub, *Studien zur Historia Augusta*, Bern 1952, p. 22.

8. Straub, p. 19-22.

9. Wanke, p. 152-157.

10. In contrast to the Gothic wagon laager at Adrianople, however, it can be assumed that this was a more permanent fortification, as can be seen from the more complex fortification technology.

11. The hill position is not explicitly mentioned by Ammianus, but according to Brodka, p. 268, it can be found in a note from the church historian Sozomen (d. 450 AD). According to Burns, p. 342, the area around Adrianople is characterized "by rugged hills which in August would have been barren and rock-strewn".

12. Straub, pp. 22-23.

13. This suspects e.g. Brodka, pp. 270-271.

14. Brodka, pp. 265-268.

15. In general, a ratio of 5:1 for civilians to warriors is assumed for primitive societies, but for this specific situation we can assume a slightly reduced ratio, because certainly some civilians have stayed behind in the Barbarian territory and certainly not all civilians survived the crossing of the Danube and the subsequent period of distress. Presumably some of the groups that invaded the Roman Empire consisted only of young men capable of fighting who had left their families on the Barbaric side of the Danube.

16. This assessment is based on a personal message from Prof. Dr. Dariusz Brodka, Jagiellonian University, Krakow, to the author on 28 October 2020.

17. Brodka, p. 271, note 31.

18. The ancient historian Zosimus, who wrote about 100 years after Ammianus, reports that in the year after Adrianople the Roman general Modares allegedly captured a total of 4,000 wagons from the Visigoths (IV 25,3). This suggests that extremely large wagon trains were not uncommon among the Barbarians.

19. Wanke, p. 155.

20. The calculations were made using the online calculation tool <https://rechneronline.de/pi/vieleck.php>

21. If the Goths actually had more than 3,000 wagons with them, three rings would also be conceivable...

22. Very extreme points of view in this regard can be found in Shchukin/Shuvalov, p. 235, who see no problem in accommodating 200,000 people in a circular camp with a diameter of 750 m!

23. Brodka, p. 271, note 31, also comes to this conclusion without, however, explaining his method of calculation in detail.

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Re-enactor as Roman infantryman, end 2nd century. Roman infantry would have been similar to this at Adrianople. Wikimedia Commons licence.