**Learning the ropes.** For a new scientist at a contract R&D outfit, there's a lot to learn. Firms usually have to teach their employees how to write proposals and beat the bushes for clients. Nelson, for instance, has been working on atmospheric research contracts obtained by other Aerodyne scientists, but is starting to develop his own. Recently he learned that NASA had some funding for general atmospheric research. He quickly wrote up a proposal and won a contract to study oxygen-hydrogen molecules in the mesosphere.

Places like Aerodyne have staffers who monitor listings of research opportunities sent out by various government agencies and notify the firm's scientists of potential clients. "It's quite a web of opportunity that I had no idea about how to access when I first came here," says Nelson. It's a matter of learning which agencies, and which divisions within those agencies, fund your discipline and then keeping in constant contact with officials there about their future needs, he says.

**Know the customer.** There's no exaggerating the service aspect of contract R&D. Investigators must be keenly attuned to the needs of their clients. "You have to be good to survive, but being good may not be sufficient," stresses Anthony Andrady, who heads the polymer science program at RTI. You also have to be ready to compromise your own research agenda in order to give clients what they're willing to pay for. There have been times, for instance, when Andrady has wanted to pursue some fundamental investigations into polymer physics but was unable to find funding. While this is frustrating, he admits, such rejection can serve to keep researchers grounded: "It tells you that there is little demand in the outside world for the research at the time."

**Getting hired.** How does one find a job in contract research? "One way to identify these organizations is to simply look at the literature," says Kolb, and check the authors on papers in your discipline. There are also a number of general and field-specific directories that list contract organizations, such as the *Directory of American Research and Technology*. Once you've identified some potential candidates, it's like most job searches. Call up or visit, and even if there are no openings, send a resumé. The contract R&D world changes quickly, and so do the needs of the companies doing the work. Nelson, for instance, was finishing a postdoc when he called Aerodyne. Nothing was available, but a few months later, they called him up out of the blue.

The prospects today for snaring a job in contract R&D are probably no better than in other sectors. Some observers believe, however, that such organizations—with their flexibility and experience in collaborating with industry, academia, and government—are well suited to thrive in an era where there is increasing focus on rapid technology transfer. "The trend of public policy towards taking better advantage of basic research creates a logical and important role for contract research and development," says RTI's Rouse. That belief encourages her and others to predict that the world of contract R&D will grow in the years to come.

**–John Travis**

# Grant Limits Irk Young Scientists

**Some non–tenure-track researchers can't apply for grants.**

Planetary scientist Roger C. Wiens received his Ph.D. in physics from the University of Minnesota in 1988, and has collaborated on at least 10 grant proposals since then. Not once, however, did Wiens submit one as a principal investigator (PI). The reason? He has held non–tenure-track positions at the California Institute of Technology and the University of California, San Diego, which reserve that status largely for tenure-track academics. In his last year, says Wiens, "I ghostwrote for five different proposals."

Wiens, and other young investigators in his position, believe they are in a Catch-22: They can't apply for grants because they don't have regular faculty jobs, therefore they can't demonstrate they are "fundable," and that makes it harder to secure such jobs. Many universities, such as Cornell, Stanford, and the University of California, Berkeley, make it almost impossible for non–tenure-track researchers to apply for grants. The growing proportion of such scientists may be one reason for the National Research Council's recent finding that applications to the National Institutes of Health from young scientists have declined.

But university officials say their rules exist for good reasons. "Faculty...ought to set the direction of research and scholarship," explains Charles H. Krueger, dean of research and graduate policy at Stanford University. The policy is necessary "to maintain the reputation and quality of research and to assure the appropriate use of university facilities," says Marion Lentz, assistant director of sponsored projects at Berkeley.

Yet people on multiple postdocs and faculty members with research associate–type positions are becoming increasingly frustrated. The American Astronomical Society (AAS) has taken note of the discontent and is discussing strategies to address the problem. "We realize it will be difficult to do," says Roger Bell of the University of Maryland, who is on AAS's governing council. "We're considering asking agencies to help young people by issuing statements that universities should allow non-tenure scientists to apply for grants."

Some scientists are taking matters into their own hands. For example, when Berkeley astronomer Carol Christian was barred from submitting an application to the National Aeronautics and Space Administration that would allow observations on the Extreme Ultraviolet Explorer Satellite—even though she was a top member of the team that designed and built it—she and her colleagues decided on an end run. They formed a company, Eureka Scientific Inc., as a conduit for proposals. Now this successful grant goes to Eureka, not Berkeley. Eureka treasurer John Vallerga, an associate research physicist at Berkeley, believes that "scientists should have the opportunity to act as free agents" and, like top athletes, "negotiate the best deals." Lentz says Berkeley has no problem with such arrangements "as long as they don't interfere with the university job and don't use university facilities."

**–Anne Simon Moffat**