

## Researching and reconstruction of the Roman Vindobona fortress

Martin MOSSER

Museen der Stadt Wien – Stadtarchäologie

**Zusammenfassung:** Das römische Legionslager Vindobona ist seit etwa 140 Jahren wesentlicher Gegenstand der archäologischen Forschungen zum römischen Wien. Doch erst seit den späten 1990er Jahren ist durch konsequente Altgrabungsaufarbeitung, durch digitale Verortung und durch digitale Vermessungsmethoden eine komplette Erfassung des Lagergrundrisses möglich geworden. Durch Aufarbeitung jüngerer Grabungen am Wildpretmarkt, am Judenplatz und Am Hof ergeben sich darüber hinaus zahlreiche Möglichkeiten von dreidimensionaler digitaler Rekonstruktion. Durch den immens erweiterten Wissenstand zum Legionslager Vindobona sind auch aus denkmalpflegerischer Sicht Vorteile zu gewinnen, da relevante Baustellenbereiche besser archäologisch beurteilt werden können und der Zeitbedarf für Ausgrabungen besser abgeschätzt werden kann. Auch wenn in vielerlei Hinsicht Fortschritte zu erkennen sind, bleibt weiterhin die Finanzierbarkeit und langfristige Durchführbarkeit aufwändiger Aufarbeitungsprojekte als oft unlösbares Problem bestehen. Diese sind jedoch Garant für eine weiterführende erfolgreiche und wissenschaftlich korrekte Öffentlichkeitsarbeit.

**Keywords:** legionary fortress – history of research – cultural heritage – digital reconstruction

In Roman times crucial points on the Limes Danuvius were the garrisons of the legions, housing 6000 men in addition to the corresponding more or less big settlements around their fortresses.<sup>1</sup>

Roman Vienna, old Vindobona, was one of them. In Roman times not so famous as the neighbouring Carnuntum, which had the governors palace of the province of Pannonia.<sup>2</sup> But the fortress of the proud legio X gemina in Vindobona had a similar, sometimes even bigger size as the other of the around 30 fortresses of the empire.

You can view the up to date presentation and reconstruction of the legionary fortress of Vindobona in the newly opened “Römermuseum” in different medias.<sup>3</sup>

For example as a big wall painting or as a film with overview flights imaging the reconstructed fortress in details.

But how did we reach that point of scientific research, that allows such far reaching three dimensional modellings?

Since the 19th century the Roman legionary fortress of Vindobona in the inner city of Vienna has been subject of archaeological research.

The process started around 140 years ago driven forward by Friedrich Kenner who fixed the location of the fortress within the inner city of Vienna.<sup>4</sup> The numerous building sites in the years at the end of the 19<sup>th</sup> and the beginning of the 20<sup>th</sup> century brought to light a lot of Roman walls, parts of the fortifications, two gate towers and some not really assignable Roman building remains.<sup>5</sup>

Kenner already knew the researches of the German and Austrian “Limesforschungen” who excavated comparable castra in rural areas sometimes almost in their complete extent, for example in Neuss, Carnuntum or Lauriacum.<sup>6</sup> In combination with the ancient literature sources, especially Polybius, Pseudo Hyginus and Vegetius,<sup>7</sup> the excavations in those days brought a very clear idea of the appearance of such a fortress, which also led to the reconstruction of the Saalburg castrum in original scale.<sup>8</sup>

But Vindobona was far away from that. The most of the 20th century excavations based mainly on short-termed observations of building measures with accompanying emergency excavations. It was common sense until the 1990s, that very limited areas of excavations in dense obstructed city regions cannot produce sufficient results to reconstruct the fortress.

Attempts to produce a schematic ground plan of the fortress were first made by Eduard Nowotny and Erich Polaschek in the 1920<sup>th</sup> and 1930<sup>th</sup> s.<sup>9</sup> Alfred Neumann added the excavations of the 1950s and 60s, for example at Hoher Markt and Am Hof to Polaschek’s plan.<sup>10</sup> But the essential features and outlines survived within the science community until the late 1990s! The partitioning of the main buildings remained sacrosanct. Curiosities like the slant position of the north end of the fortress instead of an usual rectangular ground-plan had not really been discussed.

A basic change in researching the Vindobona fortress followed in the late 1990s. The Stadtarchäologie started then a systematic and AutoCAD supported collection and mapping of all excavations within the fortifications of the garrison.<sup>11</sup> Doing this, enabled to correct the almost 70 year-old plan in decisive points:

It has been possible to reconstruct a new layout of the legionary fortress and to identify correctly the main axes and the main buildings of the fortress (Fig. 1).

