



Newsletter

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Graduate Education

Welcome Home

Madeleine Jacobs
ACS Executive Director & CEO

When I was in graduate school more than 30 years ago and trying to keep abreast of everything that was going on around me in the chemical enterprise, I read *Chemical & Engineering News* as well as many of the ACS journals, such as, *Journal of the American Chemical Society*. Of course, I had been reading *C&EN* and *JACS* as an undergraduate, and when I graduated with a B.S. in chemistry from an ACS-approved curriculum, I immediately became a member of the American Chemical Society. It never occurred to me that I wouldn't join ACS! ACS, after all, was the professional home for chemists, and I was a chemist. So I joined ACS as much for the personal pride of belonging to the professional home for chemists as I did for *C&EN* and the discounted print journals and meeting registrations.

Many years have passed since those happy days in the organic laboratories at the University of Maryland. I'm still a member of ACS and still feel that sense of professional pride as a chemist. But now that I am executive director of ACS, I've come to realize that the value proposition of ACS membership has changed dramatically over the years.

ACS members still receive the premier newsmagazine of the chemical, life sciences, and biotechnology world—*Chemical & Engineering News*. Members are also entitled to more than 200 products, programs, and services, including the suite of valuable career development and placement services exemplified by the ACS Office of Career Services and the one-stop, online employment site, *C&EN Chemjobs* (www.cen-chemjobs.org/). Members also receive discounted meeting registrations for both national and regional meetings as



well as for ACS Short courses.

But today, many chemists receive their journals as part of a site license from their institutions. And many chemists are working in fields at the interface of chemistry, such as biology, medicine, materials science, electronics, physics, mathematics, computational sciences, and engineering.

Perhaps you're one of those graduate students working at one of those exciting interface areas and wondering whether ACS is the professional home for you.

These chemists sometimes think of themselves not so much as chemists but as scientists who use chemistry as a tool.

Perhaps you're one of those graduate students working at one of those exciting interface areas and wondering whether ACS is the professional home for you. Let me assure you that it is! No matter what

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your field—whether it is nanoscience, the genome, biotechnology, materials science and engineering, or any of the other fields—ACS has much to offer you.

Within ACS, we have communities of scientists working in your area. They communicate with each other through our prestigious journals, such as *JACS*, *Nano Letters*, *Journal of Proteome Research*, and *Biochemistry*, just to name a few of our more than 30 journals. Our chemists also communicate with each other face-to-face at our national and regional meetings, in symposia co-organized by our nearly three dozen technical divisions. Indeed, the ACS national meetings are unique in providing a venue where chemists from many different subdisciplines communicate readily. A medicinal chemist interested in drug delivery, for instance, can easily attend a talk by a polymer chemist who is working on the means to deliver a new drug, or a protein chemist can attend a talk by a computational chemist who is modeling protein folding.

ACS is also a professional society that welcomes more than just disciplinary diversity. As this issue of the *ACS Graduate Education Newsletter* indicates, ACS has worked hard to promote diversity in its membership and in the chemical community at large. We have many programs that encourage and promote the success of women and underrepresented groups, and we have national awards that recognize those people who have done a particularly effective job in helping women, African-Americans, Hispanics, and Native Americans achieve a chemistry education.

My closing message is simple: If you are working in any of the molecular sciences and engineering fields, ACS is definitely the professional home for you! The ACS Graduate Education Office is a great source of information about ACS services. Yet, there is more that ACS can and should do to ensure that we are a welcoming professional home. In particular, I especially want to let graduate students know what we offer and how ACS can help them be successful in their careers. If you have comments or ideas, please write to me at executive_director@acs.org. I'm looking forward to hearing from you. ■

Editor's Column

Marjorie C. Caserio, American Chemical Society

In an informative article on “The Changing Face of Chemistry” (*C&EN*, 2004, 82 (7), 68–72), author Michael Heylin analyzed NSF data on the number and kind of Ph.D. chemistry graduates since 1970. He noted some dramatic changes. The data are particularly relevant to this issue of our *Newsletter*, which focuses on diversity. New chemistry Ph.D.s reached an all-time high of 2,238, 92% of whom were male, in 1970. By 2002, the total number decreased to 1,922—most of the decrease arising from the steady decline in the number of male graduates (to 66.3%) in the intervening thirty years. In contrast, the number of female graduates increased dramatically from 182 (8%) in 1970 to 646 (33.6%) in 2002, partially offsetting an otherwise steeper decline in the number of chemistry Ph.D.s. Another important factor has been the increase in foreign graduates from 340 (15%) in 1970 to 688 (35.8%) in 2002; but, unless there are radical changes, this number will drop as fewer foreign students elect or are permitted to study in the United States, and more students opt for graduate degrees in related fields (including materials science, molecular biology, and nanoscience). Heylin points out that student interest in the core chemistry fields has eroded, as interest in chemistry-related sciences has strengthened. The conclusion: the “changing face of chemistry” applies as much to the discipline itself as to the individual chemist. This is also the point made by Madeleine Jacobs, Executive Director and CEO of the American Chemical Society, in her front-page article that we are proud to feature in this issue. Her message goes further and extends the “changing face” concept to include the ACS. As the practice of chemistry moves increasingly to the interface with other disciplines, so do the programs, services, journals, and professional networks of the ACS.

Chemistry is strengthened by diversity in three dimensions—the discipline, the professional society, and the practitioner. That being said, the ethnic and racial makeup of U.S. chemists has been slow to change. Progress has been made, but the number of black and Hispanic graduates is still not representative of the

U.S. black and Hispanic populations. The situation is powerfully presented in Robert Lichter's accompanying article, “Diversity: Necessary for Scientific Progress.” Bringing the numbers up to parity is a major challenge for the chemistry profession. Achieving diversity in the workforce is an objective shared by many disciplines, and there are many outreach programs at the federal, state, and local levels designed to help. Within ACS, as Lichter mentions, the award-

A most effective strategy is the outreach of one individual to encourage achievements in another. Most of us can trace the influence in our lives of singular individuals, perhaps a teacher, role model, parent, adviser, mentor, or friend.

winning Project Seed and Scholars programs that encourage and support high school and undergraduate students in their studies of chemistry have been remarkably successful. But, as you read this *Newsletter*, you may sense that programs need more than dollars to succeed. A most effective strategy is the outreach of one individual to encourage achievements in another. Most of us can trace the influence in our lives of singular individuals, perhaps a teacher, role model, parent, adviser, mentor, or friend.

Guidance, or having someone there for you, is important for many young people, but especially so for those who might see their career expectations limited for socioeconomic, national, gender, racial, or ethnic reasons. The comments in this newsletter from recipients of the ACS/Dreyfus awards for encouraging women and disadvantaged students into chemistry and related fields underscore the importance of personal involvement—of sound and sustained mentoring.

