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Other Applications of Forensic Genetics

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Topic: Other applications of Forensic Genetics

Oral History Interviewees: Dr. Joseph Warren, Dr. Bruce Budowle

Oral History Interviewer: Mike Pullin

Transcript status: Completed, corrected, master

Budowle: Well, I think this particular field is very different than a lot of research and development fields because once we research and develop, we then have a goal to implement. So with this process, we want to use these tools to help us. And that gives us a lot, I think a lot, more satisfaction, a lot more comfort in the work that's being done because it's actually being used to help people. And that's a lot better than, "I did some research and this adds to some more research, and maybe someday will do something." So, we have the ability to impact society today. And I find that much more rewarding that we're giving something back as opposed to just being in our labs and playing with test tubes, writing some papers, and going to nice places for meetings.

Warren: Again, I see it expanding to other areas. I see, for instance, helping to identify the geographic origin of somebody. And this particularly could be interesting in certain national security issues. We're not only looking at human DNA, we're looking at the bacterial DNA that is found in the person. They believe now that each of us can be individualized just through the bacterial populations we have. And we can also show a bit of our histories as a people--where we've been, what foods we eat, things like that. Again we've talked about getting, using of DNA to obtain a physical description and an ancestry description of somebody. Even some of the conventional markers now could be supplanted with other DNA markers. Using different technologies that will make DNA testing much more faster and more efficient. There are now rapid DNA--is the field that people are looking at right now. In fact, it's being used by the military to analyze DNA samples at crime scenes, overseas, or on the battlefields.

Budowle: One of the things that's becoming available these days, come to fruition, is rapid DNA typing. There's been some effort by the government to develop technology to enable the typing to be done in under 90 minutes. With the concept of a person is arrested, or detained using a booking station at a the police station: and they could draw a sample from him, type it in 90 minutes, and then search a database to see if there any unsolved cases that might match--which may be a justification for holding that person longer. If they don't find any, that may also be a justification to release that person immediately. So there can be a lot of value in speeding up the process.

Warren: And right now, the FBI wants to use it here in more conventional stateside crimes--where you can get at least a reference sample off a suspect. Have it worked right there. You know where they take fingerprints from someone? The police officer will take fingerprints. They'll take a DNA swab of someone's cheek. Put it in an instrument. You get a DNA result back in a very short period of time that goes into a database to see if you have a hit or not. So that, that's another areas. And improvements in current DNA technology--pushing the envelope, so to speak, to work with samples that are too badly degraded, that I have a lot of PCR inhibition. That have a lot of..., I don't want to get too technical here--samples that might cause problems for downstream testing. How to better work with those compromised samples. So that's some of the research that we're looking at now too. And also to get a better understanding of how to better interpret very small amounts of DNA, and DNA mixtures of two or more people.

