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# Camps – Legions – Logistics

## Deployment strategies and infrastructure in the area of Carnuntum (*Pannonia Superior*) during the Marcomannic Wars (*bellum Germanicum*, 172 and 178–180 AD)

by STEFAN GROH AND HELGA SEDLMAYER

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**ABSTRACT:** Based on experience in the Middle East, the Roman army developed a special type of field camp: whereas these normally had a rectangular shape and right-angled trenches with ramparts, they were adapted in response to the weaponry, combat tactics and units of the enemy troops. The front was aligned at an acute angle, giving the camps the shape of a distorted parallelogram. This acute-angled alignment of the front of a camp reflects the oblique formation of the battle line, a *depugnatio obliqua*, the advantage of which was seen in the fact that it created varying distances to the enemy's shooting range. Based on the *castra* of Carnuntum and Lauriacum, which were characterised by this acute-angled camp front, it is possible to reconstruct the field camps of their troop deployments in Germanic enemy territory during the Marcomannic Wars, which were characterised in the same way. A network of supply centres (*praesidia* of *commeatus*) and tactical centres supervised by the operational base at the *limes* can thus be reconstructed for both *expeditiones Germanicae* of the Marcomannic Wars in enemy territory facing Carnuntum.

**KEYWORDS:** MARCOMANNIC WARS, CARNUNTUM AREA, SUPPLY LINES, CAMP FEATURES, OPERATIONAL BASE, TACTICAL CENTRES, *PRAESIDIA* OF *COMMEATUS*

### 1. Introduction

The following contribution presents new considerations on the two *expeditiones* of the *bellum Germanicum* during the 70s of the II century AD in the Carnuntum area (north-western *Pannonia superior* and neighbouring *barbaricum*). Until now, research on the campaigns in the March-Thaya region has predominantly used simplified linear, GIS-supported least-cost path

analyses, which were based primarily on the distances between the field camps and their relationship to the topography or a so-called resistance surface («Widerstandsoberfläche»). The major disadvantage of this model is the undifferentiated data basis: all diachronically used camps in the March-Thaya region from the late Augustan period (Engelhartstetten, Mušov-Neurissen<sup>1</sup>) up to the two campaigns in 172 and 178-180 AD, which should be analyzed separately chronologically, were treated as one and the same data set, which naturally led to incorrect stage lengths, march routes and misguided tactical conclusions<sup>2</sup>. The widely divergent forms, sizes, types of fortification, construction techniques and underlying functions of military installations at the time of the Marcomannic Wars (*castra* for offensive operations, *castella/praesidia* for supply purposes), changes in war strategy, historically clearly defined offensive counterstrike campaigns in contrast to territorially connoted occupation intentions, and frequent changes in troop formations were not taken into account in these »interdisciplinary models«<sup>3</sup>. Of particular significance for these questions are also the camps dated by archaeological finds and artefacts that allow conclusions to be drawn about the origin of the troops based on their specific fortification types.

Temporary military camps and their morphology can clearly be seen as fingerprints of stationary troops, i.e. it can be assumed that the shape of the camp and finds in enemy territory can be used to deduce the units stationed there and their route of advance. Examples of this can be found at sites and along military lines of advance where field camps of different shapes are documented as existing side by side<sup>4</sup>. In addition, there is historical information about the campaigns, which must be interpreted in a conclusive manner and included in the interpretation of the archaeological evidence. If significant finds such as offensive and defensive weapons are also integrated into the analysis, it is possible to draw a clear image of the diachronically distinguishable advance routes of individual troops, troop strengths and also functional units at the time of the Marcomannic Wars in the forefront of Carnuntum.

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1 GROH & SEDLMAYER, 2015, pp. 14-65; SEDLMAYER, 2020, pp. 42-44; KOMORÓCZY et al., 2020, pp. 203-206 and 216-218; GROH, 2023, pp. 253-260.

2 KOMORÓCZY & VLACH, 2019, pp. 21-58.

3 KOMORÓCZY & VLACH, 2019, p. 30.

4 e.g. WELFARE & SWAN, 1995, pp. 97-100 figs. 80-81: Featherwood East and West, military sites with square and parallelogram-shaped camps; STEFAN, 2005, p. 586 fig. 241.

It can be assumed that during the *bellum Germanicum*, vexillations<sup>5</sup> involving both legions and auxiliary units from the western Pannonian section of the *limes* as well as one legion and auxiliaries from the Norican *limes* were active in the March-Thaya region. The legionary bases at Vindobona and Carnuntum provided the largest contingents of troops, with the legions *X Gemina* and *XIV Gemina* and the auxiliary units from Klosterneuburg and Carnuntum (Petronell). From 171 AD onwards, these were joined by vexillations of the *legio II Italica*, newly recruited in northern Italy and stationed in Lauriacum (*Noricum*). During the Marcomannic Wars, the eastern *Noricum* and western *Pannonia* sections of the *limes*, specifically the auxiliary forts from Favianis (Mautern an der Donau) to Carnuntum, were garrison bases primarily for partially or full mounted units, many of them with archers<sup>6</sup>. As can be seen from the distribution patterns of characteristic protective weapons, these mobile troops were a decisive factor in the battles against the Marcomanni and in the control of the conquered territory, especially in the *expeditio Germanica secunda*<sup>7</sup>.

## 2. *Expeditio Germanica prima*

The *expeditio Germanica prima* can be understood as the Roman response to the advance of the Germanic tribes into northern Italy (as far as Opitergium, *Regio X*) in 170 AD. Archaeological evidence of this Germanic advance can be found along the Amber Road from Carnuntum to Poetovio (Ptuj)<sup>8</sup>. In 171 AD, *Noricum* became a praetorian province, and *legio II Italica* was transferred from the *praetentura Italiae at Alpium* near Ločica to the *limes*, with the route of advance along the Amber Road to Carnuntum being traceable<sup>9</sup>. Under Tiberius Claudius Pompeianus and Publius Helvius Pertinax, the Danube provinces were cleared in 171 AD, and in 172 AD the headquarters for a campaign against the Marcomanni was established in Carnuntum<sup>10</sup>. The strategy of the *expeditio Germanica prima* was that of a linear advance with large, concentrated contingents of troops from

5 VON DOMASZEWSKI, 1895, p. 121.

6 GROH, 2023, pp. 292-294.

7 GROH, 2023, pp. 67-79.

8 GROH & SEDLMAYER, 2019, pp. 191-214.

9 SEDLMAYER, 2020, p. 127.

10 KEHNE, 2016, pp. 241-242.

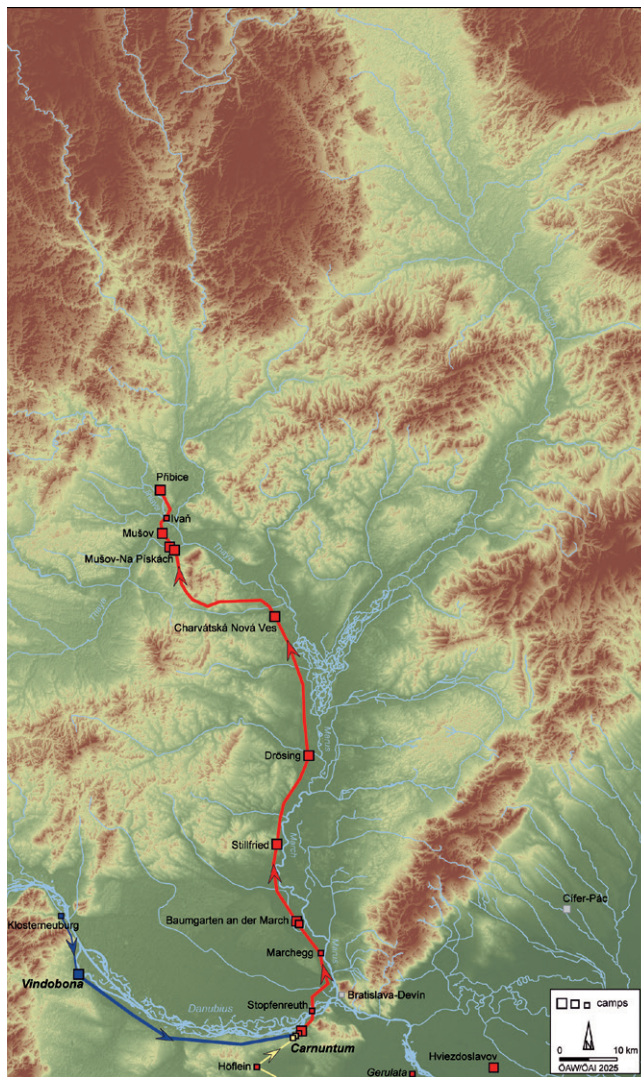


Fig. 1: *Bellum Germanicum, expeditio prima*, 172 AD.

