LETTERS

Job Search Techniques Apply to Academia, Other Fields

The article "So You Want to Be a Professor!" by Matthew Anderson (PHYSICS TODAY, April 2001, page 50) will be very useful to graduate students applying for an academic position. The process is so different from more than a half-century ago, when the department chair would write to a colleague at a graduate institution: "We expect to have an opening for next fall. Do you have someone suitable?"

As a retired department chair and a veteran of several searches and a few thousand applications, perhaps I can provide additional perspective. One area needs emphasizing: Research the institution to which you are applying. Colleges and universities vary in size and selectivity. With Web sites, this research is now much easier. Especially when a couple may be looking for positions and planning to relocate together (see the article in PHYSICS TODAY, July 1999, page 32), extra research of both the institution and the area should be done early.

Overall, Anderson's advice is excellent; yet the view from the receiving end can make the process somewhat more comprehensible. Logging in several hundred applications and collating the letters of reference and supplementary material into packets for review is an extra burden for the already busy departmental coordinator. Applicants should not send more material than is required. Also, too many applications arrive after letters of recommendation, many at the very last minute.

Government regulations regarding the application process can seem contradictory: Employers may not discriminate and interviewers may not ask. Yet the department and the college must file the total number of applications, with breakdown by gender, minority status, religious preference, and so on. Often the only clue for ethnicity, and even for gender, is in the letters of reference.

Many applications (and even letters of recommendation) are obviously photocopied and read like bulk mailings. An applicant's remarks indicating a miscomprehension of the institution will likely be cause for rejection. For example, we are a small, undergraduate, liberal arts college, yet one applicant wrote, "I would even be willing to teach a class" and another wrote, "I feel that I can contribute significantly to your high-energy group."

Anderson's comments on preparing the application are excellent. I will add that having the whole application reviewed by at least one person is very useful. Spell-checking software is fine, but inadequate. Furthermore, statements that seem clear to the applicant may not be clear to someone else. And specifics can be much more informative than general statements. Applicants who have properly researched an institution can indicate where and how they might fit into and strengthen the program. Their research can also help them tailor letters of recommendation for each institution.

Each department has its variations of sorting. At Bowdoin, the entire department faculty reads completed applications, weighs many factors, and makes comparisons for several categories—research, teaching, publications, and so on—and conducts an overall assessment. The pile is reduced to about a dozen folders for selection of applicants to be interviewed. The process is complex. Anderson wished he'd had feedback about his "failed" applications, but in most instances no one factor is cause for rejection.

Once the best applications have been selected, the interview process begins. At Bowdoin, the candidate meets a variety of people. For a tenure-track position, the list of interviewers runs as follows: president, dean of faculty, department members, faculty affairs subcommittee, and students. There will undoubtedly be much repetition, yet the applicant must adjust his or her responses to each interviewer and setting. This repetitive process is helpful in establishing fit, which, as Anderson points out, is important for both the candidate and the institution.

Bowdoin also has a colloquium at which the candidate describes his or her research at a level suitable for undergraduate majors. This critical step shows the candidate's ability to express complex ideas clearly and at an appropriate level.

After all the interviews, each group tries to form a consensus, giving each candidate a preference rating. Usually the agreement is surprisingly uniform. Some quotes from my reports on recent candidates provide hints for improving individual interviews:

▷ In conversation he seemed enthusiastic and lively, yet his presentation was wooden.

▷ Well organized, clearly and enthusiastically presented, especially considering his difficult topic.

▷ I found the computer "hunt and find" in front of an audience distracting. And he was too tied to his machine to engage the audience.

▷ A green jacket, yellow vest, and orange tie amused even the majors.

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The recent article by Matthew Anderson on how to become a professor was interesting and useful. However, there was no comparable article directed at other job venues for physicists.

I am not, nor have I ever been, a member of the tenure track academic community. Several issues raised by Anderson's reasoned approach can be applied to job searching in general. The most important requirement, apparently missed by many job seekers, is to understand the job that is to be done and demonstrate how you can do it—and do it better than your competition.

According to the author, the standard academic protocol includes giving a colloquium and perhaps teaching a class. The applicant also

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presents the institution with a research plan. These parts of the application process serve to demonstrate the applicant's ability to do research, teach, and bring money into the university. A similar demonstration would benefit the standard job seeker. Approach your interview with an understanding of what is expected of you in the job you are applying for. This may take some research ahead of time. Go to the interview prepared to discuss and demonstrate how you will perform the responsibilities of your new job. A formal presentation may not be necessary, but being proactive and showing that you know what is expected will set you apart from other applicants.

Consider what the employer's bottom line really is. In industry, it's usually making a profit. How will you help the company do that? By being efficient, innovative, and directed? By bringing in new business? Decide what your strengths are and show your prospective employer how they will be used to meet the company's goals. The Web has a lot of advice for both first-time and experienced job seekers.

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Defending One's Country Is Moral, Too

In his letter (PHYSICS TODAY, July 2001, page 12) concerning physicists who work on weapons systems, Greg Root writes that "they should do so without cloaking it in some fabricated moral justification." In the next letter on the same subject, Eric McFarland writes that the "scientific community [should] . . . encourage young scientists and engineers to shun military work."

In 1943, I visited my draft board in Milwaukee to give up my occupational deferment and ask to be inducted into the service. My vision of morality played a role in that decision. My service later in the 94th Infantry Division ended in machine-gun fire in March 1945, while I was leading a night patrol on the banks of the Rhine. I spent the next year in the hospital and retain some permanent disability. My assistant squad leader, who took over from me when I was wounded, was killed the next day. Altogether, we had 10 dead in our platoon from an average complement of about 30. Those men, ever young, still live in my memory.

I believe the men of my platoon, acting according to their own version of morality, contributed to the freedom that Root and McFarland have used to follow the paths they have chosen. I hope that some physicists will find a moral dimension today, as the men in my platoon did long ago, in contributing to the defense of their country.

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Which Came First, Theory or Experiment?

As one who believes that the origins of fundamental scientific advances are sometimes experimental, other times theoretical, and often a combination of the two, I do not take sides in the debate between Lincoln Wolfenstein and Harry J. Lipkin in the January 2001 issue of PHYSICS TODAY (page 13). However, I feel obliged to correct an important error.

Wolfenstein states, "The most exciting results immediately following World War II were the precision atomic experiments verifying the renormalized quantum electrodynamics [QED] of Richard Feynman and Julian Schwinger." This statement reverses the historical order, since the critical experiments preceded the theoretical explanations. Chronologically, the first critical experiment was the discovery by John Nafe, Edward Nelson, and I. I. Rabi that the hyperfine separation of atomic hydrogen was different from that predicted by the Dirac theory of the electron.[1] This was independently confirmed a few months later. The other critical experiment was the discovery by Willis Lamb and Robert Retherford that the Dirac theory prediction of degeneracy for the $2^2S_{1/2}$ and $2^2P_{1/2}$ atomic hyperfine structure levels in atomic hydrogen was wrong by many times the experimental error of their new measurements. These experiments preceded their theoretical explanations, as I can show.

The Nafe, Nelson, and Rabi letter[1] was received by the *Physical Review* editor on 19 May 1947, and the first Lamb and Retherford experimental