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## Forensic Sciences Services and the Criminal Justice System as Viewed by the Defense

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This paper addresses the limited use of the forensic sciences in criminal prosecutions, and particularly in the defense of criminal cases. Much of the following material is also applicable to civil proceedings because forensic sciences services are more often used in civil cases because of the monetary issues that initiate and permeate civil litigation.

This discussion will focus on the four types of economic situations that defense counsel frequently encounter in utilizing forensic sciences services. It will also highlight the distinct differences between the public defender system and the private criminal practitioner in acquiring forensic science expertise.

Public defenders may be on a full-time basis, with staff, office, library, adequate funding, and access to forensic science experts, or be a part-time public defender or a special public defender appointed on a case-by-case basis. The latter's resources are limited to his own imagination and law office capabilities. Additionally, the monetary rewards are unusually dismal; for example, in Connecticut a special public defender is paid \$12.50 an hour, with a maximum of \$75.00 per trial day. The average skilled criminal practitioner in private practice can bill \$60.00 to \$100.00 per hour, and \$350.00 to \$750.00 per trial day, or an average of \$400.00 to \$500.00 per trial day.

The private practitioner finds himself defending accused persons who fall into one of two categories. The first is the criminal client with good or great financial resources who can and will finance the location of experts; the experts' preparations, work, and testimony; and whatever else is needed. The other is the criminal client who can barely afford his attorney.

The first is the ideal situation and an illustration is appropriate. A wealthy gentleman was indicted for committing a federal felony, namely interstate extortion resulting from abusive and threatening telephone calls to the victim. The defense involved insanity and involuntary intoxication; both defenses resulted from the defendant having ingested large amounts of both alcohol and Placidyl<sup>®</sup> for a long time.

The first step was to locate, investigate, and interview both experts and lay witnesses to buttress the defendant's claims. Medical treatment was not a problem and one of the state's best forensic psychiatrists became the treating physician. At the trial, the following experts were called: the physicians who prescribed the drug and treated the patient during periods of withdrawal; the forensic psychiatrist; a pharmacologist; and a neurosurgeon (to confirm the psychiatrist's diagnosis). These experts confirmed the diagnosis of an organic brain syndrome establishing the insanity defense. The defendant was found not guilty on the basis of the experts' testimony, all of which involved the use of forensic

Presented at the Special National Workshop on "Forensic Sciences Services and the Administration of Justice" sponsored by the National Institute of Law Enforcement and Criminal Justice, Law Enforcement Assistance Administration, held in Kenner, La. on 22-23 March 1978. Received for publication 4 Jan. 1979; revised manuscript received 24 Feb. 1979; accepted for publication 26 Feb. 1979.

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sciences and expertise in identifying, preparing, and successfully proving the insanity/ involuntary intoxication defense.

The other type of client is more frequent. He is the middle or low income client who can barely pay counsel adequately, and therefore must depend on his counsel's knowledge of forensic science evidence. In reality, he must rely on the prosecution's crime laboratory and hope for the best. He will be very fortunate if his counsel knows enough about the forensic sciences to be anything other than "awed" by the state's evidence. Often defense counsel becomes convinced of his client's guilt by the state's "forensic evidence," which evidence may be found to be completely unacceptable after a knowledgeable examination.

Questionable forensic science evidence is illustrated by a driving under the influence case where, after counsel was paid, all available funds were exhausted. The state had a blood analysis showing a 0.022 weight of alcohol in the blood. Any alcohol/blood level over 0.010 raises a presumption that an automobile operator is driving under the influence of alcohol. Thus, the defendant had to rely on counsel's ability to create a reasonable doubt through inconsistencies in the state's case. At trial, the police officer in his testimony did not describe the driver as being all that drunk, and the defendant's friends testified that he was sober. The defendant claimed to have been sober and gave a good explanation for what happened on the highway. The emergency room nurse testified to the taking of the blood sample and the voluntary consent of the driver without mentioning drunken conduct or extreme symptoms of alcoholic intoxication. Finally, the police had released the defendant within a matter of hours after his arrest.

