

Cautiously Optimistic

There is no doubt that the U.S. job market has a long way to go before it fully recovers," says John A. Challenger, chief executive officer of global outplacement consultancy Challenger, Gray & Christmas.

"After all, we've just come out of the worst recession this country has experienced in decades, with overall unemployment climbing to 10.1% as the number of jobless Americans grew by more than 8.3 million, reaching a record high of 15.6 million," Challenger says. "It doesn't take an economist or a jobs expert to tell you that it is going to take longer to get all of these people back onto payrolls."

Chemists, who have been laid off by the thousands over the past three years, certainly have not been left unscathed. They have suffered through megamergers, outsourcing initiatives, and cost-cutting programs that were fueled in part by the recession, which officially ended in June 2009. The unemployment rate among respondents to the American Chemical Society's 2009 salary and employment survey reached a peak of 3.9% in March of that year, according to Jeffrey R. Al- lum, research manager in ACS's Depart-



ment of Member Research & Technology. "Although the 2009 unemployment rate among society members was lower than the overall U.S. jobless rate, it was the highest we have seen since we started collecting employment data in 1972."

The employment landscape for chemists remains "very challenging," says Kevin Swift, chief economist and managing director of the American Chemistry Council, the U.S. chemical industry's main trade organization. "There is still uncertainty about the outlook for the economy and concern for the policy decisions" of the Obama Administration, he says. "Companies have been wondering about the tax rate, trade initiatives, health care costs, and all sorts of factors that cut across not just the chemical industry but across the whole business sector nationally. As a result, companies have just not been hiring."

The worst may be over, however. "The free fall has ended, and I think things will be relatively stable going forward," Swift says. Chemistry-related industries have been "ramping up production, and I would expect that to continue as the second phase of the recovery takes hold and gathers strength," he says. As a result, "I do think the employment situation for chemists in 2011 will be the same or slightly better than it was in 2010," he says.

Challenger offers a similar snapshot of

the current U.S. employment market. "There's no question that the economy has come out of the doldrums and that the significant job losses are over," he tells C&EN.

"While the pace of job creation continues to disappoint," demand, revenues, and profits are up "and it does seem like there is an upturn going on," he adds. Right now, "employers in the private sector have the cash to spend on new equipment and employees but are waiting for demand to increase enough to warrant the investment."

Although still cautious, companies are poised to begin to slowly rebuild their staffs after implementing layoffs or hiring freezes over the past few years, according to recruiters, university placement officers, and company sources contacted by C&EN.

"As companies start to ramp up their workforce, they are carefully observing their bottom lines," says Alan E. Edwards, a senior director for the Americas Product Group in the scientific arm of Kelly Services. "Businesses are being very strategic about adding back permanent jobs, working hard to time employment increases with sustained increases in demand." To that end, companies are relying increasingly on "the growing pool of highly skilled contract or contingency workers," he adds. Hiring in green-chemistry-based businesses has been a small, but valued, bright spot on the employment horizon.

No dramatic increase in new jobs is yet apparent from the number of classified ads in the job section of C&EN, which is regularly tabulated by the blogger Chemjobber. A Ph.D. synthetic chemist, Chemjobber spoke to C&EN on the condition that his name would not be revealed.

Between September 2008 and September 2010, Chemjobber notes, the number of C&EN industrial classified ads bottomed



Patrick B. Ropella
Chairman & CEO, Ropella
Tel: (850) 983-4777
Web: www.Ropella.com

Patrick Ropella is Chairman & CEO of the Ropella Group an international Executive Search, Leadership Transformation, and Corporate Consulting firm. He authored the book and web-based training program, *The Right Hire – Mastering the Art of SMART Talent Management*, and has seen his content featured in many trade magazines, business publications, and industry journals. Patrick regularly speaks at webinars, career fairs, and conferences.

out in August 2009, when only two ads appeared. "Since then, there doesn't seem to have been anything quite so dire," he says. "As for 2010, I really hesitate to call it anything close to a 'recovery' or a 'rebound.' The numbers have just kind of bumped along, which more or less reflects the overall economic picture."

