Society for Advancement of Chicanos and Native Americans in Science

SACNAS NEWS

PREMIER ISSUE: NEWLY EXPANDED FORMAT

SUMMER | 2005

Minority Scientists *&* *the* Corporate World

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SACNAS News
The *SACNAS News*, published three times a year, explores current issues within the minority scientific community, celebrates the achievements and contributions of members, and provides resources for academic and professional development.

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COVER PHOTO
Dr. Dulce Ponceleon presenting at the Science and the Corporate World symposium at the 2004 SACNAS National Conference.

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FEATURE ARTICLE

DEPARTMENTS

Letter from the President

Marigold Linton, Ph.D.

With this issue, SACNAS News is launching an expanded newsletter. We hope you will share your ideas to help us make the publication meet your needs and match your interests. We are excited about this change and hope that the broader range of issues we can cover with the new format will warrant continuing this experiment. You will observe that for the first time we have advertising opportunities. We hope these are useful—and that you will find the newsletter a convenient place to learn about educational resources and job opportunities.

MINORITY SCIENTISTS IN THE CORPORATE WORLD

One of the great challenges for this new generation of scientists is how to prepare ourselves for the world of work that will carry us through our lifetimes. It looks like it was easier for those of us in earlier generations—get one job, stick with it for 40 years, and then retire. There are perhaps greater complexities for the current generation of scientists: It is clear that many individuals will have five or more jobs during their careers. But there are a variety of other differences. In earlier generations, although there were always exceptions to this, those trained for academia became faculty members at a college or university. And those of us who have had four or five jobs in our careers have often done this by moving from one academic institution to another.

Although I have never worked as a professional in an industrial setting, I am surrounded by individuals who have had such involvements in corporate science. For example, my good friend and colleague, Dr. C. Russ Middaugh (a pharmaceutical chemist), was a professor at a university. He decided to expand his horizons and, for many years, worked for a major pharmaceutical company. He returned to academia and is now a distinguished professor of pharmaceutical chemistry at the University of Kansas.

Furthermore, a number of my friends have worked contentedly within the corporate sector their entire careers. If they wish to teach, as many do, they become adjunct instructors at a college near their place of employment.

The long and the short of it is that what individuals educated in the sciences can do is expanding. Outstanding research—both basic and applied—is being done by people in both university and industry settings, and by those with a foot in each camp. Some, with greater or lesser success, start their own businesses.

When I started my career, there was vast potential for growth. There were a few full professors, a few associates, and huge numbers of assistant professors. And there was the promise of tenure! There were great opportunities in academe as soon as you got out of graduate school. Opportunities are surely still out there. But one can only guess where they may be in a decade.

I can promise you that there are people who have taken their Ph.D.s and found a wonderful, productive, and creative life for themselves in every location and situation. Think of these possibilities as ecological niches. Darwin's finches adapted to use every part of their environment. There are migratory animals; there are those who remain in a single location their entire lives. The trick is to find the right ecological niche for you, one that will permit you to continue to expand your spirit over a lifetime.

Marigold Linton, Ph.D.
SACNAS President

MINORITY SCIENTISTS *in the Corporate World*

BY LIN M. HUNDT

Photo Credit: Janjoqb Photography

ABOVE
Dr. Dulce Ponceleon presenting at the Science and the Corporate World symposium at the 2004 SACNAS National Conference.

DR. DULCE PONCELEON couldn't be happier; after all, the corporate research environment at IBM's Almaden Research Center, where she is a research staff member, fits her perfectly. It allows her regular interaction with customers and enables her to make a difference—to see the direct, tangible impact of her work as a researcher. "Academia and the corporate world offer different sets of opportunities—both valuable, of course, but for me, I've found the right mix in a corporate setting."

For Ponceleon, who works on digital content protection, that "mix" includes a typical day filled with drafting new patents applications, responding to technical questions, communicating with customers, writing code, checking in with members of her team, collaborating with other researchers, and, sometimes, talking with fourth graders about careers in math, science, and engineering.

Dr. Ray Haynes has also found a home in industry. He is the director of university technical alliances at Northrop Grumman. Haynes' childhood in Nogales, Arizona, reflected a blend of his mother's Cherokee heritage with his father's Mexican birthright but did not necessarily predict his career as a corporate scientist. Nonetheless, "I probably have the most fun job in the corporation," Haynes confides enthusiastically.

The Corporate R&D Job Market

Haynes and Ponceleon are members of an expanding community of minority scientists and engineers enjoying vibrant and varied careers within the corporate sector. In fact, industry outranks all other sectors as the largest employer of scientists, providing employment to 58 percent of all science and engineering degree holders.[1] Even for individuals at the doctoral level, who are less likely than those with bachelor's or master's degrees to work in industry, corporate positions are abundant. Depending on variations in survey parameters, the Bureau of Labor Statistics and the National Science Foundation indicate that between 34 and 45 percent of doctorate holders are working in the private, for-profit sector, while only 27.6 percent hold tenure or tenure-track positions.[2, 3]

Employment in the corporate sector varies by field. Life scientists are engaged in academe at a higher rate while mathematicians, engineers, and computer scientists are overwhelmingly at work in industry. Based on the National Science Board's *Science and Engineering Indicators: 2004*, a tendency on the part of Native Americans and Latinos to pursue life and social science occupations over other fields is one indicator for the lag in representation of these groups within the corporate world.[4] However, since employment in corporate research and development has increased four times faster than the overall workforce in the past two decades, and projections point toward a continuation of this trend[5], industry may hold a key to addressing the underrepresentation of minorities within the sciences.

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Factors Motivating Corporate Diversity

Many of the largest companies with research and development components have made focused, strategic efforts to embody diversity in their businesses. Ponceleon believes that the motivations behind such transformations center on an understanding of the realities of globalization. "People buy from who they like and people like people that they can relate to—people that are culturally closer and who can understand the way they think and what motivates them to make decisions."

Michael G. Loudin, manager of global geoscience recruiting and new hire development at ExxonMobil, echoes this view: "We feel that a critical contributor to our success is a diverse workforce that is representative of our customers, our suppliers, and the communities in which we operate."

LEFT
Members of the DaimlerChrysler Native American Employee Resource Group (from left to right) Karen Agbebiyi, Bill Edwards, Krista Swenda, Bill Little, and Angela Little.

Michelle Cook, senior manager for diversity and worklife strategies at DaimlerChrysler, explains that, in the early to mid-1990s, the company shifted its diversity focus from affirmative action in hiring to the infusion of diversity into all business aspects. "Diversity really is a business imperative for companies. Our Diversity Council is comprised of our top 15 executives in the company. It's chaired by our chief operating officer and our senior vice president of human resources. They meet monthly to talk about diversity initiatives and strategies enterprise-wide."

Procter & Gamble (P&G) and a growing collection of corporations have given their diversity values statements some teeth. Explicit articulation of diversity policies is paired with accountability; stock options incentives are wedded directly to corporate executives' performance on diversity goals. Tracking and appraisal of diversity progress take place annually, measuring against internal goals and benchmark surveys comparing P&G with its competitors.

During his 30 years at P&G, Dr. Ron Webb, manager of doctoral recruiting and university relations, has seen a major change in the company's workforce. Currently, his average annual rate of underrepresented minority hires, 18 percent, is about three times what would be predicted based on the proportion of minority Ph.D. recipients to the overall Ph.D. pool. And those individuals, for the most part, are staying with P&G. The annual turnover rate at P&G for all employees is 6 percent; for minorities it is 7 percent. Webb believes in the inherent value of diversity: "…a diverse team can out-think, out-innovate and out-invent a homogeneous team anytime."

[There is] an expanding community of minority scientists and engineers enjoying vibrant and varied careers within the corporate sector.

It Takes a Commitment to Diversity

John R. Lothrop believes that creating a truly welcoming environment imbued with the richness of diversity results from the sustained, dedicated actions of individuals. "It really doesn't matter what role you have. As long as you have a passion for that cause, you can make things happen."

Lothrop's personal commitment to making things happen for Native American students spans several decades. He is a distinguished member of the technical staff at Avaya, Inc., and vice president of the company's employee group, Natives Offering Value at Avaya (NOVA). He also serves as co-chair of the Corporate Advisory Council of the American Indian Science and

How to Investigate

A COMPANY'S RECORD OF DIVERSITY

- **Company website –** look in the company profile, employment or community relations section of the site for information related to diversity:
  a. Diversity statement and policies
  b. Statistics regarding employee demographics
- **Awards and recognitions –** on the company's website and on the sites of specific award-givers, search for any honors the company has received. Look for trends over the past several years, as well as recent awards. (See next page for example websites.)
- **Employee groups –** contact the company's employee resource networks, also called affinity groups or diversity alliances, with your questions about the company, its atmosphere of inclusion, etc.
- **Company prospectus –** contact the investor relations department of any publicly traded corporation to request a copy of their prospectus. (To facilitate the process, we suggest acting the part of a potential investor and providing an off-campus address.) The prospectus provides insight on the company's critical research projects, allocation of resources, information on key staff members, and much more.

Engineering Society (AISES). Lothrop has seen the other side of corporate diversity—the unfortunate and, some might say, predictable outcome of a weak commitment to diversity combined with economic downturn. When companies face leaner times, they often lose the vision and financial commitment behind their diversity initiatives. "[Diversity] becomes less important somehow. I wish that were not true; to me it's not true."

Haynes, Cook, and others don't discount the impact one person can have but see that successful corporate diversity—diversity that is fully integrated throughout the corporate structure and not susceptible to economic pressures—requires more than impassioned individuals; it takes the commitment of top management. Webb elaborates, "If leadership doesn't have a committed vision of change, things won't happen. It can't be lip service or a fad of the month; it has to be a sustained vision. You have to hold people accountable; if you see evidence of no change, someone has to be willing to step in and ask why."

A Culture Apart?

Even in companies with a diverse workforce and a management-fostered culture of diversity, minority scientists can face challenges due to discrimination and a lack of understanding of corporate culture. Haynes has observed differences in ascendance up the corporate ladder based on an individual's choices regarding assimilation. "We have senior scientists who don't look Hispanic, who speak without an accent and, well, they do better." On the other hand, Ponceleon feels that her background and dual-language abilities have enhanced her career at IBM. When she does encounter discrimination, "It's hard to divorce whether I receive different treatment because I am a woman or because I'm Latin, or the compound effect."

Each company has its own unique attributes and unique culture. Haynes describes this knowledge as a dizzying array of acronyms, protocols, and norms of behavior. He goes on to explain, "You need to appreciate the values and norms of the culture of wherever you go to work." Unless a person is self-employed, no matter where one chooses to work, the culture will not be identical to the experiences in one's home or one's culture. "Students need to understand that there are cultural differences; some of them you may like and some you may not. You're not required to adopt them but you do need to adapt to them."

Krista Swenda, Crane Clan of the Miami of Oklahoma, is chair of the Native American Employee Resource Group at DaimlerChrysler. She has experienced the culture shock that students, especially first generation college students, deal with when entering the corporate world. She advises potential employees and newly hired individuals to educate themselves on the company's employee networks and diversity program and then to connect with them as soon as possible. These groups can be immeasurably helpful in adjusting to the corporate world and making translations between the culture of one's heritage and that of the company.

Preparing for a Career in Industry

Exploring whether a career in industry is in one's future and preparing to enter that career as a highly qualified candidate is something that Ponceleon advises students to begin well before graduation. "We isolate ourselves because we are so busy trying to finish, just trying to accomplish our coursework. We say, 'Oh well, corporate life, I'll worry about it after I graduate.'"