Offensive of the Carnuntum vanguard. ÖAI/ÖAW, H. SEDLMAYER

Carnuntum along the March and Thaya rivers deep into Marcomanni settlement territory (Fig. 1).

Carnuntum served as the base of operations and imperial headquarters for the offensive against the Marcomanni during the *bellum Germanicum*,

which lasted three years: *cum apud Carnuntum iugi triennio perseveraret bellum Marcomanicum confecit*<sup>11</sup>. The greater Carnuntum area was used as a gathering place for the troops involved. This is also reflected in temporary camps on the outskirts of Carnuntum. Within the four Carnuntum zones with such temporary installations, the one on the Amber Road in the southern outskirts of the *munici-*

11 Eutrop. 8,13; VON DOMASZEWSKI, 1895, p. 114.

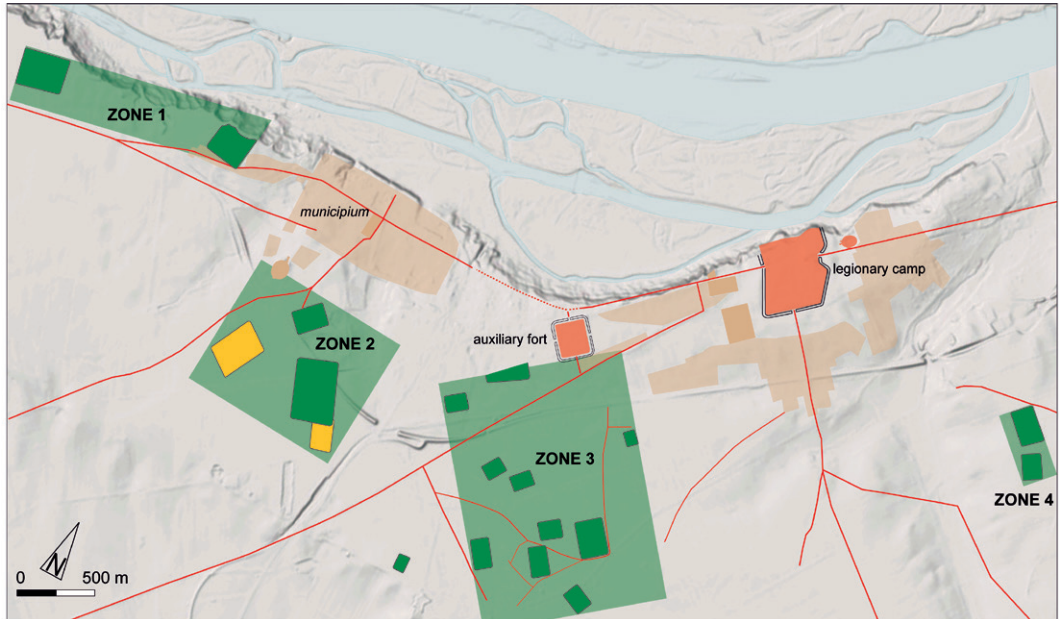


Fig. 2: Carnuntum and the zones with temporary camps. ZONE 1 – West of the *municipium*. ZONE 2 – South of the *municipium*. ZONE 3 – South of auxiliary fort. ZONE 4 – East of *castra legionis*. Yellow: Camps postulated as staging points for *legio II Italica*. ÖAI/ÖAW, H. SEDLMAYER with reference to GUGL et al., 2024, figs. 2-3

*ipium* (Fig. 2: Zone 2) is most likely to be associated with a succession of troop contingents deployed in the Marcomannic Wars. During their installation, the civilian area was used, while the forefields of both the legionary fortress and the auxiliary fort (Fig. 2: Zone 3-4) were left out. The area south of the town occupied by the field camps in Zone 2 corresponds in width to the east-west extension of the *municipium*. The area was probably used as pasture land, as crops would have been damaged on arable land. There are no temporary camps in the zone in front of the legionary fortress. In front of the auxiliary fort (Fig. 2: Zone 3) there are only training camps, which were accessed by a network of trails<sup>12</sup>.

The *legio X Gemina*<sup>13</sup> from nearby Vindobona, which took part in the *expeditio Germanica prima*, and the vexillations of the *legio II Italica* from *Noricum*, which advanced in stages, are likely to have occupied temporary camps on the

<sup>12</sup> GUGL et al., 2024, figs. 2, 3 and 15.

<sup>13</sup> VON DOMASZEWSKI, 1895, p. 124.

outskirts of the *municipium* Carnuntum. The latter is indicated by two uniform field camps built in quick succession, whose outlines are strikingly similar to those of the legionary fortress at Lauriacum (Table 1; Fig. 2: Zone 2; Fig. 6)<sup>14</sup>. Typical of the gradual arrival of sub-contingents within a short period of time is the close proximity of the trench works, while at the same time avoiding any overlap with the previously used and now contaminated camp site (cf. the field camps of Obersebern and Walton for this phenomenon<sup>15</sup>). Significant artefacts indicate the deployment of vexillations of *legio II Italica* in the March and Waag valleys. Along the March, mention should be made of the bridle fitting found in Drösing, which has an exact counterpart in Lauriacum<sup>16</sup>. North of Brigetio (Komárom), a belt plate has been found in the Chotín camp which, due to its specific characteristics, represents a typical item of clothing worn by legionaries of *legio II Italica*<sup>17</sup>. It is unlikely that Norican auxiliary units participated in the *expeditio prima*.

The linear advance with units equivalent to two legions in strength, with vexillations from a third legion and Pannonian auxiliaries along the rivers March, Thaya and Jihlava, is clearly reflected in the regular layout of temporary field camps each covering an area of around 40 hectares: Charvátská Nová Ves (»1a«), Mušov-Na Pískách (»1a«) and Mušov-Na Pískách (»1b«, with a reduction of the northern flank)<sup>18</sup>, show the advance beyond the March valley along the Thaya river, while Přebice (»3«)<sup>19</sup> shows the northernmost base of the offensive during the *expeditio prima* on the Jihlava river (Figs. 1 and 3). A multi-period sequence of field camps can be observed for these three military sites. During the initial advance, they served as bases for the vanguard of the warfare, functioning temporarily as tactical centres (Table 1; Fig. 3). Subsequently, these sites were revisited repeatedly and occupied by field camps that gradually decreased in size. Functionally, they changed from tactical centres near the front line to *castella* and *praesidia* (posts) along the supply line<sup>20</sup>.

