NEWS

General Contentment Masks Gender Gap In First AAAS Salary and Job Survey

AAAS takes the pulse of the U.S. life sciences community in the first comprehensive survey of salaries and job satisfaction

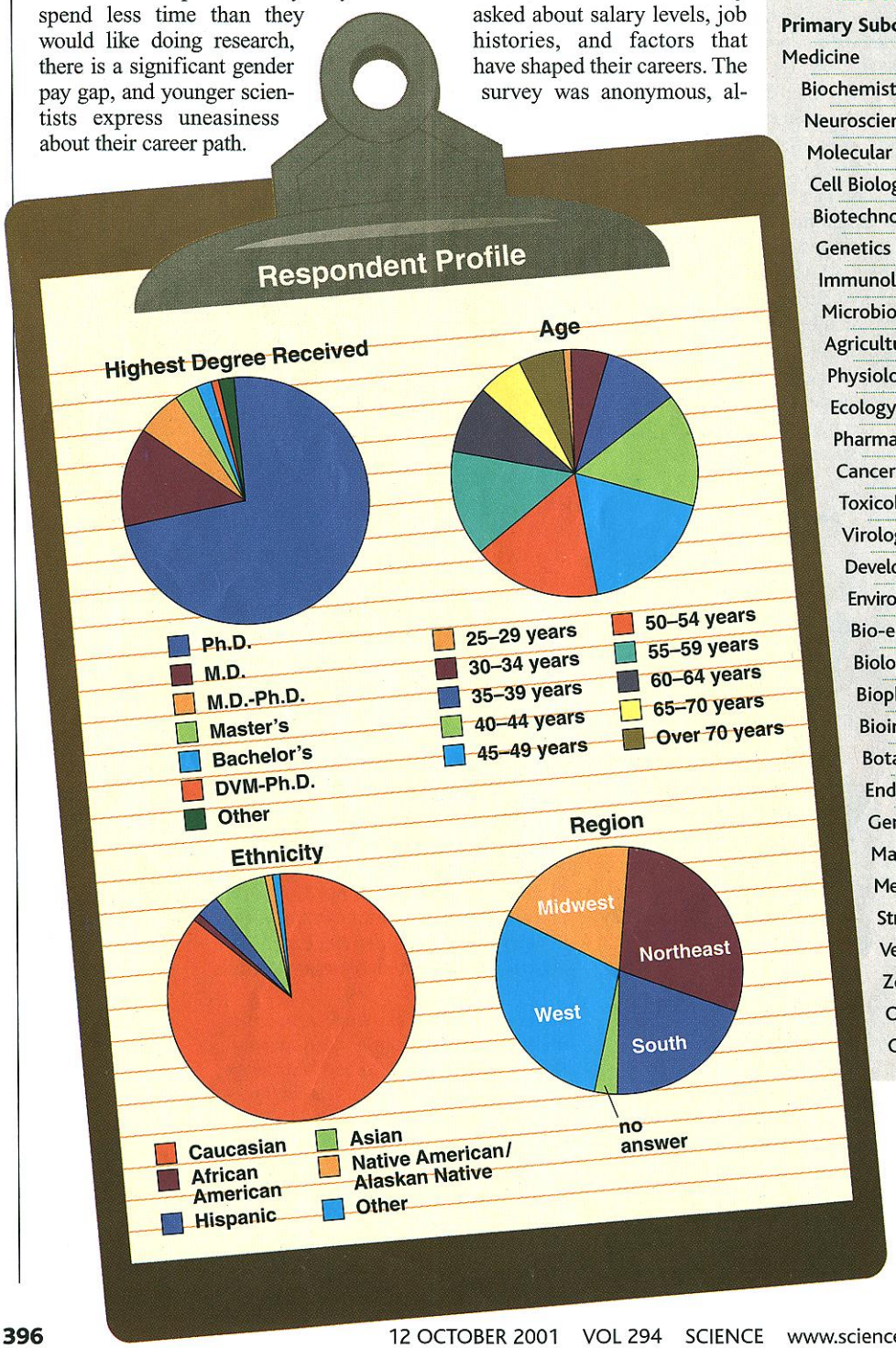
The largest employment survey of U.S. life scientists ever conducted finds a high level of job satisfaction and rising salaries among senior researchers. But it also reveals a few downsides. Respondents say they spend less time than they would like doing research, there is a significant gender pay gap, and younger scientists express uneasiness about their career path.

This summer the American Association for the Advancement of Science (AAAS) queried 19,000 U.S.-based members who work in the biological sciences. This first-ever survey asked about salary levels, job histories, and factors that have shaped their careers. The survey was anonymous, although many respondents indicated in a separate mailing that they would be willing to be interviewed for this article. (For details of how the survey was conducted, see previous page.)

With some 70,000 members in the life sciences, the AAAS draws from a wide variety of disciplines and sectors. But its dominant group is male Ph.D. and M.D. researchers in academia. Reflecting the AAAS membership, the respondents are largely in academia (61% of the total), well-established (60% of the academics have tenure), and male (72%). In particular, almost two-thirds of the 8692 respondents are between

RESPONDENT PROFILE

Primary Subdiscipline	Total
Medicine	15%
Biochemistry	10%
Neuroscience	7%
Molecular Biology	7%
Cell Biology	5%
Biotechnology	5%
Genetics	4%
Immunology	4%
Microbiology	4%
Agricultural Sciences	3%
Physiology	3%
Ecology	3%
Pharmacology	3%
Cancer Biology	2%
Toxicology	2%
Virology	2%
Developmental Biology	2%
Environmental Sciences	2%
Bio-engineering	1%
Biological Psychology	1%
Biophysics	1%
Bioinformatics	1%
Botany	1%
Endocrinology	1%
Genomics	1%
Marine Biology	1%
Medicinal Chemistry	1%
Structural Biology	1%
Veterinary Medicine	1%
Zoology	1%
Other Life Sciences	5%
Other	4%



Wide reach. Respondents represent about 30 subdisciplines. Biochemistry is the top research area, followed by neuroscience and molecular biology. Scientists in most disciplines are represented roughly evenly both within academia and without. Two exceptions are neuroscience, where respondents are three times as likely to be in academia, and biotechnology, where they are 11 times as likely to be in the nonacademic sector. **(Figure 3)**