The state's toxicologist testified on cross-examination as to the effect of a 0.022 finding, and, with the help of defense counsel, made the defendant appear to have been very drunk and obviously showing the effects of alcohol. The defense showed the testing procedures consisted of merely placing the blood sample in a complex machine, after which a "magic printout" was flashed on a screen for the toxicologist to report to the police.

The final argument focused on the testimony of the defendant and his friends and emphasized the inconsistency of the trooper's and nurse's testimony as to the defendant's condition versus the toxicologist's testimony of extreme drunkenness. It was then argued that scientists never admit that they are wrong or that their laboratory is imperfect. However, it is obvious in this case that something went wrong at the laboratory. Thus, there was a reasonable doubt based on the testimony of the other witnesses who were there and saw the defendant firsthand. The jury acquitted the defendant. It should be borne in mind that this sort of approach seldom works since most attorneys do not have enough knowledge to ask the proper questions of the expert witnesses to create the doubt necessary for an acquittal.

### **The Problems**

A common thread runs through the major problems. It is the lack of education, training, and awareness of what the forensic sciences can do in incriminating or exculpating the criminal accused. That lack has resulted in a loss of credibility for the accuracy and integrity of many police investigations. Police mishandling of investigations, prosecutions based on erroneous theories of what transpired, and embarrassing courtroom outcomes have enlightened the public to police deficiencies in criminal investigations.

The crime scene is often not properly searched and evaluated. The significance and meaning of blood splatters and patterns are not considered or photographed. All the relevant physical evidence is not retrieved, and the proper experts are not consulted. Finally, the numerous theories suggested by the physical evidence are not explored. For instance, a cigarette butt left by a secretor, if properly analyzed, might exclude a

number of suspects and form a circumstantial link of evidence as to a particular suspect. Yet this type of evidence is often overlooked, seldom analyzed, or even not considered.

The problem is made worse by the prevalent police philosophy of obtaining a confession at all costs, leaving the prosecutor to determine how to enter the confession or admission into evidence. Thus, police efforts are expended on duress, deception, fraud, and trickery to get a confession that may or may not be admissible in a subsequent trial. These activities are often coupled with extensive subterfuges and fictions to avoid constitutional and statutory safeguards and are performed by the police to accomplish the intended result: a confession at any cost. Once the confession or admission is obtained, the investigation either ceases entirely or focuses on the *one* suspect to the exclusion of all other suspects and evidence. The effect of this approach is to ignore or relegate as insignificant any evidence that is not consistent with the police's theory of a particular suspect's involvement in the crime under investigation.

A recent Connecticut murder case is an apt illustration. In this case defense counsel was not awed by the state. He had adequate financial resources, imagination, and the ability to devote substantial effort to an independent investigation and analysis of the physical evidence. His efforts enabled him to disprove the state's case.

The body of a 14-year-old female was found in a cellar excavation at about midnight. The victim had died from extensive head injuries caused by a massive crushing of her skull later determined to have been done with a large blood-encrusted rock found near the body. An autopsy revealed that death was caused by exsanguination as a result of blood flowing from the smashed and exposed skull area into the earthen floor of the cellar.

The state police had a flimsy circumstantial case against one suspect, and the time of death became a critical factor. In order to make the suspect eligible, the time of death had to have been between 4:00 and 5:00 p.m. The suspect was able to establish his whereabouts with other people at all other times on the afternoon and evening in question.

The state police posted a guard in the cellar and barred entrance by anyone, including a septuagenarian semiretired physician who happened to be the medical examiner. When he attempted to enter the excavation he was refused entrance, even after his protest that he was the medical examiner and had to examine the body as part of his official duties. The medical examiner argued to no avail that he could not conduct such an examination long distance. Therefore, illuminated by the floodlights the state police had positioned, he yelled to the trooper below, "Feel the body, how does it feel?" The trooper responded, "Cold." He then yelled, "Move her arm, how does it feel?" He watched the trooper move the arm and heard the trooper characterize it as "stiff." After conversing with the investigating troopers, he set the time of death at 5:00 p.m., give or take half an hour.

