

# AMERICAN ENGINEER<sup>TM</sup>

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## AEA Comments On DOL Regs

The Department of Labor recently requested comments on regulations to implement provisions of the 1990 Immigration Act which requires a pilot program to be set up to attempt to "streamline" the labor certification process. This pilot program is the first step in implementing these changes.

AEA was instrumental in having provisions included which require labor certification for engineers who previously would have been admitted under the old H-1 visa classification. We opposed the provisions making it easier to gain labor certification. AEA was the only engineering organization to be invited to testify in person.

Following are excerpts from our remarks to DOL:

The American Engineering Association is vehemently opposed to the inclusion of any categories of physical scientists or any discipline of engineers or engineering technicians in the Labor Market Information (LMI) Pilot Program.

Provisions of the Immigration Act of 1990 relating to the above categories were based in large on testimony by industry and academia using numbers obtained from a National Science Foundation report "Future Scarcities of Scientists and Engineers." This report was thoroughly debunked in hearings by the Investigations and Oversight subcommittee of the House Committee on Science, Space and Technology in early 1992. This whole process should have never been instituted.

One factor not considered in the LMI is underemployment of the engineering, scientific and technical professions which is rampant in these professions.

The indicators used to develop the list of occupations seems to use the worst possible set of years for each of the seven indicators.

The categories listed makes no provisions for crossover of workers from one category to another.

To group engineers or scientists with university teachers distorts

both the determination of shortage of a profession but also the prevailing wage determination for the certification of the alien.

There seems to be nothing in the LMI which requires a search of the temporary labor market for the occupation in short supply. There are some 200,000 qualified engineers of all disciplines who work in this segment of the labor force.

The certifications which are to be issued under the LMI will "remain valid indefinitely." To issue what amounts to a "blanket shortage determination" of indefinite validity is unacceptable to the engineering and scientific community.

To determine a shortage of any occupation based on as few as ten labor certifications in a state is ridiculous. Any small to moderate sized company could by themselves "create" a shortage of engineers.

Just this week it was announced the defense terminations had reached the one million level and the expected future terminations would total an additional two million. It is my understanding 11% of defense workers are engineers. To allow any immigration during these times borders on the criminal.

**THERE IS NO SHORTAGE OF ENGINEERS!** As long as the Department of Labor relies on industry surveys and academia, we will have "shortages" of engineers and technical workers. The LMI will assure there will be a "shortage" of engineers and scientists far, far into the future, making industry and academia very happy indeed. As always, the only losers in this equation are the individual practitioners of the technical professions.

In addition to the above comments, AEA spoke to and urged several other organizations to submit comments and initiated an article in *C.E. Weekly*, a contract engineering publication urging their readers to submit comments. We had about a week from the time we became aware of the request for comments to do all of this.

*Bill Reed, AEA President*

## Programmers Lose Thousands Of Jobs To Foreign Workers

Misuse of B1 visas, which are supposed to be used to enter the country as a temporary visitor for business, is causing computer programmers in California to lose thousands of jobs to alien workers.

The State Department issued 2.6 million of these visas last year, permitting visitors to enter the country for short-term business assignments such as attending meetings, negotiating contracts or repairing equipment.

As it turns out, however, many of the programmers who enter the United States on B1 visas take jobs at American companies that last a year or more. These foreign programmers earn less than their U.S. competitors because, under the B1 visa, they are allowed to receive only living expenses while in the U.S. and they do not have to pay federal taxes. Smaller salaries are sent in their local currency to banks in their home countries.

"Jobs are being lost, money is being lost and this is a crisis because there is no limit to the number of visas issued in this category," said James Schneider, owner of a San Francisco computer consulting firm and representative of the National Association of Computer Consultant Businesses (NACCB).

Foreign programmers are working for a fraction of the \$40,000 to \$100,000 an American programmer makes—costing California

programmers \$2.4 billion per year and state and federal treasuries \$1.1 billion annually. The NACCB, the Immigration and Naturalization Service, and a foreign recruiter agree that as many as 30,000 English-speaking software professionals, primarily from Australia, India and the United Kingdom, are working in California on B1 visas. The huge pay discrepancy between foreign and citizen programmers often makes it difficult for U.S. programmers to find work. As Dan McGonigle, a contract programmer for 22 years, says, "They come in at \$20 an hour less than I charge, pay no taxes and then take all their money back to (their home countries) when they're done. I think that's unfair."

The type of visa that foreigners are supposed to obtain to work in the U.S. is the limited H1B visa. These visas require that non-citizens show they are not taking jobs from Americans, will earn the prevailing U.S. wage for their work, and will have deductions for taxes and Social Security. "All we want is for the people from overseas to come over on H1B visas," explains Allen Miller, a NACCB representative. "Then the competition is on a level playing field."

*This article reprinted with permission from the Sept./Oct. 1992 issue of the "Fair Immigration Report."*

## Today's Immigrant — Tomorrow's Victim

February's article "AEA Action On Immigration Reform" sparked quite a few responses. Two of the letters received are published in our "Reader's Voice" column. A letter from Susan Forbes Martin, Executive Director, Commission On Immigration Reform, indicates that the "American Engineer" is reaching congress and they are interested in hearing from the engineering community. The second letter comes from a young foreign born engineer, employed in California, who was one student who benefited from our immigration policy. He now provides other views on the Immigration Issue.

