RACIAL MODIFIERS V

From Inner-City L.A. to Yale Engineering

***New York Times* reporter Calvin Sims recalls becoming an engineer.**

Ever since I was in high school in inner-city Los Angeles, I've been hearing how important it is for minority kids to do science. I'm African-American, I come from a poor background, and I went through school in the 1980s, so I experienced the full force of modern affirmative action programs in science and engineering. I built bridges with toothpicks, visited engineering schools, and even got paid $20 for every A in science and math; I spent the money on records.

Did it work? I guess so, because I graduated from Yale in 1985 with a degree in mechanical engineering. Today, although I'm not an engineer, I report on the world of science as a business and technology reporter for *The New York Times*. But I don't think my experiences along the way were exactly what the founders of those programs intended. I think they spent too much effort trying to get students to love science, instead of preparing us academically to pursue it. And they underestimated the obstacles faced by people like me.

I grew up in Compton, California, an inner-city community of Los Angeles where crime is high and the quality of public education low. I'm the third of 13 children. My father was an industrial engineer, so although we were by no means middle class, I never worried about having enough to eat or books to read.

Like most scientists—but unlike most African-Americans—I had a close relative who sparked my interest in science when I was young: my dad. He took us to visit his lab at a scientific equipment company, where I was fascinated by the gas chromatographs he said could identify unknown substances. Naturally, I wanted to be an engineer just like him. So did my brothers and sisters: Today, six of them are in science or math-related fields.

My parents also bought us science kits and telescopes and they would have sent us to private schools if there had been money.

Thanks to all this family support, by the time I reached high school, I was really interested in science. But the schools I attended were terrible. The math and science curricula were below state standards; the lab equipment was antiquated and scarce. The teachers had little training and less interest in math and science. Lectures focused on facts and rarely talked about applications. I made straight A's in high school, but I didn't learn very much science or math—as I was later to discover.

I had another force pushing me toward engineering in high school: the Mathematics, Engineering, Science Achievement Program (MESA), sponsored by local colleges and industry. I give MESA high marks for keeping students like me interested, by showing me the fun of science and taking me to visit scientists' labs. They even paid me for getting As and Bs in science and math. But my friends and I had enough family support that we would have made those As anyway. I think the money could have been better spent in school, on lab equipment and teachers.

With all this fuss about science, it's no surprise that I entered the L.A. County science fair. I worked for months on my project on thin-layer chromatography, running samples and testing substances, and I was picked as a finalist. I fully understood that project, and I think I explained it well to the judges—but they clearly did not believe I had done it on my own. One asked if I'd gotten my idea from another student's project. They weren't trying to find out how well I understood the material, they were trying to find out how an inner-city kid could do such work. I got an honorable mention instead of a prize.

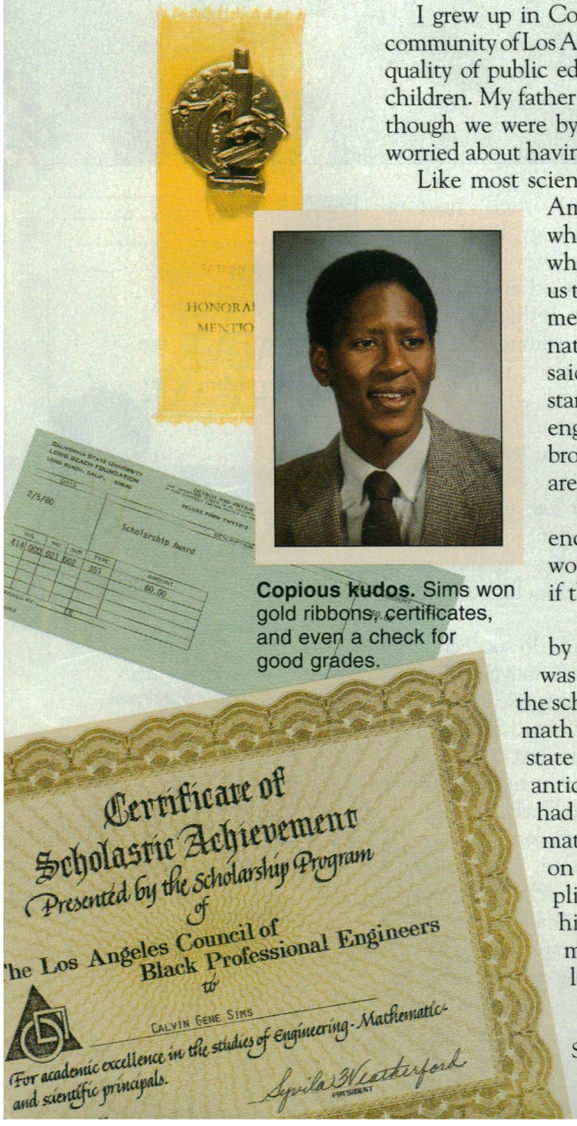
The science fair was my first encounter with people of science who, for no logical reason I could see, questioned my ability. They simply did not expect me to understand. My first week at Yale, I met with my adviser, an engineering professor. He took one look at me and where I had come from, and said I might get more from Yale if I studied humanities. "You might have gotten straight A's at Compton High, but this is Yale. You'll probably find yourself outclassed, especially in engineering," he said.

In one respect, he was right: Compton High hadn't prepared me very well. But he didn't offer any guidance on making up work. His best advice was to quit then and there—in freshman year, before I'd even had a chance to try. No wonder minorities leave science at nearly twice the rate of whites in the freshman year.

In any case, I didn't listen. I worked very hard that year, and did reasonably well in basic math and science classes. I even got one of only four A's in the class in a required introductory engineering course. But sophomore year the work got considerably harder and I did very poorly in two engineering classes. That summer I thought seriously of switching my major to English or history, which would match my long-standing interest in journalism.

But also that summer, my new faculty adviser, engineering professor Robert Apfel, wrote me a letter. "You work hard and have a lot of enthusiasm. If you just get the basics down, you will make it," he wrote. It was exactly what I needed to hear. Once on campus, Apfel arranged for me to get a tutor and advised me to do problem sets with a group, instead of trying to work them alone as I had been. His inspiration, along with my father's—who suggested I apply to Yale in the first place—made all the difference. My grades improved junior year, and senior year I received an A on my engineering thesis.

In retrospect, I see I had advantages most minority students lack. But at the time, I remember feeling that getting this engineering degree was not worth all the trouble, and I often thought of quitting. I stayed in, not so much because of any specific program, but because I was lucky enough to meet people who gave me advice and showed me how to succeed.



Copious kudos. Sims won gold ribbons, certificates, and even a check for good grades.