14 GROH, 2025, p. 212, fig. 9.

15 GROH & SEDLMAYER, 2018, p. 50 figs. 4 and 7.

16 BOJANOWSKY, 1996, p. 306 figs. 1 and 3.

17 SEDLMAYER, 2018, p. 135 figs. 110/12 and 112/26-28.

18 KOMORÓCZY et al., 2020, pp. 219-222 and 228-232.

19 KOMORÓCZY et al., 2020, pp. 234-237.

20 ROTH, 1999, p. 182.

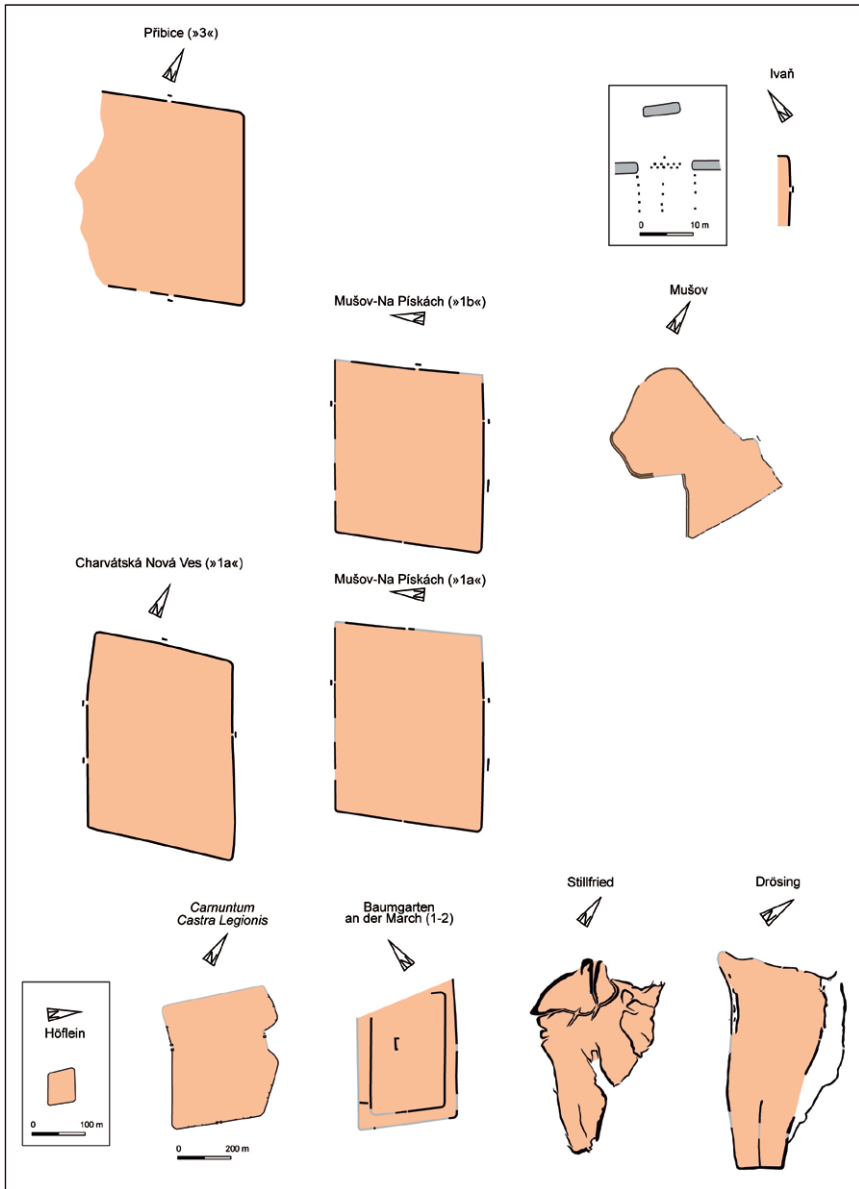


Fig. 3: *Bellum Germanicum, expeditio prima*, 172 AD. Offensive by the Carnuntum vanguard. Base of operations: *Castra legionis* Carnuntum. Tactical centres: Baumgarten (1), Charvátská Nová Ves (»1a«), Mušov-Na Pískách (»1a«), Mušov-Burgstall and Přibice (»3«). Base in the Carnuntum hinterland: Höflein. Garrisons in supply centres: Baumgarten (2), Stilfried, Drösing. *ÖAI/ÖAW, H. SEDLMAYER with reference to GUGL, 2015, fig. 180; KOMORÓCZY et al., 2020, figs. 45, 57, 61*

Typical of a campaign conducted according to Roman standards is the advance along rivers<sup>21</sup>. These guaranteed the maintenance of supplies to the troops. Guarded storage areas along the *commeatus* line at a suitable distance from the front line (*Veg. mil.* 3,8) played an important role in supplying the troops from the base of operations on the Danube. For the first offensive phase of the *expeditio prima*, we know of Marcus Valerius Maximianus, the man who organised the supply of provisions along the rivers, particularly the Danube. He relied on the *annona* requisitioned in the province of *Pannonia* and was able to call on sailors from various fleets (*Misenum*, *Ravenna*, *Britannica*) and cavalry cover (*equitum Afrorum et Maurorum*) for transport. Maximianus was also commander of *legio II Adiutrix* in the *expeditio secunda*, whose vexillation wintered in *barbaricum* at Laugaricio (*Leugaricione hiemantium*<sup>22</sup>).

In a buffer zone between Stillfried and the Danube, the Carnuntum troops set up the infrastructure necessary for the advance and the troop supply (*commeatus*<sup>23</sup>) (Fig. 1): a small fort located in Stopfenreuth occupied an important strategic position on the route to river March during the Marcomannic Wars<sup>24</sup>. In Marchegg, a port and storage area for the *commeatus* was located, which was used throughout the entire duration of the two expeditions and was bordered on its western side by a ditch<sup>25</sup>. In Baumgarten an der March, a camp with a wooden gate structure and towers the size of a legionary camp was built (Table 1; Fig. 3). In Stillfried, an extensive logistics centre the size of a legionary camp was set up within the prehistoric trench system in an elevated position above the river (Fig. 3), with a production centre for military equipment<sup>26</sup>. The prehistoric rampart at Drösing (Fig. 3) is likely to have served as a further base for the supply line of the deployment, as indicated by its strategically important position on the March and small finds of Roman origin from the second half of the 2<sup>nd</sup> century AD from the area of the enclosure<sup>27</sup>.

It is also worth considering whether an Iron Age rampart was also reused in

21 ROTH, 1999, p. 196.

22 *AE* 1956, 124; BIRLEY, 1977, pp. 303, 320-321 and 346.

23 ROTH, 1999, pp. 156-157.

24 GUGL et al., 2025, p. 92.

25 GROH, 2023, p. 226 fig. A35.2.

26 GROH, 2023, pp. 224-226.

27 GROH & SEDLMAYER, 2017, p. 341.

Bernhardsthal, especially since the type of pincer gate corresponds to the constructions in Celtic *oppida* as well as farmsteads (e.g. Kelheim, Hrazany, Bazoches-sur-Vesle<sup>28</sup>). The choice of a prehistoric ring wall as a storage place for supplies is recorded, for example, for Augustus (Segesta<sup>29</sup>). Vegetius considers old fortifications (*antiqua munitio*) to be suitable for this purpose and only opts for the construction of new *castella* for the benefit and safety of the *commeatus* if these are not suitable (Veg. *mil.* 3,8). The Romans were only able to establish permanent and effective fixed installations for the supply line on the lower March once the area designated for storage had been pacified<sup>30</sup>. It can therefore be assumed that the buffer zone from the Danube up to Drösing and Závod (Fig. 4)<sup>31</sup> and thus also the area of the Germanic settlement centre of Zohor was considered safe *in ipso transitu Danuvii* (H.A. Marcus 21,11) after the battle with the Marcomanni in 172 AD.

The troops were supplied not only with goods delivered from the base of operations on the Danube, but also through requisitioning and foraging in the occupied territory. The exploitation of the Quadi in particular has been historically documented. During the peace negotiations at the end of the *expeditio prima*, they provided horses and cattle (Cass. Dio 71,11) and, like the Marcomanni, were kept away from their pastures and fields by the Roman troops stationed in the country during the *expeditio secunda* (Cass. Dio 71,20). This suggests that these areas were used by Roman soldiers and their entourage for provisions and fodder. The strategy of feeding the army from the occupied country, which could only be implemented in relatively safe circumstances, was clearly possible during the Second Marcomannic War and was used to minimise the amount of food transferred within the enemy Germanic forces<sup>32</sup>.

The coordination of the troop advance was ensured at its northern outskirts by a control post in Mušov, which was positioned in a topographically prominent, elevated location and covered the area of a legionary camp (Table 1; Fig. 3).

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28 DAVAL Camille, «Kehlheim» and PIERREVELCIN Gilles, «Hrazany», in *Oppida celtiques, atlas des fortifications celtiques Europe, villes celtiques, oppidum gaulois*, [www.oppida.org](http://www.oppida.org) online; POMMEPUY et al., 2000, pp. 198-199 fig. 3.