We seem beset by rapid change on some fronts and not enough on others. Argument persists that graduate educa-

tion in the chemical sciences has not kept pace with the changing face of the discipline. Finding a forum to give expression to the state of graduate education in chemistry, chemical engineering, and related fields has never been easy, even within ACS. *The Journal of Chemical Education* is dedicated to the dissemination of information and ideas regarding education in chemistry, yet the focus has traditionally been on undergraduate chemical education. However, the December 2004 issue breaks with tradition in reporting on the ACS Academic Employment Initiative and recent ACS graduate symposia. In particular, the editor, John W. Moore, has an important message for the chemical community, which we are pleased to quote:

“...I encourage those who are experimenting with graduate education to make use of these pages [*JCE*] to spread ideas more widely. Please join us...by writing up your innovative programs or critiques of existing programs and sending them to us for publication.” (*JCE*, 2004, 81, 1687)

We applaud this announcement and hope to see more response from the graduate community in the *Journal* and in the pages of the *Graduate Education Newsletter*. ■

Diversity: Necessary for Scientific Progress

Robert L. Lichter

Merrimack Consultants, LLC, Atlanta, GA

Creative solutions to scientific problems require a diversity of thought, approach, and perspective. That much is clear and well supported by scholarly studies. These requirements, however, do not exist in a vacuum: they are human qualities. University of Michigan president and biochemist Mary Sue Coleman captured this concept in a 1996 address at the University of Iowa:

Science is not now, nor has it ever been, value free...[S]ocial scientists teach us that collective decision-making processes are more likely to lead to outcomes that the whole community can support if decision-makers have had a chance to consider an array of diagnoses of ‘the problem requiring action.’ **That argument alone is sufficient justification for broadening and diversifying the pool of those who do science in this country.** [Emphasis added.]¹

Coleman’s conclusion is indeed correct, yet the need for diversity is often conflated with concerns about employment possibilities, immigration issues, and

the repeated shibboleth of “standards.” NSF Deputy Director Joseph Bordogna demolishes these arguments by observing that discussion about developing the scientific workforce is not

about the total number of scientists and engineers the nation may or may not need.... It IS about including a larger proportion of women, underrepresented minorities, and persons with disabilities in the scientific workforce, no matter the size of that workforce. **Whatever the numbers turn out to be, we need a robust and varied mix, and that means broadening participation.** [Emphasis added.]²

It is the “robust and varied mix” that is at issue here. The challenge is to identify the means of attaining it. The critical mechanism is to broaden participation in graduate study by U.S. citizens. The robustness of the mix and the quality of graduate education assuredly requires access by foreign nationals, and the unfortunate restrictions placed on prospective foreign graduate students has properly attracted attention at the national level. However, improving access by U.S. citizens who are underrepresented in the sciences (African-Americans, Latinos, American Indians, persons with disabilities, and women, especially in advanced positions) remains elusive. The consequences of this continued underrepresentation are borne out by the statistics—especially in academic settings—for numbers of degrees awarded to members of underserved communities; faculty appointments, promotion, and tenure; progress to leadership positions; and nominations for and receipt of awards and honors.

Many reasons exist for emphasizing enhancement of diversity in science from among the U.S. population; two are given above. Another compelling reason is mere demographic imperative. According to the National Science Foundation’s 2004 *Science & Engineering Indicators*³ (SEI), between the years 2000 and 2015 “the Hispanic college-age population is projected to increase by 52 percent, near-

Bringing faculty recruiters and job candidates together

at ACS National Meetings is at the heart of the ACS Academic Employment Initiative launched in 2004 by former ACS President Charles Casey. An account of the initiative and the success of the first poster session, which provided a great opportunity for candidates to network and meet recruiters, has appeared in the *Journal of Chemical Education* 2004, 81, 1697 and can be viewed online at:

www.jce.divched.org/Journal/Issues/2004/Dec/abs1697.html



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ly as high as the rise in Asian/Pacific Islanders (62 percent); those of African-Americans and American Indian/Alaskan Natives will rise by 19 and 15 percent, respectively.” In contrast, “the white college-age cohort, which declined until 2000, is expected to rise by seven percent, should expand slowly until about 2010, and should then decline again.

[Emphasis added.]” Yet, in the period 1994–2001, the latest year for which reliable data are available (please see table) the number of doctoral degrees awarded to U.S. citizens and permanent residents has witnessed a relative decline compared to the total number awarded.

Furthermore, while the proportion of doctoral degrees awarded to women has increased, the absolute number of degrees awarded to women has not changed significantly. The same conclusion applies to the paltry increase in the percentage of African-Americans (1.5 to 2.1 percent), or the constant percentage of Hispanics

These institutions know how, in the words of Erwin Schrödinger, not so much to see what no one has yet seen, but to think what nobody has yet thought, about that which everyone sees.

(2.1 to 2.2 percent) receiving degrees in that period: the numbers are still abysmally small. Combining an extrapolation of these trends with the demographic projections makes clear that maintaining intellectual capacity and its attendant economic and social benefits absolutely demands broadening the participation of currently underserved communities.

If institutions of higher learning are the gateway for enhancing participation in the scientific and engineering enterprise, what does the future hold? Again, according to the *SEI*, enrollment in institutions of higher learning is projected to increase in the first two decades of the 21st century, largely from underrepresented minorities, and particularly from Hispanics. Yet, as given in *Women, Minorities, and Persons with Disabilities in Science and Engineering: 2004*⁴, the percentage of African-American and Hispanic first-year students indicating an intention to major in physical sciences in 2002 is 1.6 percent and 3.2 percent,

Chemistry Ph.D. Degrees by Gender, Race, and Ethnicity, 1994–2001

	1994	1995	1996	1997	1998	1999	2000	2001	
Total	2257	2162	2148	2148	2216	2132	1989	1979	
Citizens/ permanent residents	1616	1624	1462	1439	1467	1406	1241	1229	
White	1179	1112	1061	1078	1129	1090	988	974	
Asian/Pacific Islander	331	415	295	234	206	183	121	125	
Black	34	33	45	35	45	56	44	42	
Hispanic	59	43	36	44	34	46	51	43	
Amer. Ind./Alask. Native	4	5	4	6	7	5	7	11	
Other or unknown	9	16	21	42	46	26	30	34	
Women	625	661	605	613	695	632	624	628	
Percent of Total	27.7							31.7	

(Source: Women, Minorities, and Persons with Disabilities in Science and Engineering: 2004; NSF 04-317; National Science Foundation, Division of Science Resources Statistics: Arlington, VA, 2004.)

respectively, compared with 2.1 percent for white students and 1.9 percent for Asian and Pacific Islanders. Currently, less than 3 percent of all underrepresented minorities receive bachelor's degrees in science and engineering, compared to 6 percent of white students. These percentages have remained relatively constant in the decade of the 1990s despite increases in the absolute numbers of recipients. Moreover, enrollment in academic institutions shows a significant dichotomy. In 1998, underrepresented minority students were more often enrolled than U.S. citizens overall in two-year institutions (43 vs. 39 percent) and less often in research institutions (12 vs. 18 percent).

Further demographic analysis reveals an even more profound challenge⁵. This analysis compares the numbers of doctorates to the numbers of bachelor's degrees awarded to minority populations with the corresponding numbers for degrees awarded to white recipients. The ratio between these two proportions is defined as the “parity ratio”. What is striking from the detailed analysis⁵, is that, because of projected population increases, merely maintaining the current rate of minority Ph.D. production will decrease the parity ratio (currently 70 percent) to 27 percent by 2015. Furthermore, merely to maintain the current ratio would require the addi-

tion of 52 minority Ph.D.s each year; to achieve total parity would require production of an additional 100 minority Ph.D. recipients annually.