It's undeniable that the scientific landscape is constantly changing. Opportunities in industry for researchers continue to expand, and it is imperative that students are prepared to obtain them. Faculty members need to educate students, and in many cases themselves, on the options available, the differences between industry and academe, and the specialized training needed to be successful in the corporate arena.

Individuals working in industry are in agreement that students must take ownership over their career preparations. For Webb, the bottom line is, "There's more to being considered as a key job applicant than just your degree. Clearly we expect a Ph.D., first and foremost, to be able to demonstrate technical mastery in their field." In addition to this, however, Webb describes another equally important set of criteria: "the skills that round you out as a scientist, such as creativity and innovation, communication and public speaking skills, the ability to collaborate and to work well with others."

Webb suggests that whether students have a strong mentor or not, they need to take responsibility for cultivating these skills on their own. "Find ways to bring other people into your project; seek the advice of others; be proactive in developing collaboration, communication, public speaking, and project management skills because whether or not you go to industry or academia or government lab service, these skills pay dividends in all hiring sectors."

To further prepare for an industrial career, Lothrop recommends a corporate internship to develop critical insights and talents: "[An internship] helps the student understand one or more corporate cultures. It also gives them real work experience in the field."

Moreover, Webb advises students to take advantage of any chance—from internships to professional meetings—to build a network and develop contacts. "The more people you know the better. Don't be shy about using network opportunities. Any one of those people from industry could be a future hiring manager, someone who might be looking for summer interns, or someone who can simply assess the quality of your work and speak on your behalf [in the hiring process]."

Finding a place within the world of corporate research and development is proving rewarding to a growing number of minority scientists. To balance success and fulfillment in entering that world, Lothrop concludes, "It's extremely important to remember who you are and where you came from. That's your foundation. Don't give that up but make that part of you." ■

Lin M. Hundt is a senior editor at SACNAS News.

1. *Science and Engineering Indicators: 2004,* National Science Board, NSB04-01
2. "Employment Sector, Salaries, and Publishing, and Patenting Activities of S&E Doctorate Holders," National Science Foundation, *Infobrief*, NSF 05–302
3. *Science and Engineering Indicators: 2004,* National Science Board, NSB04–0
4. *Science and Engineering Indicators: 2004,* National Science Board, NSB04–01
5. "Industrial R&D Employment in the United States and in U.S. Multinational Corporations" by Francisco Moris, National Science Foundation, *Infobrief*, NSF 05–02

Resources

RECOGNITIONS: CORPORATE EXCELLENCE IN DIVERSITY

- American Association for the Advancement of Science, ScienceCareers.org, Top Employers Survey: sciencecareers.sciencemag.org/feature/advice/foc_112604.shl
- DiversityInc Top 50 Companies for Diversity – includes lists broken down by various criteria: www.diversityinc.com/public/department180.cfm
- Forbes Magazine's Lists – rank companies by a variety of criteria, such as corporate citizenship. Tools allow viewers to view rankings based on diversity, environment, etc.: www.forbes.com/bbscitizenship/2004/11/23/bbscitizenship.html
- Hispanic Magazine's Hispanic Corporate 100 – lists companies based on a broad spectrum of corporate activities in addition to employee demographics: www.hispaniconline.com/buss&finn/corp100-2005.html
- Working Mother Magazine's Best Companies for Women of Color – review is based on employer application and employee surveys; an annual conference is sponsored in conjunction with the list: www.workingmother.com/2005_overview.html

General Information about Science Careers in Industry

- AAAS, ScienceCareers.org – general science career information and resources such as Paths for Young Scientists:
  - sciencecareers.sciencemag.org/
  - sciencecareers.sciencemag.org/feature/advice/ProfessionalPaths.pdf
- American Chemical Society – information and career resources about industrial chemistry: www.chemistry.org/portal/a/c/s/1/acs-display.html?DOC=industry\index.html
- The Chronicle of Higher Education, Chronicle Careers – sections devoted to non-academic careers for Ph.D.s and *Beyond the Ivory Tower* articles: chronicle.com/jobs/archive/nonacademic.htm; chronicle.com/jobs/archive/advice/beyond.htm
- MarineCareers.net – profiles careers related to marine sciences, salaries, jobs in industry, etc.: marinecareers.net/outlook1.htm
- Massachusetts Biotechnology Council – information on career options including educational and experiential requirements, job descriptions, salary ranges, etc.: www.massbio.org; www.massbio.org/directory/careers/
- Mathematical Sciences Career Information – non-academic career profiles, resources, and planning support: www.ams.org/careers/
- U.S. Department of Labor, Bureau of Labor Statistics, Career Guide to Industries – information on the nature of the industry, working conditions, employment, occupations in the industry, training and advancement, earnings and benefits, and employment outlook: stats.bls.gov/oco/cg/home.htm

Investing in the Future

Corporations and the Carl Hayden High School Robotics Team

By Allan Cameron, Ph.D.

Two Phoenix teachers and the 16 high school students of the Falcon Robotics team sat in the hotel room fresh from winning the Los Angeles regional FIRST (For Inspiration and Recognition of Science and Technology) award. The award allowed them to continue to the national championship in Houston. Yet rather than feeling joy at their success, the team was disappointed. They did not have the needed $10,000 to make the trip to Texas. A year of car washes and a $6,000 NASA grant had been spent to get them to the regional. No one expected a team from Carl Hayden Community High School, an academically "underperforming," mostly Hispanic, inner-city high school, to be competitive with the most prestigious high schools in the country.

Mr. Dean Kamen, inventor of the Segway personal transporter and founder of FIRST, meets the robot driving crew before a competition.

While teachers Allan Cameron and Fredi Lajvardi were explaining that the $4,000 entry fee, the round-trip airfare, and the hotel room in Houston added up to a greater expense than the club's $1,000 remaining balance, senior Dulce Matuz was emailing her new friend Steve Sanghi, CEO and chairman of Microchip Technology, Inc., for help. They had met a few weeks earlier at an Arizona competition. Sanghi's response? He sent out a personal endorsement and email to many of the leaders in Arizona, and within days, companies and individuals pledged enough funds to send the robotics team to the championship.

That spring of 2003, the rookie team placed in the bottom third of the pack, but they learned that a partnership was more than a district feel-good program and a free lunch. It was networking, reaching out, asking, writing proposals, and experiencing hundreds of rejections. The kids learned to use the phone and converse with decision makers. They learned the art of selling their ideas and passion. They became an engineering enterprise.

The robotics team returned to the national championships in 2004 and again in April 2005. This time it was awarded the second highest award, the Engineering Inspiration Award, in the now international competition (1,000 teams, 16 countries). The team also competed in the Mate (Marine Advanced Technology Education) Remotely Underwater Operated Vehicle competition and was presented the first place award, beating the college team from the prestigious Massachusetts Institute of Technology.

American Students Losing Technical Edge

Bill Gates (founder of Microsoft), Craig Barrett (chairman of Intel)[1], Dean Kamen (founder of DEKA)[2], and others are warning Americans that we are losing our technical competitive edge in the global economy because our children are not proficient in mathematics, science, and engineering.[3] Fewer high-school students are entering engineering now than 10 years ago, and the majority of the graduate engineering students in the U.S. are international students.[4] The nation that produced so many talented scientists and engineers and put a man on the moon now shows greater interest in entertainers and sports personalities. We do not celebrate the people who truly contribute to improving our society. Is it any wonder that more students aspire to become NBA basketball players than engineers?

Dean Kamen started the FIRST robotics competition to provide an exciting sports-like venue for students to design and build a robot. The students and teachers have to not only become proficient in the engineering skills, but as Dulce learned, they have to network, raise funds, sell ideas, work as an effective team, and communicate. They also experience how exciting, creative, and fulfilling an engineering career can be.

There are few schools with the extra funds to finance a robotics team and fewer teachers with the background to work with the mechanical, electrical, and programming aspects of a robotics competition. Partnerships between high schools and the corporate community have become essential. Companies provide financial grants, but more importantly, they provide engineers and professionals to mentor our teachers and students.

The Carl Hayden robotics team is honored by the city of Phoenix for its partnership with Intel, Honeywell, Phelps Dodge, Wells Fargo, and local businesses.

Partnering with Corporate Mentors

Dr. Karen Suhm lays down the soldering iron to explain to Pablo Santillian why the polarity on a LED is important. Between the jokes and the Credence Clearwater music blaring in the background, Suhm, a physicist at Microchip, works with the students every Monday afternoon on electrical and programming challenges on the robot.

Marcos Garcia-Acosta from the Intel Latino Network helps the team with publicity, promotions, and professional networking. The June 2004 MATE victory of Carl Hayden High over powerhouse colleges and universities was ignored by the media. It was Garcia-Acosta's tenacious salesmanship that finally resulted in *Wired* magazine's April 2005 article, "La Vida Robot" (http://www.wired.com/wired/archive/13.04/robot.html). The resulting attention and support have created incredible opportunities for the robotics students.

Carol Lindsay of Phelps Dodge works with Annemarie Regalado, Luis Gutierrez, and Marie Keller on their presentations. The team has to be able to present the Carl Hayden robotics story to the governor, members of the U.S. Congress, junior high students, parents, school boards, or a panel of engineers with little notice. They do it well.

As these professionals pick up tools and work alongside the students, they talk not only of engineering and technical skills, but they also share personal stories, dreams, and challenges. The geek stereotypes fall away as teenagers interact with real people who seem nothing like the engineering caricatures promoted in the media. The Carl Hayden students, who seldom meet anyone with a college degree except their teachers, learn of the possibilities that a college education offers.

Partnerships between high schools and the corporate community have become essential. Companies provide financial grants, but more importantly, they provide engineers and professionals to mentor our teachers and students.

According to Brenda Musilli, director of Intel's education outreach, Intel will spend $100 million this year on educational programs for schoolchildren. Intel activities include sponsoring the Intel International Science and Engineering Fair, in addition to financing Carl Hayden's high-school team entrance fee in next year's FIRST robotics competitions.[5] When asked why Intel invests so

How can I get the corporate community involved in my classroom?

Tips for teachers:

- Talk to everyone you know, from your students' parents to your neighbors to the folks at the gym; get the word out about your project. Anyone involved in industry can help you connect with mentors and potential sponsors.
- Speak up. Present an activity at the school board meeting, local Kiwanis club, Chamber of Commerce, or wherever people are looking for speakers.
- Volunteer to be a speaker at a professional science society's regional or national meeting. Have your students present their work.
- Send press releases and emails to local newspapers and companies. Join online chats, or communicate via web-logs (blogs) and broadsides.
- Ask for help directly. Write, call or email corporate CEOs and presidents.
- Contact the community relations departments of corporations about programs specifically designed to support K-12 science competitions. For example, ExxonMobil sponsors employees to serve as science fair mentors and judges: www.exxonmobilchemical.com/Public_PA/WorldwideEnglish/CorpCitizenship/SciEdu/OC_citizen_science.asp

much in nonrevenue-generating technology education, CEO Craig Barrett said, "Basically, it's the right thing to do."

Lajvardi, the inspirational teacher at Carl Hayden, will coach the robotics team for thousands of hours again this year without pay. Why? "It really makes a tremendous difference in these kids' lives. When our kids are given the same opportunities as more affluent schools, our kids can compete with the best. Too often they are told to be satisfied with second best."

Aspirations and Success

Junior Lorenzo Santillian has raised his grades from mostly Ds and Fs to As and Bs. He now aspires to be an engineer or a gourmet chef. He credits working with the team and the adult mentors as "the hardest fun" and responsible for his new attitude toward his education.

