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The Adversary System: Role of the Criminalist

The basic role of the criminalist is that of assisting in the investigation of an incident by establishing the probability of fact from the physical evidence. At the time of trial he provides to the court, his product, the Truth, by offering opinion testimony and, perhaps, demonstrations to explain exactly what the probative value of the physical evidence consists of in the case at trial.

Criminalistics, interpreted in its widest possible sense, is the discovery, recognition of value, recording, recovery, marking, protecting from contamination, packaging, and transporting of physical evidence, followed by examination, comparison, or identification, and interpretation of results. This leads to the development of an opinion, followed by the presentation and explanation of this opinion to the investigators and the courts concerning the physical evidence in a criminal case.

In some few jurisdictions in this country criminalists, or physical evidence analysts, carry out an extremely broad spectrum of types of function, perhaps too broad. Certain precepts of good management are grossly violated when one individual attempts to carry out all the operations listed above in a large metropolitan community.

Many regions in this country are turning to the crime scene technician specialist concept which is certainly the most efficient method of processing large numbers of crime scenes for physical evidence in jurisdictions of several hundred thousand or more people with an average or higher than average amount of criminal activity. The criminalist usually lacks field practice in the frequently delicate techniques employed at crime scenes. If a good field criminalist, at his much higher salary level, were to spend 15 to 25 hours per week working at crime scenes, he could approach the effectiveness of a well-trained, motivated, and experienced crime scene technician who works such scenes 40 or more hours per week.

Crime scene processing is not presently delegated to specialists in most United States jurisdictions. But most patrolmen do not do first rate crime scene work, and there are extremely few detectives who have been trained to do satisfactory work. For the benefit of police effectiveness in a given community, the patrolman must keep his marked vehicle moving and the detective must interrogate and pursue people, not physical evidence.

Evidence items occur in gross, macro, semi-micro, micro and ultramicro sizes. The evidence can consist of 7,000 pounds of marihuana, 385 pounds of heroin, 50 pounds of C-4 explosive, a pound of catnip, an ounce of hashish, a fiftieth-gram of dried blood, two milligrams of smeared paint, four micrograms of LSD, sub-nanogram quantities of thallium or one dried spermatozoon.

The gamut of techniques and batteries of technique systems employed in the examination of physical evidence can range through spot tests, crystal growth, comparative

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micrography, firearms identification, metallography, 10 to 14 systems of microscopy, animal and plant taxonomy, immunology, radio-immune assay, serology, enzymology, bacteriology, titrimetry, gravimetry, calorimetry, spectrofluorimetry, ultraviolet, visible, and infrared spectrophotometry, standard emission spectrography, laser-arc spectrography, several methods of chromatography, mass and X-ray spectrometry, XRD and fluorescence, neutron activation analysis, NMR, ESR, and extending to other techniques including those so prosaic as the physical matching of shoe, tool, and tire impressions, and fracture, tear, and cut patterns.

Unfortunately, some individuals and even some of the literature proposes that one man alone is capable of conducting all of these types of examinations and *also* even full scale questioned document examination during his lighter moments. Just as has occurred in medicine, engineering, chemistry, physics and other sciences, a rapidly increasing body of knowledge has forced specialization in criminalistics. It is now impossible for one man to know and do everything well and completely in medical science or chemistry, and, of course, in physical evidence analysis. This condition must ultimately force the expansion of crime laboratory staffs if a semblance of justice is to be attained.

Widely varying degrees of specificity of identification are concluded from the broad range of individual examination methods discussed. The analysts' opinion should report:

1. A totally positive and absolute identification such as elemental analysis.
2. A less absolute but positive identification such as finger, palm and footprints, projectiles, cartridge cases, shoe and tire impressions and toolmarks, marihuana and other dangerous drugs and drug metabolites, a multi-layered paint specimen, a glass fragment, a powder residue, a fiber, human and animal classes of hairs, explosives, toxins, soil specimens, building materials, safe insulations, and others.
3. A probable identification with the very difficult to establish, define, and defend several shades of probability, such as certain voice spectrograms, an extremely blank or partially mutilated projectile, cartridge case, or other item of this type, a drug occurring in insufficient specimen quantity for a full battery of tests and generally, evidence specimens which are too small, contaminated, mutilated, or common, based upon the statistical data available, to be specifically identified.
4. A possible identification such as a completely wiped bullet, an extracted fragment of marihuana, a width-only toolmark, an azoospermic seminal stain, a design-only tire track, a decomposed blood stain, an unstoppered blood alcohol specimen, a corroded cartridge case, or an altered breech block.
5. A negative or totally impossible relationship existing between standard and questioned items, or the proof of the absence of a substance by the best detection techniques available.