Clearly a substantial pool of talented minority chemists exists whose progress can be supported and facilitated. Much of the chemical industry has recognized and benefited from this for some time. The Louis Stokes Alliance for Minority Participation program produced almost 1,100 chemistry majors in the academic year 2001–2002. Closer to home, as of September 2004, the ACS Scholars Program has graduated almost 600 bachelor's degree recipients in the chemical sciences and engineering; 80 are known to have entered doctoral programs, and 17 have already received doctorates. In addition, the ACS Academic Employment Initiative has the potential to serve as a highly effective mechanism to facilitate transitions by underrepresented students from graduate study into postdoctoral appointments, which are considered to be critical for obtaining positions in research-intensive universities.

The lessons from this very limited discussion are clear: a population of potential scientists exists among the U.S. citizenry; that population will come largely from communities who have been historically underrepresented in programs

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Diversity and the ACS/Dreyfus Awards: Honoring Those Who Make a Difference

The ACS awards program has grown beyond imagination compared to its early beginnings with the first documented award—the Priestley Medal given to Ira Remsen in 1923. Eighty-two years later, the 2006 call for nominations lists 51 awards administered by the program. Most of these awards recognize individuals for their contributions to diverse fields of chemistry, whether in industry or academe. Few of them honor individuals for their humanitarian contributions. The Camille and Henry Dreyfus Foundation provides notable exceptions in the awards they sponsor for encouraging women and disadvantaged students into careers in the chemical sciences. The awards are relative newcomers to the list, the first having been made in 1995 (please see table at right). It is a privilege to feature in this article comments from some of the awards recipients and the reflections of Professor Harry Wasserman on the origin of the awards.

Aside from the \$5,000 awarded to the recipient, a \$10,000 institutional grant deserves further comment. This feature greatly extends the impact of the ACS/Dreyfus awards. Not only do the awards honor individuals who have made remarkable contributions toward the professional development of women and minority students, the grant enables the recipient institution to reach out to even more students. For example, 2004 award recipient Zaida Morales-Martinez donated the \$10,000 to the Florida International University (FIU) to set up a scholarship. Recognizing the considerable difference in cost between two- and four-year schools, the scholarship benefits minority or economically disadvantaged students who transfer to FIU from community colleges to pursue a chemical sciences degree.

Although tracking the many positive outcomes of these awards and the number of students who have benefited poses difficulties, the comments several of the awards recipients shared for this article provide a deeper insight into their experiences and efforts to dissolve barriers to their pursuit of careers in the sciences. Their commentaries powerfully convey the importance of mentoring and role models in stimulating young people's interest in science. While these

Dreyfus-Sponsored ACS Award for Encouraging Women into Careers in the Chemical Sciences

1995	Margaret C. Cavanaugh
1996	Nina M. Roscher
1997	Mary E. Thompson
1998	Madeleine M. Joulle
1999	Jeanette Grasselli Brown
2000	Valerie J. Kuck
2001	Christina Erwin
2002	Barbara Sawrey
2003	Madeleine Jacobs
2004	Margaret-Ann Armour
2005	Geraldine Richmond

Dreyfus-Sponsored ACS Award for Encouraging Disadvantaged Students into Careers in the Chemical Sciences

1995	Henry C. McBay
1996	Samuel P. Massie
1997	Billy Joe Evans
1998	Zafra Lerman
1999	Ajay K. Bose
2000	Slayton A. Evans, Jr.
2001	Carlos Gutierrez
2002	Isiah Warner
2003	James P. Shoffner
2004	Zaida Morales-Martinez
2005	Jeanette Brown

observations focus on individual achievement, they yield a profound collective impact—for our nation's prosperity depends critically on our ability to educate and train a diverse workforce in science and technology. ■



Harry Wasserman
Yale University, and Member of the Board of Directors of the Camille and Henry Dreyfus Foundation

A member of the Foundation's Board, Henry Walter, had been suggesting for some time that the Foundation offer a prize for outstanding achievement in the field of chemistry. The Board's Scientific Advisory Committee, of which I am a member, raised the possibility that we might interest ACS in sponsoring a suitable award. In a 1995 conversation with ACS staff member Edith Willis, she commented that while the ACS awards program already covered many diverse aspects of the field, there might be

opportunity for an award in an area of special interest to the ACS Board, such as encouraging minority or disadvantaged students into careers in chemistry.

At the next meeting of the Dreyfus Scientific Advisory Committee, I communicated the results of this discussion. We unanimously agreed that we should actively pursue the possibility of an ACS award relevant to disadvantaged students. Based on our interest in promoting the role of women in chemistry, board member Josh Lederberg suggested that we also offer to support an award encouraging women into careers in the chemical sciences. Our dual proposal was met with great enthusiasm by the ACS Board.

Under the ACS program, one award of \$5,000 would "recognize individuals who have significantly stimulated or fostered the interests of women in chemistry" and another \$5,000 award would "recognize individuals who have significantly stimulated or fostered the interests of students, especially minority students in chemistry"—both awards thereby "promoting the professional development of women and minority students as chemists or chemical engineers, and/or increasing their appreciation of chemistry as the central science." A unique feature of each of these awards is a grant of \$10,000 made to an academic institution designated by the recipient, to strengthen its activities in meeting the objectives of the award.

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 leading to advanced degrees, and if efforts to engage more students in graduate study—especially underrepresented minorities—are not increased, the U.S. scientific and technical workforce and its leadership will suffer. Those lessons represent an opportunity of great magnitude to be seized by graduate programs, especially the leading doctoral institutions (the so-called “top 50”), which will be missing an extraordinary opportunity if they do not invest at least as much in recruiting and admitting underrepresented students as many do—with some pride—in identifying and recruiting foreign students. Indeed, graduate programs have an imperative not only to do so, but also to accelerate the process if the United States is to avoid losing its leadership in graduate education, a risk that a recent New York Times article has identified.⁶

Graduate programs also need to establish mechanisms that will ensure these students’—indeed, all students’—successful and timely completion of their programs, entry into postdoctoral study, and advancement into positions of leadership in the professional workforce. Furthermore, these graduates represent a growing cadre of future academic leaders who, in an environment that supports and nurtures its entire young faculty, can ensure the predominance of American graduate education.

