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Betty Mbom

Dynamo Walking

Anne Sasso
United States
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For someone so young, Bertrade "Betty" Mbom is surprisingly accomplished and well connected. Mbom sometimes breakfasts with the associate dean for undergraduate affairs for Carnegie Mellon University's (CMU's) College of Science and is a regular visitor to his office. She founded, and runs, a successful minority peer-mentoring program that dissolves barriers between faculty members and minority undergraduate students and draws new students into the science classroom.

Mbom, 21, combines the poise of a seasoned academic with the kind of enthusiasm that energizes a lab. A native of Cameroon who grew up in New York City, she's wrapping up a bachelor's degree in biology at CMU in Pittsburgh, Pennsylvania, this spring. At graduation, she'll deliver the commencement address. After that, it's off to graduate school in biology. She is one of five students receiving a 2008 Gilliam Fellowship for Advanced Study from the Howard Hughes Medical Institute (HHMI), which provides full funding for up to 5 years of study toward a Ph.D. in the sciences to students from underrepresented groups or from disadvantaged backgrounds.

"Betty got it right away. You've got to do the work. And I really think that's Betty. She's willing to make the sacrifices necessary to reach her goals." --Eric Grotzinger

Mbom approached the choice of graduate programs with her usual self-possession, discussing her options with her network of mentors and considering tradeoffs, such as closeness to family and career opportunities. Her choices included the Massachusetts Institute of Technology (MIT), where she participated in a summer program for high school students, Princeton University, which is close to her family in New York City, and Stanford University, where she spent 8 weeks last summer. "Family is very important to me, but maybe I need to make the leap and go where the opportunities are best for me," she says. "I mean, it's not forever." She chose Stanford.

Mbom's careful grad-school deliberations didn't surprise Eric Grotzinger, associate dean for undergraduate affairs in CMU's College of Science. He recalls a sunny Friday morning during her sophomore year when she was studying with friends in a coffee shop. Grotzinger asked if he would see her at a large campus social event that night. Mbom said she planned to study

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for an organic chemistry exam instead. "Betty got it right away," Grotzinger says. "You've got to do the work. And I really think that's Betty. She's willing to make the sacrifices necessary to reach her goals."

Success runs in the family

Mbom attributes her groundedness, discipline, and self-confidence to her mother, Bertrade Ngo-Ngijol Banoum, an assistant professor in African and African-American Studies at Lehman College, part of the City University of New York. "She always pushed me to be my best but in the most wonderful way possible," Mbom says. The youngest of five children, Mbom watched her mother earn a doctorate in England, teach at universities in Cameroon, then move the family to New York City when Betty was 9 and it was time for the oldest siblings to attend college. Mbom is estranged from her father, who teaches at Brooklyn College.

Success runs in the family but not science. All four of her siblings studied political science and now work in business or international and public affairs. Betty's interest in science crystallized, she says, during a 3-week MIT summer program, Minority Introduction to Engineering and Science (MITES). Her guidance counselor encouraged her to apply for the program, and she attended after her junior year of high school. "It was my first real exposure to science research, and I remember being really interested in all the different tools available to answer questions in science," she says. "I remember thinking, 'This is it for me. This is what I want to do.' It was the catalyst." She returned to her high school, the [Bronx High School of Science](#), determined to pursue biology.

For college, Mbom chose CMU for its academic strength not just in science but in other disciplines. She says she wanted to be around people excelling in a wide range of fields.

Mbom's enthusiasm and love of science drove her to look for work in a biology lab soon after starting at CMU. That's how she found John Woolford, a biology professor and one of her early mentors, who welcomed Mbom into his yeast genetics lab that year. Working in a lab is "good experience for the undergrads because it gives them an additional set of contacts in the college that they can talk to and get advice from," Woolford says.

In hindsight, it was a smart move because Mbom struggled during her freshman year, doing poorly in a couple of classes. With coaching from Woolford and the support of her lab peers, she mapped out a plan to buckle down and do better her sophomore year. "I saw her work really hard, determined to do well. And she succeeded," Woolford says. "She's willing to listen to criticism and react in a positive way, by working hard and working smart."

An older student, Jared Wenger--now a graduate student in the department of genetics at Stanford--made a lasting impression. Mbom says Wenger, who was 2 years ahead of her, was always available to answer questions, offer advice, and tutor her when necessary. She sought his help often. "It was a big thing. I started thinking that I should start a program where people have a Jared so they have someone to talk to and ask those questions that you don't feel comfortable asking an adviser or teacher," Mbom says.

Setting the COMPASS

So Mbom approached Dean Grotzinger and several faculty members with her idea for a peer-mentoring program for incoming minority students and launched COaching Minority Progress and Academic Success in Science (COMPASS) in 2007. The program matches incoming minority freshmen with minority mentors hand-picked and coached by Mbom. Through one-on-one peer mentoring and a calendar of group events, coordinated and cheered by Mbom, the program facilitates an easier transition into CMU and helps diffuse any feelings of

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Betty Mbom started work in a lab soon after beginning her undergraduate studies.

intimidation.

After meeting Grotzinger at group events, the students participating in COMPASS feel comfortable dropping by his office to chat about student life. The buzz has spread across campus: This is the first time in his 28 years, Grotzinger says, that he has seen such a high rate of minority students transferring into the college from other programs at CMU. "They're coming from the School of Engineering, the humanities and social sciences. They've heard about the program. They know the students in it. They see the advantages. I believe it's going to do very well."

Last summer, Mbom worked in the lab of Tim Stearns, professor of biological sciences and genetics at

Stanford, as part of the HHMI Exceptional Research Opportunities program, which pairs exceptional undergraduates from disadvantaged backgrounds with HHMI faculty members. During the summer, she was introduced to a whole new set of lab techniques, including fluorescence and video microscopy, and switched from yeast cultures to mammalian cell cultures. "In only 8 weeks, she had to learn a tremendous amount and did fabulously well," Stearns says. "She was working to the level of a second-year graduate student as far as her intellectual level of thinking about the problem."

Stearns will be thrilled to welcome Mbom back into his lab if she chooses to continue her work there. But whatever choice she makes, he's excited about the opportunities offered her by Stanford and the Gilliam Fellowship.

Mbom is excited and eager to resume her mentorship activities at Stanford, but first she plans to focus on her work as she settles in to the new environment. Once she's learned the lay of the land and developed a new network, she plans to broaden her focus. She expects mentoring and working to increase the success of minorities in the sciences to be a big part of her life.

"The positive feedback has made her feel even more confident about herself and the choices she has made," Woolford says. And I hope that it dominoes, that people will see that these kinds of efforts, like COMPASS, are recognized and rewarded."

<p>Anne Sasso is a freelance writer and may be reached at AMSasso@aol.com.</p>	<p>Comments, suggestions? Please send your feedback to our editor.</p>
<p>Photos: courtesy, Betty Mbom</p>	<p>DOI: 10.1126/science.caredit.a0800071</p>

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