So we could reconstruct the principia in the middle of the fortress in its complete outlines and we could reposition the praetorium left to the principia instead of behind the principia.<sup>12</sup> Porta principalis dextra was rediscovered by studying the old publications<sup>13</sup> and in cooperation with geologists we could prove that the northern part of the originally rectangular fortress was swept away by a flood of the Danube in late Roman times.<sup>14</sup>

But all these recognitions did not help to do the most important task of an archaeologist: to make a distinctive and precise chronology and architectural history of the fortress. But until the 1990s we had indeed no chance to do this, because all excavations did not consider any kind of stratigraphy of the layers.

So the ground-plan of the fortress still based on the ideal reconstruction of a second or third century castrum without taking chronological changes into account. But since 1995 there have been two big excavation campaigns of the Stadtarchäologie, carried out with stratigraphic, layer regarded methods. They were the three year campaign at the Judenplatz, finding the remnants of three barrack buildings in the retentura left to the praetorium<sup>15</sup> and the still lasting campaign at Am Hof beginning in 2007 finding workshop remains of the fabrica, barrack buildings, the via sagularis with its sewer and an annex building along the fortification wall.<sup>16</sup>

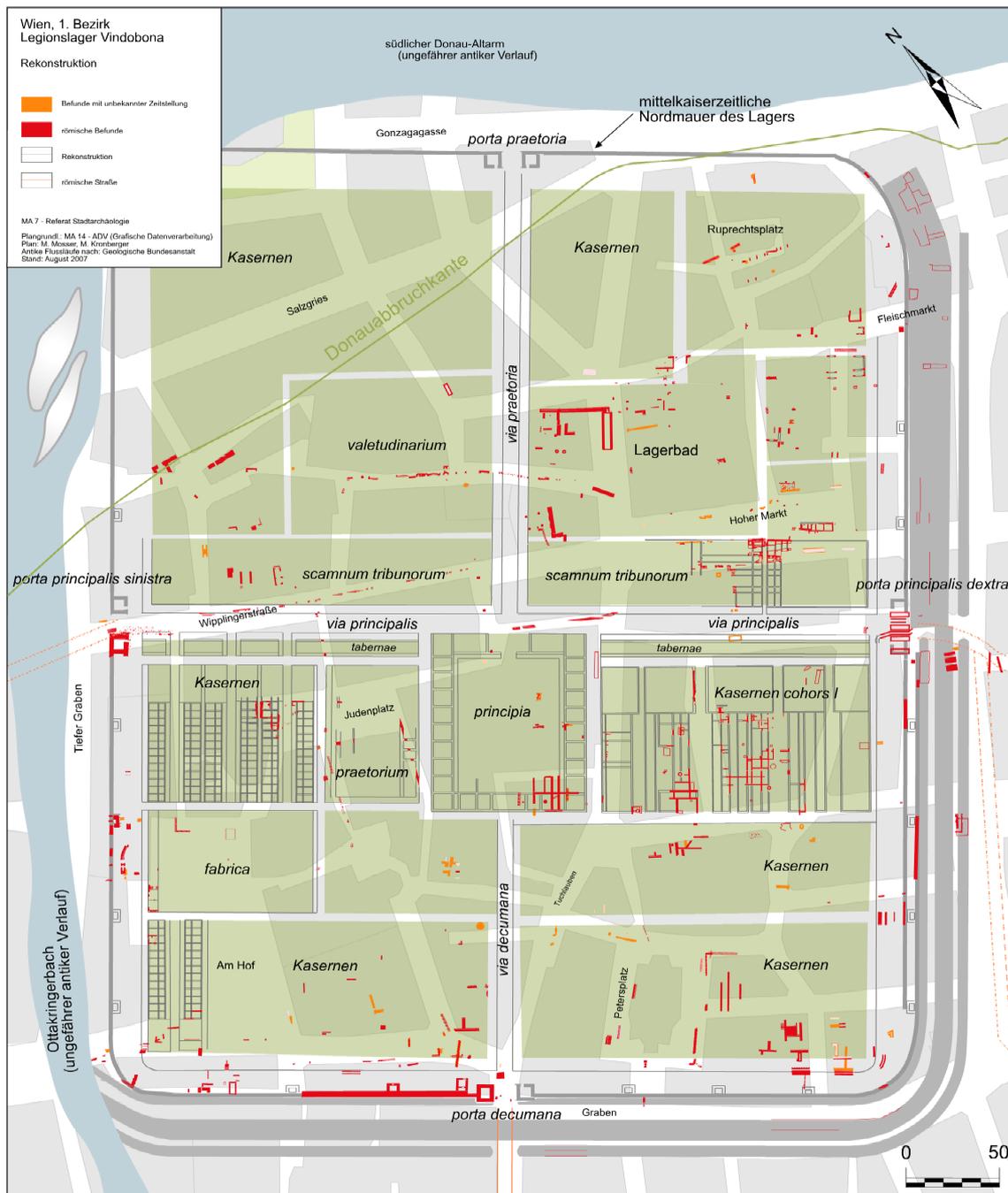


Fig. 1 - The legionary fortress of Vindobona. Groundplan (reconstruction: M. Mosser).