Some recruiters who focus on hiring for the chemical and pharmaceutical industries, however, tell C&EN that they are already beginning to see signs of an uptick in hiring. At the Ropella Group, "there has been a noticeable increase in the number of job orders or search assignments that we are working on," says Patrick B. Ropella, CEO of the executive search firm, which includes the chemical sector among its specialties

In particular, "smaller, more nimble firms are beginning to ramp up their staffs," Ropella observes. Able to react to incremental changes in demand in the marketplace, "they want to grab onto every little piece of business they can get right now."

Small businesses may have additional motivation to hire now that President Barack Obama has signed into law a bill that will provide them with tax breaks, better access to credit, and other incentives under the Small Business Jobs Act of 2010, Ropella points out (C&EN, Oct. 4, page 26).

Josh Albert, managing director of life sciences executive search firm Klein Hersh International, reports that both his large and his small clients are stepping up the hiring of chemists and other scientists. "Over the first three quarters of the year, we have been averaging about 29 job orders per week, and over the last few weeks that number has been close to 50," he says.

"The economy seems to be improving, the funding is coming back, companies are committing more dollars to research, and they are hiring again," Albert says. However, "you have to keep in mind that the job market is still far from where it was. There are still a lot of people out of work."

In the wake of layoffs, large companies are rehiring in selective areas to reshape their organizations for future growth, Albert says. Recently, he has placed ana-

lytical chemists, medicinal chemists, computational chemists, and research project leaders within three big pharma firms, he says.

At the same time, "smaller companies are hiring to build internal capabilities to help drive innovation." So far in 2010, Klein Hersh has placed about 50 medicinal chemists with small discovery-based companies, says Marc Miller, the firm's director of medicinal and process chemistry. "In particular, demand is up for chemists with five- or ten-plus years of experience who are willing to spend the majority of their day in the lab cranking out compounds," he adds.

Klein Hersh is also placing chemists in contract research organizations that provide pharmaceutical industry clients with drug discovery services including medicinal chemistry work. "There are many CROs in the U.S. that are doing very well or are in the process of watching their business pick up," Miller says.

For its part, Kalexsyn, a chemistry-driven CRO in Kalamazoo, Mich., continues to recruit and hire experienced medicinal chemists and "motivated Ph.D.s and postdocs with a passion for organic synthesis," says David C. Zimmermann, the company's chief executive officer. Hiring at Kalexsyn in 2010 has roughly matched its hiring in 2009, he says. Going forward, the company "will continue to grow organically based on business opportunity."

Job opportunities in U.S. CROs, however, will be limited compared with those in overseas CROs, Zimmermann says. Increasingly, large pharmaceutical companies are replacing their in-house medicinal chemistry staff with synthetic chemists in offshore CROs, Zimmermann points out.

For this reason, some U.S. CROs like Albany Molecular Research Inc. (AMRI) are repositioning themselves to meet customers' demand for services from low-cost centers, particularly in Asia. In May, for example, AMRI announced that it would reduce the size of its U.S. workforce by roughly 10%, or about 80 jobs, and close its Rensselaer, N.Y., research laboratory facilities, while adding about 180 non-U.S. employees and investing \$30 million in international

expansion.

FLEEING PHARMA

After being laid off from AMRI, Rossiter joined biotech start-up Draths, which is developing methods for replacing petroleum-based monomers with identical bioderived materials for production of many common polymers.

Credit: Chris George

Big pharma's growing preference for offshore scientists has directly affected many U.S. scientists, including Ph.D. chemist Lana H. Rossiter, who was among those laid off by AMRI in May. Having joined the company fresh out of a postdoc position 10 years ago, Rossiter has seen the offshoring movement pick up steam. Painfully aware of the trend, she made a conscious decision to try to avoid working for a CRO or for any pharma-related business as she searched for her next job. "The whole pharma environment is just not very promising long term," she reasons. "It is just contracting so much."