"AEA Action On Immigration Reform" covered AEA's activity to seek the revision of the Immigration Reform Act of 1990 and reduce the number of visas available to foreign engineers and to reduce the number of foreign engineering students allowed to remain in the United States after they completed their education.

The Immigration Reform Act of 1990 increased the quota of visas for engineers and immigrants said to possess engineering skills. The Immigration Act, to increase quotas, was changed based on industry testimony which cited the National Science Foundation (a government bureaucracy) paper that projected large shortages of engineers. This Act was to compensate for NSF's false shortage projections. A Congressional Committee found the NSF paper and their projections to be false. Based on that finding, AEA is asking Congress to review the issue and take corrective action. It is said that NSF is the major beneficiary of its own shortage propaganda followed by the government funded engineering colleges. The bureaucracy grows as it feeds itself.

I believe an engineering manpower balance (unity supply, demand ratio) is required for members of the American engineering profession to continue to practice their profession. Continued practice will keep engineers proficient, increase their experience and technical excellence, and enhance their engineering skills and U.S. engineering capabilities.

Our young writer, known as J.W., has the impression that we are against immigration in general and that we hold the immigrants at fault or to blame. J.W. also finds fault with our educational system inferring that our K - 12 education can't compete and our American youth are not interested in engineering. He writes, "Foreign students dominate all the engineering classes." And, the college administration invites (recruits) foreign students to join them.

Foreign students must stay in school until they complete their education and find employment or they have to return to their country of origin. Since the undergraduate engineering degree production in the U.S. exceeds the demand and provides a surplus, the foreign student must continue his or her education to get the advanced degree. This educational path provides one with the opportunity to by-pass typical immigration channels and remain in the United States. Should congress reduce funding to our colleges the college administration would not have to scurry off-shore to invite or recruit students to fill their class rooms. College classrooms will shrink with the education budget until we no longer produce a surplus. The student, native or immigrant, is just the catalyst required to affect the transfer of funds from the taxpayers pocket to

the college empire.

J.W. closes with the typical rhetoric gleaned directly from the college marketing strategy. They argue; if we don't import our students from off-shore, America will lose its technological leadership. Donkey dust! America, during a period of its greatest manpower shortage, out produced both fronts and saved many countries and their people from dominance by aggressors during World War II. We have continued to do so, largely due to the efforts, skill and ability of our American engineering community.

I don't believe we fault the immigrant or hold them to blame. When the engineering manpower supply-demand ratio gets out of hand, for whatever reason, people, the economy and other factors do suffer. J.W. is one of those fortunate to have a job in the heart of U.S. technology, but there are many others that are not getting the engineering jobs for which they studied so hard. Did J.W. get his job at the expense of a U.S. citizen? Have members of the American engineering community been displaced by immigrants? What about the U.S. taxpayer who funds our college empire only to see their sons and daughters going without jobs. We know the college engineering degree production exceeds the demand for our young graduates. Parents of our college graduates say their tax dollars subsidized foreign students' education while they and their children go unemployed.

J.W. neglects the fact that the immigration quotas, in the 1990 Immigration Reform Act, were increased because of the deceptive NSF paper. Fact! There was no shortage! There is no shortage! Defense cuts, layoffs, down sizing and the completion of engineer intensive programs have produced an engineering manpower surplus and the Immigration Act of 1990 only contributes to a greater surplus.

It is impossible to build a solid structure on a foundation of lies and fabrications such as those disseminated by the government bureaucrats at NSF and the other 'Shortage Shouters.' Increasing immigration quotas based on NSF's false projections is clearly not a solution, but a source of further problems. The taxpayer has the additional burden of funding the colleges to train students for jobs that do not exist. This waste, any waste, increases the cost of doing business in the U.S. and has a detrimental influence on our ability to compete in the global market. Unfulfilled promises! Our students suffer when they pay for the education that, through Engineering Shortage Propaganda (ESP), originally promised them a job and a rewarding career and then does not deliver.

The irony follows in that J.W. has now become a member of the U.S. Engineering Community. Just as yesterday's immigrant engineer has become today's victim, today's immigrant engineer will be tomorrow's victim. This will continue unless the shortage shouters are put out of business and a manpower balance can be approached.

Where does this all end? Do we continue to import labor and deprive our citizens of opportunities until the poverty level in the U.S. is equivalent to the poverty level in the third world nations?

*Richard F. Tax, AEA Vice President*

## Suffer Apart Or Win Together

For too many years engineers, editors, and publishers of trade publications have continuously written and complained about the poor conditions associated with the engineering community. Corporate officials cite the loss of contracts unfairly awarded to off-shore companies and government legislation that make it impossible for the U.S. to compete in the global market. When one thinks for a moment, it is easy to recognize that many others are also hurt by the same conditions that are detrimental to the engineering profession. These conditions shall continue until we act together and do something constructive.

I believe the American Engineering Association has the ability to solve our problems and enhance the engineering profession and U.S. engineering capabilities. The AEA will unite the members of the engineering community to act together on issues and legislation of concern. We are quite aware that when our industries suffer,

members of the engineering community also suffer. Why suffer apart, when we can win together?

The AEA has the ability to unite the engineering community and the potential to solve our problems. Now we require the assistance of the many people involved to build our membership to its required professional strength. Engineers are needed to support our legislative efforts. Editors can help by giving AEA visibility. (One editorial just referring to AEA prompted 40 telephone calls.) Publishers can donate advertising space so AEA can reach their readers. Company officials can encourage their engineers to join AEA. Together we can make things happen.