The processing of the Judenplatz campaign produced the knowledge about six building periods, in which the first two periods could be identified with timber and adobe wall buildings. The following periods from the end of the second century to the 4<sup>th</sup> century are showing walls consisting of a stone pedestal and uprising clay bricks (Fig. 2). Furthermore we could manage the prove of obviously civilian workshops inside the former barracks and sometimes building extensions from the 4<sup>th</sup> century on. The last Roman period extended into the fifth century with buildings, rooms and roads oriented differently to those of the earlier fortress.

Fig. 2 - The Judenplatz excavation: period 4 of the Roman structures (L. Liebert/M. Mosser).

Good knowledge about the chronology and possible social changes inside the Vindobona fortress together with the knowledge of a basic reconstruction of the outlines coming from the AutoCAD-mapping of earlier excavations have a lot of advantages:

1. Protecting and being aware of the cultural heritage: in advance to construction works we are able to inform responsible persons what can be expected on archaeological remains.<sup>17</sup> We can assess the duration of archaeological work and limit unforeseen surprises. Sometimes building projects were given up, when they realized the dimension and duration of archaeological work announced by us.
2. The next mainly scientific advantage is a rethinking of descriptions of earlier excavations.

For example, the now concluded evaluation work of the 1982 excavation at Wildpretmarkt based on a big amount on comparisons with the barracks found at the Judenplatz.<sup>18</sup>

The excavation carried out in plana and take off method brought to light stone foundations of barracks. These obviously completely stone built barracks show higher architectural quality than those of the other half timbered adobe quarters of legionary soldiers. Architectural quality and layout, beside an inscription of a nearby site<sup>19</sup> led to the conclusion that these are the barracks of the privileged first cohort on the right of the principia within the legionary fortress. The evaluation of the preserved documentation delivered a sequence of five building periods from the end of the first century to the beginning of the fifth century AD. Like at the Judenplatz especially the late Roman periods caused basic structural changes with respect of the dissolving military structures of the previous epoch.<sup>20</sup>

By an overall view of ten further excavations and observations from the years 1895 to 1996 in the vicinity of Wildpretmarkt it was possible to record the whole area of the first cohort buildings and to

make layout reconstructions (Fig. 3). Comparisons with first cohort barracks in other legionary fortresses, especially in Britain, Germany and in the neighbouring provinces Pannonia and Noricum could respond certain questions of chronology and typology of this special kind of barrack buildings. 3. Another, also scientific advantage is the knowledge of layers during excavations within the fortress. Being aware and recognizing characteristic wall-structures, attics, clay floors, decline horizons etc. leads to better assessments and explanations of structures and you are able to minimize and reduce errors during the excavation.

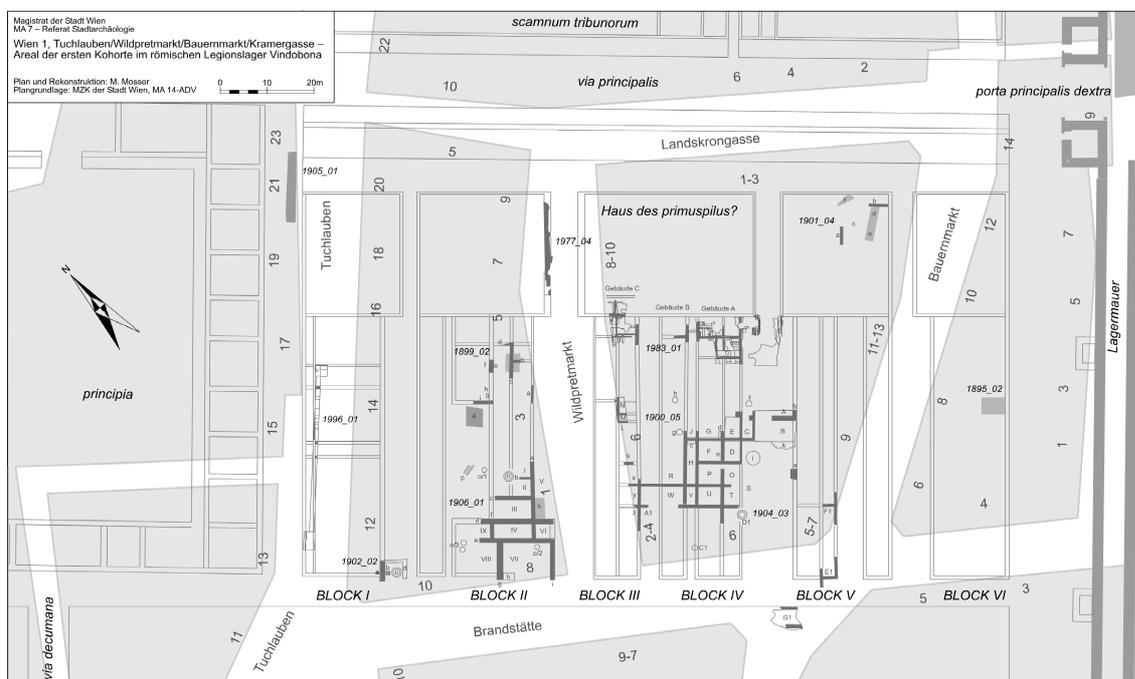


Fig. 3 - Reconstruction of the first cohort area in the legionary fortress of Vindobona (M. Mosser).