Carl Hayden High School, working with the business community and the individual efforts of teachers and engineering professionals, has produced amazing and nationally recognized results that can be replicated in any school.

Dulce Matuz has completed her second year at Arizona State University's college of engineering. She entered high school as a new immigrant from Mexico with no English skills; her aspiration was to graduate from high school and work at the local mall. Now, as an intelligent, bilingual, Hispanic, female electrical engineering student who knows people at Microchip, she certainly has a bright future. Steve Sanghi made a wise investment. ■

Dr. Allan Cameron is a computer science teacher at Carl Hayden Community High School and a co-sponsor of the Falcon Robotics Club and the Amateur Radio Club. www.falconRobotics.org; email: N7UJJ@cox.net

1. Craig Barrett, *Fixing America's Educational System: It's Clear That Government Alone Cannot Correct All the Problems*
www.caltax.org/member/digest/jan2005/1.2005.Barrett-FixingAmericasEducationalSystem.03.htm

2. Dean Kamen, *A Call to Action from Dean Kamen,* The Institute (IEEE)
www.theinstitute.ieee.org/

3. "The number of students who plan to major in engineering upon college entrance has continued to decrease."
"Of the 1.1 million graduating high school seniors who took the 2002 ACT Assessment, 52,112 planned on majoring in engineering, down from 67,764 in 1993."
Source: *Maintaining a Strong Engineering Workforce: ACT Policy Report 2003*
www.act.org/research/policy/pdf/engineer.pdf

4. "According to the US Census Bureau, in 2000 the percentage of scientists and engineers working in the US but born abroad was 22% (an increase from 14% in 1990)."
"Currently 6% of the US 24 year old population is awarded degrees in science and engineering. Thirteen economies (up from two in 1975) outrank the US in this area. Those include the UK, South Korea, Japan, Canada, Germany, and France."
"Between 1985 and 2000 (excluding biological sciences), the number of bachelor's degrees awarded in natural sciences and engineering dropped by 18.6%."
Source: The Science and Engineering Workforce, *Realizing America's Potential*
www.nsf.gov/nsb/documents/2003/nsb0369/nsb0369.pdf

5. Brenda Musilli. Conversation with author at the 2005 Intel International Science and Engineering Fair in Phoenix, Arizona, May 9–13, 2005.

Resources

Corporate-sponsored K-12 COMPETITIONS AND SCIENCE FAIRS

- *Discovery Channel* – science fair central tools and information about the annual Discovery Channel Young Scientist Challenges: school.discovery.com/sciencefaircentral/index.html
- *For Inspiration and Recognition of Science and Technology (FIRST)* – robotics-related challenges for students from age nine through high school: www.usfirst.org
- *IBM Programming Contest Central* – annual high school and college competition: www.developer.ibm.com/university/students/highschool/
- *Intel International Science and Engineering Fair (Intel ISEF)* – the world's largest pre-college celebration of science. Intel also offers a range of educational programs and resources: www.sciserv.org/isef/; www97.intel.com/education/
- *Lucent Global Scholars* – international event culminating in a weeklong summit in July: www.lucent.com/social/2004GSS.html
- *Marine Advanced Technology Education (MATE) Center* – remotely operated vehicle competitions: www.marinetech.org/rov_competition
- *Siemens Westinghouse Competition in Math, Science & Technology* – administered by the College Board: www.siemens-foundation.org/competition/

Corporate K-12 GRANTS & AWARDS

- *Coca-Cola* – offers several programs, such as the First Generation Scholarship, Valued Youth and Scholars Program: www2.coca-cola.com/ourcompany/diversity_community_education.html#first_generation; www2.coca-cola.com/citizenship/education.html
- *Toyota Tapestry* – awards $10,000 grants (or $2,500 mini-grants) to K-12 science teachers for environmental science, physical science or literacy and science programs: www.nsta.org/programs/tapestry/
- *Toyota TIME* – provides $10,000 grants to K-12 mathematics teachers: www.nctm.org/about/toyota/index.asp
- *IBM* – supports several educational programs, including the Reinventing Education grant program: www.ibm.com/ibm/ibmgives/grant/education/

Dialogue

The SACNAS e-Mentoring Program connects minority-serving K-12 teachers with research scientists. ***Dialogue*** *presents the results of partners' year-long collaboration.*

CULTIVATING A SENSE OF PLACE:

e-Mentoring with Western Science & Traditional Knowledge

By Mildred Chino and Quincy Spurlin, Ph.D.

Mildred Chino, a third-grade teacher at Laguna Elementary School, works with her students in the field.

Educator: *Mildred "Millie" Chino, Third-Grade Teacher, Laguna Elementary School*
Scientist: *Dr. Quincy Spurlin, Scientist/Educator, University of New Mexico*
Paired in: *2003*

The focus of our exchange is aimed at strengthening third graders' sense of place and providing them with a foundational knowledge of environmental science—not just any third graders, but those of Laguna Pueblo, where the world's largest open-pit uranium mine has disrupted traditional living and the ecosystem. Local places and environmental events are incredibly rich sources of meaningful science content for all learners. It begins with making conscious one's own sense of place.

A Sense of Place

When you have a sense of place, you are very aware of what happens to it. When a place is damaged, people often feel powerless. For students to be empowered to make positive changes in their "places," we educators are challenged to help students recognize the "particulars" of those places. The particulars could include the macro-invertebrates in the streams of the Pueblo, the surrounding high plateaus and sandstone mesas, where and when to pick traditionally used plants, and the impacts of the uranium mine on outdoor bread ovens as well as on the health of tribal members.

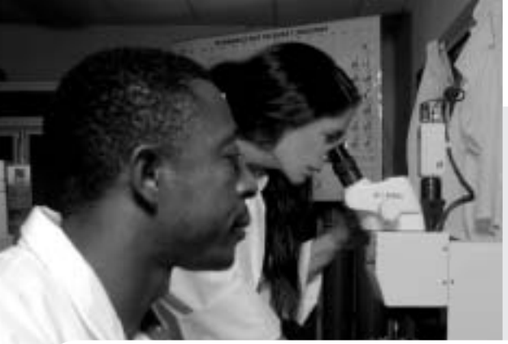
Turning "Place" into Curriculum

How can we take science content knowledge and our own passions for our "places" and translate these driving forces into developmentally appropriate curriculum? Once we start to look for them, it becomes relatively easy to identify elements, activities, and events in our home communities that embody the science we must teach. Our role is to enliven the connections between these events, our students, and the inherent science. For example, at Laguna, as with everywhere, we are concerned with water quality. The science? Look for the interconnectedness of all things, including cultural practices. Students can sample macro-invertebrates and use them as indicators of stream health. Looking at the same stream, students can identify what is happening on the land around the stream and the land upstream. What are the disturbances? What is getting into this water that reduces quality? And what is our evidence? What then do we propose as solutions?

Our community members shared the spirit of togetherness and cooperation before the mining took its toll on some of our cultural practices. The outdoor oven was a significant part of Laguna culture. For special days—fiestas and ceremonies—village members came together at the outdoor oven to roast corn, bake bread, and cook wheat pudding and other foods. These practices were special; they were ceremonies in themselves. Blasting from the mine twice daily for many years has had significant impact on the village of Paguate's traditional mud and rock homes and has devastated the traditional ovens. Very few remain, and every day the ovens are becoming rubble. Our children could lose an important element of their history and traditions.

Placing these impacts of mining within the curriculum—integrating them into mathematics, language, arts, and science—personalizes the lessons for students. So we have mapped the location of the ovens in Paguate, and we continue to interview the grandmothers about the baking and the ovens. Additionally, we interview the elders who were employed at the mine. When third graders see the gigantic (7 square miles) mine pit and the destruction to the houses and ovens of Paguate, they struggle to understand. How could this ore be so important and the environment (the plants, rocks, the animals, air, water) be utterly destroyed? We are making a book to place

...continued on page 13



LEFT
Dr. Hannigan (at microscope) works in the lab with her student.

DR. ROBYN HANNIGAN – *Environmental Scientist*

By Marisa Mercado

When I was young, my father bought me a toy microscope. I used it all the time. I collected objects to observe and made up experiments. When we studied frogs in high school, I would turn in extra projects I did on tadpoles I had studied at home. But my science teachers weren't impressed. I was usually bored in classes, and I even got a "D" in biology.

My mother, who was from the Narragansett nation of Rhode Island, had advice that helped me through the boredom of school and the apathy of my teachers. She always told me, "There's time and then there's Indian time. Make sure you get done what needs to be done, and you do it well. But don't let a clock dictate what you're doing."

From what she said, I eventually realized that it is okay to learn at my own pace and to remember there's nothing I can't do. I learned this for myself after a rough start in school. We moved around a lot when I was growing up, and lived in six towns in five states by the time I graduated high school. We were poor and had to move as my father got new industrial construction jobs. He emigrated from Ireland without a high school education, so he didn't have many opportunities. My mother also had a limited education, but my parents both knew college would make a difference in my life. However, most of my friends just thought school was something you had to do until you finished. I am a first-generation college student, but not necessarily because I wanted to be! After high school, my parents said I should go to college and that they would help me find a job to pay for it, or I could live at home and go to work. In Baskin Ridge, New Jersey, where I lived, a high school education meant a job at the gas station or 7-11.

I chose college because I thought it was one big party—I didn't know college also meant work. It was an awful surprise! I called my parents all the time begging them to let me please come home. But they told me if I wanted a better life I had to get through college; I had to at least try. I majored in premed biology because I thought I wanted to be a doctor since they make a lot of money. But you had to attend class to be a doctor, and I didn't really want to do that. I eventually graduated from the College of New Jersey with a 2.9 GPA. I was happy to be done, and I got a job at the health department. One of my duties was running the scientific instruments, and I came to really enjoy it. A co-worker told me, "Why don't you go back to graduate school and do what you want to do?" But first I had to figure out what that was.

Within the year, I applied to graduate programs in geology, remembering how I enjoyed finding dinosaur bones with my mom when I was little. Although I had low grades, my future advisor at the University of New York at Buffalo recognized my intent to learn. As I continued, eventually I found a match for my interests—geochemistry. After getting my Ph.D. at the University of Rochester, I thought I had finally finished with school. I just wanted a regular teaching job. But my advisor insisted I apply for a postdoctoral scholarship at Woods Hole Oceanographic Institution. He explained that it would help me go further in my career, knowing the experience would mean working with scientists in other disciplines. He was right, and now I can help students by connecting them with well-respected professionals in their fields.

Science cannot grow without diverse perspectives. But it took a long time for me to understand this and to trust my own capabilities.

Being able to make a difference is important to me. Here at Arkansas State University, I started the summer Research Internships in Science of the Environment (RISE) program, so undergraduate students can get hands-on research experience. Besides undergraduates, we also bring in underrepresented minority high school students from across the country. These are students like myself, interested in science, who maybe were told either directly or between the lines that they weren't good at anything and weren't going anywhere. They really bring unique insights to the design of their projects, inspiring my own research.

Science cannot grow without diverse perspectives. But it took a long time for me to understand this and to trust my own capabilities. This couldn't have happened without the help of mentors who saw my potential and gave me a leg up when I needed it. Thanks to them, I went beyond even my own expectations. Now part of my job is showing students how important their contributions are to science. When I started my geochemistry research laboratory, I asked them to come up with the name. They decided on "Water-Rock-Life" (WRL), which summed up our research and gave us a unique name. My favorite aspect of running a lab is working with students, introducing them to the excitement of discovery, to help them realize that they are very capable people who can do anything they really want to do. ■

Marisa Mercado, a Xicana activist for social and environmental justice, recently completed her B.A. in social history at California State University, Monterey Bay.