29 App. 3,4,22; ROTH, 1999, p. 174.

30 ROTH, 1999, p. 284.

31 GROH, 2023, fig. A35.2; KOMORÓCZY et al., 2020, pp. 237-238.

32 ROTH, 1999, p. 305.

The units gathered here, but did not advance much further north, as the goal of driving the Marcomanni out of their easily accessible settlement areas near the river had been achieved. In Ivaň (Fig. 3)<sup>33</sup>, plans were made, similar to those for Baumgarten an der March, to build a camp with a wooden gate structure and to create a tactical centre in the *castra* of Přibice, only 3 km away (Table 1; Figs. 1 and 3), the northernmost point of the first offensive was reached. Based on the camps at Ivaň and Přibice, it can be concluded that, although a further advance was planned, the formal *deditio* of the defeated Marcomanni led to the expedition being abandoned in the same year<sup>34</sup>.

### 3. Carnuntum Fingerprint

The fingerprint of this offensive, spearheaded by Carnuntine troops as the vanguard on the March and Thaya rivers during the *expeditio Germanica prima*, are temporary camps whose outline corresponded to a parallelogram with an acute angle ranging between 83 and 77 degrees (Table 1; Fig. 3). Their basic shape thus differs significantly from the simple rectangular format of a playing card with rounded corners. Temporary camps of this parallelogram-like type are, when looking at compilations of field camps in some Roman deployment areas, the absolute exception; for example, they were not used at all in the Dacian Wars<sup>35</sup>.

As early as the oldest legionary fortress at Carnuntum, the shape was that of a distorted parallelogram with an acute angle of 81-83 degrees. The first two Carnuntum *castra* were built by *legio XV Apollinaris*, first in wood and earth and then in stone, between 49 and 73 AD. At least the second fortress had the floor plan of an acute-angled parallelogram in its reconstruction. Although the exact size, extent and shape remain unclear, the following can be stated: perhaps as early as the construction of the oldest wood and earth fortress (period 1 A), but most likely with the first stone fortress (period 1B), the legion chose a floor plan whose angles correspond to those of the south-western *retentura* of the later, newly de-

33 GROH & SEDLMAYER, 2015, p. 215 fig. 122.

34 KEHNE, 2016, p. 242.

35 Cf. *Dacia*: STEFAN, 2005, pp. 287-321; *Britannia*: WELFARE & SWAN, 1995, pp. 17-19 fig.: "It is noteworthy that this form is rare"; DAVIES & JONES, 2006, pp. 18-19; *Hispania*: COSTA-GARCÍA, 2018, pp. 986-988; *Germania inferior*: BÖDECKER, 2013, pp. 131-133.

signed fortress in period 2<sup>36</sup>. The fortress from period 2, which was completely rebuilt in the early 2<sup>nd</sup> century AD, followed the irregular contours of the terrain to the north and east. In the southwest, however, where one might have expected a straight front of the fortress wall with a right-angled end in the southwest corner, a sharp angle was chosen (Table 1; Fig. 3), which already determined the morphology of the fortress from period 1B. This layout differs significantly from comparable legionary fortresses, such as the one in Noviomagus (Nijmegen), where parts of the fortification in the *praetentura* follow the topography, but the fortress itself is rectangular in shape<sup>37</sup>.

What could have influenced this exceptional military layout in the middle Danube region in the second half of the 1<sup>st</sup> century AD? What strategic considerations played a role in the design of the legionary fortress in Carnuntum? To answer this question, we must consider the activities and areas of operation of the legion during the period in question. It had already taken part in the campaign against the Marcomanni under Tiberius and is likely to have been stationed in Emona (Ljubljana) during the Augustan-Tiberian period. Probably in 49 AD, *legio XV Apollinaris* began construction of the first wood and earth fortress (period 1A) in Carnuntum. There are no clues as to the whereabouts and activities of this troop for the years 53/54 to 63 AD<sup>38</sup>. After that, at least detachments of the legion were transferred to *Syria*, where it participated in the suppression of the Jewish revolt from 63 to 71 AD, together with *legio V Macedonica* and *legio X Fretensis*, before returning to Carnuntum. Before its return from Judaea, the legion had been reinforced mainly with new recruits from *Syria*. The *castra* of Carnuntum were redesigned between 71 and 73 AD, which probably made it the first stone fortress in period 1B<sup>39</sup>.

It is striking that the Carnuntum legionary camp type with acute angles was used in all the camps erected around the rock fortress during the siege of Masada<sup>40</sup>. *Legio X Fretensis* built them in 73 AD at the foot of the castle hill<sup>41</sup>. This troop was later involved, together with the Carnuntine *legio XIV Gemina*, in sup-

36 GUGL, 2007, pp. 405-415 fig. 159.

37 GUGL, 2005, p. 424 fig. 164.

38 WHEELER, 2000, pp. 272-274.

39 WHEELER, 2000, pp. 274-280.

40 RICHMOND, 1962, p. 145 fig. 5.

41 AVI-YONAH et al., 1957, pp. 6-7 fig. 2; NETZER, 1991, p. XVI, Plan A.

pressing the Bar Kochba revolt in 132-136 AD, and a vexillation of *legio X Frentensis* fought in the Marcomannic Wars in the middle Danube region<sup>42</sup>.

It is therefore more than likely that typologically comparable field camps were built during the numerous sieges during the Jewish revolt by the soldiers of the legions involved, including the Carnuntine legionaries. This can probably be seen as a response to the armament, combat tactics and units of the opposing troops. It indicates that it was not the topography, but combat experience and strategic considerations that were decisive for the construction of field camps of this type, which approximated a parallelogram. These factors ultimately also determined the layout of the legionary fortress in Carnuntum.

This type of fortification probably had specific strategic advantages that could be related to the dangerous combat techniques used in the Middle and Nearer East, particularly those involving shooting weapons. It is therefore not surprising that the centurion of *legio XV Apollinaris*, Titus Calidius Severus, had depicted on his Flavian-era tombstone in Carnuntum a scale armour, a protective weapon that was introduced into the Roman army's repertoire during this very period in response to the experiences in the Parthian Wars and the Jewish Revolt<sup>43</sup>. The acute angle of the front of a camp reflects the slanted formation of the battle line in a field battle, a *depugnatio obliqua*, the advantage of which was seen in the fact that it created varying distances to the enemy's shooting range: *Secunda depugnatio est obliqua, plurimis melior. (...) tunc tu sinistram alam tuam a dextra adversarii longius separabis, ne vel missibilia ad eam vel sagittae perveniant* (Veg. mil. 3,20).

*Legio XIV Gemina*, which succeeded *legio XV Apollinaris* in Carnuntum, had experience with a fortification ring of unusual shape in Mogontiacum (Mainz), where it was stationed from 17-43 and 70-97 AD before being transferred to the Danube<sup>44</sup>. Like the south-east corner of the *castra* of Carnuntum in period 2, the south corner of the Mogontiacum legionary fortress (circa 84/85 AD, stone construction phase 1) was also obtuse-angled, with the remaining 'corners' fol-

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42 VON DOMASZEWSKI, 1895, pp. 119-120 No. 11 and pp. 123-124; Dąbrowa, 2000, pp. 320-321

43 GROH, 2023, pp. 38-42 fig. A22.

44 BURGER-VÖLLMECKE, 2020, pp. 31-33.

lowing the course of the topography with its irregular relief<sup>45</sup>. Rectangular ends could also have been chosen for the southern front of the Mogontiacum legionary fortress. Assuming that the soldiers of *legio XIV Gemina* rebuilt the Carnuntum legionary fortress in Trajan's time, they must have still had the structure of the Mogontiacum fortress in mind.

In the March-Thaya region at the time of the Marcomannic Wars, temporary camps with acute angles were in the majority (Table 1) and can probably be described as the traditional tactical construction method of the Carnuntum legion garrison. On its way from Italy to the Danube *limes*, *legio II Italica* first arrived in Carnuntum and is likely to have adopted this parallelogram-shaped construction with acute angles when setting up its marching camps south of the civilian town (Table 1; Figs. 2 and 6). The south-western corners of the two trench works, which were built close to each other, each measured 81 degrees. Subsequently, the first legionary fortress in Lauriacum, which was probably still designed as a temporary camp<sup>46</sup>, was built under the influence of the Carnuntum building canon, with an acute angle of 82 degrees (Table 1; Fig. 6).

In the offensive along the March, Thaya and Jihlava rivers, the Carnuntum tradition determined the shape of the field camps with acute angles between 83 and 77 degrees and gate openings with *titula* in front (Table 1; Figs. 3 and 5). The shape of the camp in turn suggests military strategies and specific troops.

