



### B118 Future Crime Labs Without Trace Evidence—Dysfunctional Dystopias

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After attending this presentation, attendees will have increased awareness of the nature and importance of trace evidence.

The term *trace evidence* doesn't refer to a single technique or technology. It is a misunderstood term. Trace evidence is an approach to problem solving as much as it is an evidence category. The approach has broad applicability to an extraordinary range of problems that arise in criminalistics. This fact is not appreciated by people whose knowledge of forensic science is derived from portrayals in the media or those of the entertainment industry. Surprisingly, to some extent this is true of people employed in forensic science. Trace evidence sections in some laboratories have been downsized as more resources are being invested in DNA typing technology. It is easy for layman and scientist alike to become enamored of high tech tools. We need to remind ourselves that tools are rarely the solution. They need to be applied knowledgeably and intelligently. Carefully framed scientific questions need to be posed before the tools can be applied with maximum effect. Hopefully, predictions of the demise of trace evidence are premature. Trace evidence is an essential contributor to case solutions in criminalistics and cannot be allowed to wither. Trace evidence is inextricably intertwined with the essence of criminalistics. It is not much of an exaggeration to assert that "trace evidence *is* criminalistics." Trace evidence approaches and assessments may define scientific problems in ways that allow the meaningful application of techniques or tools such as elemental analysis or DNA typing.

Tasks in criminalistics cannot be subdivided into a finite array of predefined problems. Every case is different. The approach cannot be selected from a reference book of methods. It cannot be known *a priori*.

Trace evidence approaches to the solution of casework problems are essential to the future of criminalistics. If we lose sight of this point, criminalistics could evolve to the extent where it is eviscerated of its essence. It would be unrecognizable. It would cease to be science. In this "*Brave New World*" crime laboratories would be composed solely of technicians, instruments, and quality control managers. Investigators would bring in evidence and select from a brightly colored McDonald's-type menu of available analyses. In this *paint-by-the-numbers approach*, the investigator would be making physical evidence assessments of sorts and the laboratory workers, I am reluctant to call them criminalists, would carry out the prescribed analyses. The laboratory workers would be mere technicians while the investigators, irrespective of their academic qualifications would be cast in the role of scientists. Some benefits might accrue. The item throughput might increase, and the resulting error rates might be vanishingly small, but much of the work would be of marginal value, or even irrelevant, and case solutions would suffer. The resulting lab system might be good at *doing the job right* but it would not be *doing the right job*. Sadly, perhaps this dystopia is closer than we think. Action must be taken to reverse the drift in this direction. The science in criminalistics is not embodied in carrying out tests and operating computerized instruments. The science is in the all-important front end assessment of the physical evidence that drives the selection of the analyses to be performed and in the critical back end integration and interpretation of the results of these tests that gives them meaning.

#### Trace Evidence, Criminalistics, Dysfunctional Dystopias