The time of death as set forth in an autopsy protocol was between 4:00 and 5:00 p.m. The autopsy was performed by a capable forensic pathologist, but he relied in large part on the information given to him by the state police and his medical examiner, that is, 4:00 to 5:00 p.m. This, of course, influenced his conclusions and the findings in his medicolegal report. Consequently, the many other factors in determining time of death [1] were not considered. Additionally, a thorough investigation as to whether or not the body was moved after the homicide had taken place was not pursued. The initial exsanguination theory was accepted without further inquiry or investigation, yet the effect of exsanguination on the body and the lack of lividity conflicted. There was no lividity consistent with the victim having lain on her face from 4:00 p.m. to midnight, a period of some 8 h. The state police theorized that all of the victim's blood had drained from the body. It was an absurd theory, but it appeared to make sense in a simplistic fashion without further follow-up. Additionally, the victim's stomach contents and a history of the victim's known food intake on the day in question were not thoroughly evaluated. In other words, anything that was inconsistent with the 4:00 to 5:00 p.m. time of death was not pursued by the state police.

The defense, on the other hand, went over all of the physical evidence with a qualified pathologist and a criminologist. They established that the original method used in setting the time of death was meaningless. Furthermore, the lack of lividity was consistent with a much later time of death, as was the quantity of stomach contents. Some blood would have settled in the soft body tissues in the front of the victim, and it would not have been part of the exsanguination process. Thus, it would have produced a lividity consistent with an 8-h death period, and since there was no lividity, death must have occurred much later. This theory was consistent with the defense's theory that death had occurred much later than 4:00 to 5:00 p.m.

The state police had arrived at the scene with their mobile crime lab trailers (complete with official state police insignia), floodlights, and personnel attired in lab coats. They had blocked off areas, taken complete control, and gathered, bagged, and tagged everything in sight, including the murder weapon.

Some months later, as the defense counsel and defense criminologist were examining the massive collection of physical evidence piece by piece, they studied the murder weapon and discovered something very significant. As the state police watched with great interest, the defense criminologist examined the rock with his "jeweler's eye" under proper illumination. As he turned the item he came upon the blood-encrusted area that probably had come into contact with the victim's head. There, embedded in the blood, gore, and tissue, was a fiber that turned out to be separate and distinct from the victim's and the defendant's clothing on the day in question. In the many months that the murder weapon was in police custody and physically in the forensic science lab, no one had carefully examined it and found the clearly exculpatory evidence. It was particularly critical because the state's case against the defendant rested in large part on a thread found on the victim that allegedly was similar to a thread from the defendant's sweater.

The state's expert testified to the similarity of the defendant's sweater and the thread found on the victim. However, the expert finally concluded, after much cross-examination, that the thread contained many dissimilarities as well. This statement was a far cry from the expert's testimony on direct examination that focused on the similarities between the thread found on the victim and the defendant's sweater. The ultimate testimony was largely attributable to the preparation by defense counsel after consultation with his independent expert. When this information was coupled with the separate and distinct thread found on the murder weapon, the state's case was considerably weakened and ultimately the defendant was acquitted.

This police investigation emphasizes two of the forensic science difficulties encountered in serious felony cases. First is the too-frequent police investigation that either ignores physical evidence or misuses this evidence by employing police-oriented experts to fit their theory to a particular investigation. A police theory is usually developed very early in the investigation, and the rest of the police effort is spent in pursuing their candidate, excluding all other suspects and ignoring inconsistent physical evidence. Second, many criminal defense counsel take the state's beautifully written forensic science reports and sigh, "What do we do now?" The answer is obvious: defense counsel must employ his own independent expert and investigate with an independent and distinct theory of defense. To do this he must develop expertise and knowledge in the areas of the forensic sciences that touch on his case. A theory of defense is a necessity to allow him to develop a theme, locate the necessary experts, and understand the significance of the physical evidence.

