E24 The History of DNA Evidence and the Rule of Law: Science and the Law Three Decades Later — Will the Law Ever Catch Up?

Christopher J. Plourd, JD, Superior Court, 939 Main Street, El Centro, CA 92243*

The goal of this presentation is to carry out a historical analysis of the development and utilization of forensic DNA testing as it occurred in the United States and to demonstrate the causal interplay and corresponding change to significant legal doctrines in the American judicial system.

This presentation will impact the forensic science community by providing an overview of the history of DNA evidence and the cause-and-effect relationship with changes in our law. An understanding of the history of DNA will give attendees insight into coming shifts in legal principles that are sure to ripen in the future.

The use of DNA evidence has had a profound effect on the adjudication of cases within our adversarial system of justice. As a product of the unique power of DNA testing to correctly resolve factual issues, long-held legal principals have been re-examined, both legislatively and through the decisional law. Statutes of limitations, scientific admissibility, and the doctrine of finality of cases are a few examples of areas of law that have been affected by DNA science being introduced into the courtroom.

Forensic science is simply defined as the application of science to the law or legal matters. When the judicial system needs science to resolve a question, the person who is called upon to bring science into the courtroom is a "forensic scientist." Science is an empirical method of learning, anchored to the principals of observation and discovery as to how the natural world works. Scientific knowledge increases human understanding by developing experiments that provide the scientist with an objective answer to the question presented. Through the scientific method of study, a scientist systematically observes physical evidence and methodically records the data that supports the scientific process. The law, on the other hand, starts out with at least two competing parties who use the courthouse as a battleground to resolve factual issues within the context of constitutional, statutory, and decisional law.

DNA analysis has set a high standard against which other forensic sciences are now being judged. Not only has DNA identity testing redefined the standard of acceptability of other scientific evidence, it has also fostered an awareness among juries that non-DNA-based identification techniques are less supported scientifically and therefore should be less accepted than DNA profiling as a method of scientific investigation. The 2009 National Academy of Sciences Report was critical in its assessment of some forensic disciplines.[1] Lack of research supporting the basic tenets of techniques was noted. The gist of the NAS Report was that the admittance of a scientific technique into the courtroom when there is very little to support its validity can have consequences that are potentially disastrous. A number of exoneration cases have exemplified the errors that can be made. When life and liberty are at stake, there is a responsibility to base scientific testimony on substantiated techniques. When testimony is opinion based and not science based, interpretation can become subjective rather than objective.

A working knowledge plus an understanding of the advance of forensic DNA identification science is important to all forensic scientists and attorneys who practice in any field of the forensic sciences. The catalyst for DNA's effect on the American legal system was the development and acceptance of DNA identification genetic testing which began in the 1980s. The use of DNA took firm root in the 1990s and was entrenched by the early 2000s. DNA is considered to be the proverbial "gold standard" of biological human identification. DNA profiling over the past three decades was the most significant advance in forensic science since the development of fingerprinting in the 1900s. New types of DNA are being evaluated along with related technologies, notably the continued development and expanded use of DNA data bases. These new developments will continue to make DNA identification an ever more momentous stimulus to change the legal system. Soon "Rapid DNA testing" technology will be emerging. The DNA revolution was a sea change in how courts comprehend what is science. New DNA developments will continue to have vast implications to the rule of law.

Reference:

1. A published study of the National Research Council entitled *Strengthening Forensic Science in the United States: A Path Forward*. The National Academies Press, 2009, hereafter NAS Report.

DNA, RAPID DNA, History

 ** Presenting Author*