After two months of job searching, Rossiter received job offers from a CRO outside of Cleveland and from Draths, a Lansing, Mich.-based chemical start-up focused on manufacturing biobased materials for use in consumer products. Although the CRO position offered better overall compensation, she accepted the job at Draths, which she began on Sept. 20. "I see this new job as a chance to go and do something different in an area where I could make an even bigger impact than I could in pharma," she says. At least some of her new coworkers may feel the same way. Many of them had also been laid off from pharma-related jobs, she says.

For the many chemists who are still searching for work, Rossiter hopes that the brevity of her unemployment is a sign that the job market is improving. However, she expects that her willingness to relocate to another state may have been a boon. In addition, she feels she benefited from increasing demand for chemists in businesses that are based in green chemistry.

The number of job opportunities in green chemistry continues to grow, claims Robert Peoples, director of ACS's Green Chemistry Institute. "Business leaders are waking up to the fact we cannot achieve a sustainable future by the

linear extension of existing technologies," he says. "Green or sustainable chemistry and green engineering offer the point of departure to build a future that does not destroy our planet." New jobs will be created for chemists who are skilled in these new tools, he adds.

Opportunities have been increasing for chemists and other scientists at companies like Boulder, Colo.-based OPX Biotechnologies. The firm aims "to manufacture renewable biobased chemicals and fuels that are lower cost, higher return, and more sustainable than existing petroleum-based products," says Charles R. Eggert, OPX's president and CEO. "Like many companies in the field of renewable chemicals and fuels, we are in a growth mode."

The firm will have grown from 20 employees in 2008 to 50 by the end of this year and to 75 by the end of 2011 or the middle of 2012, Eggert says. Among its employees are biochemists, chemical engineers, and both process chemists and process chemical engineers. Using technology that was spun out from the University of Colorado, Boulder, OPX is developing a microbe and production process to make acrylic acid, which is used in products such as paints, detergents, and superabsorbent polymers. The company hopes to complete a demonstration facility in 2011 and a commercial plant in 2014.

The company is also planning to develop a second product, diesel fuel bioprocessed from carbon dioxide and hydrogen. To support this development, OPX received a \$6 million grant from the Department of Energy in April. The funding derives from the Obama Administration's \$787 billion stimulus package under the American Recovery & Reinvestment Act of 2009 (ARRA).

Stimulus funding is supporting development of other green-chemistry-based businesses, creating new jobs in the process. Earlier this year, a \$161 million DOE grant under ARRA helped launch construction of a lithium-ion battery production facility being built by Dow Kokam in Midland, Mich. Aiming to produce batteries for hybrid and electric vehicle markets, the plant will start up in early 2011 and will employ up to 800 people (C&EN, June 28, page 12).

Prior to ARRA's enactment, Dow received \$20 million in DOE funding to

develop its Powerhouse Solar Shingle, a green product that integrates a thin-film solar cell with an asphalt roof shingle. In September, Dow announced that it was creating 100 new manufacturing jobs in Midland to further support the production of the shingles, which it plans to sell in 2011. In total, Dow aims to bring more than 1,200 jobs to the region by 2014 to support production of the green roofing material.

To develop products including solar roof shingles, new energy storage technologies, and other advanced materials and performance-based products and technologies, Dow's R&D teams are constantly working "to attract and retain the best and brightest chemists, chemical engineers, and materials scientists," says Alveda J. Williams, Dow's R&D leader for strategic recruitment.

"In 2009, we planned to hire a significant number of new R&D scientists and engineers, even when the economy suggested it was not wise to do so," Williams says. "As a result, Dow's R&D function is coming off of a record-setting 2009-10 North American campus recruiting year, and almost all of its new hires have been successfully brought onboard," she adds.

