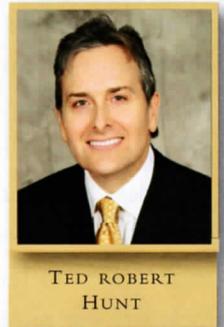


Context and Consequences: DNA Testing Guidelines for Prosecutors



BY TED ROBERT HUNT

A CRIME IS COMMITTED. An investigation ensues and items of potential evidentiary value are collected. Charges are brought and the prosecution begins. Now, how to effectively distinguish evidence from artifact? One question American prosecutors commonly face is whether or not a collected item¹ has sufficient probative value to warrant a request for DNA analysis. The scope of this decision involves a host of related considerations: Who decides? When? According to what criteria? Depending on the jurisdiction, the answers widely vary. No general guidelines currently exist to aid prosecutors who find themselves grappling with these difficult questions.

The purpose of this article is to clearly identify the challenges prosecutors face with post-charging DNA testing decisions and to offer guidelines for determining if an item should be—or should not be—tested. These guidelines are maximized by a collaborative

inter-agency approach that closely examines the evidentiary context or *situational significance* of each collected item before a testing decision is made.

CIRCUMSTANTIAL EVIDENCE AND DNA

Circumstantial evidence does not provide an immediate answer to the question of whether a fact of consequence exists.² Evidence is circumstantially relevant “if it can serve as a step in a reasoning process that leads to establishing the existence or nonexistence of the ultimate fact of consequence.”³ With circumstantial evidence, even if the sponsoring witness is believed, the jury must still decide whether to draw one or more inferences before concluding that a fact of consequence exists.⁴

DNA is circumstantial evidence. Because of this fact, it is critically important to closely examine the

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pre-analytical evidentiary context of all items, articles, or substances collected by crime scene investigators. Only by seeking to test items with a substantial degree of pre-analytical contextual significance can prosecutors narrow the range of reasonable inferences available from a detected profile. When conducting this inquiry, a prosecutor should ask himself or herself: Does the item, article, or substance—considering its contextual constellation—tell a story that would limit the scope of reasonable explanations available to rebut an incriminating profile?

EVIDENTIARY CONTEXT

Context may be defined as “that which surrounds and gives meaning to, something else.” An item’s context is both an aspect of its materiality (the connection between issues and evidence) and its probative value (the amplitude of the evidence). In contemporary discussions about forensic DNA evidence, the concept of evidentiary context is rarely mentioned. Instead, attention is almost exclusively focused on testing *results* and profile population frequencies rather than the factual significance of the item from which those results were derived. This narrow, profile-based focus can lead to ill-advised testing decisions based on fallacious reasoning.

Avoiding Fallacious Reasoning

The *post hoc* logical fallacy occurs when it is assumed that because one event happened after the other (the collected item was discovered after the crime occurred), the first event (the crime) caused the second (the transfer of the discovered item to the scene).⁶ Applied to the investigative context, this fallacy is committed when one assumes that merely because an item was collected by crime scene investigators, it necessarily follows that the item was transferred to the scene *as a result of* the offense under investigation. If a DNA profile is later detected from the recovered item, it can lead to the commission of a second fallacy: *begging the question* (A implies B, and A is only valid because B is assumed).⁷ *Evidentiary question begging*, in

turn, occurs if one attributes probative value to a forensic test result when assuming, *without establishing*, that the item from which that result was derived has contextual probative value.

The United States Supreme Court seemed to fall prey to both of these fallacies in *District Attorney’s Office for the Third Judicial District v. Osborne*.⁸ The *Osborne* Court completely failed to address the preliminary question of whether the forensic items at issue were contextually probative when considering whether a state prisoner had a free-standing federal due process right to acquire the government’s evidence in a post-conviction DNA proceeding. This omission was startling in light of the fact that justices in both the majority and the dissent seemed to accept the premise that

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post-conviction DNA testing had the ability to conclusively establish Osborne’s guilt or innocence.⁹

