



Criminalistics Section – 2008

B170 Trace Evidence as Highly Probative Associative Evidence

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The goal of this presentation is to stimulate thinking and discussion about value and universality of trace evidence.

By stimulating thinking and discussion about the value of trace evidence, this presentation will impact the forensic science community by providing a wider appreciation of trace evidence so that it can be used more widely and effectively to assure the use of dispassionate science in the resolution of criminal and civil matters.

The term trace evidence is used to encompass and describe an extraordinarily broad category of physical evidence. An unrivaled breadth of applicability accompanies this extraordinary breadth of evidence types. In fact, no other evidence category can even approach trace evidence in this regard. In spite of its great potential, trace evidence is underappreciated, misunderstood, and grossly underutilized. The reasons for this disparity are varied and manifold. Prominent among these are the complexity of trace evidence casework, the difficulty in understanding it, the perception that trace evidence analyses are not cost-effective, and the difficulty of becoming an accomplished trace evidence scientist. All of this has led to a reduction in the allocation of resources relative to that for more easily understood evidence types.

Trace evidence is often viewed too narrowly as being comprised exclusively of discrete microscopic evidence types, such as hairs and fibers. This is shortsighted. More generally, trace evidence can be anything that is produced as the result of an interaction among physical entities. Material may be transferred or altered, and/or a useful pattern may be produced. The permutations are innumerable. Information concerning details of the interaction(s) is encoded in the process of producing the resulting physical evidence record. Decoding the information by an experienced trace evidence scientist or criminalist can lead to an understanding of the event of concern. In this way trace evidence can provide answers to the interrogatives *what, how, when, where, and why* as well as *who* (e.g., what happened? how did it happen? etc.). In many case contexts, this can make it far more valuable and versatile than associative evidence that is viewed as only addressing the question *who*? It is important that this broader application and contribution of trace evidence be understood. However, along with this there should be an increased awareness of the potential of trace evidence as extraordinarily powerful associative evidence. Case examples will be used to illustrate the point.

Trace Evidence, Associative Evidence, Individualization