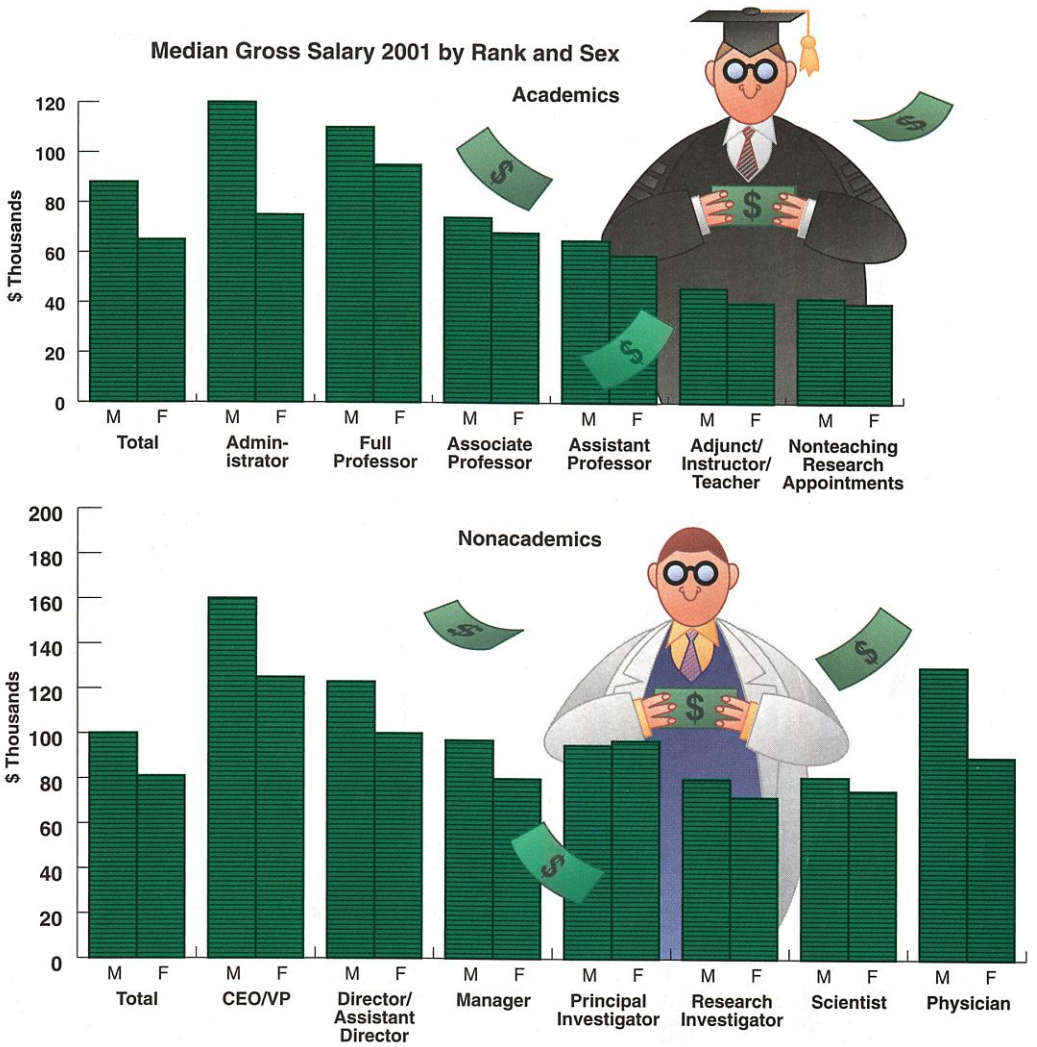
Smart, white, and middle-aged. Fully 93% of the respondent population have Ph.D.s or M.D.s (or both). Only 15% are under 40, and even fewer—13%—are ethnic minorities. Geographically, there's a tilt toward the coasts, with the smallest proportion (19%) living in the Midwest. **(Figure 2)**

ILLUSTRATION: TERRY E. SMITH

the ages of 40 and 59 (Figure 2). Three out of four say they are at or near the peak of their careers; half the total—and 54% of academics—have been in the same job for more than 10 years. The overwhelming majority—93%—have either a Ph.D., M.D., or both (Figure 2). Unemployment (those without a job and actively seeking one) is only 1%, and only 2% are in part-time jobs, although AAAS members are more likely to be employed than the overall pool of life scientists. The generally high level of satisfaction suggests that underemployment among this group is also rare.

Although only 27% of the respondents are female, women make up 38% of those in the survey under 40 years of age, reflecting the surge of women into the life sciences over the past few decades. Similarly, although only 9% of respondents are foreign nationals here on temporary or permanent visas, foreign nationals make up 27% of those under 40 in the survey.

Some 30 subdisciplines in the life sciences are represented in the survey; the largest single research field is biochemistry (10%), followed by neuroscience and molecular biology (7% each). Fifteen percent of respondents list "medicine" as their primary subdiscipline—consistent with the fact that 13% of respondents hold M.D.s, not Ph.D.s.



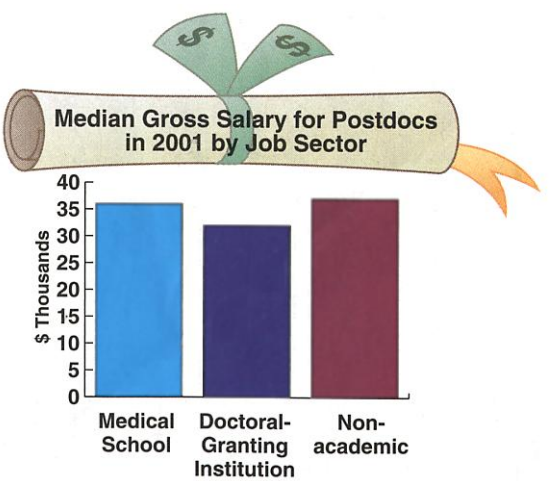
Discrepancies abound. Median salaries are lower, and discrepancies are greater in academia than in other sectors, with salaries ranging from $42,000 for researchers to $120,000 for administrators. The median for executives is $160,000 outside academia, where the lowest salary is $72,000. Sex differences are pervasive, becoming most pronounced at the highest ranks. Some of this, as with physicians, reflects the fact that men more often choose high-paying specialties. **(Figures 4 and 5)**

Follow the money

Salarywise, the first half of 2001 was good for most respondents. The median salaries for academics and nonacademics alike rose by 7% over the previous 12-month period, outpacing inflation, although in some sectors it grew only 3%. Not everyone is riding the tide of wealth, however. Just over half of postdocs must scrape by with incomes of less than $40,000 a year (Figure 6), and one biologist at a large state university in the South, who asked that her name not be used, is earning $27,000 in the fourth year of a postdoc.

There are a number of notable differences among groups with comparable training. First, academic life scientists, at least those not at medical schools, make less money than those outside academia—$80,000 compared with $96,000. The lowest paid in the private or governmental sectors are rank-and-file researchers, whose median pay is $76,000. That would look good to many in academia, especially the non–tenure track, nonteaching researchers who earn a median of $42,000 (Figures 4 and 5).

"A nontenure position is so tenuous you're pretty much on your own," says ophthalmology researcher Gail M. Seigel, 40, now in a tenure-track position as an assistant professor at the University of Buffalo in New York. Only last year, as a researcher at the University of Rochester in New York, she recalls that "I didn't get a paycheck for 4



Apprentice pay. Although 77% of the postdocs in the survey work in academic settings (and more than half of these in medical schools), the pay is better in industry. **(Figure 6)**

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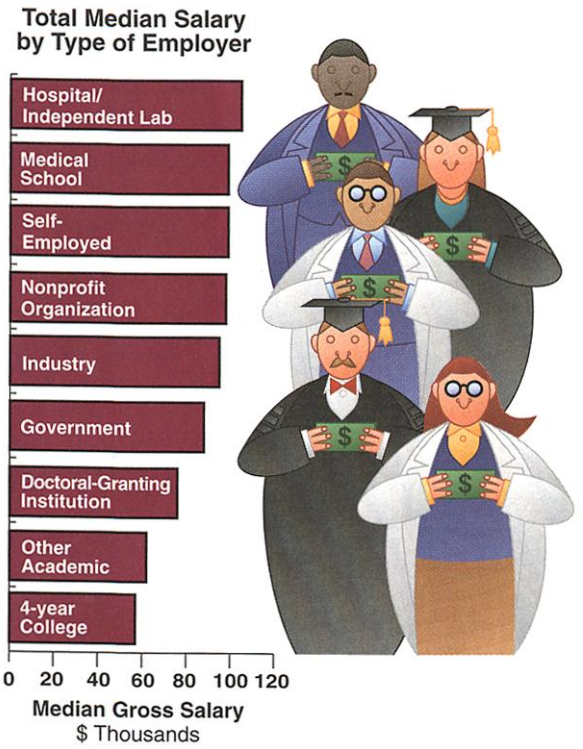


The shabby professor. Schools that don't have big graduate programs are the lowest paying of all employers in this survey, with the median salary at 4-year colleges bottoming out at $57,000. Most rewarding employers: hospitals and independent labs, where median salary is $105,000. **(Figure 7)**

months" after a National Institutes of Health grant was delayed.