In his concurring opinion, Justice Alito also failed to address whether the questioned evidence was so contextually significant that an exclusionary DNA result would exonerate Osborne.¹⁰ Rather than confronting this critical question, he attempted to deflect the dissent’s argument that post-conviction testing would be outcome-determinative by instead focusing on the inherent limitations of DNA technology. Those limitations included the difficulty of interpreting mixtures, equipment malfunctions, human error, and sample complications such as contamination, degradation, and low starting template.¹¹

Justice Alito’s failure to discuss evidentiary context in *Osborne* was particularly glaring given the fact that the victim was a prostitute, and the evidence was

described by the majority as “some pubic hairs found at the scene of the crime.”¹² Absent was any analysis of whether—given the victim’s profession and the contextual elements surrounding the hairs at the scene—an *exclusionary* DNA result would categorically support an *exculpatory* inference. Unfortunately, the answer to that question appeared to be erroneously assumed.

The Concept of Context

The concept of evidentiary context is important to many aspects of the criminal justice system. These include: crime scene investigation; laboratory analysis; charging decisions; the prosecution’s theory; the defense theory; the logical relevance or remoteness of a crime scene item; the sufficiency of the evidence to support a verdict; jury inferences; and post-conviction

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DNA testing. The focus of this article, however, is on the contextual considerations for determining which, if any, item(s) recovered at a crime scene should undergo DNA analysis *after* charges are filed.

Levels of Contextual Significance

Determining the materiality and probative value of a crime scene item involves analyzing three separate but interrelated levels of significance: (1) an item’s intrinsic attributes and its relationship to the surrounding crime scene environment; (2) factual assertions, denials, and omissions made *about the item* by the victim, suspect, and witnesses; and (3) the analytical results, expert con-

clusions, and statistical weight attached to the DNA profile(s) developed from that item.

Each of the three levels is a separate but interrelated component of an item’s foundational footing. Each level builds upon the next as evidentiary meaning is either enhanced or diminished. As such, contextual information provided by Level III has little meaning in the absence of information afforded by Levels I or II. Accordingly, before a prosecutor requests DNA analysis of a crime scene item, it *must* possess significance at one of these two preliminary levels. The failure to consider Level I and II information prior to initiating DNA analysis fallaciously begs the evidentiary question.

Level I

The starting point for deciding whether a crime scene item should undergo DNA analysis is evaluating it against the fifteen Level I elements of contextual significance.

The first element is the **Environment** in which a questioned item was discovered. This analysis examines whether the environment was open or closed. An open environment is one to which the public has general access. Examples of open environments include parks, streets, and public areas inside open businesses. A closed environment is any area not regularly accessible to the general public or to particular persons. Examples of closed, or partially closed, environments include private homes, office settings, and businesses or restricted-access clubs.

The second element is whether the questioned item appears (or is known to be) either **Native or Foreign** to its crime scene environment. An item determined to be foreign to its environment has presumptively high probative value. On the other hand, if the item is native to its environment, it must be determined whether or not it was used during the commission of the crime. This can be accomplished by analyzing the additional Level I elements. If it is determined that the item is native to the scene—but was nevertheless utilized during the crime—its contextual significance will be enhanced.

(Continued on page 34)

The third element is the **Relation** of the item—either direct or circumstantial—to persons, places, items, articles, or substances at the scene. This analysis focuses on the nexus, connection, or correspondence between the questioned item and people, places, or things. This element is associational, rather than spatial in nature. For example, a roll of duct tape found inside a dumpster far from a crime scene—but whose torn edges match those of a section of tape used to bind the victim—supports a relational inference to the crime, despite its lack of proximity to the scene.

The fourth element is the intrinsic **Nature** of the item. This inquiry attempts to identify the item's distinct biological features for classification as semen, blood, tissue, saliva, hair, skin cells, etc. The positive—or even presumptive—biological identification of an item before DNA analysis is performed can result in a high degree of contextual significance. This may substantially restrict the range of *reasonable* inferences regarding the mechanism by which the item could have been deposited. For example, far fewer explanations can account for the presence of semen or blood at a crime scene than is the case for hair or skin cells. Determining the nature of an item can tremendously enhance its contextual significance.