Camps with acute angles were a result of the experiences of Carnuntine legionaries in the East during their combat operations against armed forces using bows and arrows. The numerous sharp-angled camps in enemy territory facing Carnuntum indicate that attacks involving shooting weapons were anticipated. Barbed arrowheads found in the king's grave of Mušov and at the neighbouring sites of Mikulov, Chvalkovice na Hané and Blučina provide the strongest evidence for the presence of Marcomannic archers<sup>47</sup>.

Baumgarten an der March (Table 1; Fig. 3), which, due to the rich coin spectrum, can be dated definitively to the period of the *expeditio Germanica prima*<sup>48</sup>, a halving of the camp size can be observed in the course of the campaign of 172

45 BURGER-VÖLLMECKE, 2020, pp. 224-230 fig. 115 and pp. 243-245.

46 GROH, 2018, pp. 96-100; GROH, 2025, p. 212 fig. 9.

47 GROH, 2023, p. 89.

48 GROH, 2023, p. 150.

AD, which points to the rapid transfer of troops to the north, to the Mušov area, and the exclusive presence of *praesidia* to control the *commeatus* (supplies) between the Danube and Stillfried. If we classify the temporary camps in this region according to the above parameters, then the *expeditio prima* involved units with a strength of two legions (Vindobona, Carnuntum), one or two mounted auxiliary units (Klosterneuburg, Carnuntum) and vexillations of a third legion (Lauriacum).

In the zone north of the Danube, between Carnuntum and Stillfried, a settlement-free corridor was established after the *expeditio Germanica prima*, which was also used as a contact zone between the Romans and Germanic tribes and where markets were held<sup>49</sup>. From 173 AD, the treaty-defined zone was 15 km wide, but in 174 AD it was halved to just 7.5 km<sup>50</sup>. The camp in Baumgarten an der March remained in existence in a second phase with a reduced area and smaller garrison until around 174/175 AD, as evidenced by coin finds. With a troop presence lasting several years, this 15 km wide settlement-free buffer zone was closely monitored after the end of the first campaign against the Marcomanni. After the zone was by treaty reduced to 7.5 km, the camp became obsolete and was abandoned, but not the transshipment point in Marchegg. This is likely to have continued to be used as a port or marketplace.

In summing up, the strategy of the *expeditio Germanica prima* can be characterised as follows: in 172 AD, Carnuntum was the headquarters and assembly point for at least two and a half legions and two auxiliary units. The temporary camps followed the construction principles of the Carnuntum legion in the form of an acute-angled parallelogram (Table 1; Fig. 3). The latter also erected most of the military installations. The campaign achieved its goal in a short time with a concentrated troop build-up. After the battle against the Marcomanni *in ipso transitu Danuvii* (H.A. Marcus 21,11), the way was clear to the north. A permanent supply infrastructure for the *commeatus* was established in a protective zone north of the Danube.

At the forefront of the linear advance with at least two legions starting from Carnuntum along the March and Thaya rivers to Mušov and Přibice on the Jihlava river was the vanguard of *legio XIV Gemina*. The goal of this offensive,

49 GROH, 2023, p. 226 fig. A35.2.

50 Cass. Dio 71, 15; BIRLEY, 1977, p. 325; SCHMITT, 1997, pp. 158-161.

namely the surrender of the Marcomanni, was achieved in the same year, 172 AD. Sesterces from 172 proclaim *Germania subacta*<sup>51</sup>. The troops then withdrew to Carnuntum and Vindobona. In 173 AD, a 15 km wide uninhabited buffer zone was established north of the Danube, which was reduced to 7.5 km in 174 AD. Carnuntum troops controlled this area until 174 AD with a smaller camp in Baumgarten an der March and, after its complete abandonment, probably permanently until 180 AD, with the post in the *antiqua munitio* of Stillfried.

#### 4. *Expeditio Germanica secunda*

The *expeditio Germanica secunda* saw a strategic paradigm shift, the motivation for which was no longer the expulsion of the Germanic tribes from favourable settlement areas along the main north-south route to the Moravian Gate, but rather the territorial occupation of the Marcomanni settlement area. *Marcus Aurelius* probably set the goal of establishing a new province of Marcomannia (H.A. Marcus 24,5 and 27,10). Military activities now followed different patterns. The concept of territorial occupation could only be implemented through the advance of several independently operating military formations.

There is no historical evidence of a headquarters for this second campaign in Carnuntum. Rather, the troops are likely to have been coordinated but operated independently of each other from Carnuntum, Vindobona and Augustiana (Traismauer). During the *expeditio secunda*, the imperial headquarters was probably located halfway between these three bases of operations in Vindobona, where ancient sources record the death of Marcus Aurelius in March 180 AD<sup>52</sup>. The war began after 3 August 178 AD with a formal declaration of war, the *profectio Augustorum*. Roman troops with a strength of 20,000 men permanently occupied central positions in the settlement area of the Marcomanni and Quadi from 178 to 180 AD<sup>53</sup>. In the settlement area of the Marcomanni, one can therefore assume an occupying force of around 10,000 men. The war officially ended after the death of Marcus Aurelius on 14 March 180 AD with a peace treaty with the Marcomanni and a triumph of Commodus on 22 October 180 AD. The *expeditio secunda* lasted from August 178 to spring 180. The Marcomanni regarded this

51 VON DOMASZEWSKI, 1895, p. 119 note 2; BIRLEY, 1977, p. 312.

52 *Aurel. Vict. Caes.* 16, 14; *Ps.-Aurel. Vict. epit. Caes.* 16, 12; BIRLEY, 1977, p. 379.

53 BIRLEY, 1977, pp. 373-375; KEHNE, 2016, pp. 242-243.

one-and-a-half-year occupation of their settlement area as a prelude to Roman provincialisation and the threat of losing their personal freedom and possessions, so their relief was all the greater when the occupiers withdrew in 180 AD. The Germans sealed the regaining of their freedom and territory by systematically purifying Roman military installations (marching camps, vexillation camps) and depositing Roman offensive and defensive weapons and equipment as well as animal carcasses. Examples of this ritual, renewed Germanic land seizure can be found in Mušov-Burgstall, Hulín-Pravčice, Ruhhof, Závod and Stillfried<sup>54</sup>.

Based on the shape, size and fortification of the temporary *castra* and *castella*, it can be concluded that three military units were involved in Rome's territorial war against the Marcomanni in the March-Thaya region in 178-180 AD (Fig. 4): Formation 1 (Fig. 4: red) once again followed the March-Thaya route from Carnuntum and is characterised by field camps in legion strength with acute-angled layout and gates with *titula* (Table 1; Fig. 5). In addition, there were smaller camps of mobile units. Overall, the size of the camps was halved compared to the massive advance of the *expeditio prima*, reflecting the reduced troop strength of one legion and one *ala*. The port/transshipment point in Marchegg and the now reduced base in Stillfried (Fig. 5) were used by Carnuntum units. After the offensive of 172 AD, they were reused or continued to be used and served as *praesidia* along the supply line of the *commeatus* in the Germanic territory. Drösing is likely to have continued to serve as an important base for the *commeatus*, as this strategically significant location on the March waterway allowed for the organisation of a supply line extending far into enemy territory to the tactical centre of Hulín-Pravčice (Fig. 4)<sup>55</sup>. An advance from Hulín-Pravčice to Olomouc<sup>56</sup> is likely to have taken place. This operation along a river course was most in line with Roman military organisation<sup>57</sup>. The soldiers were trained to press ahead despite all topographical adversities. For example, the construction of bridges was part of the standard training of soldiers deployed as pioneers<sup>58</sup>. The troops operating in this area along the March were probably limited to those from Carnuntum (*legio XIV Gemina, ala I Thracum Victrix*).

