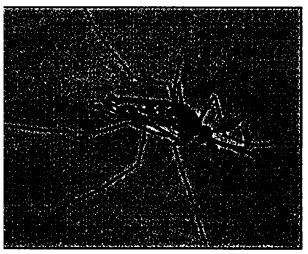
zens were asked to report dead birds last year. Examining data from the 2000 outbreak, Eidson discovered that the number of birds reported per square mile—whether they were subsequently tested or not—was as high as 5.9 in Staten Island, where most human cases occurred. In nearby counties and boroughs, some of which had human cases in 1999 and 2000, the density was between 0.1 and 1.5, and it was below 0.1 in all other counties where no human cases occurred. This summer, Eidson says, the state health department will keep counties informed about their dead crow density to give them a rough idea of the risk for humans. Where that risk is high, cautioning the public or implementing virus control measures, such as mosquito spraying, can be considered.



Bad news. *Culex* mosquitoes may cause more West Nile virus infections this year.

CREDITS: (TOP TO BOTTOM) E. R. DEGGINER/ANIMALS ANIMALS; BILL LOVING/UNIVERSITY OF OKLAHOMA

At the epidemic's epicenter

Whatever the virus's toll, the government's response is likely to be "less panicky" than in the previous 2 years, says John Roehrig, a West Nile researcher at the CDC in Fort Collins, Colorado. With help from CDC, the states with the highest level of viral activity, such as New York, New Jersey, Connecticut, and Pennsylvania, have all hired new people, spruced up their labs, and revitalized their research programs. "They're a lot more confident and a lot more capable to deal with the virus now," says Roehrig.

Kramer, for one, is hoping that her lab will have a less frantic summer than last, when the staff was "completely overwhelmed" by the thousands of bird and mosquito samples. Many evenings and weekends were sacrificed, she says, and one technician developed severe repetitive strain injury from the endless pipetting of reagents. From a surveillance viewpoint, there's no need to test each and every bird, says Kramer, so this year, counties will be allowed to submit only two or three birds per week. The lab now also boasts a gleaming new robot to prepare the samples for testing, which should save the team hundreds of hours of work.

But time-consuming as they are, the tests give Kramer's lab one great advantage over most others: unparalleled access to samples from across the epidemic's epicenter, which will help provide data for a broad array of studies. Researchers still don't know, for instance, how the virus survives the harsh Northeastern winters, exactly what roles different mosquito and bird species play in its transmission, why it kills crows en masse, or how it will evolve as it spends more time in North America. Kramer's group plans to study all those issues, in addition to looking for possible drugs that could battle the infection in humans. "They're gonna come up with a lot of interesting stuff," Woodall predicts.

Yet Kramer and others wonder how much longer the federal and state governments will be willing to spend big bucks on the virus. With just a few dozen cases a year, West Nile is still an exceedingly rare disease. To hedge her bets, Kramer plans to tap other sources of funding, such as grants from the National Institutes of Health. But even if West Nile virus never becomes a big public health threat, she says, the money was well spent: Revamping the crumbling public health infrastructure will eventually pay off, she predicts, as other exotic pathogens are sure to arrive. "Tremendous amounts of money have been spent on West Nile," she concedes. "It may look like a windfall, but it was sorely needed."

–MARTIN ENSERINK

MINORITY FACULTY

New Data in Chemistry Show 'Zero' Diversity

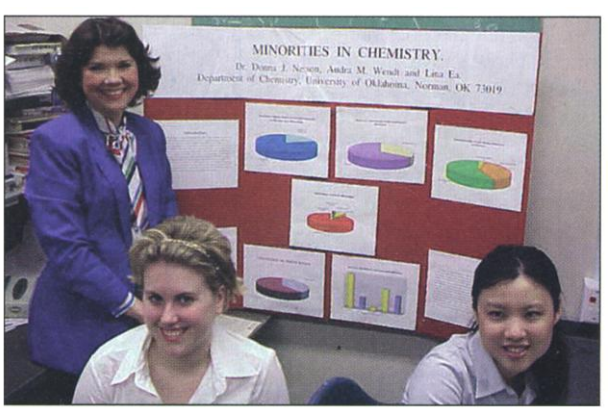
A recent survey of major U.S. chemistry departments reveals that there are even fewer minorities on the faculty than anyone suspected

The number of chemistry Ph.D.s awarded to blacks each year in the United States has more than doubled since Delroy Baugh received his degree in 1990. Yet the number of blacks hired as assistant professors at the nation's top 50 chemistry departments has held steady—at zero—since Baugh took an entry-level faculty post in 1991 at the University of California, Los Angeles (UCLA).