SACNAS Biography Project

www.sacnas.org

Started in 1996, the SACNAS Biography Project averages 120,000 visitors a year (www2.sacnas.org/biography/default.asp). It has become an invaluable tool for students and educators who are interested in the accomplishments of Chicano/Latino and Native American scientists. The SACNAS Biography Project is available on CD-ROM. For more information please contact Jenny Kurzweil at jenny@sacnas.org or call (831) 459-0170, ext. 227.

in our library and for other teachers to use as a resource.

Basis for Collaboration

Our e-Mentoring collaboration has included lots of adventures. We have set up quadrants in the field, collected data, journaled, and used digital photography to tell environmental stories. We teach the third graders many areas of science using macro-invertebrates to indicate stream quality, to study atoms, and to understand radiation. Our bottom line: Everything is connected to everything else.

To the collaboration, Millie brings the ideas; she knows her community and the science she wants her students to learn. Quincy helps with materials, activities, science content knowledge, and how to translate that to reach third graders. Together we identify the science that is embedded in the environmental issues that face Laguna Pueblo. When Millie needs a deeper understanding in order to teach effectively, Quincy helps out. Our relationship is based on mutual respect for the other's special knowledge. For the benefit of the children, we bring together knowledge of the community and traditions with science content knowledge. And our work together has helped us both to grow professionally; we have presented our work about environmental science and sense of place at national conferences. We are a team working to bridge Western science with traditional knowledge—working to heal our land and our communities. ■

the Science *of* Teamwork

a summer internship at Intel

By Edward Olano

LEFT
Edward Olano pictured on campus at the University of California, Santa Cruz.

I am a Ph.D. student in physical chemistry at the University of California, Santa Cruz, specializing in nanoscience. In late spring of 2004, my research advisor approached me about applying for an internship at Intel Corporation. The company had contacted him to see if he had any graduate students interested in working at Intel for the summer. Since my research made a good match with Intel's interests, I was encouraged to apply and got the job.

The Business of Science

My experience in the corporate sector was a positive one, and I will definitely consider pursuing a corporate job after graduation. I found that the corporate sector, although competitive, is better organized than the academic sector. Funding is usually not a problem as it is in academia, and teamwork is a valued priority. This focus on teamwork meant that personal differences were put aside. Conversely, in the academic world, I've seen that personal differences often interfere with the success of a project.

My three months as an intern in the Precision Biology Group at Intel in Santa Clara, California, exposed me to the business end of science. Upon arrival, I was impressed with the sleek appearance of the corporate work environment. It seemed as if everything, from the color of one's desk to the plates in the cafeteria, were designer-coordinated! Everything that an employee might need to make the workplace comfortable and exciting was provided, including a state-of-the-art gym with free recreational classes.

The Value of Teamwork

The usual competition that one encounters in academe was nonexistent in my work group—collaboration was valued over individual competition. I felt motivated by their acceptance and pledged to give 100 percent to the success of the project. I was assigned a mentor from my group who would guide me through the initial steps of the internship. I was now part of a challenging and complex project with clearly defined objectives and deadlines. I was told that I would have access to any instrument, chemical, or resource I needed in order to complete the project. My mentor said, "Edward, we want you to succeed. Please let us know what you need for success, and we will give it to you." I was surprised to hear this, as my experience in academe is that such comments rarely come to fruition. I felt as if I had entered a "toy store" and was given permission to play with anything!

The Research Life

My project focused on the biological applications of nanoparticles. Although my background lies in the field of nanoscience, the problem was complex enough that it required me to draw upon all of my disciplinary knowledge. The deadlines for each objective of the project added pressure for me to produce results. It was an environment of creative stress. We all worked for one shared goal, and the success of our project was the priority. This unity helped me endure the long summer days of working in the lab.

My daily activities varied from week to week depending on the objectives and deadlines that had to be met. Each day began at 7:30 a.m. and ended at 5:00 p.m. But on some days, when progress reports were due, I was in the lab as early as 6:00 a.m. and stayed as late as 10:00 p.m. This may sound like a lot of work, but the team spirit helped make the long hours bearable and fun. Each Friday, a series of group meetings took place. Here, individual presentations were given about progress made during the week. The format of the presentations was always formal. After the meeting was over, copies of the presentations were handed out to leaders who maintained a record of the progress for each member of their respective groups. These records of progress served as the raw evaluative material for future promotions of employees. A record of my own progress at Intel is being kept on file in case of future employment.

Professional Development

I learned many new skills during my summer with Intel, and I refined other skills that I already had. One of the most important lessons I learned was the concept of teamwork. Individual success is rewarded but only as it relates to achieving objectives of the group. My organizational skills greatly improved as a consequence of the collaborative orientation of the work. Presenting my research results on a weekly basis helped me stay focused and facilitated frequent feedback from my co-workers.

Diversity at Intel

There were probably over 100 interns during the summer that I was at Intel. In my unit, there was one other intern from the University of Wisconsin at Madison. Intel tried to organize activities for all of us, but given that we were working 10 or more hours daily, attendance was difficult. From the few interactions I had, I did not see any other Latino or Native American interns. None of my team members were Latino or Native American either. The other research groups I interacted with had perhaps one underrepresented minority (African American, Latino, or Native American) at most. On the whole, I felt the company was diverse, especially in terms of Asian American employees. A lot of the underrepresented minorities seemed to work in the jobs that were not science oriented. However, I could definitely see myself working for Intel someday. Although the number of underrepresented minorities was not what it should be, the problem of lack of diversity also exists in academia, and hence I have learned to deal with it. The fact that Intel values teamwork very highly is one of the attractive characteristics of the company and industry in general.

I was now part of a challenging and complex project with clearly defined objectives and deadlines.

My summer at Intel helped me develop myself professionally. I made contacts that will be useful to me in the future, and I learned skills that are helpful both inside and outside of the lab. I highly recommend that students in science consider doing an internship in industry. It will be an experience that helps you no matter what path you ultimately choose—industry, academe, or government. ■

Edward Olano is a Ph.D. student in physical chemistry at the University of California, Santa Cruz.

Corporate Science Internships and Fellowships

- AT&T Labs – offers summer internships and a fellowship to outstanding underrepresented minority and women students pursuing a Ph.D. in computer and communications-related fields: www.att.com/hr/ur/coopjobs.html
- Bell Labs Graduate Research Fellowship Program – full tuition plus $17,000 stipend; aimed at increasing the number of minorities and women in the sciences: www.lucent.com/social/blgrfp/index.html
- Boeing Internship Programs – engineering, computer science and mathematics opportunities: www.boeing.com/employment/college/index.html
- DaimlerChrysler – internships, support programs and the DaimlerChrysler Career Partnership: career.daimlerchrysler.com/dc/wms/dc/index.php?re_gion=3&ci=232&language=2
- Genentech – three-month-long biotechnology internships for students who have completed their sophomore year: www.gene.com/gene/careers/college/internships.jsp
- General Mills – summer internships: www.generalmills.com/corporate/careers/internship.aspx
- IBM Extreme Blue – summer internship program: www-913.ibm.com/employment/us/extremeblue/
- Intel Corporation – 10 to 12 week summer internships and 3–9 month co-op internships to engineering, computer science, physics and material science students: www.intel.com/jobs/usa/students/internships/
- Kodak – cooperative engineering internship program: www.kodak.com/US/en/corp/careers/students/internships.jhtml
- Pacific Gas & Electric – 10 to 12 week summer internships in environmental science, engineering, and more: www.pge.com/careers/college/summer_internships/index.html
- Procter & Gamble – internship program: www.pg.com/jobs/recruitblue/collegerecrt.jhtml
- Northrup Grumman – internships targeted primarily at juniors, seniors and graduate students: www.definingthefuture.com/
- United Technologies – engineering internship program in areas such as hydrogen fuel cell development: www.utc.com/careers/undergrad/intern/index.htm
- Xerox College Experiential Learning Programs (XCEL) – summer internships, co-op and work/study programs offered to undergraduate and graduate students and the Technical Minority Scholarship Program: www.xerox.com (select link to careers@xerox)

RESEARCH & DEVELOPMENT COLLOQUIUM FOR UNDERGRADUATES

P&G

NOVEMBER 6-8, 2005
CINCINNATI, OHIO

The Colloquium is designed to give undergraduate students majoring in chemistry or life science a broad overview of what R&D is about in industry. The Colloquium will feature lectures on cutting edge sciences and its application to R&D. During the course, students will be exposed to some of the latest technologies and processes used to discover and develop new health and beauty care products. The program also will provide students an opportunity to better understand what a technical career would look like in an industrial R&D setting.

Program highlights include:

- An overview of major technical functions (e.g., genomics, modeling, informatics) on which pharmaceutical and beauty care product R&D is based.
- Presentation of case studies on product discovery and development.
- An opportunity to meet with leading scientists and technology managers and get their perspectives on the innovation process and challenges to R&D.
- A review of how companies develop an understanding of what matters most to consumers.

The Colloquium will be offered to a limited number of candidates. The applicants must be fulltime college students, preferably in their sophomore, junior or senior years, majoring in chemistry or life science program. Candidates must be a U.S. citizen or national, permanent resident, refugee or asylee, or temporary resident under the legalization program of the 1986 Immigration Act. Accommodation, meals and travel expenses will be paid by Procter & Gamble. Applications must be received no later than July 30, 2005.

To obtain a brochure and application, please visit our website at **http://www.pg.com/science/rd_colloquium.jhtml.** Students can also contact Ms. Lynn Parrott at 513-622-1574 or email parrott.ll@pg.com.

SACNAS

Free Community Events at the 2005 National Conference

Pow Wow ***Friday, September 30; 9:00 pm–12:00 midnight, Colorado Convention Center, Ballroom 1***

Celebrate a night of cultural diversity at the annual SACNAS Pow Wow. Come share the traditions of the Society's Native American members in this inter-tribal gathering of music and dance.

for the entire community

- traditional, fancy, grass, shawl and jingle dress dancing
- art, crafts and jewelry vendors

Community Day ***Saturday, October 1; 9:00 am–12:00 noon, Colorado Convention Center, Exhibit Hall D***

for k-12 & community college students

- over 250 representatives from colleges and internship programs
- hands-on science activities sponsored by the National Renewable Energy Laboratory (**NREL**)

for the whole family

- health awareness and family health history
- blood pressure and diabetes screenings and blood donations
- laptop computer raffle at 11:30 am

More information

- 877-SACNAS-1
- info@sacnas.org
- www.sacnas.org

September 29 - October 2 | Colorado Convention Center | Denver, Colorado |

Viewpoint *features distinguished SACNAS mentors, honored annually at the National Conference, who respond to questions from students regarding research, graduate school, internships, etc.*

FEATURED MENTOR: DENNIS O'MALLEY, PH.D.

SACNAS mentor Dr. Dennis O'Malley has been on the faculty of Haskell Indian Nations University for over 20 years.

Q: *I'm going to be presenting a poster at the SACNAS conference. What do I need to know about talking with the judges about my project?*

A: Be confident; you are the expert on your research. But be sure to acknowledge your limits as well. You can't know all the background or have explored every path in your research area. Keep in mind that judges are looking for good things to say. Scientists, especially those in organizations like SACNAS, want to develop and encourage the next generation.

Prepare for meeting the judges by reading your own poster a couple of times. I find that after I've worked on something for a long while, it turns to mush in my own mind. So I try to look over the final product as if it belongs to someone else. What would that person see that they would ask you about?