The fifth element is the item's **Form**. This analysis focuses on the shape, configuration, or impression of the item at a crime scene. For example, it would surely be more important to collect a single patent bloody fingerprint at a homicide scene than the numerous other potentially available blood samples. This is because the form or impression of the print can potentially associate an identifiable suspect with the victim's blood at the scene. Hence, its value to the investigation would greatly outweigh that of other blood samples having no form or impression.

The sixth element is the item's **Pattern**. Pattern analysis is closely related to, but distinct from, an item's form. Pattern analysis focuses on the way in which an item or separate fractions of the item have been spatially arranged or dispersed at a crime scene. An example of patterned evidence is blood spatter. Depending on its pattern, the velocity by which certain portions of the spatter were transferred may be determined.

This can help investigators determine which items are most probative to collect and analyze.

The seventh element examines the **Location** where an item was discovered. This evaluation considers the physical area in which the item was found at a crime scene. For example, a cigarette butt located near the point of entry inside a burglarized residence would be much more contextually significant than if the same butt had been discovered in the front yard. The cigarette butt's location near the point of entry supports a strong inference that it may be related to the crime. However, only a weak inferential nexus to the crime follows from its location in the front yard, since it

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could have easily been discarded there by non-criminal activity.

The eighth element is **Proximity**—the relative distance of an item from other articles, substances, or points of interest at a crime scene. For example, a knife located next to a stabbing victim supports an inference that it was used during the crime. Conversely, if the same knife was discovered more remotely from the victim's body, the inference of association with the crime—absent additional information—is weaker.

The ninth element is the **Position** of the item relative to its surroundings. This analysis focuses on the item's angle, mode, stance, or posture at a crime scene. For example, an open window or door at a crime scene supports an inference that the intruder may have touched or otherwise manipulated the latch or handle during entry. This observation might lead an investiga-

tor to collect surface area swabs of these mechanisms for *touch* DNA analysis.

The tenth element is the **Direction/Orientation** of an item at a crime scene. This analysis focuses on the item's tendency, inclination, or disposition relative to a fixed point or place. For example, the directionality of blood spatter may support an inference that a violent crime was committed at a certain location and/or in a particular manner. Thus, the collection and testing of select stains sharing a distinct direction or orientation relative to the item at-large may prove to be highly probative.

The eleventh element is the item's **Portability**. This analysis focuses on the potential mechanisms and relative ease by which an item may be transferred from one location to another. For example, depending on the theory of defense, it may be easier to explain the transfer of a suspect's hair to a crime scene than would be the case with his semen. Similarly, the circumstances and mechanisms by which blood can be transferred to a scene are more limited than those available for the transfer of skin cells.

The twelfth element is **Action**—an inference of movement, force, or velocity upon the item or the substrate from which it was collected. For example, a blood stain recovered from a piece of shattered glass inside the point of entry of a burglarized home supports a strong inference that blood was transferred by the intruder during a violent forced entry.

The thirteenth element is an item's relative degree of **Rarity**. This can either refer to the fact that the item is not commonly encountered, or that its presence at a particular crime scene is rare or unique among the items present. For example, a bloody tread pattern from a pair of Bruno Magli shoes might support a strong connection between the wearer of such relatively uncommon shoes and the victim's death. Alternatively, DNA detected from a single dark hair discovered in a clump of white fibers on a murder victim's body may be the *needle in a haystack* that can help win the case.

The fourteenth element examines the **Quantity** of a recovered item. This analysis focuses on the relative degree of abundance or rarity of a crime scene item.

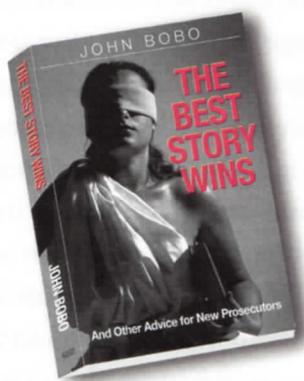
For example, a clump of hair located in a murder victim's hand may be more significant than the discovery of a single strand. Similarly, a pool of blood or just a single drop—depending on case circumstances—may have exceptional probative value.