When well-prepared and able defense counsel finds such a situation and effectively explores an inadequate and biased police investigation, police may then lose credibility in the eyes of a jury. Generally, this type of courtroom development makes good news copy and can result in an acquittal. This type of publicity results in the entire criminal justice system losing the respect and confidence of the general public.

It should be understood that the use of the forensic sciences should not be limited to homicide and rape cases. Recent developments in serology can be very effective in paternity cases. The use of a polygraph can be of great assistance in pre-trial investigations as well as in the plea-bargaining process. Forensic sciences services may be useful in solving problems created by wiretaps, "body recording," and other recording devices. This type of evidence can be more effectively handled if the attorneys have a knowledge of the forensic science expertise involved and the relevant case law. There are often problems of admissibility that necessitate "screening" and "cleaning up" the recordings. Then, too, there are difficulties with the use of transcripts and with their accuracy. Thus, defense counsel should know that he has a right to an "audibility hearing" before the recording is admissible. The proper procedure is to offer the defense's own transcript of what is allegedly on the tape as an aid to the jury [2].

Defense counsel should be aware of the limited number of experts that work with tapes and wire recordings and learn how best to use their services. Some practical hints can be helpful; for example, blind people are better at deciphering what is on a recording and are more reliable than clerical workers listening and typing what they think they hear. The average hit-or-miss transcripts are usually reviewed and edited by the person in charge of the investigation. He determines what the ambiguous or missing words and phrases were in the context of the particular conversation. Although seldom used, this is a fertile area for defense lawyers to use forensic science expertise to weaken the prosecutor's case.

Another problem involves a courtroom in which the judge, prosecutor, and public defender are all employed and paid by one employer: the federal or state government. The common employer situation is further aggravated when prosecutors and public defenders are appointed by the judiciary and are paid from funds appropriated to the judicial system. No wonder the indigent defendant says, "I don't want no public defender, I want a lawyer."

The incredible case loads assigned to public defenders further limit what effectiveness remains. However, the final blow to the public defender system is the almost limitless funding and resources available for criminal prosecutions. This fact is particularly significant because most of those prosecutions are defended by that "stepchild" of the justice system, the public defender. Thus, there is a definite lack of funds for forensic science education, investigation, services, and testimony for public defenders.

The entire fault does not lie with the criminal justice system itself; many experts contribute to the crises of forensic science in the criminal justice system. Claiming to be "scientists," they believe their conclusions and opinions are infallible. This scientific infallibility is then used to justify their abhorrence of cross-examination, which is often considered an affront to their dignity. For instance, at a recent Practising Law Institute program, one of the country's leading forensic science experts refused to participate in the program if he was to be cross-examined. Obviously, scientists must recognize that they make mistakes and that there are legitimate areas of inquiry as well as legitimate differences of opinion. In other words, if they want to set forth their opinions, they must be subjected to the process of cross-examination to arrive at basic truths. This process of cross-examination is not only necessary but fundamental to their participation in the "adversary" process that is part and parcel of a criminal trial.

### **Proposals**

The solutions to these problems are not simple. The two factors involved are the funding for and education of persons involved in the criminal justice system: the judiciary, prosecutors, defense counsel (public and private), and the police authorities. The mechanics

of accomplishing these solutions are federal funding, experimental programs, and an educational process for all concerned.

First, there should be separate funding for the judiciary, the prosecuting authority, and the public defender's office. The legislature should separate these three distinct functions and fund them separately. Furthermore, prosecutors and public defenders should be supervised by separate commissions appointed by the legislature, not the judiciary. Appointments to either the prosecution staff or defense staff should be made on the basis of merit and not political patronage. The respective commissions should perform a watchdog function, removing the "lay down" public defenders while encouraging aggressive defenses.