Q: *As a first-generation college student, I often feel very out of place with the other students in my science classes—like I can't keep up with them. A lot of the other students talk about how their parents are doctors or professors, and they talk about all of the science projects they did in high school. Sometimes, I feel like I am going to fail the course because I haven't had the same preparation as them. I mean, I didn't even know what an AP (advanced placement) class was until I got to college. What should I do?*

A: Concentrate on what you can control. You have talent or you wouldn't be in college. You can approach your education with energy and concentration, developing a work ethic second to none. You can't do anything about the past; work on the future.

Along with working hard, develop a social network. In general, college students with a wide circle of friends stay in school and do well.

Be as friendly as you can. This is a skill that will help you everywhere. Try talking to the people sitting next to you in class. You'll hit it off with some of them. Then form a study group both for social and academic reasons. This will give you a group in which to anchor yourself, and you can learn from the greater experience of your colleagues. Do your part by having solid notes and a thorough study of that particular class. In the end, effort pays off. Dr. Marigold Linton, the current president of SACNAS, grew up in a house with dirt floors. What do you think it was like to go to college with that background? She was determined, and she made it.

Q: *I have been accepted into a couple of graduate schools. One is at a prestigious university. However, my experience at the interview and visiting the campus felt alienating—there were very few other minorities in my program and almost no diversity among the faculty. The other school I was accepted at is a less prestigious minority-serving institution where my potential advisor has a good record of working with minorities in her lab, and I felt pretty at home on the campus. How do I decide which offer to accept?*

A: Go where you are comfortable if it also has high standards. You want to get through your graduate school years, but you want to gain professionally from them as well. Keep in mind that it's possible to derive great benefit from a less prestigious school with an active program and none from a famous one—if you don't graduate.

It depends on you in two ways: good judgment in picking a place and working hard when you get there. Some questions to ask: Is your contemplated research group productive? Do they have grant money, and do they produce papers? On the other side of the issue: Will you ever see your major professor? How many students have graduated from the program? How many of those students came from schools like yours? ■

Dr. Dennis O'Malley received the 2004 SACNAS Distinguished Community/Tribal College Mentor Award. He has been on the faculty of Haskell Indian Nations University for over 20 years.

To submit a question to a Viewpoint mentor, contact: editors@sacnas.org

The Corporate Postdoc

a world of possibilities

By Lino Gonzalez, Ph.D.

RIGHT
Dr. Lino Gonzalez in his lab at Genentech.

IT WASN'T UNTIL the "dot com" boom and the explosion of startup biotechnology companies in the late 1990s that it occurred to me that a career in industry could be a possibility. During these years, I was building my scientific reputation and publication record as a postdoc at Stanford University. For many new Ph.D. graduates, accepting a postdoctoral position or job in industry is perceived to be equivalent to closing the door on an academic career. The catch is, if you have never experienced working in industry, how do you know you will like it?

So, naturally, I was worried that industry might be a death knell into scientific obscurity. On the other hand, I recognized that biotech companies had exceptional resources and access to groundbreaking technologies. I was attracted by the practical aspect of developing therapeutics to treat patients and the prospect of spending more time in the lab, rather than writing grants and preparing lecture material.

Entering the Corporate World

After my academic postdoc, I interviewed exclusively at biotechnology companies. Some reinforced my original concern. I remember being asked during an interview how I felt about leaving academia. I was cautioned that research in industry was very different and not focused on publications. Immediately, I heard that scientific death-knell. I was just about to accept this fate when I received a phone call inviting me to interview at a company in South San Francisco. When I visited, I was struck by the fact that so many of the scientists in the department had spent the majority of their professional careers there. They were respected in the scientific community and recognized for their contributions. At first, I thought there must be some reason why these scientists felt compelled to remain with the same company for over 20 years. Another scientist handed me a pile of publications from his lab. Whoa, publications? Like in academia, scientific creativity was highly valued, and scientists were encouraged to publish and participate in scientific meetings. The line between corporate and academic research was blurred.

A Short Course in Biotech History

To understand how this corporate culture came about, let me review a little biotech history. Twenty-nine years ago, a venture capitalist named Robert Swanson recognized the commercial implications of technology that was being developed in the laboratory of Dr. Herbert Boyer at the University of California, San Francisco. The technology was called recombinant DNA, and it made possible the production of human proteins, such as insulin, in bacteria. Swanson called Boyer and managed to secure a 10-minute meeting, during which they agreed to form a company. They hired a few key scientists and set out to prove they could make a human protein in bacteria.

Postdocs are expected and encouraged to do cutting-edge science [at Genentech] that will lead to new discoveries and publications. Importantly, they are not required to work on projects that have direct therapeutic applications and therefore enjoy an academic-like freedom to develop innovative research.

(Stephen S. Hall has chronicled these events in a book called *Invisible Frontiers: The Race to Synthesize a Human Gene*, published by Oxford University Press.) Today, the original converted warehouse where those first experiments were done is still standing, surrounded by a growing campus of over 30 buildings. The company was named Genentech, short for Genetic Engineering Technology.

Boyer had strong feelings about the philosophy behind the original business plan. He was an academic, so he knew how important it was to bring in scientists who were outstanding and provide them with opportunities to establish their own reputations. He insisted that scientists publish their research and interact with the scientific community. He felt that this was extremely important for attracting outstanding young scientists into an industrial setting. "We tried to set up an atmosphere which would take the best from industry and the best from the academic community and put them together," Boyer recalled during an interview for the Bancroft Library. Therefore, it is not surprising that recently many well-established academic scientists, including Drs. Marc Tessier-Lavigne, Andrew C. Chan, and Richard Scheller, have not hesitated to move to Genentech.

The Best of Academia to Industry

Clearly, there is a benefit to bringing the best of academia to industry. Postdoctoral students bring an infusion of fresh ideas and new techniques. Moreover, postdocs gain valuable insight from working in industry. I am sure that most postdocs who have experienced industry have had their eyes opened to new possibilities. Because of this win-win situation, Genentech continuously supports over 60 postdoc positions in research. The postdoc tenure typically lasts three to four years and includes semi-monthly internal meetings and an annual off-site meeting where their research is shared within the group. Postdocs are expected and encouraged to do cutting-edge science that will lead to new discoveries and publications. Importantly, they are not required to work on projects that have direct therapeutic applications and therefore enjoy an academic-like freedom to develop innovative research.

The Value of an Industry Postdoc

I think one of the most valuable experiences for an industry postdoc is the exposure to the corporate culture and research environment. The extent of collaboration and the willingness to work together was one of the biggest differences I noticed in coming to industry. Another significant difference is the multifaceted nature of a company. Although it would be easy to overlook these aspects, I encourage postdoctoral fellows in industry to learn from people outside of research. Try to learn management philosophies from different corporate leaders. Learn what works and what does not. These are experiences that are difficult to obtain from an academic setting but could be extremely valuable down the road in managing a lab, a department, or an institute as your career progresses.

I strongly encourage considering companies with strong diversity initiatives. Genentech supports a number of affinity groups that focus on diversity issues. The VIDA Latino Professionals group, for example, focuses on educational and health outreach to the local community and on the professional development of its members. We are also involved in recruiting initiatives to help identify qualified candidates to increase corporate diversity. In addition, affinity groups are a wonderful way to meet people around the company. The groups provide a sense of community and allow us to learn from each other's experiences and expertise.

After the Corporate Postdoc

Where do the Genentech postdocs go after finishing their fellowships? Most continue their careers at other companies. A few find permanent research positions internally. There are some examples of fellows transitioning into areas such as project management or business development. But perhaps most surprising is the fact that many postdocs return to academia (see the Postdoctoral Program webpage at www.gene.com and the article "From Industry to Academia" published in *Nature* magazine, vol. 429, 2004, page 324). In this article, I have focused on Genentech, but there are many other opportunities to do postdoctoral work in industry. I hope that these words and the vision of Genentech's founders will serve as a road map in what to look for in a company. If you choose to do your postdoctoral training in industry, be selective and realize that you can leave your options open to a whole world of possibilities. ■

Dr. Lino Gonzalez is a scientist at Genentech. (see www.gene.com for more information). Along with other corporate representatives, he will be attending the minority postdoc activities at the upcoming SACNAS Conference in Denver.

Perspectives is a forum for postdocs, junior faculty and young professionals to share peer-to-peer insights and form community networks.

20/20 FORESIGHT

BY ALBERTO I. ROCA, PH.D.

the New Postdoc Programs at SACNAS

IF ONLY A COURSE ON *"20/20 hindsight" was taught in school! There is so much that I would have done differently if, as a graduate student, I had had the insight I now have from my postdoctoral experience. For instance, I've learned you must publish a quality first author peer-reviewed publication as quickly as possible. My career would have been completely different if I had benefited from that accomplishment. However, hopefully the new postdoc programs at SACNAS will help provide young scientists with "20/20 foresight," so they may benefit from the combined wisdom of our community.*

Postdoctoral research is a critical step in a scholar's career. However, this stage is often poorly defined, creating vulnerability in career development. Recently, SACNAS has created some new career resources for current and future postdoctoral scientists:

THE SACNAS POSTDOC COMMITTEE

Co-chairs: Drs. Alberto Roca and Lidia Yoshida (Academic Coordinator at University of California, Irvine)

Committee Duties: Coordinate online and conference activities

Upcoming Events: Professional development workshop at the 2005 SACNAS annual conference (September 29 – October 2 in Denver, Colorado) entitled "Diversity Postdoctoral Fellowships"

To Join the Postdoc Committee: Contact committee staff liaison Lola Aleru (lola@sacnas.org)

For More Information: www.minoritypostdoc.org

SACNAS POSTDOC MEMBERSHIP CATEGORY

Postdoc Membership Fee: $45/year

Conference Registration for Postdocs: SACNAS members who will be postdocs at the time of the 2005 Denver conference are encouraged to register under the new postdoc membership category

SACNAS Conference Support: Travel awards and financial aid will be available for SACNAS postdoc members

For More Information: To sign up for the postdoc email list, which will inform of travel awards and postdoctoral conference activities, contact Lola Aleru (lola@sacnas.org)

SACNAS POSTDOC VIRTUAL COMMUNITY AND SPECIAL INTEREST GROUP (SIG)

URL: www.communityzero.com/minoritypostdoc

Moderator: Dr. Joan Esnayra (joan.esnayra@comcast.net)

Virtual Community Opportunities: The site offers many tools beyond those of an email listserv. There are discussion message boards, calendars, polls, chat rooms, and archiving features for images and data files. The site is used and managed through a web interface. The site will allow us to post and discuss job announcements, fellowship opportunities, career advice, etc. All SACNAS members are encouraged to participate to allow peer mentoring as well as an opportunity for our elders to interact with us more frequently.

Photo Credit: Janjaap Photography

Drs. Alberto Roca and Arti Patel facilitated the Minority Postdoc Summit at the 2004 SACNAS National Conference, an event that propelled the implementation of the new postdoc activities at SACNAS.

Current Special Interest Group (SIG) Activities: Vote in the online poll. We want to know the topics that SACNAS should address regarding the postdoctoral experience. A selection of responses includes the following: (1) finding fellowships; (2) finding a postdoc position, project, and mentor; (3) types of postdocs—research (academic, industrial, government), teaching, policy, or international; and (4) networking and other conference/community skills.

Access to Site: Full access to the virtual community requires that you be a current SACNAS member. When creating an account with CommunityZero (select join at the URL above), we suggest using the same login as your MySACNAS username.

Online Behavior: Keep in mind that this is a professional community designed to facilitate information exchange and networking among members. Online behavior should reflect one's professionalism, so keep the discussions respectful and on topic. To facilitate networking among members, we ask that everyone disclose their name and email address under their profile within the community.