The fifteenth and final Level I contextual element is an item's **Condition and Quality**. This analysis considers how long a given item may have been at a scene prior to discovery. This determination is largely based on the physical integrity and outward appearance of the item. For example, the crushed, weathered, and rusted condition of a shell casing near a fallen shooting victim on a city street indicates that it may have been fired long before the occurrence of the crime under investigation. On the other hand, a shell casing in pristine and unblemished condition at the same location provides much stronger support for its likely connection to the crime. Likewise, wet blood or semen stains at a crime scene support a stronger infer-

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ence of recent transfer than if the stains were dried and degraded.

Level II

The second level of contextual significance concerns the assertions, omissions, and denials made by victims, witnesses, and suspects about a questioned crime scene item. A victim's statement about an otherwise common or insignificant item at a scene can immediately *transform* it into *evidence*. Likewise, a witness's explanation that an item with ostensible Level I significance has no connection to the case may relegate its status to that of an insignificant crime scene artifact.

For example, a statement by a non-smoking burglary victim that a cigarette butt found in her kitchen sink was not present before the break-in immediately transforms it into evidence. Investigators would have probably never collected the item absent the victim's statement. By the same token, a suspect's assertion that he has never had physical contact with the woman he is accused of raping dramatically enhances the contextual significance of his DNA from semen recovered from her body. Conversely, if the suspect claimed that he recently had consensual sex with the victim, the contextual value of his DNA profile will diminish.

Because of the importance of Level II information, it is critical that prosecutors urge detectives to question victims and witnesses about potentially significant evidence recovered at crime scenes—and not to focus solely on topics designed to identify a suspect. If possible, this should occur while victims/witnesses are present at the scene and immediately available to investigators. However, even if questioning occurs at the station house, detectives can relay item-specific information to crime scene investigators. Likewise, questions by scene investigators about the significance of items can be relayed to victims by detectives. Victims and witnesses can immediately help to confirm or dispel the Level I significance of questioned crime scene items, providing investigators with critical information about which items should be processed and/or collected.

It is equally important that detectives strategically

interview suspects about crime scene items. As with victims and witnesses, a suspect's assertions, omissions,

A victim's statement about an otherwise common or insignificant item at a scene can immediately transform it into evidence.

or denials about such items may create, elevate, or eliminate their contextual significance and consequent value for DNA analysis. On the other hand, when detectives are in possession of highly incriminating evidence prior to questioning a suspect—such as contextually damning DNA evidence—it may be just as important to *not* disclose its existence. Rather, they should seek to elicit denials from the suspect that would make its presence at the scene—or on the victim—highly probative of the suspect's guilt *because of* that denial.

Level III

The third level of contextual significance concerns the DNA testing results, analytical conclusions drawn, and statistical weight (if any) of a match. All crime scene items have a certain starting quantum of pre-analytical contextual significance (Level I). Information about a recovered item can further enhance or diminish its contextual standing (Level II). A DNA test result, in conjunction with the analyst's interpretation of those results (and statistical weight, in the case of a match), provides the item with its third level of contextual significance. In other words, a DNA match to a known suspect in conjunction with a rare population frequency can be the third *layer* on the contextual *cake* that makes the presence of the item extremely damning.

However, it must be remembered that any DNA profile is inexorably wedded to the pre-existing con-

textual significance (or lack thereof) of the substrate from which it was derived. If that item or substrate has little, if any, Level I or II significance *before* DNA analysis is begun, a detected profile's subsequent match to a known source will have very little contextual relevance. The rarest population frequency imaginable cannot change the reality of this fact.

OVER-TESTING EVIDENCE

A mistake sometimes made by prosecutors assigned to a case involving physical evidence is to request DNA analysis of *all* collected items. This decision is the functional equivalent of the old saying: *Shoot first and ask questions later.*

This inclination seems to stem from several sources. The first is the assumption that the jury will expect the prosecution to demonstrate that DNA analysis was at least attempted on all collected items. This is a reaction to the so-called *CSI Effect*. The second may result from the prosecutor's desire to strengthen his or her case by *rolling the dice* and gambling that analysis of items with a tenuous connection to the case will match the defendant's profile. The third arises from a fundamental misunderstanding of the capabilities and limitations of DNA technology.