For example, before starting an excavation inside the fire department house at Am Hof we reconstructed the barracks found at the Judenplatz to six barracks of a cohort placed left to the praetorium.<sup>21</sup> Doing this we expected the outer wall of the far left barrack inside our excavation area. Actually the wall came to light exactly at the expected position.<sup>22</sup>

The same is now happening with the sewer of the via vallaris, which has been found in 1953 also in a house of the fire brigade and is still visible in a temporary closed exhibition room.<sup>23</sup> The extension of that sewer to the north would run through another excavation area in which we are currently engaged. Exactly in the alignment we found the pulled out trench and the sole of the sewer consisting of tegulae.<sup>24</sup>

Unlike the expected buildings of the fortress came to light, we are also confronted with unexpected structures not fitting in our reconstruction plan.

Mostly these are connected with late Roman buildings added to the older barracks or replacing the vallum as we also could prove at the Am Hof campaign.<sup>25</sup>

Also unexpected was the discovery of the workshop-building – the *fabrica* - at the Am Hof campaign. Its structures consisted completely of destroyed fire places and ovens, the outer walls were broader than those of the barracks and so we soon had been aware of a special building inside the fortress, although it was only a very limited area of the building we could explore.<sup>26</sup>

The digital two and three-dimensional reconstruction of the legionary fortress permitted a quick adjustment of such new findings and only a few weeks after finding the *fabrica* it was inserted in new plans and models.

Since three years the stratigraphic, layer regarded excavation method of the Stadtarchäologie-campaigns is supported by a TachyCAD-system, that means a three dimensional digital recording of the layers and structures immediately at the excavation site into an AutoCAD-map unlike the previous, time-consuming recording with analog drawings.<sup>27</sup> Beside the speed of excavating the TachyCAD total station has further advantages:

you can create overall and period plans already during the campaign and you have the basic datas for three dimensional reconstructions of the buildings you excavate. This support together with a Matrix program and the allocation of findings allows also a very fast overview about the chronology.

So it was possible to create a very extensive preliminary report of the 2007 campaign at Am Hof and even a special exhibition about the results in the new Römermuseum only a few months after finishing the campaign.<sup>28</sup>

A further step is the creation of three dimensional digital building models out of the more or less two dimensional record of the founded structures. In cooperation with the company 7reasons we arised very differentiated building types of the legionary fortress, mostly on the basis of comparisons with other legionary fortresses with better preserved parts of buildings (Fig. 4).<sup>29</sup>



Fig. 4 - 3D-reconstruction of the legionary fortress (M. Klein, 7reasons).

This could be done by 7 reasons immediately after recording the building type at the excavations. Attempts to reconstruct the barracks in different periods according the record of the Vindobona excavations are on their initial point. For example, we tried to reconstruct one timber and adobe barrack from the first and second period of the Judenplatz area.<sup>30</sup>

Despite of all those very successful approaches there are still problems, which are not easy to solve. Even we are very fast in excavating and in achieving first important results the possibilities to get a comprehensive and complete scientific study and publication of a campaign are limited. The extremely valuable Roman Judenplatz evaluation work lasted more than 10 years, even if the basis of its record

was still analog and not digital. The time-intensive work about the very large finding material is difficult to explain, when it has to be financed. So there is always the danger of unsatisfactory half-done work. Especially with respect to the Vindobona ground-plan and the three dimensional reconstruction there is still the problem of ideal reconstruction. That means we have still the plan and the model, which shows a situation assumed in the 2<sup>nd</sup> and maybe 3<sup>rd</sup> century AD. To show a fortress plan distinguishing the building periods we are still very far away. Especially the important changes in late Roman periods are only partially known. So in the future one great aim of Vindobona legionary fortress research will be the depiction of the late Roman fortified settlement due to a flood of the Danube reduced in its area in the north, with workshops inside the former military barracks and annexed buildings along the fortification wall and with much more knowledge about the social structure and the living places of the civilian and military population.<sup>31</sup> In addition its necessary to establish an effective evaluation work about the current excavations to get the appropriate scientific results, because without them, reconstruction and historical or social statements about Roman Vindobona are not very useful.

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