Dow's R&D hiring plans for 2010-11 "are just as robust," she adds. "Our recruiters have already visited key campuses to screen for top talent. Additionally, we expect to hire a good number of experienced researchers." Williams attributes some of the company's recruiting success to "the fact that many of our competitors were not hiring at all or were hiring at a very low level," she says.

Indeed, few companies seem to be recruiting aggressively right now. W. R. Grace, for example, has been "more cautious overall" in its hiring in 2010, says Troy Vincent, the company's vice president of global talent acquisition.

"We know there is talent in the marketplace, but we don't want to bring in a new hire unless we have a position in place that will allow us to take long-term advantage of that person's talent," he says. Utilizing "a robust workforce planning process," Grace must tie its hiring to demand coming from its diverse range of customers in industries including construction, packaging, medicines, and refining, which "are all in various stages of economic recov-

ery," Vincent says.

Air Products & Chemicals, too, has taken a conservative stance in hiring in 2010 but anticipates that it will have more job openings as business continues to rebound, according to Lynn Scheitrum, Air Products' manager of talent management and central staffing. In 2010, the company hired about 40% more employees than it did in 2009, but 2009 was a year "that was characterized by a lot of reduction" in staffing, she says.

New hires at Air Products included plant operators, technicians, plant supervisors, and chemical engineers with plant-process-efficiency expertise. They were brought in primarily to support "an uptick in our plant operations area as business has started to come back and production volumes have started to increase across the board," Scheitrum says. Currently, the company has some entry-level sales positions open to chemists, she says, "but beyond that, opportunities for chemists and chemical engineers are still fairly limited at the moment."

Job opportunities remain restricted, too, within pharmaceutical companies even while their downsizing efforts are slowing down. From January through September of this year, pharma firms announced job cuts totaling 43,334, according to Challenger, Gray & Christmas figures. That's down 26% from the same period a year ago, when pharma job cuts totaled 58,583. Not surprisingly, five big pharma companies declined the opportunity to talk with C&EN about their hiring plans for this story.

However, Millennium: The Takeda Oncology Co. tells C&EN that it does not have any openings for chemists or chemical engineers now and does not expect to have any in the near future. "Millennium hired more than 250 people in 2009 as a result of our acquisition by Takeda Pharmaceuticals of Japan" in 2008, says Pamela Saras, the company's senior director of human resources. "We've fulfilled our pressing scientific staffing needs," which were focused in the clinical development area.

GREEN OPPORTUNITIES

Biochemist Faith Watson is one of a growing number of scientists employed at Boulder, Colo.-based OPX Biotechnologies, which aims to manufacture renewable biobased chemicals and fuels.

Credit: OPX Biotechnologies

Although job prospects in pharma compa-

nies are slim right now, employment opportunities are growing elsewhere as drug firms increasingly rely on outsiders to supplement their bone-lean workforces. "As a result of this shift, there is likely to be greater demand for consultants and contract workers," Saras points out. "While these positions may be less desirable than those in a drug company, they can help people keep their skills fresh and expand their networks and can lead to full-time opportunities in the future."

Klein Hersh's Albert agrees. "Companies are hiring contractors in all discovery-based disciplines," he says. By hiring under a contract, "companies gain the flexibility to fill a short-term need and avoid creating a permanent position that may not fit three years down the line."

Life-sciences-based firms are not the only ones relying more on contract workers, says Kelly Services' Edwards. According to the Bureau of Labor Statistics, the total contingent workforce accounts for at least one-quarter of all workers and is growing at two to three times the rate of the traditional workforce. What's more, contingent workers are expected to comprise nearly 50% of the U.S. workforce added after the recession. Most of the growth is coming from the use of highly skilled professional contractors in technology-rich industries, Edwards points out.

Victor Lewchenko is one Ph.D. chemist who has found employment through a string of contract positions. In 2004, after being laid off as a 20-year employee at Tripos, where he was a scientific programmer and a sales support scientist, he searched for 10 months before landing a four-year contractor job in Pfizer's chemistry informatics group in St. Louis.

