

From the Editor in Chief...

Labor Pains

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Careful readers of this column have noticed the absence of an author's affiliation the past few months. (I resisted the temptation to put "This Space for Rent" in that spot.) Don't worry, I am once again gainfully employed.

In seven months of not having to answer to anyone else's demands, you would have thought that I could have proved P not equal to NP , achieved world peace, or at least cleaned the garage, but somehow I never got around to doing any of those things. However, as countless self-help tracts have observed, you ought to turn every episode into a learning experience. I've learned that even without a job, the "to do" list never shrinks. I've also learned a bit about the changing process of getting a job and the overall employment market. I share these observations with you because some day, you, or someone you love, might need to find a job. Besides, I've got "write a column" on my unshrinking "to do" list, and this is the topic I'm currently most capable of babbling about.

The Changing Nature of Hiring

The Internet is changing the way the employment game is played. Employers and job seekers connect in various ways, both public and private. Traditionally, employers publicly advertise positions, while privately, much hiring happens through social networking.

Historically, public advertising centered on advertising in newspapers, professional journals (for example, *Computer*), and job fairs. In the boom years of the mid-1980s, the *San Jose Mercury News*, the major Silicon Valley newspaper, was fat with classified advertising. The revenue from that advertising fed a healthy editorial budget. Today, classified advertising has fled to craigslist.org, eBay, and career boards, and the paper is a skinny shadow of its former self; its major shareholders are demanding its sale to some greater fool.

It's the Internet that's wounding the newspa-

per business, not (as paper publishers are wont to claim) the rising cost of newsprint¹ or the customer's desire to read news online. In 2005, more than half of all hiring in a surveyed group of employers came from the Web (see www.jobcentral.com/DEsurvey.pdf), split among corporate Web sites and career boards. Employers in that survey averaged more than 100,000 applicants per year, with one employer receiving a million applications.

Winnowing through a million job applications requires a different set of tactics than the smaller trickle of earlier years. When candidates must compose an individual piece of paper to apply for a job, employers can find the resources to individually look at them. When candidates can automate their applications, employers can be flooded. Attempts to cull appropriate candidates by software have not been commercially successful. Some employers, it seems, stay a bit dryer by demanding a tedious cut-and-paste of data into application forms, which can deter the more superficial candidates. But more important, the less imprecise dating rituals of a couple of decades ago have hardened into more rigorous nuptial processes: human resource specialists harvest the more interesting resumes (perhaps with a brief telephone screen), pass the chosen fewer on to engineers for (yet another) phone screen, and then invite the chosen fewest in for interviews.

Interviews

Twenty years ago, in the organizations I worked, engineering interviews were a haphazard affair. I remember helpful guidance like, "Look for technical hobbies and team or endurance sports." Modern interviewers seem to be trained to get more quickly to the point and, more particularly, to have a point. These techniques seem to focus on two kinds of questions — behavioral and technical.

Behavioral questions seek to elicit how the job candidate performs in stressful situations:

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TECHNICAL COSPONSOR:



- Describe a situation in which your work was criticized. How did you deal with it?
- Describe an occasion when a project had too much to do before a deadline. How did you cope?
- Tell me about a time you had an interpersonal conflict with someone on your team. How did you resolve the conflict?
- Tell me your three greatest weaknesses.

The received knowledge about what to do with these questions is to illustrate the ability to turn every lemon into lemonade. Thus, the heroic job candidate handled the criticism and, through faultless logic, convinced the critic of the candidate's wisdom; shuffled the tasks and requirements, tossed the unnecessary ones, and worked extra hard — but never panicked — to deliver the project on time; came to understand the difficult coworker and converted him or her to the congregation of the nice; and has weaknesses like “attention to detail” and “working too hard” that in any reasonable environment could be understood only as strengths. Back in engineering school, you probably didn't realize that method acting would be a more important course for your career than introductory calculus.

More prominent these days, especially among the more technological-savvy employers, are “technical questions.” These seem to fall into two classes: elaborations of homework problems from introductory (for software, especially data structures) classes and designs for fundamental business problems of the questioning concern — all to be performed either over the phone or with marker and whiteboard, in 15 minutes, while maintaining an entertaining patter. My favorite example of the former was, “Given a set of numbers, find two numbers that sum to a given target.” (The interviewer seemed disappointed that hash tables were a viable solution,

and we won't get into issues of modular arithmetic). Of the latter, my favorite was, “How would you build a system to recommend purchases of similar items?” (I'd find someone who knew some statistics, because that's a hard problem.) In theory, you're supposed to be displaying your problem-solving style and skills (remember to elaborate the requirements of the questioner before delivering the solution), but failure to resolve the fundamental business problems in a quarter hour always left me feeling lacking.

I confess my absolute favorite question of this interview cycle came from someone who had found my resume on a Web site and thought me a prime candidate for maintaining C++ programs. He wanted to know, “Did I know much about the Internet?” and was at a complete loss for follow-up after my answer.