Highest paid of all, with a median salary of $153,000, are CEOs, followed by physicians (Figure 5), at $125,000. Mark Tepper, for example, a 44-year-old vice president for research and operations at the biotech giant Serono in Randolph, Massachusetts, makes more than $200,000 including bonus. And J. Robert Beck, a 48-year-old physician, is earning $235,000 at the Fox Chase Cancer Center in Philadelphia for his expertise in the burgeoning world of bioinformatics.

Even though academics generally earn less than their counterparts in industry, there is a sizable range by type of institution and rank. Geography also makes a difference (Figure 10). Doctoral-granting institutions pay a good deal better than 4-year colleges, for instance, with median salaries of about $76,000 at the former and $57,000 at the latter (Figure 7). There's also a whopping $36,000 gap in median pay between associate and full professor ($72,000 versus $108,000). Not surprisingly, paychecks are much smaller in many rural areas, even for senior faculty members. For example, 47-year-old plant cell biologist Russ Feirer, who has been at St. Norbert College in De Pere, Wisconsin, for 11 years, earns less than $50,000 as an associate professor.

Finally, there's the sex gap. Men earn almost one-third more than women: $94,000 versus $72,000. The difference is greatest among academic administrators, where the midpoint is $120,000 for men and $75,000 for women; in industry and government, the figures are $160,000 for men and $125,000 for women.

Although gender differences in pay are notoriously hard to interpret, the report finds evidence that "women are paid less for similar work even when type of employer is held constant." Asked for comment, respondents of either gender offer a slew of explanations, from the relatively recent arrival of significant numbers of women into the workforce to their disproportionate presence in lower paying fields and at lower paying, non–doctorate-granting institutions. Finnie Murray, a dean at Texas A&M University, Commerce, notes that there are "market-driven differences in starting salaries" in disciplines such as computation-based fields that are heavily dominated by men.

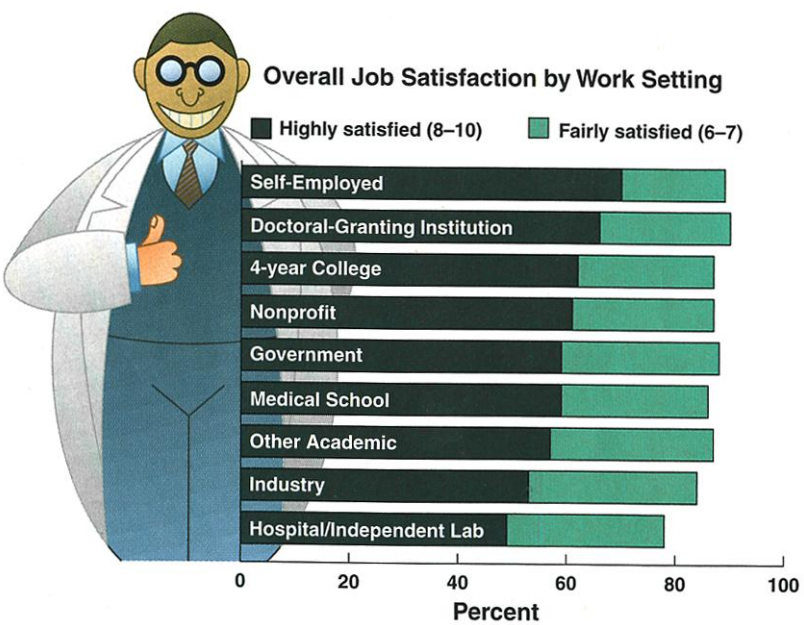
What makes you happy

The AAAS survey found that making a big investment in education pays off emotionally, if not financially. Fully 86% were satisfied with their current jobs—including 59% who were "highly" satisfied (Figure 8). Generally, women life scientists are not only less well paid but somewhat less satisfied than the males (Figure 11). Men rate their jobs better in a host of areas: salary and compensation, job security, promotion opportunities, hours worked, resources available to do the job, autonomy, opportunities for collegial exchange, and prestige.

Job satisfaction tends to increase with level of position and, thus, with age. In academia, full professors and administrators are most pleased with their lots. "I'm about 98% happy," says P. Stephen Baenziger, a 50-year-old "distinguished professor" in plant breeding and agronomy at the University of Nebraska, Lincoln, who loves seeing the tangible results of his work. "70% of Nebraska wheat has come out of my program."

Having an M.D. also seems to increase satisfaction, although within academia, those working at medical schools are not as satisfied as those in colleges and universities. Although 60% of respondents profess to be well satisfied with their salaries, even more are pleased with their health and retirement benefits (76%) and their degree of job security (71%).

The survey results support the idea that U.S. life scientists pursue advanced degrees less for money, power, or prestige than for the intellectual adventure. Asked what factors were most important in considering a



Whistle while you work. The 3% of respondents who are self-employed rated their degree of contentment highest of all, on a scale of 1 to 10, followed by those in Ph.D.-granting institutions. Proving that money doesn't buy happiness, the "highly satisfied" rate in industry is only 53%, not far above the least satisfied of all: those in hospitals and independent labs (49%). **(Figure 8)**

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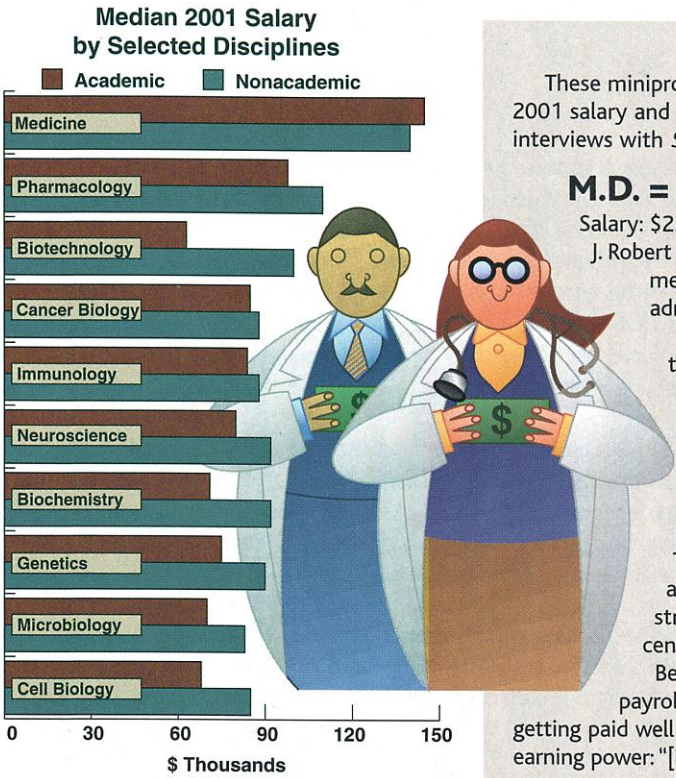


Soothing medicine. The top-drawing field in this survey is academic medicine—with a median salary of $145,000—which helps explain why a lot of people wish they'd gotten an M.D. And that's the only field where the salaries aren't better outside academia. **(Figure 9)**

job change, 79% said intellectual challenge is "highly important" (Figure 12). Autonomy on the job comes next at 70%. Only 53%, in contrast, make salary a top priority, and only 32% put a premium on prestige. Nonetheless, worldly recognition is more important to academics than to nonacademics—especially those academics working at doctoral-level institutions and medical schools.