In locating these different functions within the criminal justice system, public defenders, prosecutors, and judges should not share offices in the same courthouse. In reality, all three become part of a team, wearing different hats, to expedite criminal cases under modern-day pressures of computerized case dockets. In many instances, they view themselves as part of the same system, working together to expedite business. Finally, the legislature and the judiciary should actively discourage the duplicate, needless, and costly multiple prosecutions of the same offenders. These prosecutions are often unnecessary other than to make a police department happy or to satisfy a prosecutor's ego.

Second, there should be continuing legal education programs for forensic science evidence in criminal cases for judges, prosecutors, public defenders, and private defense counsel. These programs can be conducted by associations of trial lawyers, defense counsel, prosecutors, judges, and private foundations. The programs should be mandatory in terms of required hours for instruction in forensic science procedures or evidence for trial practice. The necessary expertise is presently available on a regional or statewide basis. There should also be a forensic science course or seminar in every law school as a mandatory requirement for graduation. The law school program should be an overview to apprise the prospective practitioner of the resources and information available to him in the forensic sciences.

Third, police investigative squads should be educated in the forensic sciences at regular intervals and on a continuing basis. They should also be encouraged to investigate objectively, with open minds, regarding suspects and theories of what may or may not have transpired in each case.

Fourth, the present police on-the-job training procedures, with self-taught investigators claiming to be experts, should be discouraged, if not totally eliminated. This effort should be buttressed by frequent consultations with qualified experts in the forensic sciences, especially in cases such as homicides and other serious felonies.

Fifth, to obtain qualified personnel with proper equipment, there must be an increase in financial resources for both state and local government crime laboratories. If there is adequate funding, salaries can be raised to attract sufficient numbers of qualified candidates, and forensic scientists could perform a sufficient number of sophisticated tests to achieve highly accurate findings with reference to the subject material; for example, they can perform five distinctive and separate tests where indicated, no longer relying on one or two tests. The high quality and greater capability of crime laboratories may encourage prosecutors to use the facilities more frequently and will decrease the prolonged waiting period that now exists between delivering the subject material to the laboratory and the receipt of a report of the examination.

Sixth, the forensic sciences must delineate criteria, standards, and certification procedures for the various disciplines. These procedures must be established to weed out the self-proclaimed experts, charlatans, opportunists, phonies, and incompetents. The courts are not in a position to eliminate the non-legitimate expert because they lack the necessary expertise to determine who is really a qualified expert and who is not. Thus the task must be left to the forensic scientists to specify particular criteria for each discipline so that the courts may then implement them on a case-by-case basis.

### **The Defense Function**

In equipping the defense bar to use the forensic sciences effectively in the defense of criminal cases, there must be funding for separate independent crime laboratories. These laboratories can be operated by state or private universities or the state government itself. In appropriate situations they would bill on a reduced basis for their services. The key is that they not be manned or controlled by police agencies. They must be separate and distinct from police and prosecutory influences.

Such funding is the ideal, but, practically, funds must be made available for public defenders to acquire expertise in the forensic sciences for the investigation, preparation, and defense of their cases. The need is for realistic funding, not minimum allocations to make a budget look great on paper. Additionally, there should be a court-controlled fund to aid middle income defendants who have private counsel but lack the financial resources for the required forensic science expertise. Once again, this fund should be realistic and reasonably dispensed to those who qualify. There is, of course, a correlative responsibility on the part of the defense bar to forego frivolous inquiries. In summary, the courts should, under their inherent powers, order forensic science services for the defense and require the funding of these services. It is not an insurmountable problem; the prosecutory authorities have funding for adequate access to the forensic sciences. A solution may be for the courts to hire "defense forensic consultants," with a duty of confidentiality, to assist defense attorneys regarding areas of expertise and the location of experts.

Finally, the courts should carefully review the quality of forensic science experts, no longer relegating all objections to the weight of their testimony. In summary, courts should make detailed inquiries into the qualifications of forensic science experts, recognizing their particular specialty relative to specific instances. Then, and only then, should the trial court make a determination as to the admissibility of an expert's testimony.

