

Stone Paper: Examination of Géricault's *Lion Devouring a Horse* Lithographic Printing Matrix

As lithography gained popularity during the beginning of the 19th century, Alois Senefelder, the inventor of lithography, marketed stone paper as a cheaper, more accessible alternative to the cumbersome limestones most commonly used for printing. Between 1820 and 1821, Théodore Géricault, one of the early proponents of lithography, experimented with the use of stone paper. The *Lion Devouring a Horse* stone paper matrix is in the collection of the Harvard Art Museums and was the focus of this study. Stone paper is a lithographic printing matrix made of a heavyweight paper prepared with a special coating. Like other lithographic processes, the image is drawn on the prepared surface with a greasy material and the surface is then processed and printed from. The stone paper matrix for *Lion Devouring a Horse* sustained numerous losses to the coating, and during printing the losses in the image area transferred to the prints as voids. Through examination and comparison between the stone paper matrix and various impressions of the print, it is evident that some prints exhibit more voids than others. This variation is an indication that the coating deteriorated as the impressions were being printed and these voids helped build a chronology of this coating deterioration. Earlier impressions of prints are typically considered to have stronger impression quality but based on the developed chronology, earlier impressions of *Lion Devouring a Horse* do not necessarily relate to stronger impressions.

Senefelder described stone paper coatings as compositions of clay, chalk, and metallic oxides. X-ray fluorescence analysis of the stone paper coating revealed only the presence of lead. Small samples were taken for analysis by Fourier transform infrared spectroscopy, gas chromatography-mass spectrometry, scanning electron microscopy with energy dispersive analysis, and matrix assisted laser desorption/ionization. Analysis confirmed that the material was dominated by lead

white (basic lead carbonate) combined with a drying oil binder, casein, and gum. Lead soaps are thought to be present within the medium.

The results of these careful comparisons, the instrumental analysis, and tests carried out on modern examples of stone paper illustrate the practical challenges Géricault faced when printing from stone papers and the reason for their limited commercial success.

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