

AMERICAN ENGINEERTM

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AEA Requests New Immigration Reform

AEA has asked the House Subcommittee on International Law, Immigration and Refugees to reconsider immigration changes which tripled the number of visas available for categories under which foreign engineers are admitted to the United States.

AEA requested changes to the 1990 Immigration Reform Act which was largely based on the flawed National Science Foundation study "Future Scarcities of Scientists and Engineers: Problems and Solutions." The text of AEA President Bill Reed's request is as follows:

For nearly four decades we have been hearing of an impending engineering shortage. Not a shortage which is happening now, but a shortage which is five or ten years in the future.

Forbes Magazine of May 11, 1981 quoting from an article that appeared there in 1956; "Since 1947 the number of scientists and engineers employed has gone from 575,000 to 900,000, the Chase Manhattan Bank points out... It is estimated that there is a current need for 45,000 engineers a year. We graduate only 23,000. Four hundred men trained as nuclear scientists graduate each year. Twelve hundred are needed."

Typical of the predictions of engineer shortages was one of the most widely quoted "sources" of recent times, the American Electronics Association survey of a few years ago. This report was quoted by everyone from members of Congress to the National Science Foundation, to virtually every trade journal and newspaper in the country to "prove" there was going to be a "crisis level" engineering shortage.

Only after several years of quoting their survey and three years after the 1983 immigration bill was passed, did AEA admit their survey had only indicated a "shortage of electronic engineers" and should not have implied a "shortage of all engineers." In early 1986 Pat Hill Hubbard of AEA finally admitted "the electrical engineering shortage no longer exists."

Hubbard described an article in the AEA publication "Update" which at that time still maintained there was a shortage of engineers as an "unfortunate editorial misrepresentation" and a problem of "semantics."

Spokesman for the American Electronics Association at the March 1983 immigration hearings, Mr. John Calhoun, Director of Business Development for Intel Corp., stated "The shortage (of engineers) is so severe that Intel has been forced to open design facilities in Israel, France and Japan simply due to the availability of highly skilled technical talent. Shortages of electrical, electronic and computer engineers are caused by high rates of company growth and an inability of universities to increase U.S. graduates due to a lack of faculty."

Despite the "high rates of company growth," in less than two years Intel began to layoff workers. By the first quarter of 1986 Intel had laid off nearly 5,000 workers most of which were in the United States.

In 1987 the National Science Foundation issued its own report (never officially released) which indicated that there would be a "shortfall" of 675,000 engineers and scientists by the year 2010. Again this report was quoted by the press, by Congress, industry, academia and everyone with a vested interest in having a shortage of engineers.

As a result of all of this publicity the Immigration Reform Act of

1990 was passed with the result of roughly tripling the number of visas available for foreign engineers and scientists and effectively eliminating any perceived protection for citizens available in the previous law.

After five years of the NSF report being the "authoritative source" on the subject of engineering shortages, the Subcommittee on Investigations and Oversight of the Committee on Science, Space and Technology held hearings on the report early this year. Witness after witness described the study as "flawed" and should not "be taken as serious scientific work." The author of the report was asked in the hearings if he had done anything to prevent the report from being misused or misquoted. His answer was "no." Representative Howard Wolpe who chaired the hearings indicated "The agency's drive for an increased education budget drove the 'shortfall' study..."

My testimony for the American Engineering Association in the 1990 immigration hearings contained the following statements: "In my thirty plus years in the business, I HAVE NEVER HEARD OF A SURVEY OF EMPLOYERS WHICH INDICATED A POSSIBLE SURPLUS OF ENGINEERS. This includes the debacle of the early 1970's when between 60,000 and 100,000 engineers and scientists were unemployed.

"From my observations, no major projects have had to be cancelled because of the 'shortage,' no major projects have been technical failures because of the 'shortage' as one would have expected. At the next round of immigration hearings, in perhaps 1993 or 1994, we will still be hearing of the 'crisis in engineering' from these same groups seeking still larger increases in visa numbers."

We now have immigration laws based on reports characterized as "flawed" and should not "be taken as serious scientific work"; as "unfortunate editorial misrepresentations" and problems of "semantics." To be blunt they were based on lies and fraud! Since the passage of the 1990 immigration law engineering unemployment has reached record highs.

The February 14, 1992 issue of the *Washington Post* indicates "As many as two million civilian and military jobs will be lost by 1996, even if Congress does not cut further than President Bush's proposed cuts in the defense budget, Senate Armed Services Committee Chairman Sam Nunn (D.-Ga) has concluded. And aside from suggestions by Nunn and a few others, there is no short-term or long-term plan for conversion of these jobs, skills and resources to domestic purposes."

Though the hearings by Rep. Wolpe were both very helpful and necessary, they changed nothing from the engineers' perspective. We now need to revise the current immigration laws to vastly lower the levels of immigration in our technical professions and to offer real protection, with teeth, to those professionals.

For the sake of our nation's technical leadership, I urge you to review and revise our nation's immigration system as it relates to the technical professional. To do less will make the reports of the purveyors of Engineering Shortage Propaganda self-fulfilling prophecies.

We need the help of each member of AEA. This issue of the "American Engineer" contains a petition to be sent to Congress to show support for our request to re-examine our immigration laws. We believe it is in the interest of the nation to have a strong technical base, therefore, we will accept signatures from concerned citizens.

Professional Activities—

Action Item *By Richard F. Tax*

PHONEY NSF PAPER AFFECTS LEGISLATION

On April 8, 1992, the House of Representatives' Subcommittee on Investigations and Oversight of the House Committee on Science, Space and Technology held hearings to investigate the NSF and their shortfall paper. The following are headlines and comments excerpted from just a few publications that reported on the hearings. In depth coverage of the issue is provided by Robert Bellinger's article from the April 13 issue of *Electronic Engineering Times*. This article was printed in our June 1992 issue of AE. You should know that the two prime individuals involved in the NSF incident are part of the government bureaucracy and on the government payroll. Erich Bloch, a Life Fellow of IEEE, is recently retired as NSF's director.

