

**Forty Years Later: Memories of Dr. Lederberg's 1959 Genetics Laboratory**

**Clay C. Whitehead, M.D.**

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I was filled with excitement, curiosity, and some trepidation as I tentatively walked into the temporary laboratories recently opened by Dr. Joshua Lederberg on the Stanford campus. Housed for the time being in the somewhat dated Biophysics Building, the laboratory was upstairs, and was comprised of two large workrooms housing six post-doctoral students, and several associated offices. Air conditioning was rare in those days, and the rooms were filled with work benches covered with endless agar plates, pipettes, esoteric tubing, autoclaves, hand held counters, and other now primitive paraphernalia of the research enterprise. Increasingly, during the last two years, I had been intrigued by the post-Sputnik mobilization and authority which scientific expertise elicited in America at that time. Now, as a sixteen-year-old high school student, I felt thrilled to have this opportunity to learn first hand about the work and life of the scientist.

I was relieved to be welcomed into this novel and interesting environment by Dr. Esther Lederberg, who quickly instructed me in the procedures of test tube washing and rinsing, agar preparation, and sterile petri dish pouring techniques which were to be my chief official duties during the next two summers. Esther, as she was known in the lab, was a good instructor, and vigorously defined my tasks. She seemed to exude qualities of kindness and competence combined with a sort of dour dysphoria which caused this insecure adolescent to keep a distance.

Before long, I had learned how to accomplish my duties, and gradually began developing friendships with the diverse and generous post-doctoral students working in the laboratory. There was an American, an Englishman, an Indian, and a Japanese; truly a cosmopolitan group, and as I came to appreciate, a very gifted one as well. They showed me some of their techniques for hand spreading multiple-diluted strains on the plates which I had prepared. After a few days, the colonies were laboriously recorded with an electrically charged manual counter. Soon they instructed me on how to develop

my own strains using ultraviolet light to induce mutations, and dietary restricted media to select desired strains. Finally, I proudly freeze-dried my new mutations for the permanent laboratory collection in small glass vacuum tubes for long-term storage. A clever data illustration technique involved the transfer of actual colonies from the agar to the pages of laboratory workbooks using round sheets of transparent tape.

At that time, Dr. Lederberg was 34. You would not have guessed he was a preeminent scientist from his demeanor, which was unpretentious and slightly detached. When not interpersonally engaged, he seemed perhaps distracted; but when engaged, he was resonant, generous, and available intellectually. He radiated energy, was voraciously curious, and struck me as driven and hyperkinetic. He seemed very interested in efficiency, critical examination, and the sharing of knowledge. This commitment even applied to his young laboratory helper. I often saw him talking to his post-doctoral students or to his laboratory neighbor and colleague, Dr. Arthur Kornberg, and would avidly listen in on these conversations.

Forty years later, much has changed. Genetics laboratories are now much different places, and I gradually matured into a somewhat driven and hyperkinetic psychoanalyst. As a teenager, I had found the work of the laboratory environment of that era too isolating and abstracted for my temperament, and so the working trajectory of my life diverged from that of the laboratory. Despite this, not a day goes by that I am not affected by my experiences there. I found in the laboratory and in Dr. Lederberg exorbitant curiosity, omnivorous vigor, and a somewhat ruthless (and highly respectable) commitment to the truth. I believe that there were hundreds of workers and students who were touched by this atmosphere as I was. The experience taught me in life what my psychoanalytic training later helped me understand: the most exemplary and Promethean achievements of our culture finally depend on a human web rooted in benevolent passion and inspired integrity.