Life scientists in academia spend half their time conducting research; the proportion is slightly lower in nonacademic settings (Figure 13). In fact, respondents say that one of the benefits of being low on the totem pole—the nontenured and those not on the tenure track—is the chance to spend more time in the lab. In contrast, more senior academics spend increasing amounts of time on administrative tasks as they rise through the ranks. Research is basically limited to "writing grant proposals and papers, while my students and postdocs do the fun stuff," says cell biologist Sidney Pierce, 56, of the University of South Florida, Tampa. "Of course I would love to do nothing but research. But somebody has to run the show."

Despite those complaints, scientists in medicine, ecology, and environmental sciences are the only ones who spend less than half their time on research. Physicians, who spend over two-thirds of their time on tasks

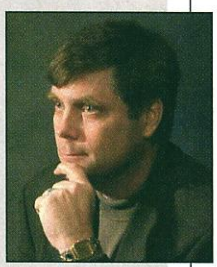
ILLUSTRATION: TERRY E. SMITH

These miniprofiles personify important trends reported by respondents in the AAAS 2001 salary and employment survey. The information in the profiles was gleaned from interviews with *Science* and not from survey responses, which remain confidential.

M.D. = More Dollars

$235K

Salary: $235,000



J. Robert Beck has parlayed an undergraduate math major and a medical degree into a remunerative career that combines administration and research.

After 9 years at Baylor College of Medicine in Houston, Beck started last month as vice president and chief information officer at Fox Chase Cancer Center in Philadelphia. Beck calls himself a "decision scientist" who does research on medical decision-making, disease modeling, and bioinformatics. He started out after medical school as a junior faculty member doing research, teaching, and clinical work. Then, in 1989, he launched into information technology administration at a time when "not that many people with IT and management strengths were working in medical schools." Now, he says, "every health center has people who do this."

Beck says his new job includes oversight of everything from phones and payrolls to the organization of bioinformatics and genomics programs. Despite getting paid well for his labors, he says that working for a nonprofit puts a ceiling on his earning power: "[My salary] is nothing like what this job pays in the private sector."

Happy With His Lot

$110K

Salary (includes grants): $110,000

At 52, Stuart Firestein is a happy man. He typifies a large portion of the respondents to our survey—a middle-aged, tenured male faculty member who likes his job. But he's unusual in one respect: He didn't earn his doctorate until the age of 40, after a career in the theater doing directing and lighting design.

Today Firestein, an associate professor at Columbia University, limits his designs to his lab, where since 1993 he's explored the molecular physiology of olfaction in rats and mice. "I've been very lucky. It was just the right time to get into my field," says Firestein.

Although the university expects him to focus on teaching in exchange for the 65% share of his time that it supports, he actually teaches only one undergraduate class and one graduate seminar a year. The rest of his pedagogy comes as a mentor in his lab, where he spends an estimated 80% of his time. "There's sort of a macho thing among people who run labs: They have to say how much they dislike teaching," says Firestein. But he and his colleagues take teaching "very seriously," he adds.

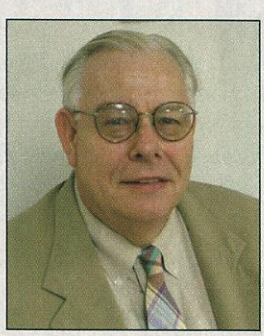
He does carry a larger administrative burden than he would like—"I'm not very good at saying no." But, he adds wryly, "if you don't do them, an administrator will."

Administrating Can Be Fun

$106K

Salary: $106,799

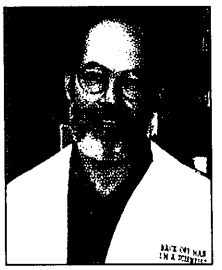
Finnie A. Murray, 58, spent 25 years as a biology professor at Ohio State and Ohio universities, studying early fetal development. Then he fell into administration, "more or less by accident," and found that he liked it. Now he's dean of arts and sciences at Texas A&M University, Commerce, a part of the Texas A&M university system.



Murray reluctantly gave up research in reproductive physiology when he became dean 15 months ago. He teaches one course a semester—and spends the rest of his time working to solve other people's problems. "I enjoy the challenge. ... I found it was as stimulating as being in the lab. It's rewarding to be able to do something to make other people successful—to take an impossible situation and try to make something possible out of it."

Starved for Research — $50K

Salary: About $50,000



Professors at non–doctoral granting schools often find to their sorrow that teaching duties tend to crowd out research. That's what vertebrate behavioral ecologist William Rogers discovered after landing a job at Winthrop University in Rock Hill, South Carolina, in 1989.

"I was sort of an academic sharecropper for a while," says Rogers, 51, who earned a Ph.D. in zoology from the University of California, Berkeley, in 1985. He is now a tenured professor at Winthrop with a heavy teaching load—more than 12 and sometimes as many as 18 "contact hours" per semester. And "a lot of service is expected here," he adds. Rogers says that faculty members are expected to be productive in research, but that he's lucky to carve out 5% of his time for his research, which is funded by various government and private sources. And some of that is spent "desperately trying to keep up with journals."

More importantly, his teaching duties leave him with little opportunity or time for interaction with colleagues. "Day by day, I have just quietly lost a sense of connection with the bigger scientific community out there," he says.

Forever Young

Salary: Satisfying

HARLEY SOLTES/*SEATTLE TIMES*

Geneticist Mary-Claire King, 55, wants her career to last forever. The first researcher to find a gene causing an inherited form of breast cancer, King runs a lab of about 20 researchers at the University of Washington, Seattle. And she has no plans to slow down. "When you look at opportunities available now in genetics, it's just irresistible to keep doing science," she says.

She's also satisfied with her financial situation. She received a 30% pay hike as a full professor at the University of California, Berkeley, in the early 1990s after a university statistician discovered that females at her level were making substantially less than the lowest paid male of that rank. Moving to Washington in 1995, she says, "I am happy with my [current] salary," which she prefers not to disclose.

Instead of stepping aside to make room for younger scientists, she's come up with another way to nurture new ideas. "I've already started to include young investigators whose interests I share and who are highly autonomous," she says. She's also rethinking her response in the AAAS survey that she planned to work until she is 80: "After talking with some 80-year-old friends, I realize that may be a little young."

Biotech Veteran — $85K–$105K

Salary: Between $85,000 and $105,000

Tony Day, 42, is head of structural biology at Genencor's R&D center in Palo Alto, California, and a veteran in the fast-moving biotech industry. He's been at Genencor, founded in 1982 as a collaboration between Genentech and Corning, for 8 years. "This company is unusual: It has one of the lowest turnover rates in the industry, due largely to the flexible and collegial work environment," he says of the company's 1100 employees.