Social Networking

Another received wisdom of the job search process is that most people don't find jobs by responding to impersonal advertisements, but through a social-networking process of calling their friends and making them aware of their needs (and, correspondingly, of employers getting their employees to call their friends to make them aware of openings). In the Internet age, we've managed to automate even this process. There are now popular social-networking sites, based on the premise that if I need to hire a Cobol programmer, looking through my friends' friends will surely land me just the right person. I'm strongly of the belief that much employment happens through the old-fashioned kind of social networking (email is old-fashioned, right?), but I confess no personal knowledge of any employment that has ever resulted from these new networks. On the other hand, my economic existence hasn't been centered on short-term contracts.

Contracting

Americans define themselves by their

employers. Ask someone what they do, they'll usually respond something like, "I work for Google," rather than "I do software research." Although this might seem completely natural, it's actually a late development, historically. Traditionally, skilled professionals identified with their professions and were independently contracted for particular tasks.

A lovely anthropological study of contracting is Stephen Barley and Gideon Kunda's *Gurus, Hired Guns, and Warm Bodies*.² As the authors note (p. 176):

Over the course of the twentieth century employing organizations, rather than occupations, have increasingly provided a context for identity formation.

Quoting their earlier work, they continue,

Many organizations offer their employees a "member role" that "includes explicit, detailed, wide-ranging, and systematically enforced prescriptions for what members in good standing are to think and feel about themselves, their work, and the social arrangements under which it is performed.

Barley and Kunda's book explores the segment of the economy based on individuals being hired for their expertise to work on particular projects, rather than the more recent nominal and dissipating notion that individuals are bound, perhaps for an employment lifetime, to an employer that conveys security and identity. Critical elements of this economy and lifestyle are the connection of contractors with work (often with the assistance of staff agencies), the social position of contractors in the workplace, and the benefits and sacrifices of personal career management.

Staffing Agencies

Much contracting is conducted through the intermediary of staffing agencies. Staffing agencies serve two roles: information brokers and legal

shields. As brokers, they facilitate connections between companies that need expertise and professionals who can provide that know-how. Good staffing agencies have intimate knowledge of customers' demands and individual contractors' abilities. This is a reasonable activity in an information economy, though you might expect that the value of information mediators should decline with the existence of online social networks and Internet bulletin boards.

Staffing agencies' other purpose is to shield employers from the ravages of employment law, particularly as interpreted by the tax authorities. Employment in the US entangles employers in a net of obligations to the government. Traditionally, hiring an outside professional to perform tasks didn't place such duties on a company, but the reality is that "employment" is a continuum, and rather than having the tax collector later determine that the employer failed to pay employment taxes, companies use staffing agencies as "employers of record." This system pleases the Internal Revenue Service, which gets a steadier and larger tax stream (for some inequitable reason, in the US tax code, some individual employees' expenses are not deductible, whereas independent contractors can write off those same activities); the staffing agencies, which take a cut of the transaction for performing simple paperwork; and, often, the management of large corporations, who use it to tame their own organizations and increase their "revenue per employee" — a number that, for some misguided reason, seems important on Wall Street. It works only against the people concerned with the actual work: the contracting managers — who have another, intermediate entity with which to deal — and contracting professionals, who must share their earnings for paper pushing of dubious value.

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Social Relationships and Personal Career Management

Employees expect a long-term relationship, career growth, and social definition. Contractors, on the other hand, must manage their own marketing and continuing education. Much of a contractor's time must be spent, unpaid, developing his or her technical skills and maintaining his or her social network. Contractors want to be able to charge the premiums for skills with incipient technologies, but this requires investing time acquiring these skills and making the connections with companies that might need them. Contracting involves greater risk – when things go bad, the contractors are often quickly out the door, frequently with no warning, and certainly without even the tin parachute offered to ordinary employees. Correspondingly, contractors need to be paid more for the time actually worked.

This can produce a social disconnect in organizations in which the regular employees might be earning a

third of the hourly wages of the contractors. Barley and Kunda describe the ways in which employers try to ameliorate this disparity, often without any actual economic cost. Employees are made to feel part of the “in group,” with better facilities, access to corporate secrets, and a greater supply of commemorative t-shirts. They quote contractors who respond with disinterest to (and even liberation from) the local politics and have considerable interest in the politics of networking their next position.

Ironically, contracting might be a viable income option for long-term employees laid off from organizations moving to new technologies. Although their original company might have left mainframe assembler or 4GLs for C++ and SQL, companies that haven't yet migrated their legacy software could be desperate for people who can maintain it.

Barley and Kunda paint a warm portrait of contracting. The contractors they talked with, by and large, seemed to prefer avoiding conventional employment.

In a strange way, these contractors had greater long-term income security, as the ceaseless social networking left them far better prepared to handle transitions. On the other hand, Barley and Kunda did their research in 1999, which is sort of like asking the tribe about how hungry they are right after the third consecutive mammoth kill. All the roasting meat tends to make one oblivious to past and future deprivations.

Any discussion of modern engineering employment relationships should include a section on outsourcing. Unfortunately, this column doesn't have the budget to hire someone to write that section. □

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1. J. Shafer, “Paper-Thin Excuses,” *Slate*, 14 Oct. 2005; www.slate.com/id/2128109/.
2. S.R. Barley and G. Kunda, *Gurus, Hired Guns and Warm Bodies: Itinerant Experts in a Knowledge Economy*, Princeton Univ. Press, 2004.

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