

External Examiner's Report on the Dissertation of *Michal Dyčka*

"The Antonine Limes: The Comparison of the Antonine Wall and the Odenwald-Neckar section of the Upper-German limes"

Submitted in 2020 at the *Department of Research, Faculty of Arts (Historické vědy, Klasická archeologie)*

I. Brief summary of the dissertation

The candidate has completed a spatial investigation and comparison of two built, linear components of the frontiers of the Roman Empire: the Antonine Wall and the Oldenwald Limes. A thorough review of the archaeological evidence for the Antonine Wall and its history of investigation forms the basis for a geo-spatial study, consisting primarily of viewshed and intervisibility analyses, supported by more localised cost path analysis and slope analyses (chapter 2). These analyses are assessed to determine a general sequence for the planning and construction of the Antonine Wall. A similar (though not exact) exercise was completed for the Odenwald Limes (chapter 3). Chapter 4 provides a comparison of the two limes, primarily in terms of their construction and abandonment, how each was surveyed, while chapter 5 focuses on how they operated. The final chapter, 6, pulls together the conclusions and observations from previous chapters and discusses the implications of these, briefly.

II. Brief overall evaluation of the dissertation

[It is advisable that the evaluation of the overall level of achievement provided at this point should be about a paragraph long. A brief evaluation of this kind is particularly helpful in the case of longer reports, since the examiner's overall opinion on the quality of the dissertation can be clearly expressed here, before a more detailed analysis of the individual aspects of the dissertation is provided.]

The dissertation attempts an ambitious comparison of two Roman frontiers, the Antonine Wall and the Odenwald Limes, each with a series of discrete structures and linear elements. The principle original contribution and scholarship presented is that surrounding the geo-spatial analysis of each frontier and their comparison. It is clear that a considerable amount of work was invested in the creation of digital resource (mapping, generating rasters, etc) to support the various analytical techniques adopted. That so much ground was included in the study is impressive and to be applauded. Many of the observations and conclusions drawn from this analysis are of great interest. In some cases, further exploration of the implications of these observations and conclusions are desirable.

The dissertation also included a considerable amount of information about individual sites and structures to be found along the Antonine Wall and Odenwald Limes. While it is important that the candidate understand and master this material, its inclusion in the dissertation often seemed superfluous and did not contribute to answering the research questions that were flagged in 1.3.

In many ways, this extraneous information diluted the argumentation of the dissertation, and some extensive editing and expanded discussion would strengthen the dissertation.

III. Detailed evaluation of the dissertation and its individual aspects

[Please provide a detailed evaluation of the dissertation. Among other things, this evaluation should consider the criteria listed below (preferably providing examples from the text to illustrate all critical points). You can either organise your comments separately, according to the individual criteria, or formulate a longer overall summary addressing all the criteria at once.

1. Structure of the argument

The three primary research questions (Q) are raised in 1.3, namely: what were the builders trying to achieve (1a); what were the builders preventing (1b); what are the connections between the positioning and purpose of individual sites on each limes (2); and what did the Antonine Wall and Odenwald Limes have in common and what qualities were different (3).

Q1. This is an important and fundamental question, though in many cases this seems to have been the least critically challenged with new research, accepting the interpretation of previous scholars. A more critical approach is observed for the Antonine Wall, where cost path analysis was completed in a north-south direction – across the line of the Wall – that when also used in conjunction with slope analysis identifying the accessibility of locations of individual sites generated a confidence in the conclusion that the Antonine Wall did provide a screen against raiders as well as generate a long linear monument with good intervisibility between sites. The Odenwald Limes were also very successfully demonstrated to have excellent intervisibility between sites, and site accessibility was also assessed. However, there was no cost path analysis for someone transgressing this frontier cordon in an east-west direction. That, coupled with the references to the absence of local settlement rather weakens the contention that this frontier was intended to prevent raiding.

Q2. This question was addressed very successfully using a range of analyses in GIS, namely viewshed and slope, allowing for an excellent assessment of the intervisibility of sites, their accessibility (and by extension presumed roles and functions), and extended into an analysis of long-distance alignments that contributed to a critique of the planning and surveying of each frontier. The critique and reassessment of the Antonine Wall seemed more robust than that of the Odenwald Limes.

Q3. By completing the same geo-spatial analyses across both limes, the candidate was able to successfully identify common/shared features across both limes, and highlight significant differences. Given the excellent visual support provided, particularly in answering Q2 for each limes, more visual support could have been included to support discussion of this question, for example tables summarising key aspects of planning, intervisibility, accessibility, etc., with the Antonine Wall and the Odenwald Limes placed side-by-side. Similarly, maps or more

graphical representations of the candidate's conclusions would helpfully highlight the contrasts between the two frontiers that are indicated in the text.

Further specific questions and goals were identified for each frontier (2.3.2 for the Antonine Wall [p94] and 3.3.2 [p200]), which fit within the above-identified research questions, but also included specific questions relevant to each frontier. For example, with the Antonine Wall, the candidate considered if the forts and fortlets were distributed along the limes in a regular pattern.

Chapter 5 adds a new dimension to the research, drawing on the analyses of previous chapters, to investigate the operability of each limes. This chapter is, in many ways, the most important – as this is where the implications of the spatial analyses can be tested. However, much of the content of this chapter is a critical review of the literature that does not draw as extensively on the candidate's own analyses as it could. Some assumptions, about function or the size of garrisons, are subsumed into the discussion and carried through to the conclusions that could have been more critically evaluated and tested. Ideally, much of this chapter should have been presented earlier in the dissertation and critiqued, such that the important spatial analyses undertaken in chapters 2 and 3 could have further been articulated as contributing to an understanding of operability of each limes. In this regard, the concept of operability did not achieve its full potential relative to the research.