Reacting to the CSI Effect

Some prosecutors believe that juries will refuse to convict if all items collected at a crime scene are not tested. This fear triggers a request for comprehensive testing. This preemptive tactic seems to be designed to counter the so-called *CSI Effect*. The *CSI Effect* generally refers to the belief that jurors confuse idealized portrayals with the actual capabilities of forensic science, including inflated expectations about the presence and probative value of forensic evidence.¹³ Prosecutors who plot such preemptive attacks may actually create more problems than they solve. Ironically, by assuming that juries will expect comprehensive testing of all recovered items, relevant and irrelevant alike—and then ensuring that this occurs—prosecutors actually perpetuate these distortions.

Rolling the Dice

After charges are filed, prosecutors typically review the items collected by crime scene investigators to determine the best candidates for DNA analysis. This practice is both sensible and encouraged when performed in a logical and measured manner. Problems arise, however, when prosecutors request analysis of items possessing little, if any, contextual significance. Such requests may be motivated by a desire to strengthen the prosecution's case by gambling that an incriminating DNA profile will be detected. In most cases, however, the inherent risks of this approach greatly outweigh the benefits. When this approach is taken, the prosecutor is betting on luck over logic. The high stakes involved in serious felony cases make this an unwise gamble.

Misunderstanding DNA's Capabilities and Limitations

From a molecular perspective, we live in a very dirty world. Human biological material is literally everywhere. This is no less true of crime scenes than anywhere else. It is fair to assume that the places where crimes have been committed were not sterile environments beforehand. Prosecutors must be mindful of the exquisite sensitivity of modern forensic DNA technology, which makes it very likely that human DNA at *some* level will be detected from sampling any given item, article, or surface at a crime scene.

Biological material collected by crime scene investigators may have been deposited well before or even after the criminal activity occurred. DNA technology itself has no way to determine whether the human profiles developed from recovered items are in any way connected to the offense under investigation. This determination is wholly a matter of human inference and conclusion. Prosecutors must carefully consider whether items collected and surfaces swabbed contain biological material possessing a probable connection to the case at hand.

Scientific studies have documented the transfer of detectable amounts of DNA from surface to surface,

sample to sample, and person to person.¹⁴ A particularly salient example of this transferability involves the detection of genetic profiles on firearms that match individuals who never physically handled the weapons in question.¹⁵ Although DNA testing has the *capability* of identifying the contributor of a genetic profile to a reasonable scientific certainty, such a result, standing alone, says nothing about the *circumstances* under which the biological material was deposited. Testing results alone cannot speak to the critical issue of an item's pre-analytical relevance.

Some prosecutors may decide to request DNA analysis of all items recovered at a scene and then attempt to match the unexplained results with elimination sample profiles. Reliance on elimination samples is misplaced. It is very difficult, if not impossible, to account for the presence of every person who had access to a given scene at some point in time before the crime was committed. This is especially true when dealing with environments accessible to the general public. Even if investigators are able to identify everyone who had prior legitimate access to a given scene, the battle is only half over. Those individuals must then be located and agree to provide an elimination sample for analysis. Even if all necessary elimination samples are acquired and analyzed, the profile(s) in question may still remain unidentified. This tactic is no substitute for logical and context-based decision making.

An additional problem with *over-testing* crime scene items is the prosecution's implicit endorsement of the tested item's logical relevance by the mere act of analysis. The fact that a prosecutor saw fit to have an item tested in the first place is a tacit (although perhaps unintended) admission that the resulting DNA profile has (or should have) probative value. When DNA analysis of an item with little contextual relevance produces an unexpected profile, the prosecutor must then attempt to explain this anomaly or marginalize its relevance to the case.

This practice is not only disingenuous, but also illogical and self-defeating. It prompts the critical inquiry, "If the government didn't believe this evidence was contextually significant, then why was it tested in the first place?" Even an average defense

attorney will pose this question to the prosecution's expert on cross-examination—along with other inquiries about the limited time, money, and resources associated with forensic DNA analysis. These arguments will surely be repeated in summation. The prosecutor may well be left with unsatisfactory—and unconvincing—responses to these arguments.