That finding shocked Donna Nelson, an associate professor of chemistry at the University of Oklahoma, Norman, who asked the 50 chemistry departments carrying out the most research for the ethnic and gender composition of their faculty members. She and her students found that African Americans/blacks or Hispanics constitute barely 1% of the 1637 tenured or tenure-track faculty members at the top 50 schools, and that 23 of the 50 departments have none (see graphic, next page). They also learned that 12 of the 18 blacks (13 are African Americans; the rest earned undergraduate degrees from other countries) are full professors at or near retirement age, and that none is an assistant professor. "I was stunned," says Baugh after learning that he was, at age 41, probably the youngest tenured black chemistry faculty member among the most research-intensive departments. "I knew the number [of assistant professors] was small. But I didn't realize it was zero."

A Native American who grew up in Oklahoma, Nelson began with the idea of surveying female minority faculty members in chemistry. "But I gave up on that pretty soon," she says. After counting herself, "it was months before I found another." The minuscule numbers—she eventually identified seven at the 50 institutions—led her to cast a wider net. But the totals in other categories were equally depressing. To Nelson, the numbers suggest that the continuing flow of reports about the importance of diversity in academia (*Science*, 21 July 2000, p. 378) hasn't reached the people who actually do the hiring.

With no data available on the actual number of hires in the past decade, the chairs of some top-ranked departments insist that the real problem is the tiny numbers of chemistry Ph.D.s awarded to underrepresented minorities: 56 blacks and 42 Hispanics in 1999. The numbers represent only 4% and 3%, respectively, of the 1400 chemistry Ph.D.s produced that year. "We are constantly on the lookout for such people," says Stephen Lippard, head of the chemistry de-



Tracking diversity. Oklahoma's Donna Nelson with students Audra Wendt, front left, and Lina Ea, who helped collect data on minority chemistry faculty members.

partment at the Massachusetts Institute of Technology (MIT), whose 29-member department has two Asians (who are not an underrepresented minority in science) but no African Americans or Hispanics. "But the pool is a lot smaller than we'd like." In addition, many minority chemists go to work for industry, and others choose historically black colleges or institutions that emphasize undergraduate teaching.

Jim Henderson, chair of the division of chemistry at Harvard University, which has four Asians and no underrepresented minorities, says that faculty searches at his university are color-blind: "We have found that excellence doesn't have anything to do with ethnic categories or gender." Still, he confesses that "I didn't realize that it was so bad."

But some observers say that a scarcity of candidates, a phenomenon true for other disciplines in the physical sciences, doesn't fully account for the problem. They also point to a chilly climate in many chemistry departments that discourages young scientists. "I think that there is a push away from universities as well as a pull by industry," says chemist Marge Cavanaugh, who has been involved in several efforts sponsored by the National Science Foundation to bolster underrepresented minorities. The negative attitudes are reflected in several questionable practices, say minority faculty members, including a failure to interview qualified minority candidates, loading down a new faculty member with introductory courses, and marginalizing senior scientists. The combination of shabby treatment and small numbers, they believe, leads to a perpetuation of the status quo.

"My honest feeling is that nobody cares," says Philip Phillips, a West Indian trained as a theoretical chemist who spent 9 years at MIT. He left in 1993 for a tenured position in the physics department at the University of Illinois, Urbana-Champaign, which last year promoted him to full professor in its top-rated solid state physics program. "People think that the situation will improve if there are more minority Ph.D.s," says Phillips. "That's important, but there also has to be active involvement and a commitment to the cause. And I don't see that."

No. of Minority Faculty at Top Departments*

School (Total chem. faculty)

– 4 –

U. Washington (41)

– 3 –

U. Florida (46)

U. Southern California (25)

– 2 –

Arizona State (32)
Cornell (32)
Rutgers (39)
Texas A&M (45)
U. Arizona (34)
UC Berkeley (51)
UCLA (51)
UC San Diego (46)
U. Massachusetts, Amherst (30)
U. Oklahoma (25)

– 1 –

Georgia Institute of Technology (34)
Ohio State (40)
Purdue (46)
SUNY, Buffalo (32)
SUNY, Stony Brook (26)
UC Irvine (35)
U. Georgia (30)
U. Illinois (39)
U. Maryland, College Park (44)
U. Michigan (48)
U. Minnesota (41)
U. Notre Dame (27)
U. Pennsylvania (31)
Yale (24)

