

Forensic Scientist



An Interview with David Sugiyama, Senior Forensic Scientist and Homeschooling Dad

By Cindy Downes

Today, it seems that everyone has an interest in forensics—largely because of the part it plays in the entertainment industry. Consequently, there's also an increase in the number of students pursuing careers as forensic scientists. The American Academy of Forensic Sciences defines a forensic scientist as "... first a scientist. When he applies his scientific knowledge to assist juries, attorneys, and judges in understanding science, he is a forensic scientist."¹

What is it like to be a forensic scientist? How do you train for this career? How does forensics relate to a Christian worldview? For answers to these



always wanted a doctor in the family. I enrolled in the pre-med program at U. C. Berkeley. While there, I took "Introduction to Criminalistics" as an elective and got to know the instructor, who was a former crime lab director. At the end of the year, he arranged for our class to tour his old lab. I liked the class so much that I took all the classes needed to be a major in criminalistics, as electives. Somewhere along the way I decided I didn't want to go to medical school. Instead, I wanted to pursue criminalistics. I graduated with a degree in biology and eventually got hired in the lab where my instructor took us on tour.

Cindy: What qualifications do you need to work in this field?

David: When I first started, it was a little different than it is now. It used to be that they wanted students that came out of forensic science programs. Now it's not like that. In order for laboratories to maintain their accreditation, they must hire scientists. Today, you have to have a basic natural science or physical science degree.

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questions, I interviewed David Sugiyama, Senior Forensic Scientist with the Tulsa Police Department Forensic Laboratory in Tulsa, Oklahoma.

Cindy: How did you decide to become a forensic scientist?

David: When I first started college, I was planning to go to medical school, mainly because my parents

Left: David Sugiyama looks through the stereomicroscope, the first step in microscopic examination for trace evidence.

Photos by Bill Downes.

Cindy: How long have you been involved in this field?

David: I graduated U. C. Berkeley in 1977. From there, I went to graduate school at Cal State Los Angeles and was hired as a teaching assistant. My job included cleaning the lab and ordering supplies. They paid me a little and I got a break on tuition. All of us in the class were looking for jobs. One by one somebody would get hired and the class would start dwindling down. I went through that same process until

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Above: Fire debris evidence collected in a metal can awaits analysis. Below: An examination under the stereomicroscope of a cotton swab for human hair.



I got hired by the Contra Costa County Sheriff's Department.

After working with a number of other labs, I bought a private lab, renamed it Forensic Science Services, and did consulting work for public defenders and criminal defense attorneys. I also did work on civil cases for insurance and other private companies.

In 2000, everything was going toward DNA analysis and I had no formal training in it. The labs weren't hiring unless the candidate had DNA experience. The only way I could work in a government lab again was to get this training. A position opened at the Tulsa Police Department Forensic Laboratory that would train a DNA analyst. That's when I moved to



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...ulsa, Oklahoma, where I learned every-
...ing I know about DNA analysis.

Cindy: What is your daily routine?

David: I'm now assigned to Toxicology and Trace Evidence Analysis. I do all the hair exams. At the beginning of the day, I check for assignments that come in. I pick up whatever evidence I need from the property room and take it to the lab. There, I set up whatever analysis I'm going to do and start looking down a microscope. Most of my work for Trace Evidence is microscopy. When I complete the exam, I issue a report.

Cindy: Do you rotate jobs?

David: This is the age of specialties. Everyone that gets hired typically stays in a section. When I first started, everybody was cross trained in everything. You might do hairs and fibers for a while, drugs a couple years later, and later blood

David Sugiyama



stains. But that's not the way it is now. Now, when they hire you, you're probably going to stay in that area for the rest of your career.

Cindy: How do you use math, science, and other subjects in your work?