Questions: Direct questions to the site moderator, Dr. Joan Esnayra (joan.esnayra@comcast.net).

By participating in the SACNAS postdoc activities, young scientists can benefit from the collective wisdom of SACNAS. Learn from our successes and avoid our past mistakes. I wish there had been such a resource when I was preparing for my career. ■

Dr. Alberto I. Roca is a President's Postdoctoral Fellow at the University of California, Irvine, and can be reached at info@minoritypostdoc.org.

Resources

POSTDOC RESOURCES

- AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE'S Netwave PostDoc Network: nextwave.sciencemag.org/pdn/
- PROCTER & GAMBLE – annual three-day conference, Diverse Careers in Industry, "intended for African-American, Hispanic, or Native American doctoral and postdoctoral scientists who want to learn more about industrial research careers": www.pg.com/science/research_tech.jhtml
- MINORITY POSTDOC ORGANIZATION – comprised of postdocs from the SACNAS Postdoc Special Interest Group (SIG) and the Diversity Committee of the National Postdoctoral Organization: www.minoritypostdoc.org/
- NATIONAL POSTDOCTORAL ORGANIZATION – Committee on Diversity: www.nationalpostdoc.org/committees/diversity_committee/

CORPORATE POSTDOC OPPORTUNITIES

- GENENTECH – a three-year-long postdoctoral training program "designed to create a vibrant and supportive environment for rigorous scientific training": www.gene.com/gene/research/postdoctoral/
- IBM – offers postdoctoral positions, listed within the main careers page: domino.research.ibm.com/hr/career.nsf/pages/jobs.us.regular.html
- NOVARTIS INSTITUTES FOR BIOMEDICAL RESEARCH – Presidential Postdoctoral Fellowships Program provides talented young scientists with up to three years of training: www.nibr.novartis.com/Careers/Postdoc_fellowships/index.shtml

Community News

- Dr. Dan E. Arvizu has been appointed director of the National Renewable Energy Laboratory (NREL) in Golden, Colorado.
- Marlene Cano recently obtained her undergraduate degree from Our Lady of the Lake University in San Antonio, Texas. She has been accepted to several combined M.D./Ph.D. programs and has decided to attend the Medical Scientist Training Program (M.S.T.P. or M.D./Ph.D.) program at the University of Iowa Carver College of Medicine in Iowa City, Iowa, starting in the fall of 2005.
- C.J. Chavez, a lifetime member of SACNAS, and a manufacturing superintendent at Visteon Corporation, completed her M.B.A. in 2002 at the University of Tulsa in Oklahoma. Visteon recently honored Ms. Chavez as one of its first Leading the Way Award recipients. The program recognizes employees who demonstrate exemplary performance, accomplishments, or behavior that is significantly above-and-beyond expectations, or results that produce noticeable improvement in areas such as quality, value to the customer, speed, and people. Further, Chavez was among the six individuals and/or teams recognized with the Summit Award, the most prestigious award associated with the program. Ms. Chavez is currently developing a professional chapter of the Society of Hispanic Professional Engineers in Nashville, Tennessee, and will be bidding on a regional leadership conference in spring 2006.
- Maria Yeni Cisneros graduated from the University of California, Santa Barbara, with the highest honors in 2003. In 2004 she received a master's degree in education and a teaching credential. She is currently teaching junior high mathematics in her hometown of Santa Maria, California.
- Tom Cummings from the School of Engineering at the University of New Mexico won the Manuelito Award from the Navajo Nation and became a recruiter for Harvard University.
- Grace Garces, a student of environmental science at the University of Guam, participated in the East West Center Women's Leadership Program in Environmental Management Conservation in the summer of 2004.
- Dr. Michael Gonzales recently completed his postdoc work at the Molecular Sciences Institute and is now working at Apple Computers.
- Dr. Erich Jarvis received tenure in the Department of Neurobiology at the Duke University Medical Center.

...continued on page 29

Meet the New Ph.D.s of SACNAS

Enrique Alvarez, Ph.D.
Enrique.Alvarez@uchsc.edu
Institution: University of Colorado Health Sciences Center
Dissertation Title: Characterization and Expression of the Bex Gene Family in Humans, Mice, and Rats
Thesis Advisor: Dr. Curt Freed
Research Interests: Stem Cell / Bex Gene
Current Position: Medical student at University of Colorado Health Sciences Center

Stephanie Atencio, Ph.D.
Stephanie.Atencio@uchsc.edu
Institution: University of Colorado Health Sciences Center
Dissertation Title: The Major Murine Lupus Susceptibility Locus NBA2 Mediates B Cell Defects Required for IgG Anti-Nuclear Autoantibody Production in Mouse Lupus
Thesis Advisor: Dr. Brian Kotzin
Current Position: Medical student at University of Colorado Health Sciences Center

Donald Benn, Ph.D.
dbenn@nmsu.edu
Institution: Department of Biochemistry, New Mexico State University, Las Cruces
Dissertation Title: Expression of *Avena sativa L.* (Oat) Polyamine Oxidase Gene Variants in Recombinant Yeast Hosts
Thesis Advisor: Dr. Glenn D. Kuehn
Research Interests: Applications of DNA microarray platforms
Current Position: Research assistant, New Mexico State University, Las Cruces

Kristie Grebe, Ph.D.
Institution: University of Colorado Health Sciences Center
Dissertation Title: CD8-Mediated Apoptosis During T Cell Development
Thesis Advisor: Dr. Terence Potter
Research Interests: T cell response to influenza virus and the effect of the nervous system on this response
Current Position: Postdoctoral fellow at the Laboratory of Viral Diseases, National Institute of Allergy and Infectious Diseases, NIH

Maria McClure, Ph.D.
maria.mcclure@colorado.edu
Institution: University of Colorado Health Sciences Center
Dissertation Title: Elucidation of a Novel Autophagic Death Pathway in Cerebellar Purkinje Neurons that is Regulated by Death Receptors and Neurotrophins
Thesis Advisor: Dr. Kim Heidenreich
Research Interests: The role of autophagy and growth factor signaling pathways in neurodegenerative disease
Current Position: Postdoctoral fellow at Institute for Behavioral Genetics, University of Colorado, Boulder

Sara Del Valle, Ph.D.
sdelvall@lanl.gov
Institution: University of Iowa, Department of Mathematics & Computational Sciences
Dissertation Title: Effects of Behavioral Changes and Mixing Patterns in Mathematical Models for Smallpox Epidemics
Thesis Advisors: Drs. Herbert Hethcote and James M. Hyman
Research Interests: Mathematical biology and epidemiology
Current Position: Postdoctoral fellow, Discrete Simulation Science, Los Alamos National Laboratory

Konstance Shirley, Ph.D.
klees@hotmail.com
Institution: Department of Animal and Range Sciences, New Mexico State University, Las Cruces
Dissertation Title: Physiologic Markers and a Genomic Polymorphism as Predictors of Reproductive Traits in Angus and Brangus Heifers
Thesis Advisor: Dr. Milton Thomas
Research Interests: Physiological genomics
Current Position: Postdoctoral researcher at Colorado State University, Fort Collins

SACNAS Chapters

NEW SACNAS CHAPTERS
have officially formed at the following institutions!

- Arizona State University
- Utah State University
- University of Texas at El Paso
- Allan Hancock College

Please visit www.sacnas.org for more information on establishing a SACNAS Student Chapter or contact info@sacnas.org.

Photo: MH Concepts

SACNAS Receives 2004 Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring (PAESMEM)

On May 16, 2005, the White House announced that the Society for Advancement of Chicanos and Native Americans in Science (SACNAS) is among the recipients of the 2004 Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring (PAESMEM), a program supported and administered by the National Science Foundation (NSF). Each award includes a $10,000 grant for continued mentoring work.

In the award, the NSF recognized SACNAS for establishing "an array of mentoring activities at scientific meetings, teacher workshops, and through its own annual conference. It engages in broad partnerships with other professional organizations. The society provides and supports opportunities for students to strengthen their presentation skills, self-confidence and to make connections with scientists. Recently established and expanded student chapters have brought to 2,862 the number of student members, which should broaden the organization's reach. An ongoing project to develop biographies of Hispanic/Latino and Native American scientists serves as an inspiration to students from these populations."

PAESMEM honors individuals and institutions that have enhanced the participation of underrepresented groups—such as women, minorities, and people with disabilities—in science, mathematics, and engineering education at all levels. Since its inception in 1996, the PAESMEM program has recognized 87 individuals and 67 institutions. Each year's awardees add to a widening network of outstanding mentors in the U.S., assuring that tomorrow's scientists and engineers will better represent the nation's diverse population.

The 2004 individual awardees are drawn from institutions across the country and represent a variety of professional fields. SACNAS was honored alongside nine individuals and four other institutions with programs directed to Latino and Native American students, women, and minorities in biological sciences and underrepresented groups seeking mathematics doctorates. ■

ABOVE
The individual and institutional awardees of the 2004 PAESMEM Award. Dr. Marigold Linton, president of SACNAS, seated second from right. Dr. Refugio I. Rochin, executive director of SACNAS, standing at far left. For a full listing of all award winners, please go to: www.nsf.gov/news/news_summ.jsp?cntn_id=104137

2004 Annual Report

The mission of SACNAS is to encourage Chicano/Latino and Native American students to pursue graduate education and obtain the advanced degrees necessary for science research, leadership, and teaching careers at all levels.

Initiatives and Programs

Mentoring Minority Science Students
SACNAS' student initiatives focus on preparing the next generation of minority scientists for success in their education and careers. Our student programs promote interactions—personal, meaningful relationships between expert scientist-mentors and aspiring students—providing professional development, leadership training, advancement opportunities, and peer networking.

Student Chapters: created to enhance year-round mentorship, provide ongoing local support, cultivate students' leadership potential, and offer new methods of communicating SACNAS' mission and goals. In 2004, SACNAS welcomed five new Student Chapters: Embry-Riddle Aeronautical University, Santa Barbara City College, Santa Cruz County, Uniondale High School, and the University of Illinois at Chicago.

SACNAS Discipline-Specific Initiatives: SACNAS has commenced targeted efforts encouraging students to consider disciplines within which minorities are particularly underrepresented and that impact minority communities. The newest, the SACNAS Genomics Program, was established in 2004.

Educational Excellence: SACNAS K-12 Programs
Helping prepare minority-serving teachers to develop the scientific literacy and cultivate the scientific career aspirations of their K-12 students is the primary goal of the K-12 Education Program.

SACNAS e-Mentoring Program: uniting teachers and scientists in yearlong partnerships

SACNAS K-12 Teacher Workshops: providing interactive professional training and creating peer collaborations between teachers

SACNAS Biography Project: offering online biographies featuring the accomplishments and life stories of Latino and Native American scientists to an average of 120,000 website visitors per year

2004 SACNAS National Conference—Science and Science Policy: Constructing an Inclusive Paradigm
Bringing together students, educators, researchers, funders, recruiters, and supporters, the annual National Conference is our single largest undertaking. The event combines a passion for high-quality science with the importance of mentoring and the value of culture. In 2004, over 2,100 people gathered together between October 21 and 24 in Austin, Texas. Highlights included:

- Undergraduate and Graduate Student Poster Presentations
- Graduate Student Oral Presentations
- Practical Professional Development Workshops
- Informal, Interactive Mentoring Sessions
- Mathematic, Engineering and Scientific Symposia
- 2004 Distinguished Science, Teaching and Mentorship Awards
- Exhibits from over 240 Government and Academic Organizations and Private Businesses

RECOGNIZING OUR PARTNERS AND SPONSORS The activities of SACNAS are made possible through the combined resources of our membership and our sponsors. We gratefully acknowledge the generous support of the following partners, whose charitable patronage allows the organization to provide its programs, embark on new initiatives, and enhance the future of the minority scientific community.