– 0 –

Caltech (26)
Colorado State (29)
Columbia (22)
Florida State (37)
Harvard (25)
Indiana U., Bloomington (30)
Johns Hopkins (16)
MIT (29)
Northwestern (24)
Penn State (29)
Princeton (26)
Stanford (25)
U. Akron (17)
U. Chicago (26)
U. Colorado, Boulder (37)
U. Kansas (24)
UNC Chapel Hill (35)
U. Rochester (20)
U. South Carolina (27)
U. Texas, Austin (43)
U. Utah (29)
U. Wisconsin, Madison (40)
Virginia Polytechnic Institute (28)

SOURCE: DONNA NELSON/UNIVERSITY OF OKLAHOMA

Baugh, who was born in Jamaica and came to the United States as a teenager, is used to being a racial exception in professional situations. Although Baugh says he faces no "day-to-day problems" relating to race, "I'm almost always the only black, especially at selective meetings like a Gordon conference." He says that in his 10 years at UCLA—its 51 tenured and tenure-track faculty members make it one of the largest chemistry departments in the country —"I can't remember ever interviewing any [underrepresented] minorities" for faculty slots.

His path to tenure may also have been colored by his ethnicity, he says. "Before I got tenure [in 1997], I taught a freshman course every year. I found out later that no other young faculty member, before or since, had done that." He speculates that the heavy teaching burden he was assigned may have been a well-meaning attempt to attract minority undergraduates to the department. "But it put me at a big disadvantage when I came up for tenure."

Gregory Robinson, 42, already was a full professor at Clemson University in South Carolina (outside the top 50) when he took a step up in 1995 and joined the chemistry faculty at the University of Georgia, Athens. "There's a feeling of despair," he says, among some of his minority colleagues. "Affirmative action has become a bad word, and a diverse faculty is not a priority anymore. I was the first African American in the chemistry department at both Clemson and Georgia, and even today, there's a good chance that a minority hired by any institution will be the first one."

Robinson, who grew up in Alabama, admits that "chemistry is a tough row to hoe" and that the life of a science faculty member at a major research university is stressful. But he bristles at the notion that African-American chemistry Ph.D.s "collectively and en masse decided that they do not want positions at these institutions." Instead, he says, there's a lack of concern about the value of a diverse faculty; he has experienced it personally. Despite a flourishing lab, major federal grants, and frequent media coverage of his research on multiple metallic bonds, Robinson says that he never even got a response to job queries that he sent in recent years to several top programs, much less an interview. Even in a tight academic market, he says that the silence was surprising.

Such experiences breed a sense of distrust of academia among minority Ph.D.s weighing their career options, says Billy Joe Evans, an African-American professor of chemistry at the University of Michigan, Ann Arbor, who, at age 58, says he is fighting efforts to force him out after 31 years. "A lot choose industry not for the money," he says, "but because the workplace is cut and dried. The bottom line is clear, and hard work is rewarded." That's not always the case in academia, notes Evans.

University of Washington, Seattle, chemist John Macklin, 61, says that a similar campaign by the university to oust him has finally succeeded. "It's a very lonely place," says Macklin about his 33-year career on a faculty that, with three blacks and one Hispanic, is currently more racially diverse than any other top-50 department in the country. He says he's agreed to give up his lab and retire in a few years in exchange for a significant hike in his salary, now the lowest in the department.

The combination of retirements and a dearth of new blood will further erode the status of minority chemistry faculty members in the next several years unless something dramatic is done, predict Nelson and others. Harvard's Henderson says that's exactly the goal of a new effort that tackles one subset of the underrepresented population—women. "We are going after women with a vengeance," he says, noting that the department's current gender distribution "is completely unacceptable. … We realized that the university needs to become a promoter, mentor, and cheerleader for these young faculty [members]."

Although many ethnic minority scientists support such efforts, some feel that they are once again being asked to wait their turn. "Women are half the population, and they have a significant political voice," says Phillips. "That's not the case for minorities. And the idea that we might be wasting a valuable resource just isn't a very compelling argument anymore. There's a live-and-let-live attitude in academia and no structure in place to improve things."

–JEFFREY MERVIS

* The list represents the top 50 chemistry departments, by expenditures on chemistry research, fiscal year 1998. Self-reported data include current tenured/tenure track African American/black, Hispanic, and Native American faculty members.