GUIDELINES FOR DECIDING WHICH ITEMS TO TEST

Who Should Decide?

The best setting in which to decide which items collected at a crime scene should be tested is an interdisciplinary forensic meeting. At this meeting, the prosecutor meets with investigators and lab analysts assigned

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to the case. Ideally, this should occur soon after charges are filed. However, depending on the nature of the case, the complexity of the evidence, and the timing of the meeting, the personnel in attendance may differ. In some cases, the only officials in attendance may be the prosecutor and the lab analyst. The identity of the meeting's participants is less important than ensuring that those in attendance have access to *all* relevant and available investigative information. It is imperative that all interviews, interrogations, and an inventory of all collected items be available to those in attendance.

Deciding which items should be tested—and not tested—should be a collaborative effort. Prosecutors should seek the advice of forensic experts before DNA

testing decisions are made. Expert insights about evidentiary context, the qualitative limitations of various samples, and the capabilities and capacities of available technologies are extremely important. This information not only provides a solid scientific foundation upon which testing decisions are made, but also affords the logical foundation for subsequent courtroom testimony about the rationales behind those decisions.

For their part, lab analysts should keep an open mind about the prosecutor's reasons for requesting analysis of multiple crime scene items. To an expert, these reasons may initially appear to have little *scientific necessity*, especially if a forensic association to the defendant has already been established. Supplemental testing, however, may have enormous *strategic significance* given the prosecution's need for corroborative evidence and the need to confront ever-evolving theories of defense.

If the prosecutor and the analyst disagree about which items should be analyzed, it is advisable to have a procedure in place to settle the stalemate. Once a case is filed, the prosecutor is *captain of the ship* and must—for better or worse—have the final word on DNA testing decisions. In most cases, an open and honest discussion about the contextual significance of the questioned items, the capabilities and limitations of available testing technologies, and a review of the respective case theories is the best way to resolve an impasse.

When to Decide?

Deciding which items to test should only occur after all available context-building facts have been assembled. These facts may be found in crime scene reports, investigative statements, suspect interrogations, and preliminary or presumptive serological test reports. After the relevant facts have been gathered, the task of deciding which items to analyze can begin.

Laboratory backlogs can substantially delay the completion of DNA testing. It is imperative that analysis requests be made as soon as possible to avoid the need for eve-of-trial continuance requests and worse, the exclusion of evidence due to untimely dis-

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closure. Many times, these unfortunate outcomes can be avoided by inter-agency collaboration and forensic case planning soon after charges are filed.

As a trial date approaches, it is sometimes necessary for prosecutors to request last-minute analysis of previously-untested items. These requests are often due to an evolving defense theory that is reacting to previously-disclosed forensic test results. As is the case with the initial forensic meeting, the prosecutor should collaborate with the lab analyst (and investigators if necessary) to determine the most effective way that supplemental DNA analysis can respond to evolving defense issues, arguments, or theories.

Nevertheless, prosecutors must realize that serial

Prosecutors should avoid getting baited into negating every possible defense argument with supplemental testing.

DNA testing can be a risky proposition. Although it is possible that additional analysis can rebut incipient defense theories, such testing can also backfire and create new fodder for defense arguments. As a result, the best response may *not* be additional testing, but rather a cogent testimonial explanation why further DNA analysis would not—or could not—shed light on the issues at hand.

For example, a prosecution expert might testify that certain untested items bear no contextual relationship to the litigated offense, or that given the nature, quantity, quality, or location of the item, further DNA analysis would be impossible, uninformative, or both. Prosecutors should avoid getting baited into negating every possible defense argument with supplemental testing. Ironically, such efforts may actually undermine the prosecution's theory when non-probative profiles

are detected from irrelevant crime scene artifacts. The defense will most certainly use these results in closing argument.