Think about some positive contribution that you can make. It's better than complaining forever. You know—"It is better to light one candle..."

*Richard F. Tax*

## Reader's Voice

This column in the "American Engineer" is for readers to voice an opinion relevant to any issues that affect the professional life of an engineer. Articles or letters should be in good taste and not slanderous. Each submission should include the name, address, home and business phone of the writer. Except for short excerpts, we will include the writer's name, city and state (unless the writer requests anonymity). We reserve the right to edit each submission, as long as we don't change the gist of it. We assume that authors who send us material have accepted these conditions, unless they instruct us otherwise in writing.

*Editor: In the Mar. '93 issue of AE, I reprinted an article, "Trade Rivals Will Triumph Unless U.S. Cleans Up Act." It listed steps the U.S. must take in order to survive in the world economy, when and if the North American Free Trade Agreement (NAFTA) is approved. The steps listed in the article are: 'Shift 12M people from overhead functions to more productive work, Radically upgrade U.S. manufacturing equipment, Develop tax policies that differentiate between investment and speculation, etc.' These are steps I'd advise, regardless of NAFTA. Mr. Frank Smerke, a man whose opinions I respect and whose material I've published in the past, wrote a 2400-word letter to criticize the article. For reasons of space, I can not print it all, but some follows. AEA has gone on record as opposing trade policies that compromise our national sovereignty, undercut the U.S. competitive position or ship out U.S. jobs. However I can't say we're pledged to unseat Congressmen who vote for ratification of NAFTA.*

From Frank Smerke of Santa Monica: - "Do you guys know what you did, when you reprinted that article, 'Trade Rivals Will Triumph...'? You bought the scenario that we should continue to lower our living standards in order to facilitate duty-free entry of slave-labor products of enterprises financed by international investors. The facts are that it makes no difference how excellent are the products of the exporting community (U.S.); it will be given a handicap to preclude its ever winning...

"Our trade philosophy emerged at the first GATT Agreement in 1947, when Harry Truman began giving away our industry to war-ravaged countries as 'trade not aid.' In Aug. '52, the National Security Council insisted that the U.S. should facilitate entry of Japanese goods into the U.S. market. For 45 years, a succession of presidents from Truman to Bush have consciously subordinated the interests of the domestic economy to foreign policy...

"For diplomatic and security reasons, the U.S. government sacrificed thousands of domestic jobs to create employment and prosperity elsewhere in the non-Communist world—Japan (and Germany) after WWII, Mexico now. In the interests of winning the cold war, presidents Truman through Bush refused to grant import relief to trade-sensitive industries.

"From 1947 to 1972 within GATT framework, the U.S. reduced tariffs from an average of 32.2% ad valorem to a negligible 8.5%. By Jan. '72 when the Kennedy round of concessions were implemented, tariffs no longer sheltered high-wage U.S. workers from low-paid foreign labor...

"NAFTA is not about trade; it is pure and simple a bank bailout by Reagan/Bush. In Aug. '82, Treasury Secretary Donald Regan and Mexico's Finance Minister Jesus Silva Herzog conferred to try to head off Mexico's bank crisis (unpaid loans from Citicorp, Chase, and Bank of America). Refer to page 28 of Lester Thurow's 1985 book, 'Zero Sum Solution' and to page D3 of the August 30, 1992

issue of *Los Angeles Times* for further information. Mr. Reagan and Mr. Bush have arranged for us to have a porous border through which Mexico could covertly dispatch its unemployed to earn U.S. currency which, when sent home, would be used to pay interest on Mexico's \$86B bank loans. Housing Secretary Jack Kemp cooperated by changing the rules on June 6, 1990, to make HUD housing available to these illegal migrants. Profits from industry transfer, starting in 1990, will pay back some of the principal...

"There is much more interesting foreign trade history yet to come. Readers can help derail NAFTA by writing their Congressmen and Senators. Tell them you're opposed to NAFTA and are a member of organizations pledged to unseat Congressmen who vote its ratification. Tell them you're fed up with 45 years of trade policies that have disadvantaged the nation's economy and its workers. Tell it to President Clinton also. Leave a message for him on 202/456-1111. Don't buy into this 'Global economy' jazz."

From Susan Forbes Martin, of the Commission On Immigration Reform: - "I have received a copy of the editorial 'AEA Action on Immigration Reform.' The Commission on Immigration Reform was established by the Immigration Act of 1990 to assess the implementation and impact of the new law. I would appreciate receiving any studies you have done or collected on the impact of the 1990 law on your profession. The Commission will be holding consultations and hearings on the labor market issues raised by the legislation. Your materials will be very useful in planning these sessions."

From J.W. CA: - "Don't you think you should look at the big picture before you start any national crisis? I am a foreign born person, I graduated from the engineering school of University of Florida, USA in December, 1990, I was a foreign student, and presently employed by a large American company in the Silicon Valley area designing ASIC.

"You should first look at the college campus of the late 80's and today, the 90's. Open your eyes and look at the number of engineering students that are American born nationals, especially in the post graduate level. Foreign students dominate all the engineering classes. Why? Maybe because American born students are not interested in pursuing any engineering career or maybe it is the Mathematics and Science knowledge that these students possess is incompetent.

