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ABSTRACTS

1. Measuring Relative Pen Pressure to Authenticate Signatures
Colin Estabrooks

This study exploits the capacity of the confocal laser scanning microscope (CLSM) to accurately measure the z-axis of pen pressure indentations in paper. Depth values measured at various sites of signatures are compared to the maximum depth of each signature. By measuring these “relative” depth values of multiple genuine signatures, a writer’s master pattern of pen pressure emphasis can be uniquely portrayed in a quantified manner. “Relative” depth values of simulated and traced signatures are similarly measured and are generally found to be clearly distinguishable from genuine signatures.

2. The Effects of Latent Print Processing on Ballpoint Pen Inks
Richard A. Horton and Lyle C. Shaver

Latent print (LP) processing and subsequent examination of twenty-five ballpoint inks revealed significant changes in ultraviolet fluorescence (UVF), infrared luminescence (IRL) and infrared reflectance (IRR) that could result in the incorrect identification or elimination of an ink when addressing alterations, multiple authorship, or comparing a specific pen to questioned entries. The inks were processed with three common ninhydrin solutions, then processed with physical developer. Subsequent examination revealed frequent dequenching of UVF and IRL, as well as changes to IRR properties and visible color. Thin-Layer Chromatography (TLC) plates were run for fifteen inks, but did not reveal any significant changes to inks after LP processing. Sometimes there were little or no visible signs of LP processing, suggesting police departments should notify examiners if they process documents for LPs prior to submission.

3. Choosing Cascading Beads for the Electrostatic Detection Apparatus
Bonnie L. Beal

The Electrostatic Detection Apparatus cascade developer beads become pitted or roughed up over time and lose the ability to attract toner, thereby lessening the effectiveness of the cascading beads. After viewing the Electrostatic Detection Apparatus beads under a microscope it was decided to replace them with newer beads. At this time an experiment was undertaken using two different size beads. Foster and Freeman beads and sandblasting beads were used with the latter being the smaller of the two types of beads. The smaller sandblasting beads developed the indented images better.

4. Common Chemicals for Common Criminals: Check Washing Again
Gary Licht

The removal of several types of pen inks from personal checks is a simple process for the person who is willing to acquire checks that have been legitimately written. Using checks that have been written by the check owner provides the check washer with a model signature for each stolen check that is to be washed and rewritten. This can be confusing to the check owner when the check is finally processed at the home bank, since many bank personnel and customers can’t recognize a traced signature as non-genuine. The crime involves passing bad checks that have been stolen from places such as home mailboxes and United States Postal Service mailboxes. This paper will discuss the parameters of washing ink from checks with common chemicals found in paint stores, hardware stores, and automotive parts stores. Some of these parameters are; what inks do and don’t wash off without destroying the check, what chemicals may be used, how the new signatures are created, and what a questioned document examiner may find in the finished product.

5. The Examination and Demonstration of the Presence of Paper Fiber Patterns on Carbon Film Ribbons
Using the Ken-A-Vision® Video Flex® Digital Camera
Brian B. Carney and Derek L. Hammond

Forensic Document Examiners (FDEs) often utilize various instruments to assist them in the examination of questioned documents and to prepare demonstrative charts to illustrate their findings. Unfortunately, many of these instruments are uneconomical and are limited in their capabilities in that they can only be used for a single purpose. Recently, a more versatile instrument, the Ken-A-Vision Video Flex digital camera, has become available and is finding its way into the arsenal of the forensic scientist. Utilizing the Video Flex, the authors tested a new method for the examination and demonstration of paper fiber patterns on carbon film ribbons. This device not only assisted the authors in their examinations, but also provided a means to easily demonstrate the subsequent findings.