David: If you're going to do anything in a crime lab, you're at least going to do chemistry work. Most entry-level people break in doing drug analysis. Identifying controlled substances requires you know the chemistry of that compound. DNA analysis requires you to know biology, molecular biology, basic biochemistry, and organic chemistry. Trace evidence requires knowing some chemistry, microscopy, physics (optics), and photography. Physical matches of glass and plastic require knowledge of manufacturing techniques, how the substance is made, and what are its physical properties.

Cindy: What advice would you give those interested in a forensics career?

David: Get a really good foundational basis in some science—preferably in chemistry or biology. You have to have an open approach to answering questions. You have to have a real interest in using scientific method—where you have a problem and you have to determine what it is that's causing a problem or how to solve that problem. Then you have to devise a test to either prove that or disprove it.

Cindy: How long have you homeschooled?

David: We've been homeschooling for about 15 years, starting with Jonathan back in Los Angeles when he was in first grade. Jonathan is 20, finishing his junior

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year at ORU. Jeffrey is 15, finishing ninth, and Alexis is 11, finishing sixth.

Cindy: Do you do any of the teaching?

David: I'm the guy who supplies all the anecdotes, the war stories. They'll ask me how to do something and I'll say, "Well, it kind of reminds me of this case." I can pull some stuff out of the lab and do simple things to help them see and remember. When my daughter, Lexi, wanted to look at some stuff under the microscope, I'd have her look at some hair. Then I'd throw her three hairs and ask her what was different in each one. She learned how to mount hairs, how to use a cover slip, how to use a slide, and how to set up the light.

Cindy: What role does your faith play in your work?

David: You get this knowledge of how miraculous everything is made. When you get down to the DNA level, you see how all these things are put together. There is no way that evolution is related to this. That's how we teach our kids. We show them how incredibly coincidental everything would have to be to fit like this. When you study DNA, you discover that

humans have 23 pairs of chromosomes. Yet, if you add one extra chromosome, it's a disease. If you have duplicates of chromosomes, it's a disease. You can't fool

increase from 2 to 10 to 20 to 40, but it's not like that. There's some bacteria that have hundreds of pairs of chromosomes. So where did they get them all? And if you take one out, it kills them. So how do you take out 150 of them to get to us? It's incredible. You never hear a lot of DNA-level explanation for evolution because there's no way to explain it.

power and Godhead; so that they are without excuse." —Romans 1:20 📖

David Sugiyama

David Sugiyama is a Senior Forensic Scientist in the Toxicology and Trace Evidence Analysis sections at the Tulsa Police Department Forensic Laboratory. He holds a BA in Biology from University of California, Berkeley, is affiliated with the American Academy of Forensic Sciences, and has worked in the field of forensics for over thirty years. He and his wife, Lynette, live in Jenks, Oklahoma, along with their three children, Jonathan, Jeffrey, and Alexis. They have homeschooled for over fifteen years.

There is no way that evolution is related to this.

with that number. And yet, if you look at some insects, they have 200 pairs of chromosomes. If you look at some rodents and some birds, they have 12 or 20 pair. You'd think that if you were gradually working up the evolutionary scale, it would slowly

Cindy: Thank you for taking time to tell us a little about your life as a forensic scientist and the role it plays in your faith and homeschool experiences.

"For the invisible things of him from the creation of the world are clearly seen, being understood by the things that are made, even his eternal



DM Sugiyama

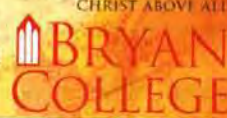
Cindy Downes is a veteran homeschool mom who maintains the Oklahoma Homeschool website (www.oklahomahomeschool.com) and is the author of **The Checklist, Oklahoma History Online**, and the *EmptyNestMom* blog (www.HomeschoolBlogger.com/EmptyNestMom). She enjoys reading, cooking, photography, biking, traveling with her husband, and volunteer work. Contact her at cindy@oklahomahomeschool.com.

1 "Welcome to the Fascinating World of Forensic Science." American Academy of Forensic Sciences. The Forensic Sciences Foundation, Inc. 20 Mar 2007 <www.aafs.org/default.asp?section_id=resources&page_id=choosing_a_career>.

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