"The educational foundation is the American high school. Can the American high school educational system compete with the rest of the world? Perhaps India, a third world country that is considered to be one of the poorest country on earth? Not to mention Russia, France, Sweden, Germany, Hong Kong, Japan, South Korea, Taiwan and the rest of Europe and Asia.

"Second, the American pop culture totally discourages college freshmen(women) to enroll in engineering school. Why? Would you like to be called a Nerd, Geek, Dork or bookworm for the rest of your college career? No, not many of the 'American-born' college freshmen(women). So, what happens to those not-so-popular engineering classes? Well, obviously the college administration has to do something—how about inviting foreign students to join them, besides they value their education more than the American pop culture and they have better Mathematics and Science foundation than their American counterpart.

"So, before you put your blame on 'us', you should really think of a way to reform the American high school system and the pop culture. Even if you can revise the Immigration Reform Act of 1990 and reduce the number of visas available to foreign engineers and foreign students, you are just simply turning away the best of the best from around the world and shut the door to the American dominance of Engineering, Biotechnical, Environmental and Medical research and development.

"I wish you the best of luck..."

Robert Bruce, AE Editor  
P.O. Box 4493, Great Neck, NY 11023

### Membership Renewal

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# NAFTA Will Not Stop Illegal Aliens

By Sam Francis

Almost all polls show that popular opposition to immigration is prevalent. One is the 1990 Roper poll that found 74 percent of Hispanic-Americans and 78 percent of black Americans don't want more immigration. Ninety-one percent of all Americans wanted illegal immigration halted.

Yet more immigration is exactly what we're going to get if the North American Free Trade Agreement is ratified and if a new study of NAFTA's effects on immigration is right.

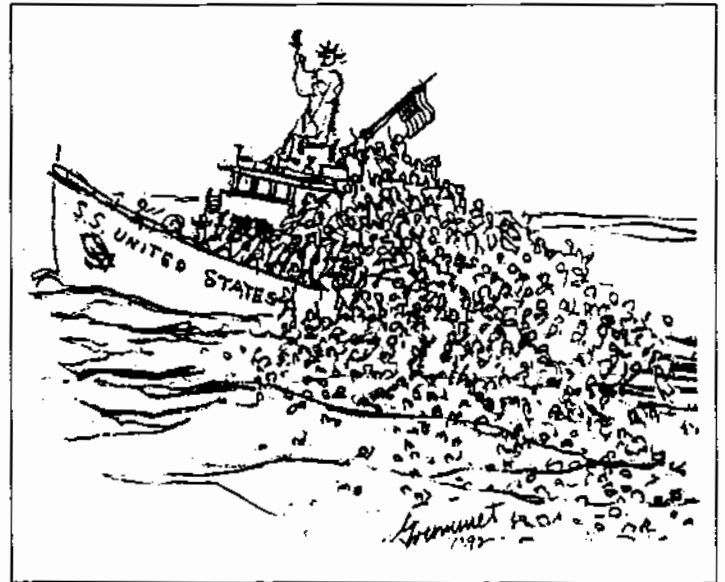
NAFTA, recently signed by Mexican and U.S. officials and now awaiting debate in the Senate next year, is supposed to raise Mexico's living standards by encouraging more American investment there. That, in turn, is supposed to remove an important "push" factor that contributes to the massive immigration, largely illegal, from south of the border. If conditions are better down there, the reasoning goes, fewer Mexicans will want to come here.

But the world, as grown-ups know, ain't always what it's supposed to be. Congress' Office of Technological Assessment has just published "U.S.-Mexico Trade: Pulling Together or Pulling Apart?" which reports, "The Mexican economy would have to have growth rates in the vicinity of 10 percent annually to create enough well-paying jobs to keep people content at home. This is substantially faster than the country was able to achieve in the relatively prosperous 1950s and 1960s. The United States has little choice but to prepare to absorb and put to work continuing inflows of Mexican immigrants."

In other words, whatever long-term benefits Mexico might gain won't be enough or come fast enough to make Mexicans any happier being Mexicans instead of trying to become Americans

through illegal immigration here.

Sam Francis is a syndicated columnist for the "Washington Times."



(Reprinted with permission from the Dec. '92 issue of "Border Watch," a publication of the American Immigration Control Foundation (AICF).)

## Dissident Engineer's Movie Review

### "Falling Down"

Starring Michael Douglas and Robert Duval

It is not often that a movie of special interest to engineers comes along, but this is such a movie. This timely movie is about a laid-off defense-industry engineer, played by Michael Douglas, who cracks up as a result of being used up and thrown away. He becomes increasingly violent as his anger is transferred towards relatively minor frustrations of everyday living. In the movie, his only identity is the name "D-FENS," the characters on his customized license plate. His disappointment in engineering as a career is an important theme of the movie. He complains that he is rejected as "overqualified and underskilled." Marveling at the palatial home of a plastic surgeon, he moans, "I'm in the wrong business."

A review in the *Wall Street Journal* ("Film: Middle-Class Man Driven Berserk," Feb. 25, '93, page A-12) says of D-FENS, "he is...the forgotten citizen, the middle-class white man whose troubles are of no special interest because he belongs to no special-interest group. He wasn't raised to be disenfranchised." Indeed, the establishment tends to be obsessed with the real or imagined special problems that women and minority men have with engineering careers ("under-representation," "the glass ceiling," etc.) while ignoring the very real problems afflicting engineers in general, including the white-male majority. D-FENS' bewildered feeling of persecution is summarized in his statement, "I'm the bad guy? How did that happen?"

