The Max Kämper Map of Mammoth Cave: An NPS Centennial Restoration

Tres Seymour
Visual Information Specialist, Mammoth Cave National Park, tres_seymour@nps.gov

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1 Visual Information Specialist, Mammoth Cave National Park

Introduction
German engineer Max Kämper’s 1909 map of Mammoth Cave was a major achievement in subterranean cartography and continues to find use today as a guide to the famed labyrinth and as a touchstone for modern cave survey in the Mammoth Cave system. Kämper’s original, however, has deteriorated over time and with frequent exposure due to the needs of researchers, and some of its features are on the verge of disappearing. The green and blue inks, in particular, are fading almost to the point of illegibility, threatening to take Kämper’s knowledge with them. This discussion documents the five-year effort, from 2011 to 2016 to digitally “remaster” the Max Kämper map as a project to both provide researchers unprecedented access to the map’s contents, and at the same time preserve both the knowledge of the contents and protect the fabric of the original for future generations – an outcome that defines the purpose of the National Park Service as it celebrates its Centennial.

Methodology
Illustration and exposition will include analysis of the current state of the original, choice and rationale of methods for digital restoration, and techniques used to ensure the greatest possible fidelity to the original document. The methodology was based primarily on principles of scientific analysis related to the results of digital imaging of the original, and the information that could be gleaned from computer processing of that imaging to “turn back the clock” on some of the worst depredations of time on paper and ink. At the same moment, however, consideration was given to aesthetic and human factors to ensure that the restoration retained the sense and spirit of a document created by the hand of a remarkable individual. The explication of the methods used rationalizes the attempt at balance between science and art.

Findings and Recommendations
While this presentation is largely intended as documentary to the restoration of the map, it does include commentary on discoveries made during restoration, and recommendations for the future. Post-processing of digital map scans revealed a number of unexpected map details that give insight into Kämper’s cartographic methods, his handwriting, and other matters. These are included in the map data as an “Anomaly Layer” for researchers to comb for information.

In light of the wealth of information the restoration and the original scan data provides to researchers, as well as the mandates of NPS responsibilities under the Organic Act, this work also takes a position on the disposition of the original document from this point going forward and makes a formal recommendation to Park Management.