The experts themselves, separate and distinct from the courts, raise problems for the criminal justice system. There are three principal problems. First, there is a desperate need for a descriptive, extensive directory of forensic science experts as well as the various fields of expertise. There are presently at least two organizations capable of producing such a directory, the American Academy of Forensic Sciences and The Forensic Sciences Foundation, Inc. All that is lacking is appropriate government funding.

Second, an educational program for forensic scientists should be undertaken as regards fee structures in criminal cases involving indigents and middle income defendants. The experts' fees often make their services prohibitive. Therefore, an awareness of the problem and the suggestion of a duty to better the entire system might have a salutary effect. The appropriate vehicle is probably the numerous forensic science programs conducted around the country. Once again, with appropriate funding, the American Academy of Forensic Sciences and The Forensic Sciences Foundation, Inc. could provide the necessary speakers.

The third problem is troublesome and more difficult to resolve. It is the hostile attitude of former police experts toward the defense and their hesitancy to work with the defense. A "them" and "us" attitude permeates their whole attitude. Thus, many retired police experts are often unavailable to the defense for a separate and independent inquiry into criminal evidence in a given case. This problem is complicated by a lack of undivided loyalty and confidentiality once they join the defense team. They often engage in unauthorized disclosures to police and prosecutory friends regarding their "doings and findings" for the defense. The solution would entail long-term education on the part of forensic scientists in the criminal justice system. It would be beneficial to hold more interdisciplinary conferences with full communication and exchange of ideas between the disciplines. Whatever the solution, it is a very real and significant problem and should receive immediate attention.

A classic illustration is the prevalent attitude that an expert is more reliable and trustworthy if he either has had a police affiliation in his past or does independent police consultation. What the existence or lack of a police affiliation, other than experience, has to do with the particular qualifications of an expert is a complete mystery. It is obviously an absurd criterion upon which to judge an expert. Nevertheless, it exists and should be eradicated by extensive judicial screening of forensic experts.

### Conclusion

It is shocking that physical evidence is so often overlooked in this age of modern technological developments. This dilemma is particularly sad in light of the United States Supreme Court's recognition of the inherent unreliability of eyewitness identifications and other eyewitness evidence [3-5]. This recognition was coupled with an expressed desire for greater dependence on physical evidence and a recognition of its reliability [4,6].

The United States Supreme Court's teachings in *Brady v. Maryland* [7] and *Giles v. Maryland* [8] and their progeny may mandate some type of effective prosecutory and defense access to forensic science experts and laboratories to ensure that the defendant's constitutional right to exculpatory evidence is honored. The decisions hold that the prosecuting authorities, whether state or federal, cannot constitutionally withhold evidence that is exculpatory or favorable to the accused on the issue of guilt or punishment. In other words, if there is a prosecutory duty to disclose exculpatory evidence favorable to an accused on the issue of guilt or punishment, then the forensic sciences must be used to explain, clarify, and illustrate the significance of physical evidence. This obligation is evident when physical evidence would be meaningless without the aid of the forensic scientist to establish its exculpatory nature. Consequently, an expanded use of the forensic sciences to meet the mandates of the court's decisions may be constitutionally required in the not-too-distant future. This avenue should be explored by defense counsel. It is an area of law that prosecutors and the judiciary should be acutely aware of and that will experience significant developments. We should begin now to restructure the criminal justice system and prepare to meet the evolving decisional law that has just begun to recognize the significance of the forensic sciences in criminal prosecutions.

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- [3] *United States v. Wade*, 388 U.S. 218 (1967).
- [4] *Gilbert v. California*, 388 U.S. 263 (1967).
- [5] *Stovall v. Denno*, 388 U.S. 293 (1967).
- [6] *Schmerber v. California*, 384 U.S. 757 (1966).
- [7] *Brady v. Maryland*, 373 U.S. 84 (1966).
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