How to Decide? Consider the Context

The starting point for considering which crime scene items should undergo forensic DNA analysis is an assessment of each item's relationship to the fifteen Level I elements of contextual significance. The critical question to consider is: When the facts surrounding the discovery and documentation of an item are compared against one or more of these elements, can it be reasonably concluded that the item has a probable association with the offense under investigation? A strong connection with one or more elements may compensate for a weak association with others. A weak association with one or more elements may be offset by a solid connection with others.

For example, a substantial *quantity* of questioned hair found near a homicide victim's body could offset the *ubiquity*, *portability*, and *nature* of hair. Conversely, a weak showing of contextual significance due to the particular *nature* of the item could be overcome by a strong showing of relevance due to the *environment* in which it was discovered. The *location* in which a cigarette butt was found—such as the floor of a burglarized residence—could outweigh the commonplace *nature* of the item itself.

An item's strong association with one or more Level I elements may bestow such a strong degree of situational significance that Level II information is not necessary to inform a testing decision. If this is the case, DNA analysis can proceed without further delay. However, if after comparing an item against the fifteen Level I elements, its circumstantial significance cannot be determined, testing should normally not occur. It is also possible that more information is needed before that decision can be made. Therefore, when an item's Level I significance is doubtful, equivocal, or could be further clarified by case-specific information, analysis should proceed to Level II.

A Level II analysis examines the assertions, omis-

(Continued on page 42)

sions, and denials of victims, witnesses, and suspects about crime scene items. Statements made by those in a position to know relevant information about a given item can *transform it into evidence*. Such statements can also diminish or destroy the relevance of an ostensibly significant Level I item by relegating what was originally believed to be *evidence* into a meaningless crime scene *artifact*. Accordingly, the results of a Level I and Level II analysis should always be considered together

DNA testing decisions must be justified based upon contextual considerations rather than investigative curiosity.

when evaluating an item's contextual significance.

Finally, an item *must* possess Level I or Level II contextual significance as a *condition precedent* to DNA analysis. The primary probative power of a DNA test result comes *not* from the genetic profile itself, but rather from the pre-analytical contextual setting of the item from which that profile was derived. It is this pre-analytical information (Levels I & II), *in conjunction with* the detected profile (Level III), which gives a questioned item its composite contextual significance. DNA testing decisions must be justified based upon contextual considerations rather than investigative curiosity.

Testing Touch DNA Samples

If it is decided that testing should proceed, prosecutors should be aware of the real possibility that one or more non-probative DNA profiles may be detected from samples collected from substrates or surfaces that otherwise appear to be contextually significant. This is especially true in the case of *touch DNA* swabs. Swabs such as these are typically brushed against surfaces that bear no visible biological material. Furthermore, there

is currently no preliminary forensic test that is capable of characterizing the cellular source of touch samples. Accordingly, it will be more difficult to reasonably determine *whether* the profile is connected with the crime and *when* it was deposited. It is imperative that investigators base their decisions to recover touch swabs on credible time-specific and location-specific information. This helps to ensure—as much as possible—that probative cellular material is being collected. Prosecutors should exercise caution when requesting the analysis of *touch* or cellular DNA swabs and seek testing of these samples only when based on strong Level I and/or reliable Level II information.

Order of Testing

If more than one contextually significant item has been identified, and it is decided that each should be tested, the order of analysis must be determined. Items can either be analyzed simultaneously or in a serial fashion. The serial approach is more conservative and gives prosecutors the discretion to halt further testing if the initial results prove sufficiently helpful. The major downside to serial testing, however, is that it takes more time. Alternatively, the simultaneous approach saves time but prevents the reconsideration of testing decisions. If the serial method is chosen, those items that are most contextually significant *and* amenable to analysis by the most discriminating technologies should be given priority.

Hit or Stick?

The final decision may prove to be the most difficult. Given an untested item with at or above threshold Level I or II significance—considered in light of the present strength of the prosecution's case—should further analysis be pursued, or should a prosecutor instead go to trial with the evidence as it currently exists? In other words, should a prosecutor risk detecting a non-probative profile that could lead to reasonable doubt, or just leave well-enough alone? Because each case is factually unique, it is impossible to provide a definitive answer to this question. Prosecutors should rely on their training, experience, and consultation with forensic experts when making such decisions.