These are only a few of the array of existing and potential mechanisms that can promote diversity and broaden participation. These mechanisms embody the notion of affirmative action, an inappropriately vilified expression. Certainly, it is true that no mechanisms are perfect, or even always well conceived. But, as was pointed out in a September 23, 2002, letter to *Chemical & Engineering News*:

The imperfectness of various programs does not mean that the need is not there. No quality program is perfect, but the need for quality is generally acknowledged. No safety program is perfect, but the need for safety is generally acknowledged. No affirma-

tive action program is perfect, but the need for diversity is still there.⁷

The responsibility for meeting this need lies with all of us, but especially with institutions of higher learning, and particularly with those that are at the forefront of the academic enterprise. These institutions know how, in the words of Erwin Schrödinger, “not so much to see what no one has yet seen, but to think what nobody has yet thought, about that which everyone sees.” In meeting the challenge of broadening diversity, as some have already demonstrated, these institutions can strengthen their leading roles and produce those who will indeed think what nobody has yet thought. Doing otherwise is not an option—for them or for the scholarly and professional enterprise itself. The noted Columbia University historian, Manning Marable, says it all⁸:

**Without diversity there can be no excellence.
 Without excellence there can be no diversity.**

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ACS/Dreyfus Awards, Continued from page 5



James P. Shoffner
Institute for Science Education and Communication. Columbia College Chicago (1993–) and UOP LLC (1963-1993)

Being honored with the award was a very proud moment for me. I felt especially proud because although all previous recipients had been teachers, most of my career and most of the work for which I was cited had taken place while I was a researcher in industry. Of course, any honor that is received for such efforts is a very special bonus for contributing to the improvement of the lives of young students who need support during a very vulnerable period of their lives.

And of course, when I first began to mentor and support students, the idea of achieving a diverse student body or group of professionals was not stated explicitly. Rather, there was recognition that certain people in our society had not had the opportunity to participate to the same extent as others. Most prominent among these were minorities and women. This was during the 1960s and there was great hope that if our society opened up areas that had been closed by law and custom, then great benefits would accrue, not only to individuals but also to society as a whole. In this environment, I first began working to assist seriously disadvantaged students. I am also very pleased that the American Chemical Society, through Project SEED and the Scholars Program, gave me the opportunity to achieve much more than I could have done acting alone.

Although programs such as these have made significant contributions toward the goal of achieving diverse workplaces, faculties, and student bodies, much remains to be done. Each of us must continue to seize the opportunity to mentor students wherever and whenever we can. One of my primary motivators

A full report of the Presidential symposium presented at the ACS National Meeting in Philadelphia, August 2004, entitled **“Responses to Changing Needs in U.S. Doctoral Education”** is given in the *Journal of Chemical Education*, 2004, 81, 1698, and can be viewed online at www.jce.divched.org/Journal/Issues/2004/Dec/abs1698_1.html.

has always been to reflect on the support that I received as a young minority undergraduate from professors who had my interest at heart. It wasn't called mentoring then, and it was not part of a formal program. But whatever it was that they did for me, I have tried to recapture in my own way and pass on to the students and young professionals that I have met and worked with during my career. I hope that in doing so, I have contributed to the goal of a diverse and just society, where everyone has the opportunity to share and participate equally. ■



Zaida C. Morales-Martinez
Florida International University

This award came at a significant moment in my life. I received the news in the middle of June 2004 and I was going to retire on June 30. It was a beautiful closing for a career that spanned 46 years and took me from Puerto Rico to Tallahassee to Connecticut and finally to Miami.

When asked to give the keynote address at the Minority Affairs Committee Luncheon in Anaheim, I chose for a title, "Mentoring the Next Generation of Leaders." I stressed aspects of mentoring that are needed, that I have done over the years, and that helped me obtain this award.

There is no doubt in my mind that mentoring is a holistic endeavor, Committed to, Caring for, and Concerned with (the 3 C's needed for mentoring) the well-being of the whole person. The needs of minority students who happen to be the first in their families to attend college provide an apt example. These students require a different kind of mentoring. In addition to academic advising, they also need support in mastering what I call "professional etiquette." I believe that an effective opportunity to teach the norms of professional etiquette happens outside the classroom.

For example, a conference—whether local, regional, or national—offers many teachable moments. Meetings provide excellent venues for our students to learn what they need in order to succeed in their future careers. However, bringing students to a meeting does not mean financing their attendance and forgetting about them during the event. Rather, it is our professional obligation to work with them, prepare them ahead of time so that they can make the most of the meeting and represent their schools or workplaces well. For example, as their mentors, we can help students identify the presentations they should attend; introduce them to important people in the field; take them to social events; and teach them to mingle, engage in conversation, and build a network of professional contacts. But we should not forget to allow some time for students to relax and have fun among their peers. Also, prior to the meeting, some gentle advice and insight as to the attire expected in professional gatherings is helpful.

Students are not the only budding members of our profession who would profit from conscientious mentoring, including insights into professional or institutional etiquette, or both. For the future of higher education, I feel compelled to also say a few words about the needs of that cohort of minorities who aspire to careers in the professoriate. The academy could greatly benefit if we earnestly mentor and tend to the needs of this group of our colleagues in academe. Typically, when faculty members join a department as assistant professors, they are underprepared for the task. All their professional activities overwhelm them; they have to engage in teaching, research, writing proposals for grants, advising students, and serving on committees (lots of committees!!). If the new faculty member happens to be a minority in the department or even the college or school, the pressures multiply. It is of the utmost necessity that these faculty members be mentored from their first day on the job in order to provide a workplace where they can appropriately and fairly work toward tenure. Mentoring holds the promise of improving the percentage of minority faculty members, an outcome which we must accomplish rapidly.

Retiring from teaching does not mean that I am through mentoring. For me, once a mentor, always a mentor. ■



Zafra M. Lerman
*Institute for Science Education and
Science Communication, Columbia
College Chicago*

We hear a lot about diversity and encouraging minorities into science, but sadly enough, the field is still far from being diverse, and the number of minorities in science remains small.

I left my research field of isotope effects to try to do the best I could to contribute to diversification in science. I attacked the problem from every direction possible: undergraduate students, K–12 students, K–12 teachers and school administrators, and K–8 parents, in settings ranging from the formal to the informal. The Dreyfus Award recognized me for this work in Encouraging Disadvantaged Students into Careers in the Chemical Sciences.

Many of Columbia College's students come from Chicago's inner city, where they had little or no science instruction. For these students, I developed a special way of teaching that integrates science with students' interests, hobbies, and cultural backgrounds. I also changed the typical assessment method to one where they could demonstrate what they learned in the class through rap, dance, music, etc.

As a result of the success with our undergraduate students, the National Science Foundation encouraged and funded me to extend these methods to the Chicago public schools. For the past 15 years, my colleagues and I have conducted summer and academic-year workshops for teachers of grades 5–12 (approximately 600 teachers are now in our network). We have also brought groups of Chicago public school children to engage in hands-on activities in our labs every Friday, to be scientists for a day. For many of the 17,000 students who have taken part in this program, this experience is the first time they begin thinking about college.

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To assure that the children receive support at home, we also offer workshops for parents. Many of these students have gone on to seek careers in science or science-related fields.

In an informal setting, a Columbia College dance alumna and I work with children from a very low-income neighborhood (many of whom are homeless). She teaches them dance, while I teach them science in the setting of a dance studio. I have raised funds for them to perform these science-based dances to many audiences, including professional scientific meetings. One of the girls from this program has just started her Ph.D. in biochemistry.

I take groups of between 25 and 50 undergraduates to regular monthly lecture meetings of the American Chemical Society—Chicago Section. I pay the registration fees for these students, and I always try to include Chicago public school teachers in these excursions.