Many professional and managerial occupations are hurting now, so it is especially significant that the makers of this movie selected the engineering profession to exemplify the loss of the American dream. Though this movie has been nitpickingly criticized as having a vague plot or message, one thing is quite blatantly not left to the viewer's imagination: D-FENS is an engineer and not some other

kind of white-collar defense-industry worker (the detective—played by Robert Duval—discovers a set of drafting instruments while searching through D-FENS' home).

This movie brings to mind another movie about a laid-off engineer, "Fun With Dick and Jane," which appeared about 1977. Movies about laid-off engineers serve a valuable function in educating the public about the realities of the engineering profession, which the public certainly does not learn from the euphoric hype of the old-line engineering societies' National Engineers Week activities.

OUR RATING (Maximum is four stars): ★ ★ ★ ★

Dissident reviewer

## Reach Out

Reach Out to the active volunteers that are making this publication possible. Tell them what you like or what you dislike. Provide them with questions, answers and information or just a hand written note of appreciation. It is important to let your volunteers know that you care.

Reach Out to the following:

### Legislation, Ethics and Whistle Blowing

Roger Boisjoly PE  
3047, E. Menlo St., Mesa, AZ 85213

### Immigration

Dr. David C. Lewis,  
609 Sideling Court, Vienna, VA 22180

## Sample Copies Available

Members of the American Engineering Association are encouraged to submit names and addresses of friends and associates who they think would be interested in receiving a sample issue of the "American Engineer."

Names should be sent to:

AEA, P.O. Box 820473, Fort Worth, TX 76182-0473.

## Editor's Column

### THE FUTURE OF PRIVATE PENSION BENEFITS

The March 1 issue of the *IEEE Legislative Report* tells how both the Senate and the House of Representatives are concerned about the increasing financial burden on the Pension Benefit Guarantee Corporation (PBGC) and the possible need for a bailout of PBGC similar to the Savings and Loan Bailout. PBGC was created in 1974 to guarantee payment of benefits, in the event that pension sponsors were unable to honor their obligations. However the most recent PBGC financial report disclosed \$2.5B more in liabilities than assets. PBGC predicts a possible increase to as much as \$17.9B by the year 2000.

In January 1993, both Senators and Representatives introduced legislation to bolster PBGC. The Senate bill, S105, requires corporations to pay at least as much into their pension funds as they paid out the year before. It also requires accelerated efforts to eliminate pension fund deficits. This is in contrast to the observed practices of financially-troubled companies that commit to big pensions, while making the legally-minimum contributions to their pension funds. Then the troubled companies terminate their pension plans and pass on the debt to the PBGC. The Government Accounting Office (GAO) has criticized PBGC for not having a reliable method of estimating the burden of future payouts, and a deficient system of reporting and collecting premiums.

### UNIVERSITIES IN U.K. SHUN REMEDIAL COURSES

An article in the Oct. '92 issue of the *Chronicle of Higher Education* tells how British Education Secretary John Paton "...challenged universities to join his campaign against declining levels of academic achievement in the secondary schools by rejecting students with poor verbal and quantitative skills." Mr. Paton expressed this sentiment in a speech to a Committee of Vice-Chancellors and Principals. He stated that when universities provide remedial courses for students with inadequate skills, they only condone the failings of the secondary schools. "If pupils cannot meet your requirements, do not admit them. That will insure that schools adapt and improve." His speech prompted a nationwide debate in education circles about academic standards. Compare and contrast with U.S. education.

### HOT TRACKS IN 20 PROFESSIONS

That's the title of an article in the Oct. 26, 1992 issue of *U.S. News & World Reports*. It lists several professions that allegedly offer a bright future to new entrants; and the source of the data is 'Jeff

Bauder & Associates.' Five such professions are: Civil Engineer, Toxicologist, Investment Professional, and Restaurant Site Selector. Each of the listed professions has an explanation for its inclusion. Under Civil Engineer, we learn that the nation's infrastructure needs a major overhaul. More than 1M miles of highway will need resurfacing by the year 2000, and more than 10K of the nation's waste-water treatment facilities have water-quality or public-health problems. Civil engineers are needed to fix these and other problems. To this I say, sure the nation needs engineers to fix these problems, but it will employ them only to the extent that government funds the activity. The nation desperately needs engineers to return the U.S. to economic primacy that it once enjoyed. HOWEVER these desperately-needed engineers will find employment, when someone pays their salaries. As far as I can see, there's still a surplus of engineering talent of all kinds in the U.S. Reports like this are what a colleague of mine from California refers to as "More shortage B.S."

### METAPHOR CONTEST

"ENGINEERING GRADS PROSPER" is the title of an article in the September 24, 1992 issue of *Machine Design*. It tells how the outlook is still bright for engineering graduates, despite the fact that number of job offers and starting salaries for new engineering grads are down from last year. The article offers starting salaries as proof of the contention: Electrical engineers received offers 2.8% higher than the previous year, for an average of about \$34.1K; mechanical engineers up 2.7% to about \$34.9K; aerospace engineers up 4.3% to \$31.9K, etc. I wonder how those increases compare with the rate of inflation?

The data comes from the College Placement Council, which I say has a vested interest in painting rosy pictures of prospects for whatever new graduates have any prospects at all. These figures do not take into account the new engineering graduates who received offers of ZERO (no job offers at all) and were unable to enter the profession. Averaging these zeroes with the salary figures will deflate enthusiasm as effectively as...