54 GROH & SEDLMAYER, 2015, pp. 208-210; GROH, 2023, pp. 226-238 and 263-265.

55 KOMORÓCZY et al., 2020, pp. 218-219.

56 KOMORÓCZY et al., 2020, pp. 232-233.

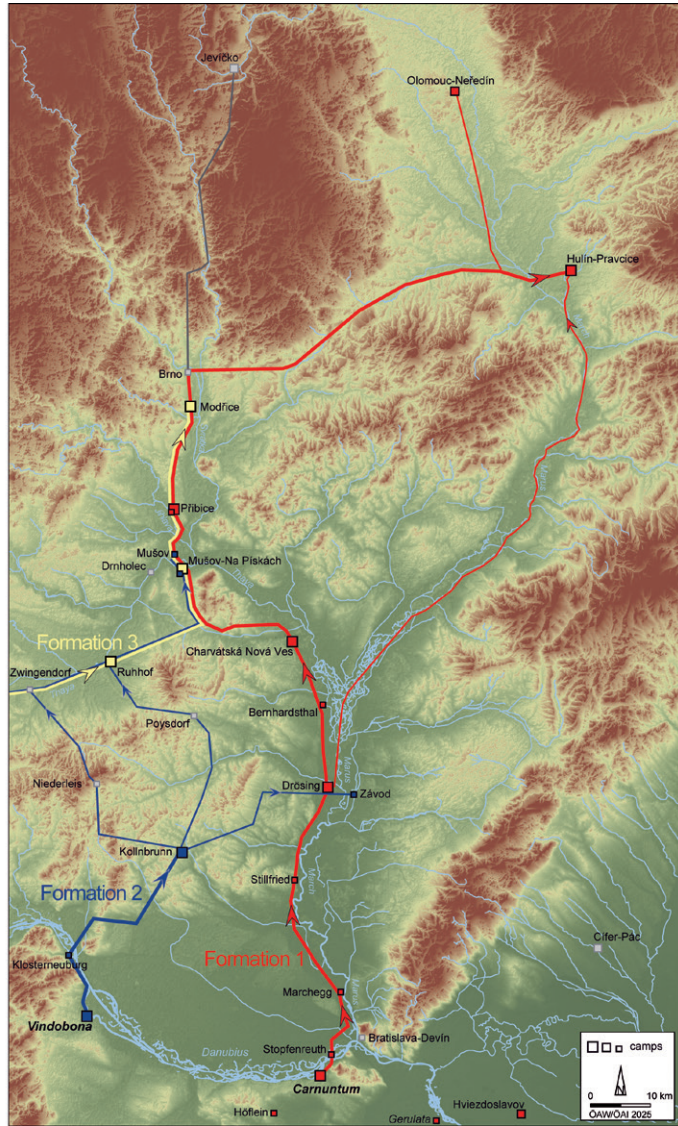
57 ROTH, 1999, pp. 196-197.

58 ROTH, 1999, p. 218.

Fig. 4: *Bellum Germanicum, expeditio secunda*, 178–180 AD. Territorial strategy, red: Carnuntum vanguard, blue: Vindobona vanguard, yellow: Norican vanguard. *ÖAI/ÖAW, H. SEDLMAYER*

Formation 2 (Fig. 4: blue) advanced northwards from Vindobona to the March and Thaya rivers. This advance was intended to establish territorial control over the hilly region of the Weinviertel with the Leiser Mountains. *Legio X Gemina* built camps the size of auxiliary troops (Závod, Mušov-Na Piskách [»2«], Mušov-Burgstall) and legions (Kollnbrunn<sup>59</sup>).

Unlike the camps of Carnuntum troops, which were approximated to parallelograms with acute angles, the soldiers of the *Legio X*, following the example of the *castra* of Vindobona, built



<sup>59</sup> GROH & SEDLMAYER, 2015, pp. 66-83.

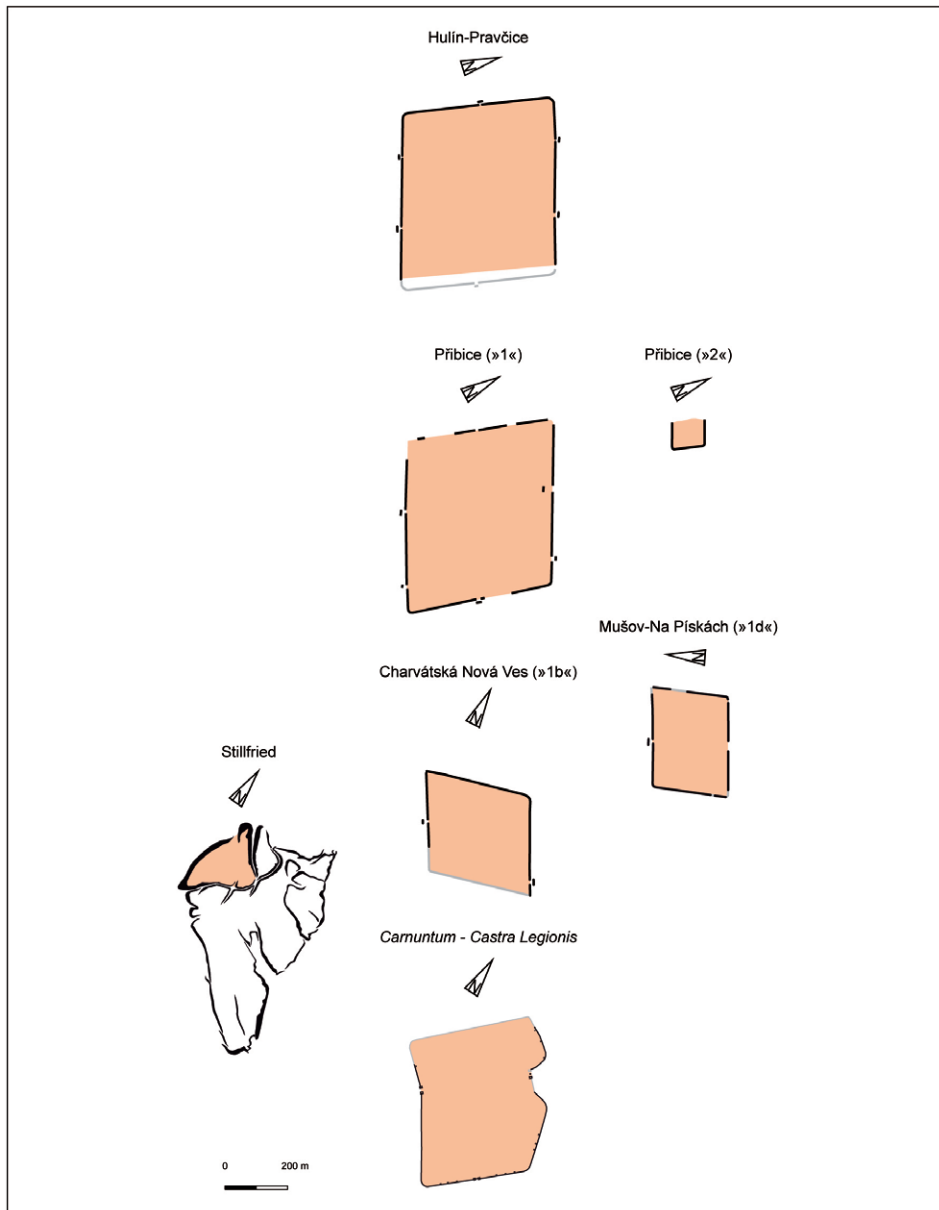


Fig. 5: *Bellum Germanicum, expeditio secunda, 178–180 AD. Carnuntum vanguard.* Base of operations: Carnuntum legionary fortress. Tactical centres: Přebice (»1«), Hulín-Pravčice. Forts: Charvátská Nová Ves (»1b«), Mušov-Na Pískách (»1d«), Olomouc-Neředín. Garrisons in supply centres: Stillfried, Přebice (»2«). *ÖAI/ÖAW, H. SEDLMAYER with reference to GUGL, 2015, fig. 180; KOMORÓCZY et al., 2020, figs. 44, 45, 57, 61*

camps in a playing card format with angles of 90 degrees to a maximum of 96 degrees (Table 1; Fig. 6). It is likely that the *cohors I Aelia sagittariorum* from Klosterneuburg was involved. At the Burgstall in Mušov, a 1.5-hectare vexillation camp with stone buildings replaced the *expeditio prima* assembly point, which was larger in area at around 20 hectares. The new small vexillation camp with stone buildings was erected by soldiers of *legio X Gemina* and had a small bath and simple *principia* grouped together in a gravel courtyard. The camp, measuring approximately 1.5 hectares and located on the highest elevation of the Burgstall, was bordered by two parallel ditches (Fig. 6) and is thought to have housed a vexillation of 100-200 men<sup>60</sup>.