In addition to all these programs, I still find that personal mentoring and tutoring are essential. When I received the Presidential Award for Excellence in Mentoring in 1999 from former President Clinton, I emphasized that in order to be effective, “a good mentor must have open arms, an open heart, and an open purse.”

Finally, it is my personal tenet that equal access to science education is a basic right that belongs to all. ■



Ajay K. Bose
Stevens Institute of Technology

I am honored by the ACS award, but the best reward is the success of one's students. I would like to tell you about Omaid Velasquez. Ms. Velasquez came to the United States at the age of 14 on a Mariel boatlift from Cuba. Like many other Cubans, she settled in Union City, NJ, in an almost totally Hispanic town. She started school and impressed the teachers with her talent. After six

months, she was fluent enough in English to leave the bilingual classes for Hispanics. She spent five summers doing research under a program called UPTAM (Undergraduate Projects in Technology and Medicine) that I founded in 1972 and continue directing to this day.

Omaid participated in UPTAM during her four years of college and first year of medical school. She graduated from the University of Medicine and Dentistry of New Jersey as the Valedictorian. Omaid is now a cancer research scientist and a physician, wife, and mother. Like all her teachers, I am very proud of her accomplishments. ■



Jeanette G. Brown, Regent
Ohio Board of Regents

Although there are still comparatively few awards specifically for women scientists, the ACS Award for Encouraging Women into Careers in the Chemical Sciences has proven immensely effective in identifying role models for young women who may be considering or embarking on a career in the Chemical Sciences. I give many talks to high school, college, and graduate students, and the number of young women who approach me afterwards and say that what they need most are women role models and mentors always impresses me. Such comments have motivated

me to even do more outreach, in organizations like the Great Lakes Science Center, the Girl Scouts, and the Holden Arboretum in my community. In addition, I am working with the Ohio Board of Regents and with *ideastream* (national public radio and PBS TV) to promote scientific understanding and interest from preschool through graduate school. Women have made tremendous progress in the sciences in the last 20 years, but there is still a long way to go to reach gender equity in academe and in industry. Whatever efforts all of us make to continue to work on this issue make a truly important difference. ■



Madeleine Joulle
University of Pennsylvania

The ACS Award for Encouraging Women into Careers in the Chemical Sciences was established to honor people who have encouraged women to enter areas formerly considered male territories. Several women have received the Award. Although no man has been recognized, this omission should not mean that only women are capable of encouraging women and underrepresented students to enter scientific fields.

From all accounts in the press, equality of sexes has arrived. We see more women in positions of leadership

NPA Annual Meeting 2005

The National Postdoctoral Association is pleased to announce its third Annual Meeting, which will be held on March 11–12, 2005 in San Diego, CA.

This dynamic gathering of postdoctoral scholars from all research disciplines will be co-located with the ACS 2005 Spring National Meeting, March 13–17, also in San Diego.

For more information about the NPA meeting, please visit: www.nationalpostdoc.org/annual_meeting/2005 or contact Alyson Reed at areed@aaas.org.



(secretary of state, supreme court judges, etc.); women are very visible in industry and government; girls can play sports previously considered strictly for boys. While progress has been slow, we can clearly see a difference for the better between the 1970s and now.

However, the number of Ph.D. women in science still varies greatly by discipline. Regardless of the accuracy of

A common reason given for the poorer showing is that in some disciplines there are hardly any women for role models.

the data, it is clear that the number of women is much lower for Physics than Chemistry, and the number of women in Chemistry is lower than in Biology and Psychology. A common reason given for the poorer showing is that in some disciplines there are hardly any women for role models. Peer support is certainly an important factor in retaining women in male-dominated fields. However, the evidence is overwhelming that the pressures and attitudes of society are also factors that are to be considered before choosing demanding careers. Therefore, encouraging women and minorities to pursue careers in the chemical sciences promotes diversity and allows their inclusion in scientific research that eventually benefits humanity. ■



Valerie J. Kuck

Retiree from Lucent Technologies' Bell Laboratories and the first recipient of the new ACS Award for Volunteer Service to the ACS

It is wonderful to see the rising percentage of baccalaureate and doctorate degrees in chemistry earned by women coupled with the growing number of the national ACS awards that women received last year. We are making steady progress. However, the latest examination of the gender composition of the faculties

at the top 50 federally funded departments show that women are still having difficulty attaining positions at this prestigious group of schools (*C&EN*, 2004, 82 (39), 32–33). Unfortunately, data from the National Science Foundation show that many women are electing not to continue their studies; hence women remain underrepresented in the postdoctoral pool. I believe that it is essential that more women decide to hold postdoctoral appointments. The number of female faculty members will then increase, and as female students are taught by more female faculty members, more of them will be inspired to pursue careers in chemistry. ■



Geraldine Richmond *University of Oregon*

During my career I have had the privilege of working with a number of very talented women, some as students and others as peers and mentors. This award, which I am honored to receive, pays tribute to their successes and achievements as much as to mine. These women, and those I have yet to meet, provide me with the energy and inspiration to empower other women to follow their curiosities and pursue successful careers in the sciences. ■



Emma Perry Carr

Epilogue

There is another ACS award that should be mentioned in the context of encouraging women chemists—the Garvan Medal. It is one of the oldest of the ACS awards and one that specifically

She is credited with making the first American contributions to the field of spectroscopy. Her work established the research program at Mount Holyoke and profoundly influenced many students.

recognizes women for their distinguished service to chemistry. Only the Priestley Medal and the Award in Pure Chemistry predate the Garvan medal, which is now sponsored by the Olin Corporation. The medal was first awarded in 1937 to Emma Perry Carr, who was professor of chemistry at Mount Holyoke College from 1910 until she retired in 1946. She was the seventh woman to receive a doctorate in physical chemistry from the University of Chicago. At Mount Holyoke she pursued a new field—spectroscopy and its relationship to organic structure. She is credited with making the first American contributions to the field of spectroscopy. Her work established the research program at Mount Holyoke and profoundly influenced many students. She was a great woman, chemist, mentor, and role model. ■



Points of View

In this issue, the newsletter is proud to present three young chemists' personal perspectives on their careers. Anyone beginning or contemplating an academic career, especially minority candidates and women, will enjoy reading the comments and advice from assistant professors Dr. Deon Miles and Dr. Gloria Thomas. Of special interest is the retrospective account of "Lessons Learned" by Dr. Marta Gmurczyk, based on her experience as an international student entering graduate school in the United States and her professional development as a chemist.