The British-born Day headed for the New World in 1993 after completing his postdoc in enzymology at Cambridge University. Inadequate funding made for "very poor" opportunities at all but the most elite U.K. institutions, he says, whereas the U.S. biotech industry offered the promise of well-equipped labs and good-paying jobs. Day says he has done some business development and has acquired a taste for it. "At a certain level, it's as much management as research," says Day. "To get back to the lab full-time, I'd have to take a step downwards both in salary and responsibility."

other than research, teaching, or administration—presumably patient care—are most eager to increase research time. Researchers in the medical specialties of cancer biology, neurobiology, virology, and immunology report the highest percentage of time in the lab.

The opportunity to teach is also a strong component of job satisfaction. But the pattern is complex. For almost half of respondents, the median amount of time currently spent with students—27% for academics—seemed about right. But a need to find the right balance is also important. People at medical schools who do little teaching want to do more, and people at colleges and universities who teach a lot want to do less. Instructional burdens are particularly onerous at non–Ph.D.-granting schools. "I had this vision of a college professor as one who could finally have the time to sit back in his chair, feet on the desk, and keep up on the science," says Feirer of St. Norbert College, who spent the early part of his career as an industry scientist. "Instead, I find now that I'm further behind than I've ever been."

The one thing few people want is more administrative duties. Even senior executives in government and private industry say they would like to reduce the amount of time spent on administration.

Postdoc update

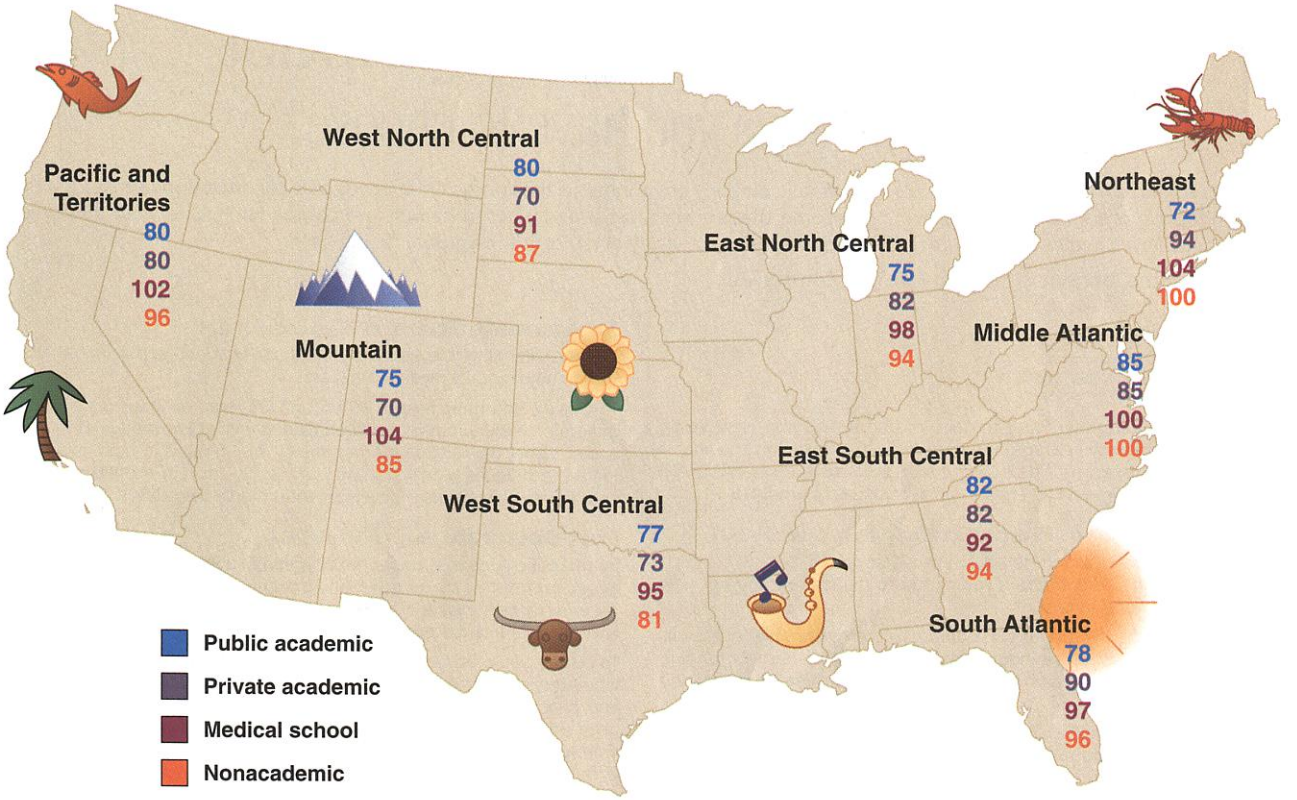
Science talked with a handful of postdocs earning from $27,000 to $36,000. With so little disposable income, they are understandably concerned about whether their employer pays for health insurance and other benefits. But as one postdoc points out, "there are a lot of disparities [among institutions] in the rules and guidelines for postdocs."

Of the 292 postdocs who responded to the survey, 76% work in an academic institution, and 46% hope to climb aboard the tenure track. Although one postdoc says she is open to moving to a more applied focus in an industry job, she adds that "I have to like what I work on."

The data also suggest that the warnings several years ago of an "endless" postdoc may not be materializing. Although some 42% of current postdocs (and 37% of all who have done at least one postdoc) say they have held two or more such positions, that percentage is no higher than what biochemists reported in the 1980s (*Science*, 3 September 1999, p. 1533).

Looking both ways

The survey tried not only to capture what people have done with their ca-



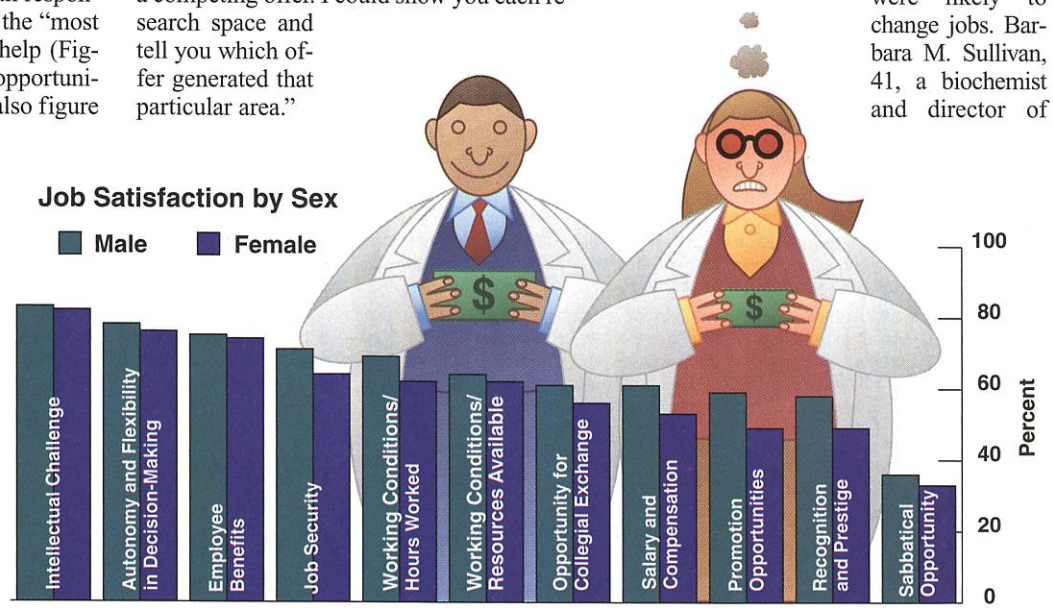
Location, location. Nonacademic salaries—primarily in industry—are consistently higher in most regions, rivaled only by medical schools (median salaries shown in thousands of dollars). **(Figure 10)**

reers but also shed light on the strategies they used, and what, if anything, they might have done differently.