Formation 3 (Fig. 4: yellow) consisted of Norican auxiliary units and vexillations of *legio II Italica*. Their advance took them from *Augustiana* (Traismauer) along the rivers Kamp and Thaya to Mušov. A first small camp measuring 120 × >10 m with an acute north-west corner of 81 degrees was located in Plank am Kamp, 26 km north of Augustiana (Traismauer)<sup>61</sup>. The shape of the marching camps now followed that of the Carnuntum troops, which had also been adopted by *legio II Italica* (Table 1; Fig. 6). What is new here, however, is the fortification with *claviculae* (Ruhhof, Mušov-Na Pískách [»1c«]<sup>62</sup>) instead of the *titula* used by the Carnuntum legion. The 36.5-hectare field camp in Ruhhof is a double-legion-sized camp, which suggests that it served as one of the largest troop bases involved in the territorial occupation of the Marcomanni region during the Second Campaign.

The strength of the troops could only be maintained by the participation of military units from the Lauriacum legionary fortress and the auxiliary forts of Favianis (*cohors I Aelia Brittonum milliaria*), Augustiana (*ala I Augusta Thracum*), Asturis (*cohors I Asturum equitata quinquenaria*), Commagenis (*ala I Commagenorum*) and Cannabiaca (*cohors II Thracum equitata pia fidelis*), i.e. five *alae* or partially mounted auxiliary units<sup>63</sup>. In Ruhhof, small finds indicate the deployment of East Norican auxiliaries<sup>64</sup>. From this evidence, it can be concluded

60 GROH, 2023, pp. 260-263.

61 FRIESINGER & ZABEHLICKY, 1986, pp. 236-237.

62 GROH & SEDLMAYER, 2015, pp. 95-128; KOMORÓCZY et al., 2020, p. 230.

63 PLOYER, 2018, pp. 84-117.

64 GROH & SEDLMAYER, 2015, p. 139.

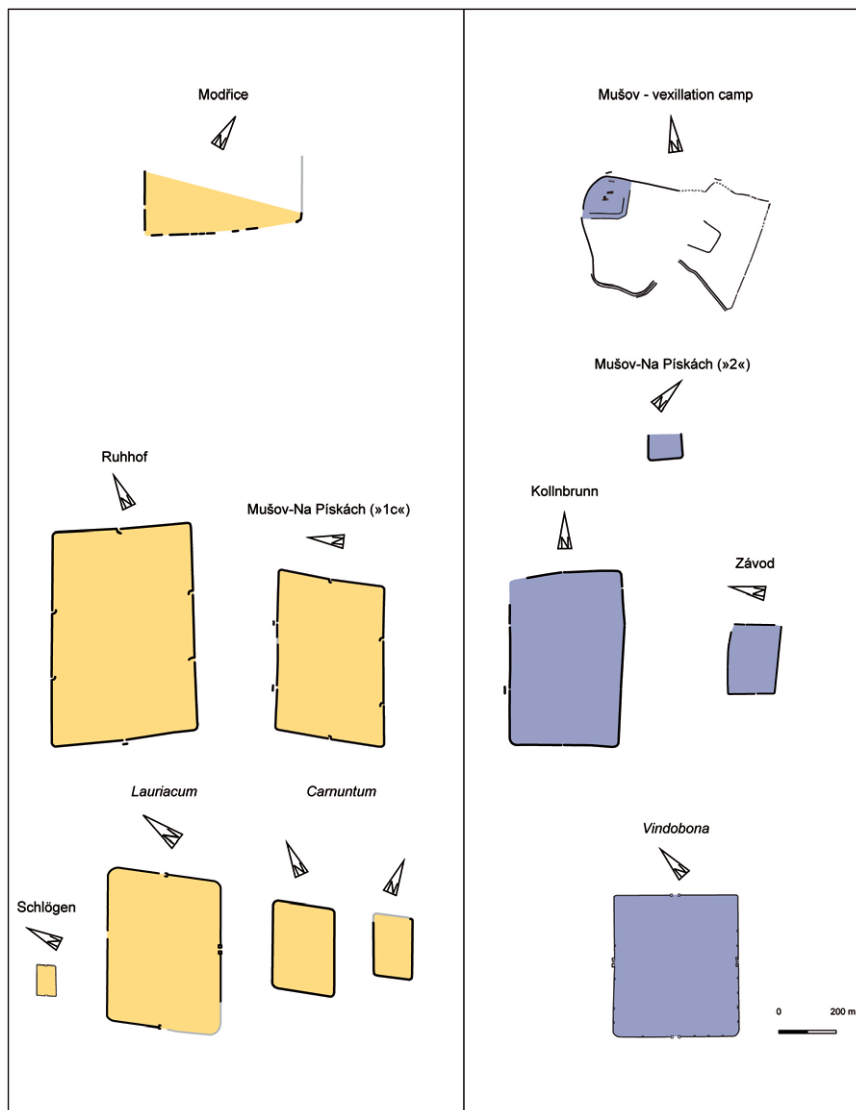


Fig. 6: *Bellum Germanicum, expeditio prima*, 172 AD. Vexillations of *legio II Italica*: Carnuntum. – *Bellum Germanicum, expeditio secunda*, 178–180 AD. Norican vanguard: Base of operations: Lauriacum legionary fortress. Tactical centres: Ruhhof, Mušov-Na Pískách (»1c«), Modřice. Garrison in supply centres: Schlögen. – Vindobona vanguard.

Base of operations: Vindobona legionary fortress. Tactical centre: Kollnbrunn.

Garrisons in supply centres: Závod, Mušov-Na Pískách (»2«), Mušov-Burgstall. *ÖAI/ÖAW*, H. SEDLMAYER with reference to GROH, 2023, fig. C2.7; GUGL et al., 2024, figs. 2-3; KOMORÓCZY et al., 2020, figs. 55, 57, 64-65; MOSSER, 2015, fig. 157

that mobile units probably played a prominent role in the strategic considerations of the *expeditio Germanica secunda*. The troops had to cover long distances in a short time and also patrol between the newly erected field camps.

Detachments trained in this tactic were used to implement this strategy of territorial control by mobile units. It is therefore not surprising that a division of *legio III Augusta* reinforced the Norican and Pannonian troops in the Marcomanni territory: *vexil(lationi or -lationibus) leg(ionis) III Aug(ustae) apud Marcomannos*<sup>65</sup>. The soldiers of the 3<sup>rd</sup> Legion, who had been sent from *Numidia*, were well trained in monitoring terrain that was difficult in terms of both topography and climate.

The units of the 3<sup>rd</sup> Formation are also likely to have carried out the advance to Modřice (Figs. 4 and 6), which extended far to the north. The distance from Augustiana (Traismauer) to Modřice was over 150 km, and from Carnuntum to Hulín-Pravčice over 200 km. Unlike the tactical centres installed up to the site of Přibice, no multiple use or sequence of trench works could be identified for the military site at Modřice<sup>66</sup>. This gives rise to the consideration that it was not the proven vanguard of *legio XIV Gemina* that chose this location as its base, but a new unit operating independently in the war. Modřice is a suitable location for the camp of detachments of the 2<sup>nd</sup> Italian Legion and their Norican allies, as the acute angle of the parallelogram shape, measuring 84 degrees (Table 1; Fig. 6), deviates slightly from the orientation of the Carnuntum *castra*. The advance along a waterway (Svratka) could also point to the Norican vexillations, especially since, unlike *legio X* from Vindobona, they carried out their operations along rivers (Kamp, Thaya).

It is also obvious that the Norican combat unit advanced beyond the tactical centre of Mušov-Na Pískách (»1c«) during its expedition, with Modřice further north as its target (Figs. 4 and 6). The rapid replacement of the garrison of the *castra* at Mušov-Na Pískách (»1c«) by a small unit of *praesidia* is evidenced by the small-scale *castellum* Mušov-Na Pískách (»2«), which was not established directly in the trench system (»1c«) but just next to it. As mentioned above, the avoidance of a campsite that had been recently contaminated can be inferred from the close proximity of earthworks without superposition. The approximately rect-

65 *CIL* VIII 619 = 11780; *AE* 1969/70, 580; BIRLEY, 1977, p. 333.