MAJOR SPONSORS: Alfred P. Sloan Foundation; Indian Health Service; National Science Foundation; NIH, National Cancer for Research Resources; NIH, National Human Genome Research Institute; NIH, National Institute of Environmental Health Sciences; NIH, National Institute of General Medical Sciences; U.S. Department of Energy

2004 FINANCIAL AID

FINANCIAL AID *Scholarship Money Provided to Students and K-12 Educators*

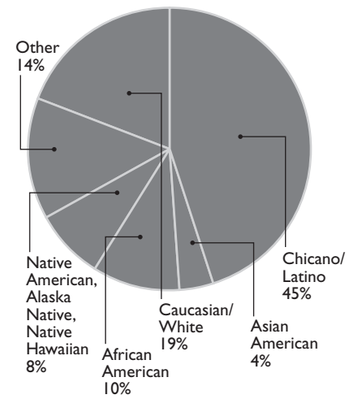
	$329,580

SCHOLARSHIPS, *by recipient type*

Undergraduate and Graduate Students	490
Teachers	102
Postdoctoral Fellows	20
Junior Faculty	5
Total Scholarships	617

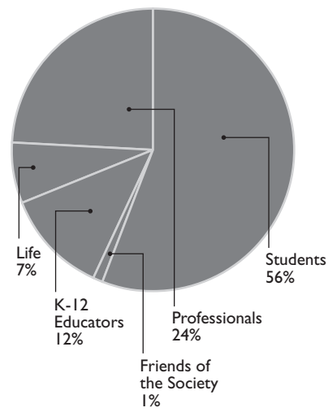
2004 NATIONAL CONFERENCE

PARTICIPATION, *by ethnicity*



2004 MEMBERSHIP

MEMBERSHIP, *by member type*



MEMBERSHIP, *by ethnicity*

African American	140
Asian American	68
Caucasian/White	262
Chicano/Latino	973
Decline to State/Unknown	143
Native American, Alaska Native, Native Hawaiian	219
Other	67
Total Members	1872

Professional Membership

SACNAS members are our greatest resource; together they demonstrate the value of combining community and culture with science.

Professional Members: provide a quality and depth of mentoring to student members personalized by their life experiences

Student and K-12 Educator Members: come together to share in the excitement and struggles of a career in science

Life Members and Friends of the Society: express a commitment to secure the Society's future and the future of minority scientists

Our Newest Life Members and Friends of the Society
The following individuals became Life Members or Friends of the Society in 2004:
Dr. Michael Carrasco
Dr. Jose Garcia
Dr. Wade Gibson
Henry Gomes
Patricia Lee-Robinson
Dr. Karen Magnus
Dr. Josie Mendez-Negrete
Dr. Kenneth C. Millett
Dr. Miguel Mora
Dr. Jorge Pullin
Ronaldo Ramirez
Dr. Aaron Velasco
Dr. Maggie Werner-Washburne
Dr. Gary Wessel

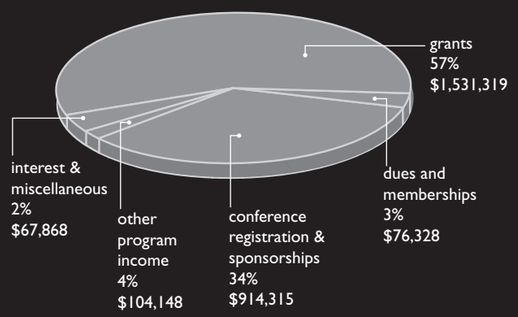
financial report

for year ending December 31, 2004 (with comparative totals for 2003)

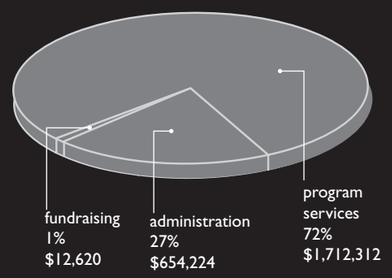
statement of activities

	UNRESTRICTED NET ASSETS	TEMPORARILY RESTRICTED NET ASSETS	2004	2003
Support and revenue				
Dues and memberships	$ 76,328	—	76,328	71,557
Contributions	820	—	820	1,115
Government grants	—	1,531,319	1,531,319	1,337,010
Nongovernment grants	—	—	—	45,000
Conference registration and sponsorships	914,315	—	914,315	729,502
Other program income	104,148	—	104,148	92,633
Net unrealized investment gains (losses)	12,327	—	12,327	12,024
Interest and miscellaneous	54,721	—	54,721	7,854
Total support and revenue	1,162,659	1,531,319	2,693,978	2,296,695
Net assets released from restrictions	1,475,153	(1,475,153)	—	—
	2,637,812	56,166	2,693,978	2,296,695
Expenses				
Program services	$ 1,712,312	—	1,712,312	1,864,975
Administration	654,224	—	654,224	683,020
Fundraising	12,620	—	12,620	—
Total expenses	**2,379,156**	—	**2,379,156**	**2,547,995**
Change in net assets	258,656	56,166	314,822	(251,300)
Net assets at beginning of year	492,889	210,154	703,043	954,343
Net assets at end of year	**$751,545**	**266,320**	**1,017,865**	**703,043**

SUPPORT AND REVENUE



INCOME DISTRIBUTION



statement of financial position

ASSETS	2004	2003
Current assets		
Cash and cash equivalents	422,493	176,414
Investments	166,766	151,532
Accounts receivable (net)	192,620	165,858
Grants receivable	514,448	227,230
Deposits and prepaid expenses	29,617	21,195
Total current assets	1,325,944	742,229
Fixed assets		
Property and equipment	151,204	149,383
Less accumulated depreciation	(114,221)	(96,552)
Total fixed assets	36,983	52,831
Total assets	**$1,362,927**	**795,060**

LIABILITIES AND NET ASSETS	2004	2003
Current liabilities		
Accounts payable	304,820	66,785
Accrued personnel costs	40,242	25,232
Total current liabilities	345,062	92,017
Net assets		
Unrestricted net assets	751,545	492,889
Temporarily restricted net assets	266,320	210,154
Total net assets	1,017,865	703,043
Total liabilities and net assets	**$1,362,927**	**795,060**

please note:
SACNAS' financials are independently audited by Berger/Lewis Accountancy Corporation.

board of directors

2004

SACNAS PRESENTS AT THE INTEL INTERNATIONAL SCIENCE & ENGINEERING FAIR

By Rocío Ruiz

ABOVE
A future scientist at the 2005 Intel International Science and Engineering Fair in Phoenix, Arizona.

For many students, the passion for science is sparked by how plants grow in different kinds of light or how an environmental issue in their neighborhood may affect the health of their family and community. Although the passion may be sparked, many schools may not have the available resources or time to give students the freedom to explore their scientific questions.

The Intel International Science and Engineering Fair (ISEF) Outreach Program gives schools with limited resources the ability to foster scientific inquiry in their students. The after-school program exposes students to research methodology, inquiry-based learning activities, science careers, and science mentors. This year alone, over 12,000 middle school students from Latino and Native American communities participated in the program over the course of seven months, and approximately 400 students were invited to present their research on May 12, 2005, at this year's Intel ISEF in Phoenix, Arizona.

Dr. Eugenia Echols, an education program manager at Intel and coordinator of the outreach program's event, invited SACNAS to present to the 400 mostly Native American and Latino middle school students in attendance. Dr. William Y. Vélez, a past president of SACNAS and professor of mathematics at the University of Arizona, gave the keynote address; and a college admissions officer and members of the SACNAS chapter from Arizona State University in Tempe spoke to the students about the benefits of attending college.

SACNAS was honored to have the opportunity to work with such a wonderful program and talented students. We hope from our presentation that the students learned that science and education go hand in hand—and that SACNAS can help nurture them along their way to becoming scientists. ■

Rocío Ruiz is the SACNAS K-12 Education Program manager.

Community News continued...

■ Maria Laguna, a science teacher in Naguabo, Puerto Rico, started working with an after-school science program in January 2005. This summer she leads a summer program for 50 students.

■ Dr. Marigold Linton received the 2005 Friend of Haskell Award in recognition of the numerous National Institutes for Health training grants she has obtained to support Haskell Indian Nations University students and programs.

■ Milka Montes, a Graduate Oral Presentation Award Winner at the 2004 SACNAS Conference, teamed up with undergraduate SACNAS member Jorge Ramos and founded a SACNAS chapter at the University of Texas at El Paso. Dr. Aaron Velasco, who is on the SACNAS Board of Directors, is the chapter advisor.

■ In fall 2004, Valentina Montoya was appointed as a MARC (Minority Access to Research Careers) student at the University of Texas at El Paso, where she also serves as the SACNAS student chapter secretary. In March of 2005, she was selected as one of the MIRT (Minority International Research Training) students for summer 2005. She will be conducting research at the Peking University Health Sciences Center in Peking/Beijing, China.

■ Ileana Alers Rivera, from the University of Puerto Rico, Rio Piedras; Victor Fernandez Alos, from the University of Puerto Rico, San Juan; Jeremy D. Sturgill, from the University of Wisconsin, Whitewater; and Mallory Willkom, from the University of Wisconsin, Eau Claire, were all admitted to the National Institute of Environmental Health Sciences nine-week summer research program at the Molecular and Environmental Toxicology Center at the University of Wisconsin, Madison.

■ Steve Smith, a recent graduate of San Jose State University, was admitted and accepted an offer from the University of Arizona to enter their Ph.D. program.

■ Bryan Montez Sommese recently completed his Juris Doctor at Franklin Pierce Law Center, where he focused on biotechnology patent law. After taking the New York and New Jersey bar exam, he will be an associate at Lerner, David, Littenberg, Krumholz, & Mentlik, LLP, in Westfield, New Jersey.

■ The science and engineering honors society Sigma χ_1 has chosen University of California, Santa Cruz, biologist Dr. Martha Zúñiga to serve a second year as a Distinguished Lecturer. The Sigma χ_1 Distinguished Lectureship Program provides opportunities for the society's local chapters to host visits from outstanding individuals who are at the leading edge of science.

To submit an item for inclusion in the SACNAS Community News, contact editors@sacnas.org

PROFILE TALIA MARTIN

Discipline: Chemistry
Career Stage: Undergraduate Student
Institution: University of Kansas

Research Abstract: I have been involved in undergraduate research at the Pharmaceutical Chemistry Laboratory at the University of Kansas for at least three years. One particular area of pharmaceutical research we are interested in involves the studying of biological macromolecules, such as proteins and viruses, for their effectiveness to treat various diseases and conditions. Currently, I am studying the stability of the protein bovine serum albumin (BSA) when it is absorbed to an aluminum hydroxide adjuvant in the presence and absence of stabilizers. The purpose of this study is to evaluate the degree of stability the excipients provide BSA when it is in solution compared to when BSA is absorbed to an adjuvant.

What direction would you like to take in your research?
I would like to continue my research at the Pharmaceutical Chemistry Department by studying the stability of other model proteins, such as lysozyme and human serum albumin. It would also be interesting to examine their properties when they become stabilized in solution. I also plan to continue my research by applying to graduate school at the Pharmaceutical Chemistry Department.

Why are you interested in this area of research?
I have always been interested in medicine and being able to use my knowledge to help my people and the health conditions that affect our communities. The study of biological macromolecules as potential pharmaceutical products can provide a way to boost the positive effects that medicines have on the body.