*Editor: Readers provide the metaphor; honorable mention to the best metaphor. Decision of the editor is final. Mail them to P.O. Box 4493, Great Neck, NY 11023.*

*Robert Bruce  
AE Editor*

## EDITORIAL

### A Reader's Rage

Once in a while, one of our editorials really strikes a nerve among readers. However, the editorial in our Jan. 21 issue, "Recognition for Engineers," really hit home with one individual. In that piece, we condemned the practice of blaming engineers for the failures of products in the marketplace, while also pointing out the misdirected efforts of those who organize National Engineers Week. The following comments are excerpted from a letter from a New Jersey engineer, who asked that his name be withheld. This engineer is probably just one of many who, after playing by all the rules—following the advice of counselors on industry's desperate need for engineers and working through one of the most difficult academic programs offered—has lost faith in the system. Here's some of what he had to say:

"As I read your editorial, I again felt the rage I always do when someone writes about the plight of engineers. I wish that once, just once, someone in an influential position such as yourself would stop pussyfooting around and call a spade a spade. Engineers are the most naive, stupid, pathetic group of losers this society has yet produced. If I had a child that expressed an interest in engineering as a "career," I would do everything in my power to stop him or her from throwing away the intellect provided by the Almighty.

"As an example, let's take my favorite group, the dedicated teachers.... In my town, approximately fifty percent of the teachers "earn" \$65,000 per year. What percent of engineers earn \$65,000

per year? But wait, (those teachers) don't really "earn" \$65,000 per year. First grade arithmetic reveals that to equate their pay with the 40-hour-per-week, 50-week-per-year engineer, you must multiply by a factor of at least 1.5!!! How many engineers earn \$97,500 per year, have almost total job security, have benefits that most of us can only dream of, are treated like gods by most of the airheads in my town, and who make everyone.... quake in their boots? It isn't any engineer on this planet.

"Now I would like to dream the impossible dream. For a start, people such as yourself should call for a one-day strike by every engineer in the country. This should be followed by the formation of a national union (get rid of the IEEE and other nonsense organizations), enforcing a national pay scale starting at a minimum of \$50.00 per hour for a kid fresh out of school with a B.S."

Whew! I'm not sure I can endorse this reader's call for an engineers' strike, but he certainly delivers a strong wake-up call for engineers to start asserting themselves. I also should point out, once again, that there is at least one organization, namely the American Engineering Association, striving to improve the lot of working engineers. For information on the AEA, contact Richard Tax, vice president, at (201) 664-0803.

*Steve Scrupski, Editor-in-Chief*

*(Reprinted from "Electronic Design" March 18, 1993 issue. Copyright Penton Publishing Company, 1993.*

**FINALLY!**  
 An Engineering Association  
 that works FOR engineers.

# AMERICAN ENGINEERING ASSOCIATION

## AEA: Engineers Working for Engineers.

**AEA** is dedicated to the enhancement of the engineering profession and U.S. engineering capabilities.

**AEA** is a nonprofit corporation with members in virtually every high-tech center and industry in the United States.

**AEA** members are from all engineering disciplines including electrical and electronics, civil, mechanical, industrial, aerospace, chemical and software to list a few.

**AEA** members are involved from micro circuits to transmission lines, go-carts to moon shots, energy conversion to energy conservation and from the ocean depths to outer space.

**AEA** members are from ALL industries, branches and specialties of the engineering profession.

**AEA** is the only engineering association dedicated exclusively to professional needs and concerns of the U.S. Engineering Community.

## AEA: Engineers Sharing Common Concerns.

Age Discrimination and lifelong career, unfair trade agreements, loss of U.S. manufacturing and engineering capabilities, reduction in U.S. productivity, loss of jobs, layoffs, wage busting, health and life insurance programs, poor pensions, under-utilization of engineers, patent agreements, portable pensions, incentives, skill development, discriminatory legislation, preferential immigration laws, importation of foreign engineers, recruitment of foreign students, tax incentives for U.S. corporations, salary compression & unpaid overtime, Engineer Shortage Propaganda, etc.

## AEA: Engineers Concerned about the Future of your Career.

WE listen to our members, then communicate, promote issues, provoke issues, prod others into action, report news, make news, keep engineers aware, publish engineers' views, improve working conditions, testify before Congress, review legislation, revise legislation, draft legislation, oppose positions, endorse positions, participate with engineering societies and influence them.

## AEA: Engineers Achieving Results.

**AEA** testified against and disproved the engineering shortage propaganda promoted by the National Science Foundation.

**AEA** supported the Portable Pension Legislation.

**AEA** attacked DOD for encouraging foreign procurement and supported legislation to restrict the practice.

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## Shortage Shouters Bankrupt As Bottom Falls Out Of Campus Recruiting

The truly abysmal state of the engineering job market was revealed in a *Los Angeles Times Business Section* article (Feb. 15, 1993, page D-1) titled, "Retooling the Job Market—Cuts in Aerospace and Automotive Industries Have Led to Glut of Engineers." The article concentrated on the job market for new graduates. For example, the article quoted Jacqueline Hynes, assistant to the dean for undergraduate studies at the engineering school at UC-Santa Barbara: "in the mid-1980's, engineering students 'would get five or six good offers a year,' ... 'today, if you get one good offer, you're lucky.'" The article noted that in the heyday of defense spending, Rockwell hired more than 500 new bachelor's level engineering grads a year, peaking at 886 new graduates in the 1984-85 school year; last year, however, Rockwell hired only a token 116, the smallest number in 20 years (i.e., since the engineering holocaust of around 1970, when the annual numbers of engineering grads were much smaller than they are now).