Some things haven't changed. Despite the heightened emphasis on providing a range of support services for fledgling scientists—from formal mentoring programs to postdoc associations—38% of all respondents ranked personal contacts as the "most valuable" source of employment help (Figure 15). Second on their list are opportunities to co-author papers. Mentors also figure importantly. Columbia University professor Stuart Firestein attributes his ability to launch a new career in his 40s in large part to the fact that "I had the right mentors at the right times—people I'm still very close friends with."

The days of lifelong allegiance to a single institution may be gone, but there is still quite a bit of stability among AAAS members. Fully 47% of respondents have been working at the same place for more than 10 years—and the proportion goes up to 54% in academia. Still, there are quibbles. Psychologist Ruben Gur, 54, for example, whose salary tops $150,000 and who has been working in the area of brain imaging in the study of human behavior at the University of Pennsylvania in Philadelphia since 1974, says, "I think our research agenda could have been much further ahead with more support from the administration. People at Penn are pretty much ignored until they get a competing offer. I could show you each research space and tell you which offer generated that particular area."

In keeping with their generally high levels of satisfaction, more than 70% of all respondents said it was unlikely they would look for a new job in the coming year (Figure 16). Mobility is a little higher outside of academia, especially among managers, where 46%—as opposed to 27% of academics—said they were likely to change jobs. Barbara M. Sullivan, 41, a biochemist and director of



Women not as happy. Male life scientists generally are somewhat more satisfied than females with all aspects of their jobs; women in particular feel that they have less job security and get less recognition in terms of prestige, promotion, and money. **(Figure 11)**

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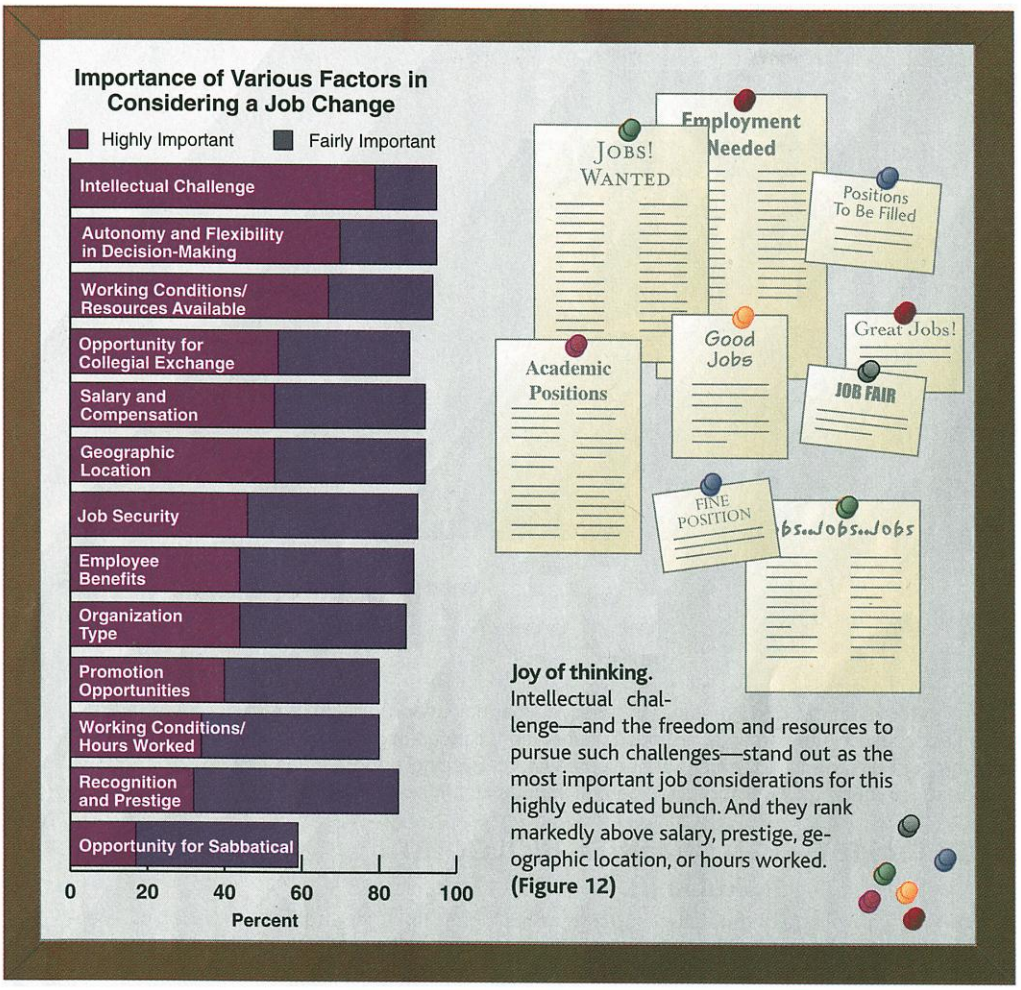


Joy of thinking. Intellectual challenge—and the freedom and resources to pursue such challenges—stand out as the most important job considerations for this highly educated bunch. And they rank markedly above salary, prestige, geographic location, or hours worked. **(Figure 12)**

business development at Nalge Nunc International in Naperville, Illinois, which makes labware, says she would switch not for more money but to take a more direct hand in the development of medical products. In academia, the most restless work in medical schools, while the most settled teach in 4-year colleges. Not surprisingly, seniority makes a big difference: Only 9% of those with tenure were seriously considering a job change.

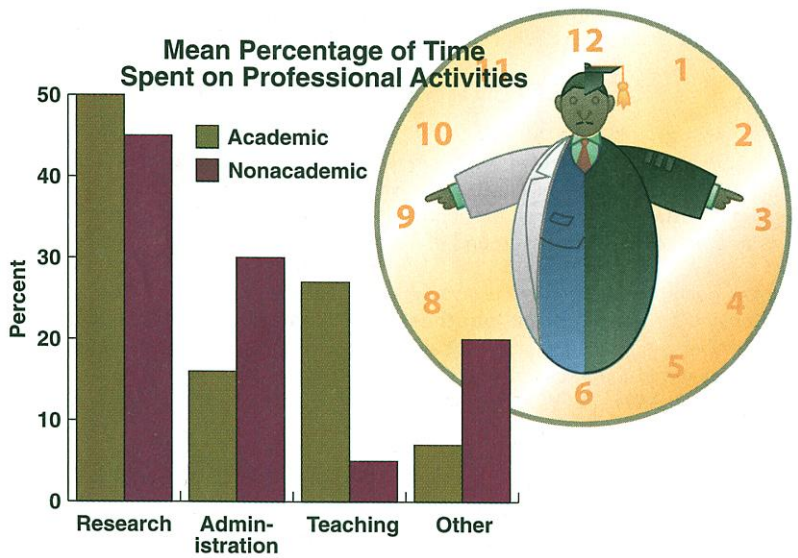
That picture may change as the baby boomers—31% of respondents are now in their 50s—start to retire. Despite the uncapping of retirement ages both in and outside academia, the median intended retirement age remains 65, with most people planning to retire sometime in their 60s. For people who love their jobs, the retirement age rises over time: The average researcher over 60 plans to hang on until age 68, and 9% plan to retire after age 70.