(Dr. Miles' article, "Defining Yourself," and Dr. Thomas' article, "Joy and Pain," have also appeared in the 2005 edition of the ACS publication, *And Gladly Teach.*) ■



Defining Yourself

Deon T. Miles
*Assistant Professor of Chemistry
The University of the South in
Sewanee, Tennessee*

Being a professor at a small liberal arts institution comes with a good deal of responsibility. Aside from the rigorous teaching and research demands, there are countless service commitments that must be kept. Committee work, while sometimes quite arduous and boring, is an important responsibility that improves the institution as a whole. To have committees that are a good representation of the institution, diversity is desired; and the factors used to compose a committee can include discipline (sciences, humanities, and social sciences), tenure (assistant, associate, and full professors), sex, and/or race. It is usually not difficult to create a faculty committee that is representative by discipline and tenure. However, since most institutions have a predominantly

white male faculty (as reported in a recent ACS survey), attempts to make committees that are representative by sex and race are more challenging. If you are the lone faculty member of color at your institution, you may become a popular person for faculty committees. Because the first year as an assistant professor is stressful enough without the added responsibility of committee work, I made it a point not to serve on any faculty committee during that year. Since then, I have also been rather selective when considering serving on particular committees. I have learned to say "no" when necessary so that I am not overburdened by committee work. Self-preservation is key!

Consider the following people: George Washington Carver, Edward Alexander Bouchet, W. E. B. Dubois, Mary McLeod Bethune, St. Elmo Brady, Marie Maynard Daly, James Meredith, Autherine Lucy, Vivian Malone, and James Hood. All of these people have one thing in common. They are considered to be pioneers who broke down barriers for African-Americans in colleges and universities. While contemplating my position as an African-American in higher education, I came to the realization that I am not a pioneer like the aforementioned people. There have been a number of black professors at predominantly white liberal arts institutions like Sewanee, and there are other black professors who have been at my institution for a number of years. I am not breaking down barriers like Dubois and Meredith. I am only reaping the benefits from their hard work and countless sacrifices as they overcame the obstacles before African-Americans in colleges and universities. Nevertheless, I do have an obligation to these pioneers. Remembering how hard it was for those before me to earn their place in higher education, I must honor them by working every day to be the best professor that I can possibly be. I must also accept my position as a role model and inspiration for the future generations of African-Americans. I had several mentors while growing up, and two African-Americans in particular (ironically, an elementary school Music teacher and a high school English teacher) were instrumental in my development as an educator. Without their example as successful African-American educators, it is highly unlikely that I would be a professor today. Likewise, I must be aware that my exam-



ple can motivate my students as they consider their future as contributing members of society.

Though I believe my heritage—background—ethnicity adds an important dimension to my work, I am not limited by the description of just a "black professor." As is true of my colleagues, I am first a professor, and there are several adjectives that can be used to clarify the type of professor that I am. Sewanee administrators may choose to describe me as a chemistry professor, an assistant professor, or an untenured professor. I choose to believe that my students may describe me as a great, funny, or tough professor. In general, I may be described as a young professor, a Christian professor, and yes, a black professor. How do I describe myself? I cannot use just one adjective to capture who I am, for there are many sides to my personality. I am (in alphabetical order) an assistant, black, chemistry, Christian, great, funny, tough, untenured, young professor. I should emphasize that there is nothing wrong with embracing your culture and racial heritage. However, you should not be limited by your ethnic background either. As a faculty member of color at a liberal arts institution, it is important to express and celebrate all of who I am while allowing all parts of me to contribute to the institution.

My primary responsibility, as a faculty member at a small liberal arts institution, is to teach my students well. In my mind,

it does not matter whether I am teaching an African-American, Hispanic, or white student. In the same respect, I hope that my students understand that the material that I teach could just as easily come from a professor of a different ethnicity. When it comes down to it, each of my students must know the same material as exam day approaches, regardless of my or their racial composition. As I stated earlier, my African-American students may come to see me as a role model or an inspiration. Ultimately, my hope is that all of my students see me in the same light. ■



Joy, and Pain: The Life of an Assistant Professor

Gloria Thomas
Assistant Professor of Chemistry
Mississippi State University
Starkville, MS

Being an assistant professor is rough—for anyone! There's no way around it. Conducting an academic job search; balancing (or juggling as the case may be) research, teaching, and service; navigating the tenure process...these are no simple tasks. And for minorities, all of the challenges above apply, plus more. But, hear me out...while the challenges facing underrepresented minorities entering academe are unique, the rewards can also be uniquely fulfilling, even greater than those offered in either industry or government.

How have I come to this conclusion? Well, let's start at the beginning, or nearly the beginning, of my experiences. When I was a premedical and chemistry major at Southern University and A&M College—an HBCU (historically black college or university)—in Baton Rouge, LA, my goal was to become an emergency room physician. The television show ER had just debuted, and I had done paramedic ride-alongs as an Explorer through

the Boy Scouts. (Yes, the Boy Scouts!) I was convinced that the adrenaline rush of emergency medicine was for me. However, by senior year I had come to the realization that I wasn't very passionate about medical school. I thought I could be relatively successful, but I just wasn't as thrilled about the prospect as some of my colleagues. After commencement, I had a degree but neither a job nor any immediate plans. I had done several internships in industry and enjoyed them, so I called one of these companies and went to work as a contract chemist. Fortunately for me, many of the scientists there knew me well from my internship, and they also knew that I was considering going to graduate school. As a result, I was treated a bit differently from the other B.S.-level chemists. My supervisor provided an opportunity to work fairly independently in a research lab, revising a biocide synthesis for scale-up for the pilot plant. Because I had plenty of friends who were B.S.-level chemists and worked as technicians in industry, I knew my independence wouldn't last for long unless I got a graduate degree.

After weighing all the options, I soon enrolled in Louisiana State University's doctoral program in chemistry. I was a "B" student as an undergrad but had always scored well on standardized tests (including the GRE), and I received a prestigious Board of Regents graduate fellowship.

Even so, I was intimidated. Having graduated from a small school, I had the perception that my peers were both smarter and better trained. Exceptional mentoring by my advisor got me past a rough start, and I soon remembered the thrill of science and the profession of chemistry. I also fell in love with the challenges of research in microfluidics, an emerging technology.

Soon, commencement was drawing near. Again, I had to contemplate my future. I had doubts about industry after experiencing it firsthand and talked with my advisor about my budding aspirations for the professoriate. In return, he gave me leadership roles within our large research group, responsibility for directing an undergraduate student's research during the academic year, and mentoring opportunities with summer students. My advisor also began sharing tips and insights about writing grant proposals. Around this time, I was selected to serve on the search committee for a Vice Chancellor. That eye-opening experience really helped solidify my plans. Even so, I kept an open mind, and at graduation I received an offer in industry as well as others for postdocs in academe and government.

I decided to accept a National Research Council (NRC) Postdoctoral Fellowship at the National Institute of

Continued on page 12



Continued from page 11

Standards and Technology (NIST). A good friend who had also been an NRC fellow at NIST recommended it as a good experience. While there, I wanted to remain flexible and explore all the possibilities. A once-in-a-lifetime opportunity emerged during my tenure at NIST that allowed me to serve for a week as a U.S. delegate to the meeting of Nobel Laureates in Lindau, Germany.

Wow! Everything they tell you at the workshops is true, and yes, it does apply to you: You learn to go without sleep, you are married to the job, and surprisingly, you come to love it.

Interacting with the Laureates was wonderful, as was the opportunity to form a network with other young scientists, many of whom were considering academe. I also made connections around the DC area and gained wonderful friends at NIST. As we postdocs individually sought jobs in academe, I became more and more settled upon the professoriate as a career choice. However, many of my experiences during interviews differed a bit from those of my colleagues.