The article noted that more engineers are going to grad school in the hope of riding out the crisis (fat chance), and some are switching to medicine. Of course, there will always be those Pollyannas who will say that the current engineering depression is merely temporary and that there is a critical engineering shortage just around the corner, but Donald L. Ledbetter, regional vice chairman of the industry division of the National Society of Professional Engineers, disagrees; he said, "in the '70's there was the potential that the industries in trouble—airline and space—were going to recover'..... 'Today there is a pessimism about the reappearance of jobs. The technology, the whole way of doing business, is changing.'"

The article told of a 1990 summa-cum-laude Univ. of Michigan B.S. graduate in manufacturing engineering—supposedly a hot field—who has been through two layoffs already and is having no luck in finding another job (welcome to engineering!). The article also told of a recent mechanical engineering graduate of the Univ. of California—Davis who finally settled for a job paying 60% less than what new engineering grads are supposed to be making (he would have been better off if he had majored in underwater basketweaving or some other micky-mouse subject).

The January '93 issue of the *Graduating Engineer* magazine also carried a very bleak picture of the job market for new engineering graduates. Placement professionals who were interviewed for an article in this magazine ("When Your Interviews are Going Nowhere," page 18) estimated that, "nationwide, perhaps only 15% to 20% of engineering seniors have received firm job offers by January." (!) Regardless of what percentage of engineering seniors will have firm job offers by around graduation time, one thing is certain: employers are in no hurry to hire the engineering class of '93. And the article quoted Jack Rayman, Director of Career Development and Placement at Pennsylvania State University in University Park: "In this job market, you cannot depend on finding a job through on-campus interviews. This year especially, engineers must take more responsibility for their own career development." Yet the prospects of landing an entry-level engineering job through an off-campus job search are very bleak indeed, for any employers who are at all interested in hiring entry-level engineers know the most convenient place to locate and interview them: on-campus placement offices. An employer who can get experienced engineers at bargain-basement prices are not likely to be interested in new graduates.

Another article in this issue of *Graduating Engineer* ("Who Predicts the Demand for Engineers and What Do They Say About Your Future?" page 52) says, "When today's graduating class started college, they were hearing that the U.S. would face a shortage of 675,000 engineers by 2010. Now, facing a sluggish job market, it is natural to wonder: Who is behind such predictions? What tools do they use? Are they usually on target? How can these prognostications help an engineer's career?"

The article mentions a 1982-87 National Science Foundation study titled, "Response to the Defense Buildup," but curiously fails to mention the notorious NSF study that produced the 675,000

figure cited above (actually, the figure was for both engineers and scientists, not just engineers). The latter study though it was never officially released, is arguably the most highly publicized NSF report in history. The article also mentioned that the NSF is considering a new study that would be titled, "Response to the Defense Cutbacks."

The article noted that Betty Vetter, executive director of the Commission on Professionals in Science and Technology (formerly Scientific Manpower Commission) is still pushing her spurious theory of a coming "shortage" of white male workers: "...she says that because the U.S. birth rate turned down after the baby boom, there will be fewer candidates to consider engineering until 1995.... If the nation continues to depend on white males to become engineers, the supply of engineers will definitely fall because the supply of white males is falling. Vetter sees the need to encourage under-represented minorities and women to enter the profession." (Actually, following the glut of baby-boomers, there was a modest decline in 22-year-old white males which is now bottoming out). And the article noted that the Bureau of Labor Statistics of the U.S., Dept. of Labor is merrily continuing to throw numbers into a computer to come up with long-term predictions of the engineering job market (Garbage In, Garbage Out).

On the positive side, this article notes, "Richard A. Ellis, Director of Manpower Studies at the American Association of Engineering Societies, explains that the Engineering Manpower Commission (EMC) recently stopped conducting short-term demand studies and had dropped long-term studies years ago. Short term studies did not arouse much interest, since the results were obvious. Long-term studies tended to be inaccurate and so vague that nothing could be done with them. The unexpected emergence of such forces as globalization unravel the assumptions of long-term projects." Unfortunately, the EMC is still making forecasts of engineering enrollments.

The engineering job-market has gotten so bad that for some of us there appears to be only one hope: that this job-market will get bad enough to discourage people from studying engineering, and then maybe after 10 years we may start to see a turnaround (for those of us who have not reached retirement age by then). But unfortunately, no matter how bad the job-market gets, our engineering schools will probably continue to be infested by vultures hoping to get a scrap from the rotting carcass of the engineering profession (as happened after the engineering holocaust of 1970). Unfortunately, the engineering schools will probably no longer attract the best students (certainly the best students feel that they deserve much more than what the engineering profession has to offer), and engineering professors will probably lower standards in order to help keep classrooms filled. I am afraid that we are witnessing the demise of a once-proud profession.

How bad must things get before the old-line engineering societies start acting as if there is an unemployment/under-employment crisis in engineering?