Expectations for working after retirement also differ with age, with younger respondents envisioning a more varied lifestyle. Just over 60% of workers now under 40 plan to work at least part-time after retirement, while only 40% of those over 60 are planning to do so. A sizable group also plan to retire before age 60.

"My husband and I plan to retire as soon as our finances will allow," sometime in their 50s, says 31-year-old neuroscientist Catherine Delaney Freiman, who does research with animal models for diabetes at Esperion Therapeutics in Ann Arbor, Michigan. "I think we would both continue in our careers but not full-time," says Freiman, who is attracted to the idea of teaching neuroscience to high school students. Freiman does not count herself among the workaholic population and says being an academic never appealed to her. "I saw how hard my advisers had to work to be a success, … sleeping in the lab, scrambling for grants."

One of the most thought-provoking questions on the survey asked what changes people would have made if they had the chance to do it all over again. Some 37% would have made major changes (Figure 14): Of these, 18% said they'd switch out of science altogether. A few respondents (3%) sound embittered: "Basic or academic research is a lower middle-class profession these days," wrote one academic who has counseled students against entering science. Another wrote that "card dealer school and bar tending school" would have been more rewarding than getting a Ph.D.

Among others who wish they had done things differently, the most commonly voiced regret was not having gone to medical school (12%). One respondent, tied to a region because of her



Different worlds. Although academics and nonacademics spend about the same amount of time on research, work patterns are very different. Many nonacademics say they would like to do some teaching; many academics would like to do less of it. **(Figure 13)**

ILLUSTRATIONS: TERRY E. SMITH

Life at a Medical Center $150–$200K

Salary: $150,000 to $200,000

As an administrator in a California academic medical center, Linda Cork is on the cusp of the financial and operational upheavals caused by U.S. health care reforms. It's a tough job, she admits.

Cork, a veterinary pathologist, is chair of the comparative medicine department and runs the animal care program at Stanford University in Palo Alto. Research is mostly a memory. Instead, she and her colleagues "are constantly facing changes in the regulatory environment"—everything from the shape of mouse cages to the training of the graduate students who work with them. They must also be "expert on all areas of personnel and budget." In addition, Cork is scrambling to house an "explosion" in the mouse population as genetic technology multiplies the number of models used for research.

The 64-year-old Cork says that she could have remained a full-time researcher, studying degenerative diseases of the nervous system in mice. But "comparative medicine [which uses animal models to study human conditions] is not that big a field, and I felt that it was time to provide opportunities for junior people."

Dedicated Postdoc $36K

SUNY

Salary: $36,500

Biochemist Xiao-Dong Gao was one of the first students given the chance to study abroad when China opened its doors to the West in 1982. He spent 15 years in Japan, getting his Ph.D. at the University of Tokyo before heading to the United States. Now, at 36, Gao is in his fourth year of a postdoc at the State University of New York (SUNY), Stony Brook, studying the biosynthesis of cell surface molecules in yeast and fungi that cause human fungal diseases. "I love science. I want to have my own lab and get grants and do research," says Gao.

With 2 years left in his postdoc, he's not sure where that might be, however. His wife, who is Japanese, is working at SUNY as part of her Ph.D. in biochemistry from Tsukuba University. "I can go back to Japan if I want," Gao says, but "for a woman scientist it is very, very hard to get a job in Japan."

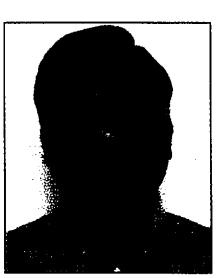
Gao says he'd return home if China offered him enough money to carry out a first-class research program. But the United States would be his first choice. "If I can do science here, of course I want to stay. This is the best country to do science," he says.

High-Risk Start-Up $100K

Salary: $100,000

When Rajan Kumar decided to set up a company to develop patented microarray systems, the stock market was still booming. But by the time the company, Genome Data Systems in Hamilton, New Jersey, opened for business early this year, the financial climate had soured. As a result, Kumar has only three employees on the payroll. "We didn't start at a good time," he admits.

The original idea was to attract venture capital and expand very rapidly. But as the market collapsed, he says, "we changed our strategy and decided to pursue technology development with federal money." The company now has two grants, from the departments of Energy and Defense. One is for developing small instruments requiring less than a microliter of sample solution that can be used in testing possible drugs. The other is for microarrays of proteins for use in proteomics research. Now, he says, "we'll be around for the next 18 months at least."



Kumar, 37, got his Ph.D. in molecular biology and worked for almost 5 years in the private sector. He started his own company because "I wanted to work in a situation where I was closer to developing a product." Kumar's company may get an unexpected boost from the newly launched U.S. war on terrorism: One use for its technology is as an assay for potential toxins in bioweapons.

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husband's job, says that credential would have made her much more employable; she can't find a job despite a varied career in research and teaching. Many respondents also felt they would have benefited from a business degree (9%). Degrees in law, computer programming, or engineering were also seen as desirable.

Reflecting their unsettled states, people just beginning their careers are more likely to say they would have chosen differently. Women were more likely than men to consider a major change. Several people expressed regret that they had not gotten started on their career path sooner; others wished they had recognized the importance of being affiliated with a high-prestige school or lab.

Again, differences in priorities may result in different career choices by men and women. Although life scientists overall value knowledge and discovery over other factors, males were more likely to care about making money, whereas women focused more on lifestyle issues: geographic location; opportunities for collegial exchange; working hours and conditions, in-