It is the responsibility of the criminalist to command the written and verbal skills necessary to make crystal clear to his listener of what exactly the probative strength level of the identification consists. It is his responsibility not to be swayed one second of one minute of one degree neither by his current friend, generally the prosecutor, nor by defense counsel who seeks to destroy the value of the evidence to the case at hand.

The experienced physical evidence scientist frequently feels that he is carrying out, at the very least, a role distasteful to himself by appearing in the contentious atmosphere of the courtroom. The forensic scientist can only dream of how sweet life and work could be if he were invited by the court and *both* adversaries to vigorously pursue the truth and the pleadings of both sides to the limits of his ability, his budget, and his instrumentation and to present that whole truth to all three entities in a climate of nonbelligerence. However,

since we and the sleeping voters of our country must bear the burden of a highly defective and self-perpetuating legal system, which is legislated by lawyers and ruled upon by lawyer-jurists, the scientist in the courtroom recognizes that he must exercise whatever skills he has within the existing power structure of the criminal justice system. In so doing he frequently obtains the full truth of the meaning of the physical evidence benefiting one or both adversaries before the court.

The scientist must seize any opportunity available to assist in the formulation of new and proper legislation, or the alteration of old, by offering aid when aware of the need.

A role of the criminalist, as forensic scientist, is to attempt to keep science in proper perspective in the courtroom by openly advising belligerent counsel that he, the scientist, is a sworn witness offering testimony, sworn on his most prized possession, the root from which the word testimony is derived, and that the officers of the court are not at all sworn laborers of truth.

One of the desirable attributes of the criminalist is the ability to keep far in the back of his mind the fact that he could possibly function better for his community if he were answerable only to his own Deity for his work, rather than to a police agency, a prosecuting agency, or even a university. He must remember that Deities have not lately been funding large budgets for ivory tower operations.

An important function of the forensic scientist is to establish and maintain a continuing review of published articles, journals, and textbooks for new information and, not the least, for dissemination through his profession of errors found in content—such as errors in language as in Burrard's book [1] or computational errors as in Hatcher's bible [2]. Broad philosophical literary errors are also manifested, such as the preposterous definition of the talents of the criminalist which appears in the Police Evidence Library series [3], a series which seems to be completely authorless since no name appears anywhere by which one may pinpoint the source of some gross misinformation. Strange errors such as the specificity of the Beam test appear in such places as Chapter Twenty of F. Lee Bailey's textbook [4] for defense attorneys. Since this book is authored by a lawyer to help other lawyers, the criminalist should not be upset by the presence of the large number of errors as this is not basically an authoritative, reference-type publication. The criminalist should also not be too surprised if he goes unprepared to trial and is successfully destroyed in the courtroom by defense counsel since he must be prepared by awareness to defend his analytical protocol and to defeat the presentation of frivolous or nonspecific techniques, proposed to the court as being reliable methods, by the defense counsel.

The role of the criminalist is to dream of a nationally oriented, well financed, and coordinated physical evidence research effort, to purloin as much research time as is reasonable for his exotic criminalistics problems and to fervently hope to stumble upon improved techniques while waiting for his researching British and Canadian colleagues to develop new, sound techniques by which he can extract more and more specifically identifying information from less and less evidence specimen.

The role of the criminalist is to anxiously await, be he with or without adequate sensitivity or specificity of technique, the possible onslaught of new legislation covering the testing of the stoned, coked, horsed, or otherwise drug impaired driver.

The criminalist, as a true professional, must occasionally donate portions of his time to matters of community interest and need.

And finally, the criminalist has three duties in this American Academy of Forensic Sciences, which sometimes is nearly a mirror image of the adversary system: he must work diligently on his own for the advancement of the ideals and body of the Academy; he must continuously remain alert to Academy activities and trends in philosophy; and he must

strengthen and exercise his own comparatively poor skills of leadership and persuasion in order to function, with the scientists of the other disciplines, as a gyroscope and a flywheel to guide and propel this Academy along a straight pathway toward its altruistic and practical goal of Truth.

References

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