66 KOMORÓCZY et al., 2020, p. 228.

angular ground plan with a right angle ( $\alpha$ ) of Mušov-Na Pískách (»2«: Table 1; Fig. 6) indicates the arrival of a small sub-unit, most likely another force, namely a part of *legio X Gemina*.

Unlike in the *expeditio Germanica prima*, the emphasis was no longer on infantry, but on lancers and archers, i.e. lightly armed but powerful mobile cavalry. This is likely to have played a key role in the territorial occupation of the *expeditio secunda*. It is therefore not surprising that the protective armour of these troops, namely scale armour, was selectively deposited during the takeover by the Marcomanni in 180 AD.

The use of *claviculae* in the temporary camps of Formation 3 in Ruhhof and Mušov-Na Pískách (»1c«) can best be explained by a transfer of know-how from auxiliary units previously stationed in *Germania inferior*, *Britannia* or *Dacia*, where this type of camp gate was used as standard<sup>67</sup>.

All three military formations met in Mušov, were reorganised and carried out further advances along the river valleys as far as the Moravian Gate. In this campaign, the last resources were thrown into battle, with even antiquated weapons from old stocks of the legion in Carnuntum being used by the mounted mobile units. This can be proven by the distribution of iron protective weapons from the armoury of the Carnuntum legionary fortress, which had actually been in use by the Carnuntum legion from the Flavian to the Hadrianic period and were now being reused again by units in Ruhhof as well as in Mušov-Burgstall and at Stillfried<sup>68</sup>.

In summarising, the strategy of the *expeditio Germanica secunda* can be characterised as follows: the goal of establishing a province of *Marcomannia* required the extensive occupation of the Marcomanni settlement area north of the Danube. The Roman troops operated in three formations (Fig. 4), which advanced independently of each other from Augustiana (Traismauer), Vindobona and Carnuntum towards the north and were probably coordinated by a command centre in Vindobona. A dense network of *castra* and *castella* was established. Unlike in the *expeditio Germanica prima*, the far-reaching advances and territorial control were no longer carried out by the infantry, but primarily by mounted units (lancers and archers).

67 GROH & SEDLMAYER, 2015, pp. 159-167 figs. 115-116; WELFARE & SWAN 1995, pp. 12-13; DAVIES & JONES, 2006, pp. 18-19; BÖDECKER 2013; STEFAN 2005, pp. 279-321.

68 GROH, 2023, p. 71 fig. A45, pp. 86-90.

The largest formation in terms of numbers, consisting mainly of soldiers from eastern Noricum auxiliary units and *legio II Italica*, advanced along the Kamp and Thaya rivers far to the north (Modrice). A special feature of this troop formation was the implementation of *clavicula* gate systems in their *castra*. The other two army columns are likely to have advanced from Vindobona and Carnuntum with legion strength, whereby the supply of all troop contingents, as was already the case during the *expeditio Germanica prima*, is likely to have been organised via the *praesidia* of the river March route. The northernmost points of the offensive annexation were marked by the *castra* of the Carnuntine vanguard (*legio XIV Gemina*) in Hulín-Pravčice and probably Olomouc.

*Legio X Gemina* from Vindobona erected a 1.5-hectare vexillation camp with stone buildings at the Burgstall in Mušov, which is thought to have housed a permanent force of 100-200 men. The large military effort and the already scarce resources of this campaign are evidenced by the use of partially antiquated protective weapons. An occupying force of around 10,000 men can be expected in the occupied settlement area of the Marcomanni. The war, which lasted about a year and a half, ended abruptly after the death of Marcus Aurelius on 14 March 180 AD. Systematic purification of enemy military installations by depositing Roman weapons, equipment and animal carcasses sealed the regaining of freedom and the recovery of the settlement areas by the Germanic tribes.

<b>LEGIO XIV GEMINA</b>	camp size	angle	function
<b>Carnuntum and surrounding area</b>			
Carnuntum <i>castra legionis</i>	17,6 ha (circa)	81° (α)	<i>castra legionis</i> (operational base)
Höflein	0,2 ha	82° (α)	<i>castellum (praesidia)</i>
<b>Expeditio prima</b>			
<b>Vanguard of Carnuntum legion</b>			
<b>March</b>			
Baumgarten (1)	19 ha (circa)	83° (α)	<i>castra</i> (tactical centre)
Baumgarten (2)	12 ha	83° (α)	<i>castellum (praesidia of commectus)</i>

<b>Thaya</b>			
Charvátská Nová Ves (»1a«)	41,1 ha	77° (β)	<i>castra</i> (tactical centre)
Mušov-Na Pískách (»1a«)	41,3 ha	82° (β)	<i>castra</i> (tactical centre)
Mušov-Na Pískách (»1b«)	37,5 ha	82° (β)	<i>castra</i>
Mušov-Burgstall	19,9 ha	60° (α)	<i>castra</i> (tactical centre)
<b>Jihlava</b>			
Přibice (»3«)	43,1 ha	82° (β)	<i>castra</i> (tactical centre)
<b><i>Expediitio secunda</i></b>			
<b>Vanguard of Carnuntum legion</b>			
<b>Thaya</b>			
Charvátská Nová Ves (»1b«)	10,3 ha	76° (δ)	<i>castellum</i>
Mušov-Na Pískách (»1d«)	7,8 ha	82° (β)	<i>castellum</i>
<b>Jihlava</b>			
Přibice (»1«)	25,8 ha	78° (α)	<i>castra</i> (tactical centre)
Přibice (»2«)	0,7 ha	82° (α)	<i>castellum (praesidia of commectus)</i>
<b>March</b>			
Hulín-Pravčice	26 ha (circa)	83° (γ)	<i>castra</i> (tactical centre)
Olomouc-Neředín	–	112° (α)	<i>castra / castellum</i>

<b><i>LEGIO X GEMINA</i></b>	c a m p size	angle	function
Vindobona <i>castra legionis</i>	21,3 ha (circa)	90° (α)	<i>castra legionis</i> (operational base)
<b><i>Expediitio secunda</i></b>			
<b>Vanguard of Vindobona legion</b>			
Kollnbrunn	23,3 ha	90° (α)	<i>castra</i> (tactical centre)
Závod	4,2 ha	90° (δ), 96° (α)	<i>castellum (praesidia of commectus)</i>
Mušov-Na Pískách (»2«)	1,2 ha	90° (α), 85° (β)	<i>castellum (praesidia of commectus)</i>
Mušov-Burgstall vexillation camp	1,5 ha	96° (β)	<i>castellum (praesidia of commectus)</i>

<b>LEGIO II ITALICA</b>	c a m p size	angle	function
<b>Expediitio prima</b>			
Carnuntum south of <i>municiptium</i>	6,4 ha	81° (β)	<i>castellum</i>
Carnuntum south of <i>municiptium</i>	2,7 ha	81° (β)	<i>castellum</i>
<b>Lauriacum and surrounding area</b>			
Lauriacum <i>castra legionis</i>	20,5 ha	82° (γ)	<i>castra legionis</i> (operational base)
Schlögen vexillation camp	0,6 ha	86° (α)	<i>castellum</i> ( <i>praesidia</i> of <i>commeatus</i> )
<b>Expediitio secunda</b>			
<b>Vanguard of Norican troops</b>			
<b>Kamp</b>			
Plank am Kamp	–	81° (δ)	<i>castellum</i> ( <i>praesidia</i> of <i>commeatus</i> )
<b>Thaya</b>			
Ruhhof	36,5 ha	83° (α)	<i>castra</i> (tactical centre)
Mušov-Na Pískách (»Ic«)	21,1 ha	80° (β)	<i>castra</i> (tactical centre)
<b>Svratka (Modřický náhon)</b>			
Modřice	–	84° (α)	<i>castra</i> (tactical centre)

Table 1: *Castra* and *castella* of troops operating in the Marcomannic territory north of Carnuntum

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Busto di Pirro re dell'Epiro, Ercolano, da un originale del 290 a.C.  
Ora al Museo Archeologico Nazionale di Napoli  
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# Storia Militare Antica e Bizantina

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