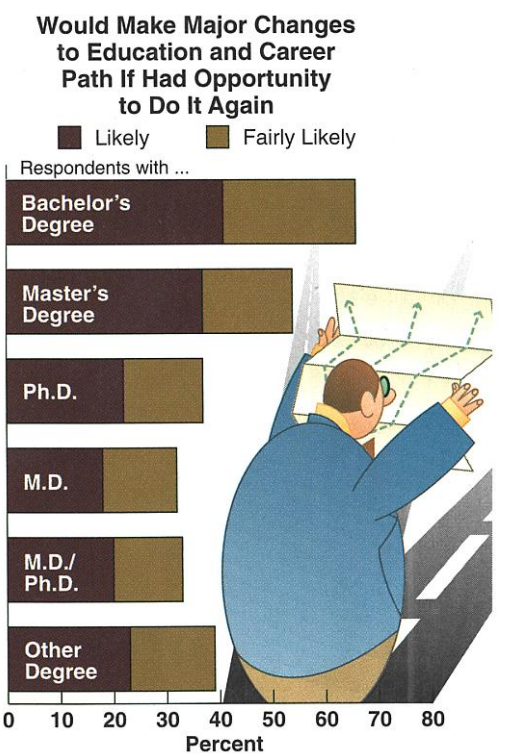
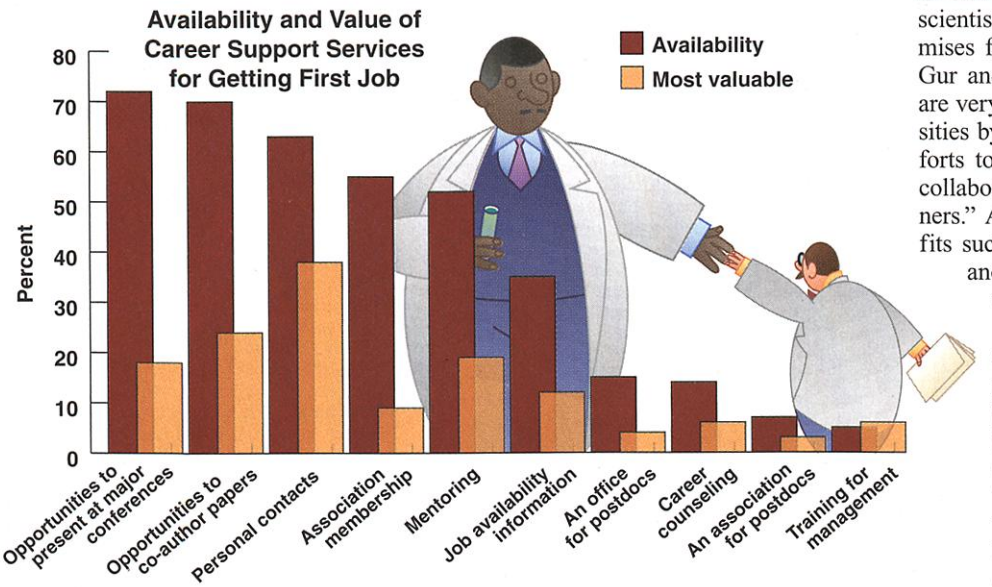


ILLUSTRATION: TERRY E. SMITH

Starting over. About 37% of all respondents said they would make major changes in their education and career paths if they had it to do over. Of the 6% who hold only bachelor's or master's degrees, the majority now wish they had pursued further education. The people with M.D.s seem most content with their choices, but even among these, one-third wish they'd done something different. **(Figure 14)**



The personal touch. Respondents indicated that despite growth of services for postdocs and job-seekers, personal contacts remain by far the most important factor in getting one's first permanent job. Also important are opportunities to showcase one's promise through co-authoring papers or conference presentations. **(Figure 15)**

One of the major demographic changes in science has been the increase of two-scientist couples and the inevitable compromises for one or both members. Although Gur and his collaborator-wife Raquel Gur are very happy at Penn, he says that universities by and large "have made minimal efforts to accommodate the phenomenon of collaborators who are also personal partners." Although universities "absorb benefits such as major savings in health insurance," he says, "little is done to address their [couples'] special needs."

All in all, though, this survey confirms that scientists tend to be people who like their jobs. They feel that their education has paid off in a highly rewarding, if not lucrative, career. Says Columbia's Firestein: "We get to think about the things that interest us the most, … and we have a significant amount of control over the direction of our lives, more so than many people who make a lot more money."

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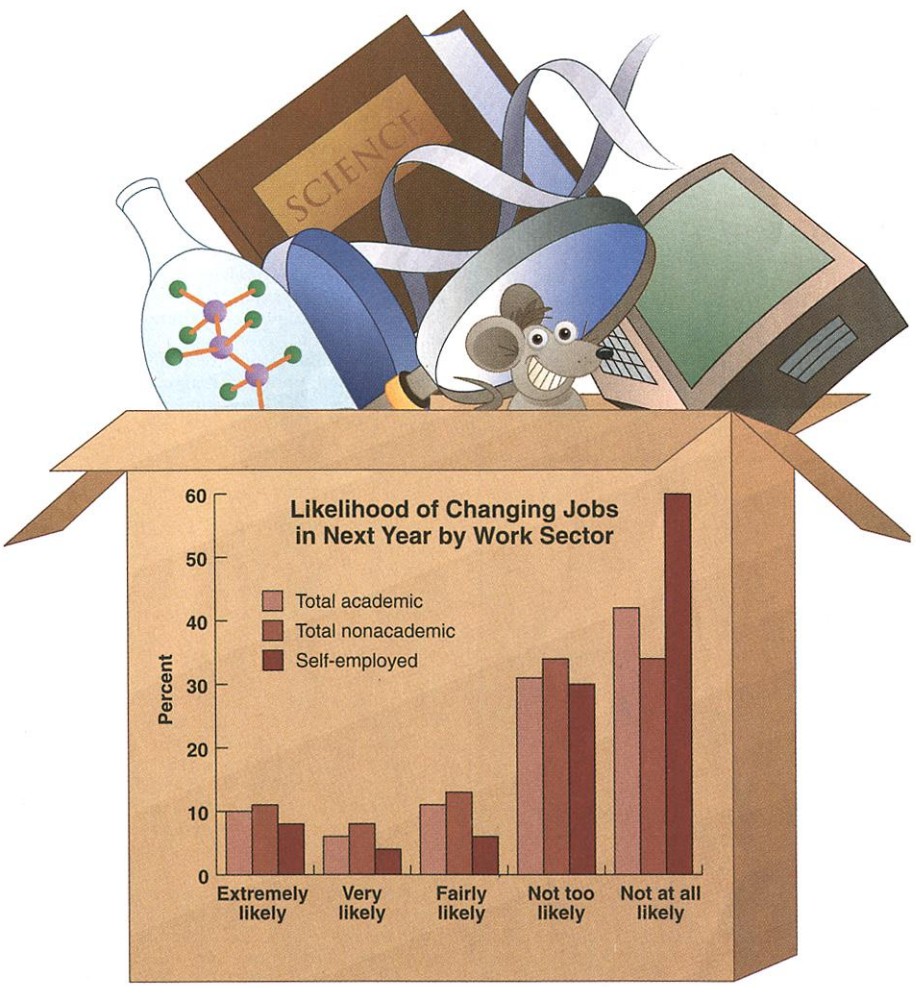
cluding promotion opportunities; and sabbaticals. But even in these areas, men rate their jobs more highly than do women. And by a margin of 36% to 10%, women report more often than men that taking leave for personal or family reasons is disadvantageous to their careers.

Krista Johnson, 36, who runs a lab at Alexion Pharmaceuticals in Cheshire, Connecticut, has taken maternity leaves to give birth to her two sons. She says it "takes a while to get your feet wet again" afterward. "It would be really nice to be able to take a longer leave than they give you—but the longer you're away, the harder it is to get back."

Most women scientists say their careers have been constrained to some extent by their spouses, and 27% report being restricted "a lot." Dianne Cox, 43, a nontenured researcher in immunology at Columbia University, says she is interested in teaching but must remain in New York because of her husband's job. However, she says, "I see it as a limit rather than a sacrifice." Cox agrees with Johnson that taking an extended family leave would "not [be] a viable option if I wanted to keep moving ahead." Only 7% of male scientists felt their spouse's career needs had seriously affected their own. Partly as a result of this, more women than men report having part-time jobs. What's more, women biologists are less likely than their male counterparts to be married (72% versus 88%) and more likely to be separated, divorced, or widowed (13% vs. 6%) or never married (15% vs. 6%).



Deeply rooted. Almost three-quarters of our academic respondents indicated that they have no intention of switching jobs any time soon. Nonacademics are somewhat more likely to be on the move—except for the self-employed scientists, 90% of whom want to stay that way. **(Figure 16)**

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