An Analysis of the Possible Routes of Xerxes and the Persian Army from Cappadocia to Phrygia in Herodotus’ Histories 7.26

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Abstract

In this project I sought to present a clear explanation of the interpretive problems raised by Herodotus 7.26, as well as possible solutions. I have addressed the arguments put forth by various classicists concerning the possible locations of Critalla as well as the different routes they believe Xerxes and his army followed from Cappadocia to Phrygia. After compiling these theories, I plotted the proposed courses using the GIS software, ArcGIS 9.1. I then used ArcGIS to analyze these routes and placements of Critalla to determine which one I found to be the most plausible. While some of the possible locations of Critalla and proposed routes appear to be better than others, none can at this point stand alone as authoritative.

First, I researched the possibilities for Xerxes’ course of travel presented in various commentaries and articles on Hdt. 7.26 and on the road system of ancient Asia Minor. Using ArcGIS, I created shapefiles for the Royal Road between Comana and Sardis, Ramsay’s routes as presented in H.G.M. and J.H.S. Macan’s proposed course, and the possible locations for Critalla. Latitude and Longitude coordinates for many of the sites in these shapefiles were gathered from a database provided by the Perseus Digital Library of Tufts University. To locate points not found in this database, I scanned two maps, one from volume two of Macan’s Historical Geography of Asia Minor and the other from Atlas of the Greek and Roman World in Antiquity. I projected these using the georeferencing tool, with known locations from the Persias database as control points. Next, I implemented the Spatial Analyst extension to perform viewshed analysis using digital elevation data (DEM). The DEM was 3-arc second (90 meter) Shuttle Radar Topography Mission (SRTM) data purchased from the USGS. The viewshed analysis determines which areas are visible from a specified location. I performed this analysis with each proposed location of Critalla as well as with Ramsay’s northern and southern courses and Macan’s course. For the line shapefiles, I used the points on each of these routes as the observation points, rather than the entire line. The results of this analysis combined with drainage network data and topographical data gave a clearer picture of the ease of travel possible for an army on each of these routes.

Methods

While GIS analyses signify the southern routes as better suited to travel, these alone are not enough to discredit the authority of Herodotus. It is possible that Xerxes, for whatever reason, could have taken a route that worked, but was not the best one available. If one argues that Xerxes took a southern route, which would not cross the Halys River, one must explain why Herodotus included this detail in his account. Some argue that Herodotus simply added this detail to give more color to a section of the journey about which he knew very little. Also, other sections of Herodotus’ Historiae also suggest that he did not understand that the Halys flows in a “U” shape, but rather thought that it simply flowed south to north and that therefore all east-west routes across Asia Minor must have at some point crossed it. Even though I will argue that the southern courses provide better routes, it is not possible at this point to determine with any certainty which path Xerxes and his army followed.

Possible Locations of Critalla

The small squares to the right represent the results of the viewshed analyses performed for each of the proposed locations of Critalla overlaying the DEM and drainage network data. All of the locations appear to have sufficient access to water and are comparably accessible, however the two southern locations, the plains of Tyana and Kybitara, provide a much larger area in which to muster troops. Similarly, these two points offer a much greater span of visibility, making them good choices for gathering an army if it followed a southern path to Celaenae. Caesarea Mazaca has the advantage of being located on the Royal Road, however, if one argues that Xerxes did not follow this road, then this location is of little benefit.

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Further Study

In the future I would like to expand this project in the following ways:
- Perform viewshed analyses on the line shapefiles themselves and not just at key observations points
- Use the buffering tool to analyze the accessibility to water along each route
- Perform similar analyses on the various proposed courses of the Royal Road, as well as other important roads and trade routes in ancient Asia Minor
- Explore the functions of the 3D analyst extension, possibly creating a better visual representation of the topography and simulating fly-overs through each of the proposed routes.

Partial Bibliography

- An Analysis of the Possible Routes of Xerxes and the Persian Army from Cappadocia to Phrygia in Herodotus’ Histories 7.26

Results