PROFESSIONAL RESPONSIBILITY: DEVELOPMENT AND ENFORCEMENT OF STANDARDS WITHIN UNITED STATES CRIME LABORATORIES FOR THE GENETIC MARKER TYPING OF PHYSIOLOGICAL STAIN EVIDENCE.

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There have been recent challenges in United States' courts to the admissibility of evidence derived from genetic marker typing of physiological stain evidence. In at least two instances, higher courts have ruled that the expert witness who has offered such evidence is unqualified to testify in regard to its reliability. These opinions raise some interesting questions regarding the status and role of the crime laboratory analyst within the criminal justice system and his relationship to the scientific community.

In California and most other states, the legal standard for admissibility of scientific evidence is a 1923 decision by the Court of Appeals for the District of Columbia in the case of Frye v. United States (1). The decision holds that ". . .while the courts will go a long way in admitting expert testimony deduced from a well-recognized scientific principle or discovery, the thing from which the deduction is made must be sufficiently established to have gained general acceptance in the particular field in which it belongs."

In 1983, while retaining jurisdiction in the case of People v. Young (2), the Michigan Supreme Court remanded the case to the trial court to determine whether the results of "serological electrophoresis" has achieved general scientific acceptance for reliability among impartial and disinterested experts of the relevant scientific community. The Supreme Court held that the testimony at trial of the people's expert witness, an analyst from the Michigan State Police Crime Laboratory, had been insufficient to establish reliability.

In 1985, a California Court of Appeals reversed a seven-year-old murder conviction (3), holding that the Frye requirements for admissibility of the bloodstain evidence had not been met. An analyst from a city police department crime laboratory had presented the bloodstain evidence at trial. The Court of Appeals held that a sole prosecution witness was insufficient to attest to the views of the scientific community regarding the reliability of the methods used. Secondly, the court held that this witness could not be regarded as a detached and neutral observer since she was not employed in an academic or other research setting that reinforces objectivity. Finally, the court held that the witness appeared to be "a technician and law enforcement officer, not a scientist."

The status of an analyst as a technician or a scientist is not likely to be settled to everyone's satisfaction. However, the compelling issue is whether or not the analysts of physiological stain evidence in the United States comprise a professional community.

A forensic biologist who is by profession a research scientist belongs to a community that holds as its central value the production of new scientific knowledge. He is accountable only to his fellow scientists. His findings belong to the community of science and are published. Findings and data are subject to organized scepticism until they can be validated through a process of replication.

In the United States, the analyst of physiological stain evidence is a criminalist employed in a government laboratory or by a private laboratory which sells its services to the criminal justice system. The primary value of the professional community of criminalists must be

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service to the criminal justice system. This service is limited to the production of accurate data and the reporting of scientifically valid interpretations of that data. The bench analyst does not and should not experiment with evidence materials or offer untested hypotheses to explain ambiguous or inconclusive results.

The criminalists' findings are reported and put to use within the criminal justice system without peer review or review by a scientific community and without validation by a process of replication. The expected criticism which characterizes a scientific community is absent. Challenges in court by attorneys who do not understand the scientific principles or techniques from which the findings were derived is ineffectual in uncovering fraud, bias, error, or incompetence.

Apart from their membership in the large professional community of criminalists, analysts of physiological stain evidence should properly belong to a specialized community of criminalist-biologists. Such a community would be characterized by its commonly-held scientific knowledge and technical skills and its shared professional values and attitudes.

The hallmark of a professional community is self-regulation. If they are to be regarded as professionals, the analysts must be able, as a community, to articulate and observe appropriate standards of expertise and performance. This community must be able to monitor itself and to provide the criminal justice system with proofs of proficiency and reliability.

Unfortunately, a tradition of autonomy and a philosophy of generalism in United States' crime laboratories have acted as deterrents to the development of such a professional community.

Most government laboratories enjoy an autonomy that they do not care to relinquish. They range from municipal police department laboratories to county sheriff's department laboratories, to state and federal laboratories, most of which have developed without coordination. They differ from each other in physical facilities, staff size, analyst educational requirements, and caseload. These laboratories do not embrace common standards of practice or common requirements for the education and internship of analysts. Most of them are prosecution oriented.

In many so-called "full-service" laboratories, criminalists are expected to be generalists with expertise in several diverse areas such as drug chemistry, arson and explosives, ballistics, toxicology, and trace evidence analysis. Few laboratories start with trained immunologists or biochemists on their staffs. Consequently, criminalists who lack basic knowledge of analytical biochemistry are sometimes enlisted to learn and apply techniques of genetic marker typing. Most crime laboratory analysts learn these techniques on the job or in workshops that are oriented toward the transfer of technical skills. There is no uniform or core curriculum that leads to the practice of this sort of analysis. There are no minimum educational requirements and there is no agreement as to what the educational requirements should be. The analysts work in comparative isolation from each other, often supervised by laboratory directors who may have little or no background in hemogenetics.

Reviews of crime laboratory bench notes show professional responsibility and a high level of expertise on the part of some analysts, but they also show carelessness, incompetence, and basic disregard for the rules of scientific procedure on the part of others. At present, no

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mechanism exists by which one can distinguish between the analysts offering reliable testimony and those whose work is scientifically unacceptable.

Accurate and reliable hemogenetic studies of physiological stain evidence have frequently provided invaluable information for law enforcement and courts of law. However, if the status quo continues, it is likely that such evidence will suffer the same fate as evidence derived from polygraph tests, voice print tests, and hypnosis. These new scientific procedures were ruled inadmissible in many jurisdictions because they could not be established as reliable.

Techniques for validation of methodology have been developed in research laboratories. Techniques for quality control are well-established in many clinical laboratories, blood banks, paternity clinics, and government regulatory laboratories. Guidelines for quality assurance in the testing of physiological evidence have been formulated and proposed for use in United States crime laboratories (4).

The problem is not so much one of establishing what should be done for quality assurance. The problem is one of implementation in the absence of a relevant professional community. Measures for quality assurance must be understood, accepted, and rigorously enforced. Finally, the courts must be provided with proof of reliability.

REFERENCES

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