



D20 Cartridge Case Class Characteristics of Rotating Multi-Barrel Firearm: The Gatling Gun

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After attending this presentation, attendees will appreciate the fact that historic firearms have definable class characteristics. The class and individual characteristics are preserved on cartridge cases and bullets that can be very old, and non-judicial situations provide firearm identification theory and methods validation opportunities.

Firearm identification procedures are well established and used routinely in medic-legal situations. This presentation will impact the forensic community and/or humanity by demonstrating how studies of historic firearms can be used as additional validation opportunities of firearm identification theory and methods. In addition, class characteristic data from historic firearms provides archaeologists and others studying historic battlefields more data sets to enhance their interpretation opportunities of past conflict.

The Gatling gun is one of mid-19th century's most iconic firearms. Sold world-wide it saw action in many places around the globe in the late 1800s. Examination of several Gatling guns has identified a series of class characteristics that are transferred to cartridge cases and bullets during firing. While the Gatling gun is unlikely to be used in crime today, determining the class characteristics for this historic weapon is an interesting validation exercise in pattern transfer theory, and a valuable data set for battlefield archaeology use where Gatling guns were employed. Thirty-nine fired .50-70-caliber cartridge cases, one misfired round, and six .50-caliber bullets were submitted for analysis from an 1874 Red River War battlefield where Cheyenne warriors attempted to protect their families from an Army attack led by General Nelson A. Miles. This west Texas site represents the first recorded use of a Gatling gun in combat in the United States since the Civil War. The Gatling gun was used in combat by the U.S. Army only twice more before the Spanish-Cuban-American War of 1898. The .50-70 caliber bullets and cartridge cases submitted for firearms identifications analysis from 41AM10 were fired in a Gatling gun. The land and groove striations on the bullets, and the firing pin and extractor marks on the fired cartridge cases are consistent with barrel rifling, firing pins, and extractor characteristics found on surviving Gatling guns. This firearms identification analysis is the first time Gatling guns have been identified in an archeological context.

Historic, Firearms, Class Characteristics