Then, in March 2009, he found a seven-month contractor position as a scientific business analyst with Monsanto's crop technology group.

Now, Lewchenko is applying his information technology knowledge to a new industry. In January, he began working as a business systems consultant at Wells Fargo Home Mortgage under an 18-month nonrenewable contract. Although he misses "working in a science environment with people focused on new discoveries," he appreciates that he can use his training as a

scientist to analyze and solve problems in another field, he says. Lewchenko is also glad to have found a job in the St. Louis area, where he, his wife, and his two school-aged children have put down roots.

Companies want to hire on a temporary basis regardless of whether they are bringing in scientists with experience or those who are fresh out of school. At Texas A&M University (TAMU), for instance, several of the companies recruiting science majors this year have been specifically planning to hire interns rather than permanent employees, observes Holly C. Gaede, senior lecturer in chemistry and chief undergraduate adviser in TAMU's department of chemistry. In fact, "a couple of companies went as far as to stipulate that they would only hire students who had interned for them," she says. Increasingly, employers seem to want to hire temporary employees so that they can "preview" them before they place them in permanent positions. At the same time, companies seem to think that "the market is rebounding and they want to hire interns as a way to be sure to keep good people in the pipeline."

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GROWTH MODE

Matt Lipscomb, a senior scientist at OPX Biotechnologies, examines a culture of a microorganism strain.

Credit: OPX Biotechnologies

Whether seeking interns or full-time employees, companies "are taking a bellwether approach to hiring as the economic climate improves," adds Paula Moses, director of employment services at the TAMU Career Center. "We have actually seen our recruiting go up in the last year, and we are seeing even more of a significant increase this fall," she says. "Companies that have not recruited here for two or three years are now coming back to us," she adds.

Companies including BASF, Celanese, Colgate-Palmolive, Procter & Gamble, Huntsman Corp., and Oxea attended TAMU's 12th Annual Sciences Career Fair this fall primarily to find students with chemistry or biology degrees, according to Marilyn Yeager, senior career coordinator for life sciences at TAMU's Career Center. In addition, the career fair hosted a greater number of federal and state agencies than ever before, as well as institutions such as M.D. Anderson Cancer Center, she says, adding

that these groups "are recruiting on campus more actively now than in the past."

Patricia Simpson, director of the School of Chemical Sciences' Career Counseling & Placement Services Office at the University of Illinois, Urbana-Champaign, offers a similarly upbeat report. "All in all last year, we were actually up in the total number of employer campus visits and in the total number of individual interviews conducted through the School of Chemical Sciences," she says.

"And thus far, we seem to be on track for similar numbers to last year. In addition, three companies have visited campus already this fall that were not able to do so last year," she adds. "I would certainly not say that I am hearing prerecession levels of optimism from the employers, but there are definitely signs of that."

The number of job opportunities available to students at California Institute of Technology is also growing, according to Brian M. Stoltz, executive officer for chemistry and the faculty liaison for on-campus recruiting there. However, companies are not recruiting in the ways that they have traditionally, he says. To cut costs, pharma companies are among those that have begun to solicit student candidates via e-mail rather than through on-campus interviews, he notes. When openings arise, even outside of the traditional fall recruiting season, "we get e-mails from key company recruiters, asking us if we have any qualified candidates," he says. This year, "there are far more of these e-mail solicitations coming in than there were last year, which I think is an encouraging sign."

Nevertheless, Stoltz points out that hiring "is still down a lot compared with five years ago when every big company had at least some openings every year." As a result, "students are scared. They are afraid that there will not be enough jobs out there."

Although Stoltz says that most Caltech students have an edge in finding jobs, he worries that younger chemists around the U.S. may "go out and change their field of study. I hope that a temporary setback in the economy won't turn young people away from a future in chemistry. There will be ups and downs," he says, "and people will always have to adapt to change, but chemists will always be needed to support more than a few industries. And that's a fundamental fact."