

THIS BEAUTIFUL ROACH, a traditional American Indian headdress worn by men, is made of natural white porcupine quills and contrasting dyed-red horsehair, further embellished with a sacred eagle feather. It may be one of the oldest American Indian headdresses in the Minnesota Historical Society's collections. Dating from about 1855, it poses several questions to curators and conservators: Is it in original condition or was it later repaired or enlarged? And if so, did an American Indian execute the repair?

Analysis using a stereomicroscope documented that the roach was repaired at least once. The three outermost rows of undyed quills are lighter in color and cleaner than the interior ones. Also, these brighter quills are secured to the roach with a thicker cotton cord that is lighter in color than the brown thread on the interior. This difference in materials indicates that the roach was repaired or enlarged.

The twining method used on the newer, outer rows matches that used in the older, interior area, pointing to a worker with traditional skills. Large, coarse stitches made with a thick black thread in blatant disregard of the original construction, however, indicate someone without traditional skills. So, there appear to be two stages of repair, and all we can know for certain is that either an American Indian or someone with knowledge of traditional techniques at one time worked on this roach.

And was the red dye synthetic or natural? The stereomicroscope images show that the red on the outer edge is brighter and more orange than the darker, more purple horsehair in the interior. Red synthetic dye was invented in 1858, so if the older horsehair was dyed with a synthetic, we could be certain that this roach was fabricated after 1858.

Physical samples of both red dyes were taken, placed in individual zip-lock bags, and sent out for Fourier Transform Infrared Spectroscopy (FTIR) analysis, which would separate and identify the chemical compounds. We expected that the compounds in each sample would be different and thus help us identify whether they were natural or synthetic. The results were startling: the compounds were identical. How could two different reds yield exactly the same results? As is often the case, a basic question—"Are those red dyes synthetic or natural?"—resulted in more questions and intrigue. We will continue to pursue the story of this roach, its materials, and its history.

—Ann Frisina, textile conservator





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