African American Women Chemists, Jeannette Brown, Oxford University Press, New York, 2012, vii + 252 pp, ISBN 978-0-19-974288-2, $35.

Jeannette E. Brown's new book, titled *African American Women Chemists* is a wonderful gem. For the past several years, I have researched the biographies of several African American chemists as a passionate hobby, essentially becoming a *chemist-historian* by accident. I didn't specifically focus on African American women, but African American contributions to the field of chemistry in general. As a graduate student, it was almost therapeutic for me to learn about their stories. Thus, when Brown's book was published, I was absolutely thrilled. And I was more thrilled to write this review. Brown's book is a gem because it is the first book that solely focuses on the life, struggles and scientific achievements of African American women chemists. Divided into ten chapters, this book provides the reader with the personal journeys of 26 chemists, including Brown herself.

Why are these women significant? The 26 chemists that Brown profiles in this book focused on a variety of research topics such as the chemistry of Grignard reagents, the underlying causes of heart attacks and the development of photographic coatings. These women are significant because of their scientific contributions. Brown highlights that some of them were strong researchers and published their scientific contributions in high-impact journals, such as the *Journal of the American Chemical Society*, *Science, Journal of Biological Chemistry*, and the *Journal of Chemical Physics*. Quite simply, they are chemists that just so happen *to be* African American women.

Although this book is about the contributions of African American women chemists, it is a must read for everyone—not just African Americans. More importantly, this book is an easy read and is not targeted exclusively to the chemistry audience. Thus, *African American Women Chemists* could be used as a textbook for high school or college level courses in the fields of American history, history of science or within the chemistry curriculum.

Why is this book so important? In Chapter 1 ("The Reason for This Book and Why These Women Were Chosen") Brown writes, "Many people have studied the history of African American women chemists, but the information is scattered in many references, articles, and trade books. Until now, there was no one place where one could access extensive information about these women" (p 1). Thus, Brown indeed fills a "literary void" with this important piece of work. In Chapter 2 ("Resources for Historical Background"), Brown provides a general overview of the topic and resources about African Americans in science, including *Beyond Small Numbers: Voices of African American PhD Chemists*, authored by Dr. Willie Pearson, and *Black Women Scientists in the United States*, by Dr. Wini Warren. But Brown clearly points out that most of the resources available about African American scientists focus on men, not women.

Brown also briefly describes what motivated her to write this book in the first place (p. 6):

> I began this study of the lives of African American women chemists after meeting Dr. Marie Daly at a scientific meeting in 1984. Dr. Marie Daly is the first African American woman to receive a PhD in chemistry. She was very modest and unassuming. Since I am also a chemist, I decided to learn about the other African American women who decided to pursue a degree in chemistry in spite of the odds against them.

Brown is actually emphasizing the importance and impact of role models, but she misses a great opportunity to discuss the topic. Specifically, what is needed is more detail on her meeting with Daly, which we can assume had a profound impact on Brown. What did Brown and Daly actually discuss? Career paths or the struggles Daly encountered in the field of chemistry? Was Daly a role model to Brown or a mentor? This is unclear.

One theme that truly resonates throughout this book is the importance of effective mentoring. Many women described in this book were mentored by both Black and White male chemists, which is not at all that surprising considering the smaller number of women chemists that could serve as role models. For example, Dr. Henry Ransom Cecil McBay and Dr. Kimuel Alonzo Huggins, both African American, mentored two chemists discussed in Brown's book, namely Dr. Gloria Long Anderson and Dr. Betty Wright Harris. Huggins and McBay both earned doctorates in chemistry from the University of Chicago, and published several articles in the *Journal of the American Chemical Society*. Moreover, McBay is considered to be the "Father of Black Chemists in the United States," because he mentored and trained several African American chemists during his academic career.

There have been numerous articles and books published about the low numbers of African Americans pursuing degrees in the chemical sciences and quite often a primary reason for these dismal statistics is the lack of effective mentoring. Due to the small numbers of

African American chemistry faculty, it is not statistically possible for every African American student interested in chemistry to be mentored by an African American faculty member. Brown's book clearly makes this point. To be an effective mentor or advisor, it is crucial that the mentor believes that the student can reach his or her full potential in the chemical sciences and provides solid training in both technical and soft skills.

In Chapters 3 ("Early Pioneers") through 8 ("Chemical Engineers"), Brown provides the reader with biographical information focused on the early life, education and career paths of each chemist. Although some detail regarding the early life for a few of the chemists in is quite limited, Brown does a very good job of emphasizing why each woman profiled is significant to the chemical sciences. Chapter 4 *(*"Marie Maynard Daly") is an excellent and strong chapter focusing on the life of Daly, who earned her PhD under the guidance of Dr. Mary L. Caldwell, a pioneer for women chemists and expert in enzyme chemistry.

In Chapter 9 ("My Story"), Brown essentially tells of her own personal journey. A native of Bronx, NY, Brown knew at the age of five or six that she wanted to be a scientist. After earning a B.S. degree from Hunter College in 1956 and a M.S. degree in chemistry from the University of Minnesota in 1958—the first African American woman to earn a degree in chemistry from the University of Minnesota—Brown had a successful career in the pharmaceutical industry working for both CIBA Pharmaceuticals (now Novartis) and later Schering Plough (now Merck). Brown's research efforts focused on the development of pharmaceutical drugs including Primaxin, an antibiotic.

In Chapter 10 ("Next Steps"), the final chapter of the book, Brown discusses the importance of encouraging young women to major in chemistry and discusses in detail many resources available to help young people reach their full potential in the chemical sciences. The American Chemical Society (ACS) offers various programs such as Project SEED for high school seniors and the ACS Scholars Program which provides scholarships to underrepresented minority students. Additional ACS resources include the Women Chemists Committee (WCC) and the Committee for Minority Affairs (CMA). Brown also discusses the programming available through NOBCChE (The National Organization for the Professional Advancement of Black Chemists and Chemical Engineers) such its Science Bowl and Science Fair.

In this final chapter, Brown does a good job highlighting resources available; however, Chapter 10 could have been a stronger, more effective chapter if a brief discussion on effective mentoring were included. Obviously, there are academic institutions that have been successful producing African American women chemists with graduate degrees. But why are these institutions successful? What are common departmental factors among academic institutions for success? For women that are interested in academic careers, Brown briefly discusses wonderful opportunities available through COACh (Committee on the Advancement of Women Chemists). But, there are some African American women chemists that are successful tenured faculty. Why were these women successful at obtaining tenure? Honestly, in order to earn a graduate degree in the chemical sciences, one has to want the degree on a very personal level. But in order to increase the numbers of African American women with successful careers in the chemical sciences, these women quite simply need effective mentoring.

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