Name withheld by request

## E-Mail Links Science's Young And Frustrated

Only 2 years ago, it was commonly believed that the United States was running out of scientists. Stories about the supposed crisis appeared in newspapers and journals—even as many young scientists, newly minted Ph.D.s in hand, were pounding the pavement in search of work. For some, the news stories were merely depressing, but for Kevin Aylesworth, a 32-year-old postdoctoral physicist at the Naval Research Laboratory in Washington, D.C., they served as a catalyst. Aylesworth founded the Young Scientists' Network, an electronic mail drop for those who, like himself, faced an uncertain future.

"The stories made me angry," he says, "because I had many qualified friends who were sending out hundreds of letters looking for work and there were no jobs. It was a complete myth that there was a shortage of scientists. So I started the network to counter that myth."

Once a week, Aylesworth dispatches an eclectic mix of job tips,  
(Continued)

(continued from page 7)

funding sources, summaries of news stories, and updates on government decisions affecting scientific research. Members are invited to send in their own tips, opinions, and queries. It's an informal support group, and to join one need only add his or her name to Aylesworth's subscriber list; there are no fees. Although the information is heavily skewed to physicists ("I can only do so much," says Aylesworth), there are also chemists, engineers, and computer scientists among the 170 members.

Aylesworth doubts that his network has landed anyone a job. "If it has, I haven't heard from them," he says. But it has provided an apparently much-needed forum for frustrated scientists who see little chance of finding a career in their chosen field. "For me, the main value of the network was in confirming the trouble I was having finding a job," said Alan Wachs, a 32-year-old physicist (with a Ph.D. from the University of Illinois and a postdoc at Lawrence Livermore Labs), who applied to more than 100 institutions in a fruitless search for a position. "I had one interview," he recalls, "and was lucky to have that." Wachs is currently working as a quality assurance specialist at Tennessee's Oakridge National Laboratory and thinks it's unlikely he will ever resume his research in materials science. "I have to look at it realistically: there's too great a supply of scientists and too little demand."

Like Wachs, other members laud the network for the support it provides. "It helps save your sanity," said Carol Marians, 52, who has two Ph.D.s from MIT (one in mathematics, the other in materials science and engineering) and is currently working as a software engineer for Quantitative Technology Corp. in Beaverton, Oregon. "After putting in all that time and training, it helps to know that it's not because of a personal failing that you can't find research work—it's because of the system."

Younger scientists use the network to keep tabs on the current employment situation. "I watch the older students as they look at the job market; they don't have the most upbeat stories to tell," said Bruce M. Szabo, 25, a doctoral candidate in nuclear chemistry at New York's University of Rochester. "You'd like to think it's just poorly qualified scientists who are not making it, but obviously that's not true."

Although the network's academic job tips are often stale reruns from science journals, sometimes the electronic source does point to intriguing alternatives. "It does pass on helpful information about nontraditional jobs, which can provide young physicists with an escape route," said Sanford Sillman, 38, an assistant research scientist in atmospheric chemistry at the University of Michigan in Ann Arbor. Sillman was intrigued by a message that identified Japanese firms eager to hire Western scientists, while Wachs investigated a possible career as a medical physicist—a field he did not know existed until it was mentioned on the network. Even Wall Street has opportunities for the enterprising scientist—one recent

message announced that an employment agency was looking for people with quantitative skills for venture capital firms.

"We're willing to list any employer who is looking to tap into a large resource of highly intelligent, well-trained people," said Aylesworth. "That's one of the biggest problems. Young scientists don't know where the jobs are. We don't need to do what we've been specifically trained for, but we do need to get a foot in the door. We need employers to tell us where the jobs are, what they'll hire us to do."

While universities traditionally provided a career path for many scientists, network members say this is no longer a viable route. "Four hundred and eight people applied for this job last year," said John D. Sahr, 30, an assistant professor of electrical engineering at the University of Washington in Seattle. "The department has another opening now and so far has received more than 700 applications. And the computer science department has received 1000 applications for its one position." Though Sahr won the coveted post, he has no illusions about his longer-term prospects, and so keeps an eye on the network's news. "I haven't escaped the problems of having a scientific career," he said. "I don't have tenure, and while I'd like to go on and do great things with my research and have graduate students of my own, I think it's prudent on my part to keep alert, to pay attention to other possible careers."

Besides providing job listings, Aylesworth and other members hope the network eventually will unite scientists into a political force. Aylesworth has already called on his group to write letters to President Bush about the misconception of the shortage of scientists, and to argue against the preferential hiring of scientists from the former Soviet Union. "We're trying to become a constituency, a group with a political voice," said Daniel Colbert, 29, a postdoctoral physical chemist at the University of California, Berkeley. "When the network first started (about 2 years ago), everyone was screaming about the lack of jobs. More recently, we've realized that we've become a recognizable group and that we can get involved in political and social issues. The network gives us a place to develop and refine our ideas."

Aylesworth believes that it was at least partly because of the network that the American Physical Society recently established a committee to investigate the lack of career opportunities for young physicists. "I think older physicists finally realize there is a problem," he said. "I'm certain that in 5 years time half of my colleagues will not be doing physics; or if they are, they'll still be doing postdocs. But they'll never get a permanent position. There simply isn't a scientist shortage, and I expect there may never be one."

By Virginia Morell

Virginia Morell is a free-lance writer based in Ashland, Oregon. (Reprinted with permission from the 1 May 1992 issue, Vol. 256, page 606 of "Science" magazine, a publication of American Association for the Advancement of Science. Copyright AAAS.)

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