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Research \$

While it is true that corporations have significantly cut back on fundamental research (“Will Innovation Flourish in the Future?” by Jerome I. Friedman, December 2002/January 2003, p. 22), it is hardly the case that there is not enough money available for doing it. Rather, the money has been diverted into out-of-control executive compensation and merger mania. If the top officers would forgo their multimillion-dollar bonuses and show greater restraint in acquiring other companies (since experience has shown that such mergers often decrease net profit), sufficient funds would be available for research and for avoiding many of the massive layoffs we have experienced in recent years.

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Irrational attacks?

I recently picked up my first issue of *The Industrial Physicist* (October/November 2002). I found it interesting and well-written, until I read the letters on pages 12–14. I am not familiar with Laura Nader or her work. Nor am I an expert in the fields of energy production and conservation. Nonetheless, it was disheartening to read the letters from Camp, Kohn, and Payne. Their comments were little more than ad hominem attacks of a kind one has come to expect from the talking heads on television pseudo-news shows and radio talk shows, not from a magazine devoted to the intellectual and scientific rigors of physics and engineering.

Ronnie Camp requests “objective, creative

thinking,” yet he attacks Nader with entirely unsupported assertions, such as “[Nader] allows her own obvious ... desire to wield power,” “her apparent absence of ever having to produce anything tangible or verifiable,” and “the ‘free pass’ incompetents who graduated from the ‘best schools’ (Berkeley).” The letters by Kohn and Payne are scarcely less short on rational argument. In a general interest magazine, such as *Time* or *Newsweek*, such letters might be appropriate. However, coming as they do bunched together in *The Industrial Physicist*, it makes me question the magazine’s editorial effort to validate the material in substantive articles.

Even if this weren’t the age of Enron, Arthur Anderson, and the 2000 election, not to mention the scandals at Bell Labs and Lawrence Berkeley Laboratory, one should expect intellectual rigor in a science magazine. I would also note that none of the aforementioned scandals was caused by “free pass” incompetents who graduated from the ‘best schools’ (Berkeley),” Camp’s euphemism for minorities admitted under the policy of affirmative action.

Steve Fankuchen
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Physicists for industry

The article “Training Physicists for Industry,” (February/March, pp. 22–24) states that Alabama A&M University created a professional master’s degree program in optics and lasers and materials science when it realized that none of Alabama’s schools had such a program. On the contrary, the University of Alabama in Huntsville has a successful pro-



THE INDUSTRIAL PHYSICIST (ISSN 1082-1848; CODEN INPHFA), volume 9, number 2,

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gram in optics and optical engineering, offering interdisciplinary degrees with the physics and electrical engineering department at the B.S., M.S., and Ph.D. levels. Information can be found at <http://cao.uah.edu>.

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Patrick Young's article completely ignored a well-established training curriculum. I refer to engineering physics, which has been around for at least 60 years. At my school, Oklahoma University, we took 40 semester hours of physics, which is more than the total required for M.S. physics students. We also took the core engineering courses and chemistry through physical chemistry. This was before our technical electives. We also were allowed such liberal arts electives as philosophy, advanced composition, and a foreign language. In my time (B.S. 1951), we took the same lab courses as everyone else, although I had a special-problems lab in the engineering mechanics department. As it happened, most of my contemporaries seem to have gone into seismic work for oil companies, and I did my graduate work in mechanical engineering. My career titles varied, but physicist or scientist were the most common, and I retired as a chief scientist. The preparation I received in engineering physics was ideal for my industry.

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The recent article on training physicists for industry describes the professional master's degree (PMD) in physics. I wish to draw attention to a new PMD program being offered by Rice University. Starting this year, students can apply to a program in nanoscale physics (see www.profms.rice.edu/nanoscale_physics.cfm). This program meshes with several new nanoscale science and engineering initiatives, including the new Rice Center for Nanoscale Science and Technology.

Until recently, the physics and astronomy department accepted graduate students only into a Ph.D. program. However, recognizing the need to train physicists for industry, the department joined others in the natural sciences and applied for, and


received, funding from the Sloan Foundation to establish a two-year PMD program. The PMD program in nanoscale physics prepares students for a career in industrial physics by providing them with a sound physical underpinning in nanotechnology, further practical training, and an introduction to business. The first year consists of course work, and the second year includes a six-month internship with a company. Mandatory courses include nanostructures and nanotechnology, characterization and fabrication at the nanoscale, methods of experimental physics, numerical methods and modeling, management in science and engineering, and science policy and ethics. Students also take four elective courses in other areas of nanoscale science.

The PMD program is open to recent graduates and to people with industrial experience. If the candidate is suitably qualified, Rice can give credit for previous industrial experience and waive the internship requirement. Companies can also sponsor employees to join the program to develop their expertise in nanotechnology. The physics course work is at the graduate level, and physics Ph.D. students will also be enrolled in many of the classes.

Individuals who are interested in the program or companies who may want to provide internships can contact me in the Rice physics and astronomy department (fbd@rice.edu) or the program coordinator, Terry Pack (tlpack@rice.edu).

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Correction

In "Training Physicists for Industry," by Patrick Young (February/March, page 22), under the head "Successful Programs," first paragraph, the quotation should be credited to Philip W. Hammer, vice president of the Franklin Institute in Philadelphia. 

Mail letters to The Editor, The Industrial Physicist, One Physics Ellipse, College Park, MD 20740-3842; fax (301-209-0842); e-mail (tip@aip.org); or respond from our Web site (www.tipmagazine.com, click "Write to the Editor").