

those willing, he conducted a physics course. This was difficult—neither he nor we had books or paper. However, using his memory he did well.

In January 1945, using estimates of the neutron capture cross section of ^{235}U , he ended up estimating the size of a possible A-bomb to be between that of a soccer ball and a sphere 3 feet in diameter, depending on how pure the ^{235}U was. He also mentioned that obtaining pure ^{235}U would require a large amount of energy, and facilities that Germany was not capable of obtaining and only the US could procure.

In view of this, I cannot believe the German physics community was as ignorant as the published data seem to indicate.

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A Literary Ancestor of Lorenz's Butterfly

On reading David Ruelle's article "Where Can One Hope to Profitably Apply the Ideas of Chaos?" (July, page 24) I was reminded of a short story, first published in 1911, by Arthur Schnitzler, the well-known Viennese author. In this story¹ a butterfly causes havoc and universal disaster, thus antedating the chaos-inducing butterfly of Edward Lorenz by nearly seven decades! The relevant part of the plot is roughly this:

A mountain spirit warns a hiker against crossing an alpine meadow, lest his home country encounter severe hardship. Disregarding the warning, the hiker proceeds and is reprimanded by the spirit: The hiker has disturbed a butterfly, which will fly agitatedly for many miles until it enters the royal park. From the eggs it will lay, a caterpillar will hatch that in turn will frighten the queen so much that she will give birth to a dead child. In the absence of an heir, the wicked brother of the king will ascend to the throne. The despotic new king will oppress his people and eventually will bring war and untold misery upon his country.

Reference

1. A. Schnitzler, "Die dreifache Warnung," in *Doktor Gräsler, Badearzt und andere Erzählungen*, Fischer Taschenbuch Verlag, Frankfurt am Main, Germany (1981).

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[Editors' note: Another example of a butterfly changing history occurs in the

classic time-travel short story "A Sound of Thunder," by Ray Bradbury.]

Iran's Absentee Olympiad Awards

Barbara Goss Levi's article "The 1993 International Physics Olympiad" (September 1993, page 40) presented an interesting account of the origins and procedures of the event. But it was a bit of a surprise that the article contained no reference to Iran's absence from the gathering and the subsequent unofficial awarding of a gold and a bronze medal to members of the Iranian team.

The seven-member team, composed of top Iranian high school physics students, was kindly invited by the organizing committee to participate in the XXIV International Physics Olympiad. However, the embassy of the United States in Rome refused to grant the team visas, despite a formal request from the organizing committee.

The team thus was unable to participate in this international gathering, the purpose of which is to build friendships around a common interest in physics. The attempt to restrict the exchange of scientific knowledge between scientists of the world is as unprincipled as it is futile.

The action of the American authorities came as a shock to academic circles inside the country and abroad. Following an exchange of letters between officials of the Iranian team and the olympiad organizing committee on the circumstances that caused the team members' absence from the event, the organizing committee arranged for the theoretical part of the exam to be given in our country. Based on extrapolation of the theoretical exam performance to the total exam score and comparison with the official olympiad scores, the Iranian team unofficially won a gold and a bronze medal in this competition.

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The Hard Work of Seeking a Physics Job

On 10 June 1994, they called my name in front of 40 000 spectators and I was awarded my doctoral hood. I had achieved the highest of academic degrees. I was then, and remain, unemployed.

I got my degree from Ohio State University. My dissertation was a hybrid of magnetic materials, crystallography and organic chemistry. On my resumé I have a short list of the usual awards and scholarships and a patent. I did two stints of research at Du Pont—one summer at their experimental station and a two-year part-time project at a production facility. My grades were mediocre overall, but I guess the list of classes I subjected myself to is impressive. In summary, I am Joe Blow, PhD physicist, with little to separate me out of the pack. Hence my present situation.

For my job search I have moved in with relatives and am living a somewhat spartan lifestyle. In an average week I run 10–12 miles, lift a few weights and spend some time working on a '69 Chevy that needs it. I read a lot: novels that were too big to read in grad school (*Atlas Shrugged*, *Gone with the Wind*), professional self-help books (*A PhD Is Not Enough*, *Seven Habits of Highly Successful People*, *Sharkproof*) and lots and lots of trade journals. And I jump through the hoops of a job search.

What are those hoops? I average something over ten units a week, where a unit is one of three things: a letter to a personal contact who knows either me or the person who referred me well, two replies to advertisements for jobs that I am both qualified for and interested in, or ten unsolicited resumé to carefully selected individuals at appropriate companies. I spend most of my time researching individuals and companies and making phone calls. As of 14 September I've been doing this for ten weeks, and it has netted me 12 companies that, on some time scale, are interested in talking with me. I have a grocery sack full of rejections. My hit rate is about 1:10 for contacts, 1:20 for ads and 1:50 for the carefully selected individuals. The time for a hit to appear varies from a couple weeks to a couple months, which explains why the number of hits doesn't follow mathematically from the rates and the amount of time I have spent on my search.

These hits have resulted in three screening-type interviews and one full-day, this-is-it interview. Several of the other hits should develop into full-day interviews sometime in the future. I may receive a job offer (pleasepleaseplease) as a result of the one full-day interview so far. If I do, it will have a salary slightly less than the average reported by the university placement office and APS, but much more than I need. The job also has

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the essentials: exciting physics, a great location and lots of potential. Will I accept? You bet: It's like grad school but has better hours, is closer to home and has four times the pay. If this offer does not come through, another one will sometime in the future. I'll keep plugging.

My message is this: Looking for a job is hard. It is full-time work, is filled with lots of rejection and isn't very rewarding on a day-to-day basis. It takes long hours and requires the utmost from your creativity, your intellect and your speaking and writing skills. You must constantly examine your methods to gauge their effectiveness and improve them. You may work hard for days following up a lead, only to find that it is a dead end. At times you will be completely, absolutely and utterly alone, with no one and nothing to turn to except your own intellect. The bright spots will be separated by long spells of darkness. But in the end persistence, creativity and diligence will win out.

The conclusion? The ordeal is not that different from graduate school, and it will end in the same way: successfully.

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Associate Scientist

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Correction

November, page 92—The price of George Emanuel's book *Analytical Fluid Dynamics* is \$59.95. ■

Physics Today Is Looking for Back Issues

Help! Copies of the following back issues of *PHYSICS TODAY* are needed at the magazine's editorial offices:

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