Fast forward a bit and I've completed one year as an assistant professor. Wow! Everything they tell you at the workshops is true, and yes, it does apply to you: You learn to go without sleep, you are married to the job, and surprisingly, you come to love it. (Remember my adrenaline addiction?) But, there are also other things "they" should tell you as widely and as loudly, especially if you are a woman, or a minority, or both!

During the job search, pay particular attention to minority hiring initiatives on the campus, diversity programs in the department, tangible commitments to diversity, policies on establishing or maintaining a culturally competent workplace, and support groups for minority faculty, among other considerations. In most cases, particularly at majority institutions (and paradoxically even at others), you will be the only minority or woman in your department, and maybe one of only a handful on the campus. Ask the difficult questions. The institution hasn't had any reason to consider these things in the past.

After landing the position, develop effective time-management skills. Really. Although your department will attempt to shield you from overcommitment to service assignments, if you are a minority it is likely that every diversity program on campus will want and need your contributions. Also, I often receive requests for help from minority students all over campus. These are real people with real problems, and it is nearly impossible to turn them away and sleep well at night. (You're going without sleep anyway, right?) Here are some tips that have helped me manage.

- Develop a thick skin. My mentor, Dr. Sandra McGuire, advises choosing a gracious perspective. It may not be correct, but it will be a healthier one for you to choose to adopt.
- Attend workshops for minority faculty (GEM, The National Consortium for Graduate Degrees for Minorities in Engineering and Science; QEM, Quality Education for Minorities; SREB's State Doctoral Scholars Program Compact for Faculty Diversity; COACH, Committee on the Advancement of Women Chemists; ACS programs; etc.).
- Subscribe to *The Journal of Blacks in Higher Education*.
- Learn as much as you can about diversity issues such as institutional invisibility versus hypervisibility, psychological tokenism, and stereotype threats. You may have these experiences, and there is validation in the diagnosis. (Knowing is half the battle.)
- Look for allies in unexpected places and take advantage of all the opportunities you can without stretching yourself too thin. These opportunities allow you, yourself, to grow and will also be experiences you'll share with your students.
- Pace yourself. Have the patience to effect change over time.

I could continue with specific tips, but each may not be appropriate for your individual case (learn to be situational). The general advice I would like to offer is this...maintain relationships with others—this includes both mentors and peers (it will definitely help during periods of institutional invisibility). Much of the saving grace for me has been talking to friends who are having the same experiences. You will not be the first to have these experiences, and unfortu-

nately, you are not likely to be the last (possible but not probable).

Finally, serve as a mentor. You will remember why you're doing what you're doing in the first place. One of the greatest rewards I've experienced this past year was sending one of my undergraduates to NIST for a summer program. Another came from listening to the technical presentations my doctoral students made at the national meeting of an organization that had recognized me during high school for potential in science. In the end, impacting change and making a difference in the lives and careers of future minority scientists will be one of the greatest returns on your investment in academe. ■



Lessons Learned

Marta Gmurczyk
Senior Education Associate
American Chemical Society—
Office of Graduate Education

It has been a long road from that hot and humid day, August 15, 1989, when I arrived in Washington, DC, to start my graduate program in chemistry at the Catholic University of America. Amidst all the political changes in Eastern Europe, I must have been one of the first Polish students heading to the United States for my education. I had no idea what to expect. I have learned much since then and, although being a graduate student was a challenging experience, from my perspective it was not the most difficult one.

Because I speak English with an accent, many people realize that I am not native-born and ask me whether I experienced culture shock while adjusting to life in the United States. My answer has been, "No." I was one of many international graduate students in chemistry, and I never felt isolated or had any problems connecting with fellow graduate students or faculty. The university welcomed inter-

national students with orientation events, and we had our own international student adviser. Thanks to this institutional support, my transition was not really difficult. Chemistry was the “language” that I already spoke quite well, and even though I might not have understood every word spoken by my professors during the lectures, I managed to understand the chemistry and successfully pass all my exams.

Sure, it was scary to be a TA entering a classroom full of undergraduate students who were taking a general chemistry course. I felt very worried that American students would not understand my English or, even worse, make fun of my accent, but that was never the case. I quickly realized that American students are quite used to hearing their TAs speak less-than-perfect English, and my accent was still clear enough that I was always assigned large classes. All of the international TAs got a lot of support from the professors leading their courses, and TAing (as we called it) quickly became the favorite part of my graduate experience.

One thing that surprised me a lot (and still sometimes makes me a bit uncomfortable) is the lack of formality between professors and students in the United States. Such casual interaction would have been unthinkable at my Polish university, where talking to a professor while sitting was considered quite rude. I tried to learn fast, though, and accepted an offer from my research adviser to call him by his first name. Still, I am not sure that I have ever been able to de-professionalize the relationship with my professors to the same extent as my American colleagues. Despite the fact that many professors treated us as colleagues-in-training rather than as students, I have always perceived myself as more formal, more careful with words and gestures than the Americans around me. Sometimes I really envied their spontaneity and relaxed attitude. Even now I think I am still more formal than most of my American colleagues, but it no longer makes me overly self-conscious.

At one point I started to think that becoming a successful professional would require losing my national identity and turning into someone more “American.” Yes, I know that sounds very naïve, but it was how I understood my naturaliza-

tion process then. I found myself at a professional crossroads and wasn’t sure what direction to take. I was very lucky in having multiple mentors in my department during that very difficult time. I had realized two things after five years of graduate work and almost three years of postdoc work paid for by industrial grants. One, I would not be professionally happy working in industry. Two, I felt I could not even dare to consider academe. Working in academe means teaching and I had...an accent. I perceived it as such a big limitation that I never even thought to talk about it. And to be frank, all my mentors spoke the most beautiful, fluent English; I did not feel they would understand my problem. I also suspected that not much could really have been done about it. This is where my more difficult but very rewarding road started. Let’s fast forward....

For the last five years I have been a staff member in the ACS Office of Graduate Education, and I became one of those Ph.D.s who found a very satisfying career outside of research and academe. But...it was in this wonderful world where, for the first time, I experienced a profound feeling of being different. As an international graduate stu-

The university welcomed international students with orientation events, and we had our own international student adviser. Thanks to this institutional support, my transition was not really difficult. Chemistry was the “language” that I already spoke quite well...

dent and postdoc I was one of many and dealt with many difficulties, but my cultural—or even gender—“worthiness” never created an issue for me. Please do not take me wrong! At ACS I was still working in a very friendly and supportive world among very nice, helpful, and friendly American colleagues. Even so, this was not an international world, and chemistry was not the universal language. Here, all of a sudden my accent sounded very distinct and heavy to me, and for a while I thought I would have to work harder than others and do more

to prove to my supervisors and ACS members that I was worthy of holding this job. I felt anxious and nervous. I now think that I was showing prejudice to...myself. I was surprised when my first performance review was extremely positive and when shortly afterwards I was promoted. My supervisor talked to me about improving my communication skills but also praised my other skills. I do not think the word “accent” even showed up in my performance reviews, despite the fact that I had expected it to be the most pronounced word there! My confidence was slowly growing and I was beginning to feel more comfortable and less anxious about presenting my ideas in my heavily-accented English (Polish English as I now joke with my colleagues).

