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9mm Smith & Wesson Ejectors

A Technical Report By Evan Thompson and Rick Wyant, Washington State Patrol Crime Laboratory, Marysville, Washington

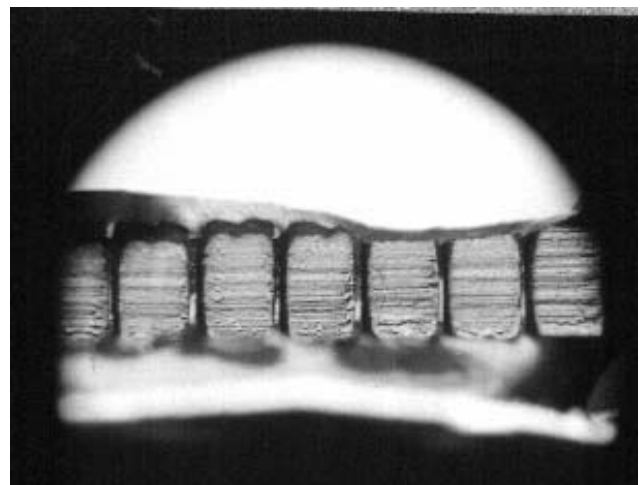
Key Word: Ejectors, class characteristics, family and individual characteristics

ABSTRACT

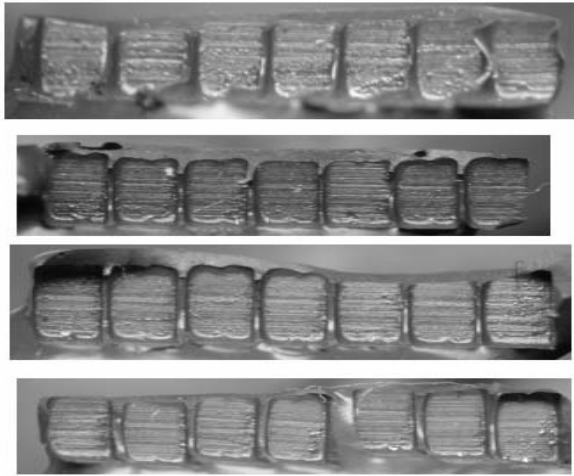
While attending a Smith & Wesson semiautomatic pistol armorer's school, an eyeloop examination of twenty-eight factory new ejectors revealed what appeared to be a number of both class and family characteristics.

INTRODUCTION

On a regular basis, the Washington State Patrol sends its firearm/toolmark examiners to continuing education. While at a recent Smith & Wesson semiautomatic pistol armorer's course, the phase of instruction came to how to install new ejectors. The firearms supplied to the class were 9mm Luger, model 5906, stainless steel semiautomatic pistols. After this phase of instruction was over, I noted a stack of twenty-eight factory new stainless steel ejectors. Using a guide pin, seven were strung together and examined using an eye-loop. There were what appeared to be a number of matching class and possibly individual characteristics present between some of the ejectors.

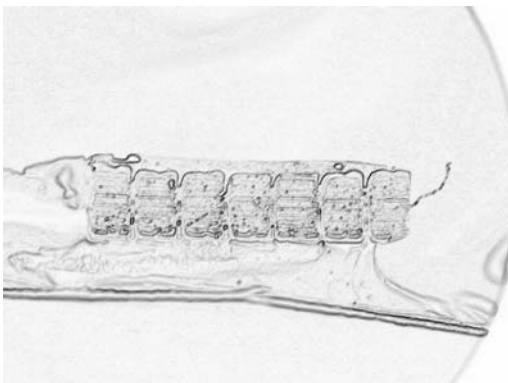


Microsil casts were made of the twenty-eight ejectors and taken back to the laboratory for further examination under our comparison microscope. Digital photographs were taken of the four Microsil casts, each with seven ejectors per cast, by placing the lens of the Nikon Coolpix 950 digital camera on the eyepiece of the microscope.



The Microsil casts revealed heavy striations that carried over from ejector to ejector, along with fine individual characteristics which were substantially different. A call to Don Ziaenzio of the Smith & Wesson factory [1-800-331-0852] revealed that the ejectors are stamped from bar stock and that the face of each ejector, which comes into contact with the rim of the cartridge case upon ejection, is **ground** to a specific angle to ensure proper ejection. As some of you may recall, Mr. Ziaenzio taught the armorer's courses for Smith & Wesson for over eighteen years.

As can be seen from the photographs, there are a number of heavy striations and contours that **carry over** from ejector to ejector. It would have been interesting to collect the fired cartridge cases ejected by all the twenty-eight ejectors, but time constraints prevented that. [Another great opportunity for an internship.] Those firearm/toolmark examiners in attendance viewed the Microsil casts and agreed that more than just an ejector toolmark must be used before making an identification to a particular firearm.



Consecutively Made Cartridge Cases

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Key Words: Consecutive, cartridge case, bunter marks, EDM, headstamps, individual and family characteristics

Past AFTE articles (“Bunters Marks and What Do They Mean?” By Ronald Dodson & Joseph Masson, AFTE Journal Volume 29 #1, Winter Journal 97’ and “The Formation and Persistence in the Cartridge Casehead Forming Process, by Bill Matty AFTE Journal Volume 15 #1, 83’, page 108) which have focused on the individuality of bunter marks.

To build on that information, the opportunity to collect thirty consecutively made rimfire cartridge cases, ten from three bunters from the manufacturing facility of CCI/Blount Corporation located in Lewiston, Idaho. These bunters are made by EDM (electronic discharge machining) then placed shoulder to shoulder as the material is passed underneath. The bunter's life can be anywhere between one to ten thousand. The ganged bunters move down in unison striking the pre-shaped rimfire cartridge cases. Chief Engineer Bruce Young of CCI collected the thirty samples from the discharge chute, for microscopic examination.

