

LETTERS

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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 letter¹ was received by the *Physical Review* editor on 19 May 1947, and the first Lamb and Retherford experimental