Do you have a mentor? What is the most valuable or important thing you have learned from your mentor?
I have been working under the supervision of Dr. C. Russell Middaugh and have assisted two graduate students, Jason Rexroad and Laura Peek. The most valuable thing I have learned from Dr. Middaugh is to always ask for help. Also, both the graduate students have taught me to ask questions, even if the questions seem ridiculous.

PROFILE ANN AURELIA LÓPEZ, PH.D.

Discipline: Environmental Science/ Ethnography
Career Stage: University of California, Office of the President, Postdoctoral Fellow
Institution: University of California, Berkeley, Department of Environmental Science, Policy, and Management, Society & Environment Division

Research Abstract: My interdisciplinary research addresses the human side of one strand of current worldwide migratory flows, with a focus on the binational migration of the farmworker community from the farms of west central Mexico to employment in central California's corporate agribusiness enterprises. I am currently working with 33 farmworker families in Watsonville and Salinas, California, as well as 22 farms and their farm families in the states of Jalisco, Michoacán, and other nearby states and communities where the small-scale sustainable farming of the traditional corn, bean, and squash intercrop was once standard farming practice.

In what ways is this research important to our communities?
This research is critical to the farm worker community. Mexican immigrants today are routinely blamed in the American media and elsewhere for entering the U.S. as undocumented workers. However, what is never mentioned is the role that U.S.-supported trade policies, including NAFTA, and transnational corporations play in forcing small farmers to abandon their lands and families in Mexico as a survival imperative. They enter the U.S. as economic and political refugees. The social costs of this massive exodus from the rural Mexican countryside, along with the human rights violations at every juncture of the migrant circuit, have created inordinate pain, loss, and human suffering in this population.

How have professional societies been important to your development as a scientist?
I attended a SACNAS conference in Albuquerque about 11 years ago hoping to network with other environmental science educators/researchers. I never met any other environmental scientists at the conference since the discipline was still new at the time. However, Dr. Frank Bayliss and others convinced me to pursue a Ph.D. degree. I applied to the newly created Ph.D. program in the Environmental Studies Department at UCSC the following year. That fortuitous SACNAS meeting changed my life forever. Eleven years ago, I never dreamed I'd become the first Latina Ph.D. environmental scientist, a University of California Office of the President Postdoc Fellow, or that I'd publish a book about my research with farmworkers, *The Farmworkers' Journey*. It's just been an amazing and seemingly miraculous life transformation. Thank-you, SACNAS!

PROFILE GILBERT JOHN, PH.D.

Discipline: Microbiology
Career Stage: Associate Professor
Institution: Oklahoma State University, Department of Microbiology and Molecular Genetics

Research Abstract: My research involves studying the structure and function of azoreductase in human intestinal bacteria. The enzyme is involved in metabolizing azo dyes, which are commonly found in hair, leather, and cosmetic dyes. These dyes are reduced into toxic metabolites that can induce the formation of bladder, kidney, and colon cancer. The process is complex as an interrelationship between intestinal bacteria and hepatic enzymes exists. Unfortunately, the mechanism associated with this process is not fully understood. Therefore, one of our main objectives is to develop a model, using two common intestinal microbes, *Enterococcus faecalis* and *Clostridium perfringens*, that can help us better understand the interrelationship between intestinal bacteria and disease development.

Why did you choose to pursue a research career in microbiology?
I am a Native American (Navajo), born and raised in the Four Corners region. A common characteristic of many Native Americans is that they are shy; I was certainly not an exception. I was shy and reserved in college and did not interact much with my professors. But there was one professor (Dr. Robert Ellis), a microbiologist, I felt comfortable with. He grew up in Wyoming, near the Wind River Reservation, and his familiarity with Native Americans is what allowed me to develop a trust in him. I eventually became a graduate student in his laboratory at Colorado State University. There, I learned how to combine my curiosity and interest in solving mysteries with my interest in human health.

What advice would you give a student who is considering a research career in academe?
My advice would be to choose academe as a career if you are a person with multiple talents and interests. I have developed a career that equally balances family, research, teaching, and service. After tenure, it is possible for a professor to pursue his or her own interests. Many research professors start their own businesses based on their expertise. For those who like to write and publish, there is an avenue to do so as a professor. If you desire to participate in today's issues regarding medicine, education, or the economy, professors are often asked to sit on federal advisory councils. If you have media interests, many professors are asked to contribute as reporters, correspondents, etc. The freedom given to professors makes our careers very flexible and exciting, and what you choose to do with this freedom is up to you. ■

SACNAS ELECTIONS

Bring your leadership and vision to the SACNAS Board of Directors! Individuals are encouraged to nominate themselves or others to run for a position on the SACNAS Board.

Available Positions

President-Elect
▶ 1 position open; four-year term of service.

General Board Member
▶ 3 positions open; three-year term of service.

Student Board Member
▶ 1 position open; two-year term of service.

SACNAS strives for a diverse board membership; individuals in the computer sciences, engineering, mathematics, physical sciences or law are particularly encouraged to apply.

For more information:

Email: info@sacnas.org
Website: www.sacnas.org/electboard.html

nominations materials deadline
| October 31, 2005 |

Resource Listings

SACNAS News Resource Listings provide the minority scientific community with access to the most current career advancement opportunities. To place a paid advertisement in the next edition of the Resource Listings, contact marketing manager Tanya Beat at tanya@sacnas.org or call toll free, 877-SACNAS-1, ext. 241.

Postdoctoral Opportunities

Postdoctoral Research Training for M.D.s and Ph.D.s
Department of Psychiatry, University of Colorado, Denver
NIMH-funded training emphasizes the neuroscience research tools needed to understand complex behavioral and psychiatric disorders.

Deadline:
December 31, 2005
More Information:
www.dprgpostdoc.org
Email:
Linda.Greco-Sanders@uchsc.edu

Women, minority candidates encouraged to apply; U.S. citizen or green card only. Equal Opportunity/ Affirmative Action Employer.

2005 Research Associateship Programs (RAP) Postdoctoral and Senior Awards
The National Academies RAP awards are sponsored by federal laboratories and NASA Research Centers at over 100 locations in the U.S. and overseas.

Submission Deadline:
August 1, 2005 (transcripts and reference reports by August 15)
More Information:
www4.nationalacademies.org/pga/rap.nsf

Colgate-Palmolive Grants for Alternative Research
Grants identify and support efforts that promote, develop, refine, or validate scientifically acceptable animal alternative methods to facilitate the safety assessment of new chemicals and formulations. The maximum award will not exceed $40,000. Scientists at any stage of career progression may submit a proposal.

Application Deadline:
August 1, 2005
More Information:
www.toxicology.org/ai/af/awards.asp#Post-doc

Scholarship & Fellowship Opportunities

Bell Labs Graduate Research Fellowship Program
Bell Labs' fellowship program is designed to increase the number of minorities and women in the sciences. Fields include full-time doctoral studies in chemistry, communications science, computer science, engineering (chemical, computer, electrical, industrial, or mechanical), information science, materials science, mathematics, operations research, physics, or statistics.

Award:
full tuition plus $17,000 stipend
More Information:
www.lucent.com/social/blgrfp/index.html; or
coopgraduate@lucent.com

HSF/Pfizer, Inc., Fellowship Program Hispanic Scholarship Fund
Annual $10,000 fellowship awards and paid summer internship aimed at assisting Hispanic American graduate and undergraduate students in completing their higher education.

More Information:
www.hsf.net/scholarship/programs/pfizer.php; or info@hsf.net
College Scholarship Program, Hispanic Scholarship Fund, 55 Second Street, Suite 1500, San Francisco, CA 94105

Semiconductor Research Corporation (SRC): Master's Scholarship Program
SRC seeks to attract qualified underrepresented minority students to graduate study in areas of interest to the semiconductor industry. The MSP program links students with industry advisors, provides internships, and offers financial support (tuition, fees, travel funds and $1,900 monthly stipend).

Application Materials Available:
November 2005
More Information:
SRC Master's Scholarship Program, P.O. Box 12053, Research Triangle Park, NC 27709-2053; or students@src.org

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Xerox Corporation: Xerox Technical Minority Scholarships
Xerox offers $1,000 awards to support ethnic minority students in chemistry, information management, computing and software systems, materials science, printing management science, laser optics, physics, material science, and engineering.

Application Deadline:
September 15, 2005
More Information:
www.xerox.com (select link to careers@xerox); or Xerox Corporation, Xerox Technical Minority Scholarship Program, 150 State Street, 4th Floor, Rochester, NY 14614

2005 SACNAS National Conference


Sponsorship Opportunities

Sponsors Receive Prominent Acknowledgment

Recognition of sponsorship at event, in the conference program and on the SACNAS website.

For further information about these sponsorship opportunities, please contact Tanya Beat, marketing and exhibits manager: tanya@sacnas.org

$2,000
Laptop Computer for Exhibit Hall Raffle: encourage participation in the Exhibit Hall and help one lucky attendee receive a premium computer to support his/her science career.

$2,500
Transportation for K-12 Enrichment Activity: three charter buses will transport 150 K-12 teachers from the Colorado Convention Center to the National Renewable Energy Laboratory (NREL) in Golden, Colorado.

Description: At NREL (www.nrel.gov/education/) teachers will participate in multiple hands-on curriculum activities to enhance their content knowledge and inquiry-based methodologies.

$4,500
Breakfast for 300 9th and 10th Graders and Their Families: support the participation of the University of Colorado, Boulder, Pre-Collegiate Development Program (PCDP) attending SACNAS' Community Day in the Exhibit Hall.

Description: The PCDP (www.colorado.edu/sasc/pcdp) is an academic enhancement program designed to motivate and prepare first-generation and underrepresented students in pursuit of their higher education goals.

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is our membership

Are you a SACNAS member?

Join SACNAS—the nationally recognized minority science organization. Enhance your career. Become part of a community that is advancing present and future generations of minority scientists, mathematicians and engineers.

Membership Benefits:

Career Advancement

Valuable print and web publications:

- *SACNAS News* presents current issues within the minority scientific community and in-depth career and academic advancement resources
- Biweekly e-nouncements feature the most timely information on current events, grant and internship opportunities

Mentorship and networking: connect with fellow members through online community activities and tools, including:

- SACNAS Minority Postdoc Community
- National MentorNet program
- Personal website in the Member Home Pages

CV enrichment:

- highlight your membership
- develop presentation skills at the annual conference
- become eligible for research and mentorship recognition through the SACNAS Distinguished Awards and the Student Poster and Oral Presentation Awards

Active Community Involvement

Lifelong relationships:

- actively engage in informal or formal mentoring activities
- join a network of science teachers, researchers, and students who are changing the face of science
- give back through the SACNAS Endowment Fund

Organizational leadership:

- make your voice heard through the opportunity to serve as a Board Member and vote in the annual Board of Directors elections

Financial Support

Reduced registration:

- receive special member rates for the SACNAS National Conference

Scholarships:

- student, postdoc and junior faculty members are eligible to apply for financial assistance to attend the annual conference

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SACNAS

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Membership

Annual Membership

☐ $24 Student ☐ $45 K-12 Teacher
☐ $45 Postdoc ☐ $65 Professional

Lifelong Membership

☐ $500 Life Member ☐ $1,000 Friend of the Society

Donation

☐ $500 ☐ $250 ☐ $500 ☐ $100 ☐ $50 ☐ $20
☐ Other_____

Sponsorship

☐ Raffle ☐ K-12 Enrichment ☐ Student Breakfast
☐ Teacher Scholarships