

NON-CONVENTIONAL JOB OPPORTUNITIES
for CHEMICAL ENGINEERS

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When I began as an undergraduate almost 20 years ago, I was asked by my counselor what major I wanted to declare. At that point, like many others, I wanted opportunity, a reasonable salary, and most of all the security that my skills would always be in demand, whether I wanted to move from company to company or stay safely within one company. Chemical engineering seemed to meet all those requirements for us, and seemed to guarantee that in the future we would never be "out of work," simply "between positions."

For many of us, it did not work out that way. The events of the past half-dozen years have shaken the job security promise of a profession tied intimately with economics and oil. And the cutbacks have hurt not only the entry level chemical engineers, but many of the graduates of my era, some with 6-10 years of petroleum and other processing experience, have been severely impacted.

I'm sure each of you know as many personal stories as I; one only has to look at a trade journal's Positions Available and Positions Wanted section to see what has happened to our plans for a secure future.

Hopefully, we will return, perhaps not to the "fat" days of 10 years ago but at least to an end of the 10% pay cuts and 60% staffing common today. However, it happened once, and a good chemical engineer does not need to see the data more than once to begin to prepare for the next time.

And that is the key - to prepare. Many of the signs for the economic future are promising for a recovery in demand for

science and technology, with somewhat less promise for engineering. Where does that leave us? We were academically trained as chemical engineers. Most job banks, placement and employment agencies categorize us neatly as chemical engineers and try to place us in chemical engineering positions. A most reasonable approach, except that in the present market there are many fewer process engineering positions than qualified applicants. And that situation may well continue.

It seems that we are back to the old "necessary, but not sufficient" criteria: a chemical engineering degree is necessary but not sufficient to insure employment anymore. We are assailed from both sides - each year engineering schools graduate a new crop of competition, and currently unemployed (or potentially soon to be unemployed) engineers with a few years more experience are often willing to accept a slight downgrade. Both groups are applying for the same limited number of positions we seek.

We have brought a lot of this lack of marketability upon ourselves by our lack of preparation. We have too often settled comfortably in our jobs, learning to do it well but turning down opportunities to expand our background. Seminars, short courses, training sessions and evening college courses abound in areas related to our particular function, but we are frequently "too busy" to attend and add those credentials to our resume'.

According to Money Magazine (Vol 14, No. 11, November 1985), "the best preparation for a job in the year 2000" will be to master the tools of "...conceptual, reasoning and communication skills, as well as the ability to use a computer." These painfully prophetic words describe the pillars of a chemical engineering education. We were trained to define the problem, analyze the available data, determine any needed information, and work, sometimes iteratively, towards the solution. We can comfortably use computers, from micros to mainframes, as tools to solve the problem. We were taught much more than just chemical engineering.

We think of ourselves as process engineers, yet by virtue of the requirements of our position we frequently become very adept at computer operations, computer hardware and interfacing, data base management, heat exchanger operation and energy optimization, pollution abatement, pump selection and maintenance, time management and scheduling, and so forth. Yet when we need to look for employment, we tend not to look for positions in environmental engineering firms. We do not

respond to position announcements for electrical engineers, for computer programmers or hardware/software developers, or plant supervisor in a non-chemical process industry.

Part of the problem is our own doing. We do not tend to think of ourselves as anything other than process chemical engineers. We need to re-define ourselves as professionals; strong traditional academic training in engineering and years of "on-the-job" specialization in key areas makes us unique from other process engineers.

We also need to remember that our resume' does not close when we begin our first employment. The only way a prospective employer can be made aware of those hard-learned skills is if they are predominantly displayed in a resume' that is constantly undergoing revision.

While employed, proper performance of our job takes a lot of time and dedication. We may be tempted to forgo a course in air pollution abatement equipment design, for example, or to send a "junior engineer" in our place. When we do, we pass up an opportunity to develop "credentials" in that area. Within the company, our skills are acknowledged. However, we need to take more care that those skills are developed, and most importantly displayed, in a resume' that may well have to be used earlier than our original career plans anticipated.

We also need to change the way companies perceive chemical engineers. We need to convince circuit board etchers and electroplating operations that we know a fair amount of chemistry, but we are very comfortable with diffusion, mass transfer with reaction, and boundary layer depletion. We need to convince computer software/hardware firms that three years of personal involvement in designing, installing and operating that hardware and software in pilot plant data logging and control projects, is experience that would be a very valuable addition to the firm, despite the lack of the "proper" degree.

We need to convince the personnel department of a Toro Lawnmower manufacturing plant that three years of computer optimization of production scheduling and data base management in a chemicals intermediates production facility is very similar to three years of the same type of experience scheduling production of lawnmowers. Pounds in and pounds out have the same scheduling and management concerns, whether the material being processed is benzene or short blocks.

This last part will be the hardest to achieve. We will have to change the attitude of college placement advisors, who typically require interview "sign-ups" by degree rather than specialty or skill. Many newly graduated chemical engineers have found employment in such non-typical companies as Texas Instruments, Northern Telecom, and small energy management firms. Unfortunately, frequently those leads were developed either by aggressive pursuit of the graduate, through a non-chemical engineering intermediary, or by that company's satisfactory experience with a previous chemical engineer in that non-traditional position.

We need the support of our professional organizations in opening the cracks in the armor of companies that do not traditionally hire chemical engineers to positions they are qualified for by experience and ability rather than degree.

We need the job banks and employment clearing houses to rank us, individually, by skill and ability rather than degree and profession.

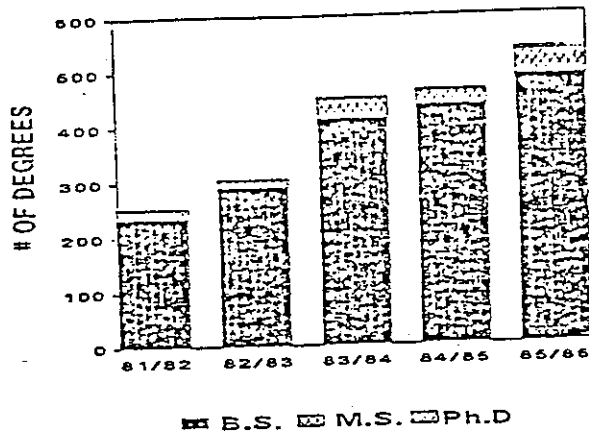
We need to broaden our own self-image and recognize those skills and abilities. We need to pursue employment opportunities that can utilize those abilities, whether those opportunities are in the chemical industry or not.

And to make it work, we need to prepare ourselves and our resumes' in the event that the promises of recovery are premature.



COLLEGE OF ENGINEERING

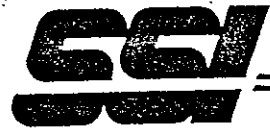
DEGREE HISTORY



engineering

ENGINEERS

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