Recently, as I have been involved in projects dealing with diversity issues, I have been reflecting a lot on my cultural-identity development. I realized that my graduate experience in a small, private, and predominantly white university provided me with very little awareness about diversity issues in graduate education. Fortunately, my international background has helped me greatly in initiating diverse connections. After overcoming my initial shyness of speaking about or dealing with diversity issues, I realized that in order to successfully coordinate the ACS projects in graduate education, I must become culturally competent. But in my opinion, somebody who is culturally competent not only understands various cultures, but also understands that race or nationality does not define any specific person. I was glad to reach this stage because it meant that I became much more accepting of myself. I found out that the literature¹ calls this “the integrative awareness stage” and defines it as “a sense of self-fulfillment as the person comes to terms with what his/her role in racism might be and what are effective ways of dealing with the eradication of racism.” This definition refers specifically to racism, but in my opinion it can be widened to other forms of discrimination. I think I have been slowly reaching the “integrative awareness stage,” and the fact that I felt comfortable writing this commentary for our *Newsletter* might be one of its indicators.

1. Davis, M.; Dias-Bowie, Y.; Greenberg, K.; Klukken, G.; Pollio, H.; Thompson, C.L. *The Journal of Higher Education* 2004, 75 (4, July/Aug), 420–445. ■

Letters

The Myopia of Insularity

J. A. Gladysz was right on the mark when he talked about the need for international perspectives and understanding in his article, “Graduate Education: A Postcard from Middle Franconia,” in the Fall 2004 issue of this newsletter. He lays the groundwork for his discussion nearly immediately, writing, “Think of an era fifty years ago when the administrative vocabulary in academia was not gender neutral, and how faculty regulations or advertisements for positions from that period can sound so offensive today. I assert that the present-day academic vocabulary is dangerously non-internationalized and americanocentric, and can easily be construed as offensive to other countries.” He then describes the system of graduate education in Germany specifically and Europe in general.

While Gladysz’s discussion about graduate education is worth reading in its own right, it is appropriate to extend his

Think of an era fifty years ago when the administrative vocabulary in academia was not gender neutral, and how faculty regulations or advertisements for positions from that period can sound so offensive today.

discussion to ask: Why is it useful to exchange information about educational systems and programs across the borders that traditionally divide us? Equally important: Once we establish that this information exchange is meaningful at all levels of postsecondary education, can we make it happen? The hard part is putting in place strategies that allow the exchange to happen in exciting programmatic ways that can build even beyond chemistry to all of the “STEM” (Science, Technology, Engineering, Mathematics) fields. Great chemistry, as well as chemical education, is practiced worldwide. In my own field, we are letting the most valuable opportunities go by if we do not take advantage of the expertise of our colleagues in different countries. In chemical education in particular, the myopia of



insularity will diminish our classroom performance because the United States is quickly changing, and it is our professional responsibility to respond. This necessity for change suggests a key point with regard to taking a more two-way, international approach to our science and science education.

Our graduate schools have long had an international flavor. Given the rapid and continuing increase in the number of students of Hispanic and other origins in our undergraduate postsecondary institutions, we must provide a welcoming atmosphere. This goal includes understanding where our students have been and where they are going. I do not intend to make this sound somehow “soft” or patronizing. Rather, a key cultural shift is occurring in the United States, and we can either ignore it or learn about, and value, it. I prefer the latter. Further, if we are to properly train our graduate students to be the most effective faculty members possible, then we must ensure that they be literate about the implications of the current cultural change. ■

*Paul Kelter
Department of Chemistry
University of Illinois*

The Cost of Neglecting Foreign Language Instruction

I read Professor Gladysz’s article, “Graduate Education: A Postcard from

Middle Franconia,” with considerable interest¹. His point is well taken, that graduate education would be greatly enhanced by a significant period of study abroad. I believe the reason why so few U.S. graduate students go abroad for further education is that they lack sufficient language training to be able to handle the workload in any institution other than one that teaches in the English language. The lack of foreign language study has been a fundamental problem in the U.S. public schools for many years at the primary and secondary levels. European schools routinely begin teaching foreign languages to children as soon as they enter. This practice has also been validated by American studies that show the mind learns and retains foreign languages most easily if taught before the age of eight. Unfortunately, it is truly unusual to find U.S. public school curricula that regularly include foreign language studies in the first two years of primary school. I know from my own experience that even three years of German in college did not adequately prepare me for the linguistic demands of working for a German chemical company—this required additional study on my part—to learn to converse (and think!) in German. ■

*Roger F. Jones
Franklin International LLC*

1. <http://ACSGradEdNewsletter.org>; *Graduate Education News*, 2004, 3 (2, Fall), 4–7. ■



AMERICAN CHEMICAL SOCIETY ACADEMIC EMPLOYMENT INITIATIVE

The ACS continues to run a pilot program to support the academic hiring process through activities at its 2005 national meetings.

If you are interested in employment in academia—
this is your invitation!

San Diego, CA

ACS NATIONAL MEETING

Sunday, March 13; 8:00 to 11:00 a.m.

**San Diego Marriott Ballroom B
Panel Discussion**

During this event, senior and recently-hired faculty will present a candid discussion of the academic recruitment process for graduate students and postdocs who are considering careers in academic institutions, including research universities, comprehensive universities, and two- and four-year colleges.

Academic Hiring: How Do You Get the Job?

Organizers: Marjorie Caserio, Jerry A. Bell, Charles P. Casey

Moderators: Charles P. Casey, Cynthia Burrows

Panelists: J. Francisco, *Purdue University*; K. Karukstis, *Harvey Mudd College*; C. Gutierrez, *California State University, Los Angeles*; J. Yang, *University of California, San Diego*; M. Sigman, *University of Utah*; M. Brown, *University of Virginia*; C. Muzzi, *De Anza College*

Organized by the ACS Office of Graduate Education and ACS Department of Career Services, Sponsored by ACS President William F. Carroll, Jr., and cosponsored by ACS committees (YCC, WCC, CMA, CEPA, SOCED, CPT), technical divisions (PROF, CHED), and participating organizations (NOBCChE, SACNAS)

Washington, DC

ACS NATIONAL MEETING

Monday, August 29, 8:00 to 10:00 p.m.

**Sci-Mix
AEI Poster Session**

If you wish to talk to academic recruiters while presenting an AEI poster during the Sci-Mix, then read on.

At Sci-Mix, the popular interdisciplinary poster session, those seeking faculty positions will each present a poster about his or her research or one expanding on research interests, teaching philosophy, and experience. Faculty recruiters will have the opportunity to meet as many candidates as reasonably possible. Candidates will also have a chance both to network among themselves and to meet faculty from many more institutions than would normally be possible.

Posters should be submitted through the Online Abstract Submittal System (OASYS) at <http://oasys.acs.org/oasys.htm>. The deadline for submitting the AEI Abstracts is April 30.

Please write to the ACS Office of Graduate Education at graded@acs.org if you have any questions regarding the Academic Employment Initiative.