Overall, the three primary research questions were clearly articulated, addressed/researched with an appropriate methodology, and successfully answered. A secondary goal of the research, to reach a better understanding of operability, was not as successfully achieved, though the potential to do so is clear within the dissertation if some further thought and re-structuring of text were completed.

2. Formal aspects of the dissertation

The candidate consistently and appropriately used abbreviations and references. Transcription, where appropriate, has been well done. The language is generally grammatically correct (I note there are a few consistent examples of slightly awkward phrasing, but these did not hinder comprehension and are easily corrected with a copy editor in advance of any publication).

The dissertation is very well supported with visual information arising from geo-spatial analysis, and these are consistent in their presentation, as well as being presented in a visually simple fashion (e.g. no overly complex use of colour). Occasionally, some labelling was small (typically for the Odenwald viewshed maps), but this was not particularly problematic.

I would suggest that much of the text, particularly that which is primarily descriptive, could have been presented in a more tabular format.

3. Use of sources and/or material

The candidate has successfully engaged with primary and secondary sources, and all relevant sources have been used. The sources are used in a methodologically correct manner, as is the data collected. Care was taken to achieve consistency in terminology and expression across the source languages of the secondary sources and scholarship (primarily German and English) so that a consistency of expression and understanding was achieved in the dissertation.

The analyses in GIS appear to have been completed to a consistent standard – despite variability in some of the underlying cartographic data. The candidate has successfully demonstrated that all the individual steps for data analysis necessary for synthetic analysis were completed, i.e. viewshed and slope analyses were completed for nearly every site for each limes. These analyses were graphically demonstrated and frequently summarised in tables.

The data collection and analysis was completed in a rational manner to address the main research questions, and the conclusions presented follow from interrogation and assessment of the data collection and analysis.

4. Personal contribution to the subject

The candidate proposed good, critical research questions, and has completed data collection and analysis that has generated an interesting and important original contribution to scholarship. That is beyond doubt.

However, the dissertation could be enhanced with a different, stronger structure, moving some discussion (notably of limes operability in chapter 5) forward and removing considerable portions of text that are extraneous to the research questions and analysis of data (namely most of the content of 2.2 and 3.2). While the information presented in 2.2 and 3.2 is essential for the candidate to know and understand, and in many cases was excellently and succinctly presented given the volume of scholarship consulted, it did not directly contribute to the primary research questions (though some aspects of the information provided essential background information for chapter 5 and questions of operability).

To that extent, there seems an uncomfortable tension between demonstration of knowledge (content of 2.2 and 3.2) and the successful completion of new research. This is unnecessary, as the understanding of the underlying archaeological and cartographic data necessary to complete the spatial analyses is successfully indicated in the dissertation and direct engagement of the primary research questions.

IV. Questions for the author

Questions about intervisibility and operability:

Can you summarise how analysis of intervisibility is significant to a greater understanding of Roman frontiers?

Can you identify any dislocations or disagreements between site locations and intended function, and the actual function, as reflected by changes or additions to either of the limes? Or to put it state the question another way, does the assessment of operability agree with the analysis of intervisibility and alignments that relate to planned function and surveying of the limes?

To what extent does the data for intervisibility and accessibility support more localised functionality and support of installations (of either limes) rather than a comprehensive system? To state this question another way, is it a mistake to attempt to understand the Antonine Wall or Odenwald Limes as each being one unified system? Is the reality that each is a series of neighbouring or overlapping localised systems?

You have linked the equal distribution of soldiers along the frontiers with excellence in preventing raids in Chapters 5 and 6. On what basis can this correlation be claimed?

Questions in relation to the Antonine Wall:

Given the presumed mixed or multi-vexillation occupation of forts along the Antonine Wall, do we have a good enough understanding of the barracks to be able to make reasonable calculations of the number of soldiers present for a particular sector or length of the Wall?

Questions in relation to the Odenwald Limes:

It is commonly accepted that the Odenwald Limes was completely forested prior to the construction of the limes cordon. If that is the case, how did the Romans survey the limes to identify nodal locations? Did they clear the trees, then survey the course, identifying nodal locations? Or is the topography and likely visual aspects of it apparent to an observer despite the forestation?

Were any cost path analyses completed along E-W alignments for the Odenwald Limes? If not, can we reliably accept the 'internal planning' of the limes that you have proposed? (I note you offer some context in the beginning of Chapter 4 pertaining to availability of cartographic data.) The absence of settlement data does not exclude the necessity to understand how a barbarian or other enemy might traverse the land to enter or exit the provincial territory of the Roman Empire.

V. Conclusion

In the UK system of doctoral examination, I would assess this dissertation as a pass, subject to major corrections. These corrections, as I see it, are primarily in regard to the structure and presentation of data to enhance the argument of the dissertation. 'Major' (as opposed to 'minor') corrections is due to the sheer amount of words that would need to be removed or relocated, and not due to any insufficiency of the research itself. I acknowledge and appreciate that this is not part of your examination system. I offer this explanation as further context to my comments above.

Primarily, I would like to see more critical engagement with the notion of operability and functions of frontiers, both in the way in which it is structured/located within the dissertation, as well as how it has been engaged with (demonstrated via spatial analyses). That said, operability was a secondary aim of the research, and the three primary research questions were appropriately researched and assessed in an original and meaningful fashion.

Therefore, I recommend the submitted dissertation with the tentative grade of pass.

17.08.2020

Robert Collins