

Kendalle Cobb

From Agricultural Research to Medicine

Kendalle Cobb, medical doctor and former ARS research apprentice, says her two summertime stints with the research agency made her feel “comfortable and confident in a lab.”

The ARS experience, says Cobb, “showed me that I could succeed in the science courses that I needed to take as a pre-med student and in medical school.”

Cobb’s apprenticeship mentor, ARS chemist Betty J. Burri, remembers Cobb as “a friendly workaholic” who was “energetic, focused, determined, and successful.”

Based at the ARS Western Human Nutrition Research Center in San Francisco, California, Burri supervised Cobb’s two 8-week apprenticeships at the Center: one when Cobb was 18 and had just finished her junior year of high school and the other after graduating.

This past spring, Cobb—now 26—received her M.D. from the George Washington University School of Medicine and Health Sciences in Washington, D.C. She’s now started the first of 3 years of advanced training—or residency—at the Kaiser Foundation Hospital in Fontana, California, about 45 miles east of Los Angeles.

The ARS apprenticeships, says Cobb, proved useful both during her undergraduate years at Harvard, where she earned a history degree,

and at George Washington University. She helped Burri prepare blood, urine, and eyelash samples for research that could lead to a fast and relatively painless test for vitamin A in the body.

A new test, explains Burri, might make it easier for dietitians and other healthcare practitioners to check their patients’ vitamin A levels.

Currently, more than 50 percent of all Americans aren’t getting the Recommended Dietary Allowance of this essential nutrient, according to U.S. Department of Agriculture estimates. But the most accurate test—a biopsy of the liver, where the body stores most of its vitamin A—is expensive and painful.

Says Cobb, “I’ve known since I was 15 that I wanted to be a doctor. When I went to Harvard, many of my classmates who wanted to get into medical school packed in as many science courses as they could. I felt that I was going to be doing science for the rest of my life, so it was important to me to study other things while I had the chance.

“My lab work with ARS reassured me that I pick up science easily, so I took only as much as was required for medical school admission. I trusted that medical school would be adequate for my science training.

“I went into undergraduate science courses knowing how scientists design and conduct a study. I’d done

preliminary preparation of samples for Dr. Burri, so I felt comfortable in the laboratories at Harvard and in medical school.

“When I was taking biochemistry as a first-year medical student, it helped to know I’d assisted with research in biochemistry,” Cobb says. “When things came up about the liver or vitamin A, I felt I at least had some exposure at the nutrition center—and a different kind of exposure than people who had studied it in a course.

“Some of my friends from college who go to other medical schools feel like they’ve never been exposed to lab research, so they’re taking a year out to find out what it’s about. I don’t need to do that.”

Even the worst part of her ARS job—the “sort of odd” smells that arose from blood and urine specimens from people with liver disease—worked out to her advantage. “I got used to the sight of blood, the odors of specimens, and that sort of thing,” she says. “So in the operating room, I didn’t think about the blood; I focused on the person who needed my help. In my anatomy and pathology class, I had to work with organs preserved in formaldehyde. The specimens smelled bad, but that was nothing new.”

Not all of the samples that Cobb readied at the San Francisco lab presented an olfactory challenge.

Among them: about 100 snippets of eyelash tips carefully clipped from the eyelids of albino rats.

Explains Burri, "Vitamin A is essential for healthy eyes and eyesight. We were interested in exploring the possibility of an eyelash test that would indicate a slight—or what we call marginal—vitamin A deficiency in humans."

Earlier work at the Massachusetts Institute of Technology (MIT) indicated that differences in the structure of eyelash cells from albino rats could reveal vitamin A shortages.

A test that detects a marginal deficiency of this vitamin in humans would "serve as an early warning signal to perhaps stave off a severe deficiency later on," says Burri. Unlike a marginal deficiency, which might go unnoticed, signs of a severe deficiency are usually obvious. A patient may have night blindness, an eye disease called xerophthalmia that can lead to corneal ulcers and blindness, or a dry, scaly skin condition known as follicular hyperkeratosis.

"We were able," continues Burri, "to duplicate the MIT results in our tests of eyelashes from albino rats, which of course are free of pigment. For the human eyelash tips, however, we had to use bleach to strip away the pigment that colors the lashes. That presented a problem."

"In my summers at the lab—1987 and 1988," notes Cobb, "even the best hair bleaches were too harsh." Despite Burri and Cobb's efforts, cells that make up the little eyelash

tips were destroyed when the researchers applied even a very dilute solution of bleach. "They'd dissolve before our eyes," Cobb recalls.

But those investigations may prove fruitful after all.

The advent of newer, gentler bleaches led Burri to revive the project. Healthcare workers in

Cobb, meanwhile, plans to someday bring formal research back into her career. "After I finish my residency and begin my own practice," she says, "the hospital that I affiliate with may provide opportunities for research." An example: The hospital could be chosen as one of many test sites for a major national medical study, as is frequently the case with investigations funded by the National Institutes of Health.

"Or," Cobb adds, "I could develop studies based on my observations of my own patients. Research is important. It's basically what moves science along—especially medicine. If there aren't people doing research, then there isn't much progress. I enjoy research and I want to contribute to it."—
By Marcia Wood, ARS.

As a special service to readers, Kendalle Cobb has volunteered to provide brief replies to career-oriented junior high, high school, or college students who have a question about her personal experience with the ARS apprenticeship program or about her strategies for succeeding in medical school. Letters should be limited to one page, present only one or two specific questions, indicate what year of school the writer is currently in, and include a self-addressed, stamped envelope. Write:

Kendalle Cobb, M.D., 7903 Elm Ave., Rancho Cucamonga, CA 91730. All letters must be received by November 15, 1996. Please allow 30 to 60 days for a reply. ♦

BILL KINDER



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Bangladesh, where vitamin A deficiency is common, have agreed to collect specimens from volunteers. Burri will use the improved bleaches to process these samples.