If testing is approved, this amounts to an implicit endorsement of the questioned item's contextual significance, and by extension, the profile derived from that item. If the result fits the government's theory of the case, the prosecution is strengthened. If, however, an unexpected profile is developed, this will surely give wings to a *new and improved* theory of defense. Each decision is a calculated risk. However, one thing is clear: If an item is amenable to testing and has unambiguous contextual significance, then both strategic and ethical considerations call for DNA testing.

Testimony Instead of Testing

A recommended alternative to testing contextually questionable items is to have an expert explain the sound scientific and logical rationales that informed the item selection and testing decisions that took place. This relieves the prosecutor from having to explain why a tested—but contextually insignificant—item is not probative after an unexplained profile is detected. On the other hand, if certain items not tested were contextually significant, the expert may explain why DNA analysis would have been technologically impossible due to item quality, unnecessarily redundant, or not dispositive of the question posed. In support of such testimony, the expert may rely on Level I and Level II information, as well as any other facts within his or her knowledge, training, and experience.

CONCLUSION

Once charges are filed in a case, deciding whether or not to request DNA testing of collected items of evidence can be a difficult decision. There is one principle upon which most will agree: Prosecutors should seek the expert assistance of those with knowledge of the facts, the evidence, and available technologies.

The crime scene investigators who worked on a case have first-hand knowledge of each collected item's Level I significance. Case detectives have Level II interview information that may directly inform the prosecutor's testing decisions. Finally, laboratory analysts can

help identify which items have the best potential to yield strong Level III information—a discernible and discriminating profile.

An inter-agency forensic case meeting held soon after charges are filed is the best forum at which to collectively analyze the facts and consider all available testing options. If inter-agency case meetings are impossible or impractical in a given jurisdiction, the prosecutor should at least make his or her testing decisions armed with all available information, considered in a proper analytical framework. The guidelines set forth above should not be followed inflexibly. Prosecutors should always consider the unique facts and circumstances of each case and rely heavily on their professional judgment, training, and experience. The best advice is that DNA testing decisions should *always* be based on principles of logic rather than luck. The hardest decision may be to *not* pursue DNA analysis and instead to offer expert testimony about the solid scientific and logical basis upon which that decision was made. In the final analysis, that may prove to be the best decision of all.

¹ Throughout this article, the use of the term item is meant to encompass any article, substance, or sample that is recovered by crime scene investigators by potential DNA analysis.

² EDWARD J. IMWINKELRIED ET AL., *COURTROOM CRIMINAL EVIDENCE* § 306 (Lexis Law Publishing 3d ed. 1998).

³ *Id.*

⁴ *Id.*

⁵ *The Free On-line Dictionary of Computing*, Denis Howe. <http://dictionary.reference.com/browse/context> (accessed: June 12, 2012).

⁶ Ralph H. Johnson & J. Anthony Blair, *Logical Self-Defense* 80-84 (2006).

⁷ *Id.* at 133-34.

⁸ 129 S.Ct. 2308 (2009).

⁹ *Id.* at 2312-15 and 231.

¹⁰ *Id.* at 2323-30.

¹¹ *Id.* at 2326-28.

¹² *Id.* at 2313.

¹³ Simon Cole & Rachel Dioso, *Investigating the 'CSI Effect': Media and Litigation Crisis in Criminal Law*, 61 *STAN. L. REV.* 1335 (2009).

¹⁴ Carl Ladd et al., *A Systematic Analysis of Secondary DNA Transfer*, 44 *JOURNAL OF FORENSIC SCIENCES* 1270 (1999); Roland A. H. van Oorschot & Maxwell K. Jones, *DNA Fingerprints from Fingerprints*, 387 *NATURE* 767 (1997); Polley et al., *An Investigation of DNA Recovery from Firearms and Cartridge Cases*, 39 No. 4 *CANADIAN SOCIETY OF FORENSIC SCIENCE JOURNAL* 217 (2006).

¹⁵ Polley, *supra* note 14, at 224, 227.