Please keep your Senators and Congressional Representatives apprised of this issue. Ask them to reduce funding for the NSF and review and rescind all legislation influenced by the National Science Foundation's false projection. Use the funds to put unemployed engineers back to work on engineering problems and problems such as this one.

"NSF Falls Short On Shortage" by Jeffrey Mervis, April 16, 1992, *NATURE*, Vol. 356. "Washington—A widely publicized study by the National Science Foundation (NSF) forecasting a shortage of 675,000 scientists in the next two decades is so flawed as to be nearly worthless, a subcommittee of the U.S. Congress has concluded...The number helped NSF to gain a large budget, Wolpe claims, and became part of legislation."

"NSF Gets Raked Over The Coals On Engineer 'Shortfall' Study" by Declan Conroy, Monday, April 13, 1992, *NEW TECHNOLOGY WEEK*. "Unfortunately, NSF's former director Erich Bloch used the figures repeatedly in speeches for leveraging more federal money for education—and for the foundation. The studies themselves were titled 'Future Scarcities of Scientists and Engineers: Problems and Solutions.'"

"Scientist Shortfall A Myth—NSF Study Seriously Flawed, Panels Told" by Boyce Rensberger, April 9, 1992, *WASHINGTON POST*. "The familiar claim that the United States faces a major shortage of scientists and engineers—often cited by National Science Foundation officials when seeking budget increases—is false and was based on a seriously flawed NSF study, seven scientists, engineers and government officials told a congressional subcommittee yesterday."

"Congress: Was the 'Shortfall' Phoney?" by Eliot Marshall, April 10, 1992, *SCIENCE*, Vol. 256. "During the 1980s, Erich Bloch, director of the National Science Foundation (NSF), raised an alarm about an imminent national crisis. Within a decade or two, he said, the country would begin to discover it was not producing enough scientists and engineers to carry on the business of a great economic power. Sometimes Bloch spoke of a 'shortfall,' sometimes of an unsatisfied 'demand' or a 'shortage.' But the message was always the same: that the United States needed more scientists and engineers—immediately."

"Now comes a critical investigation by representative Howard Wolpe (D-MI) suggesting that this alarmist message was one-sided and possibly a deliberate exaggeration."

"Congress Meets The NSF" by Steve Scrupski, May 1, 1992, *ELECTRONIC DESIGN*. "The mid-1980's study conducted by the National Science Foundation—yes, the one that insidiously predicted a looming engineering shortage—has prompted an investigation by Congress of that organization...Here we have a U.S. government agency, the NSF, that is not 'a friend of the engineering community,' but rather has done harm to all engineers doing their part to improve the country's competitive technology stance."

Get this information to your Representatives. We must try to prevent this abuse by government employees and government agencies in the future.

AEA Challenges Trade Pact

The American Engineering Association has joined with the National Council for Industrial Defense (NCID) in a judicial challenge to the Dispute Resolution Procedures of the United States - Canadian Free Trade Agreement.

AEA and NCID are being represented in the court case by Donald Dinan and Jerome Zeifman of the firm of O'Connor & Hannan. O'Connor & Hannan is a prestigious firm with offices in Minneapolis, Washington and Madrid, Spain.

Mr. Dinan is also a Professor of International Law at Georgetown University and Mr. Zeifman is a former General Counsel of the House Judiciary Committee and former Law Professor at the University of Santa Clara. Mr. Zeifman is a Director of NCID and a member of the Board of Advisors of AEA.

The complaint filed by NCID and AEA on August 19, 1992 in the United States District Court in Washington, D.C. on behalf of their members challenges the constitutionality of the Dispute Resolution Procedures in the present free-trade agreement with Canada. Similar language is in the Mexican agreement.

According to Mr. Dinan "The unconstitutional flaw in this treaty—which is also at the core of the pending North American Free Trade Agreement with Mexico—is that it surrenders the sovereignty of the United States by giving panels comprised of U.S. and foreign lawyers engaged in private practice the power to reverse decisions of U.S. Courts."

Mr. Zeifman stated "Under our Constitution neither the President nor the Congress has the power to deprive U.S. citizens who are injured by illegal trade practices of their rights to seek relief in the courts of the United States."

Under the terms of the Treaty with Canada, the Bi-national Panels have authority to interpret the laws of the United States and to review and over-rule or modify the decisions of the U.S. Department of Commerce and the U.S. International Trade Commission, with respect to products originating in Canada and sold in the U.S. Thus the Panels have the authority to over-rule decisions of U.S. Federal Courts that favor American citizens of American companies. However, the Panels are not courts of law as established by the Constitution of the United States.

A recent survey of the list of prospective panel members reveals that a large number of those on file are either not United States citizens, or are citizens who represent foreign corporate and trade interests.

Mr. Zeifman said "Of the panelists who have already been appointed, many have represented special private trade interests, and at least half have been citizens of foreign countries.... They are not full-time judges or impartial jurists. They are only part-time adjudicators, who otherwise are employed in the full-time commercial practice of international trade law on behalf of transnational or multinational companies."

The American Engineering Association is a party to this action because we see three points of contention with the Canadian agreement arising from the existence of the Bilateral Panels. In addition to the question of sovereignty, AEA is concerned for the health, safety and welfare of the public and last but not least we see the panels as a threat to American engineering jobs at a time when there are thousands of unemployed engineers from the defense and electronic industries.

A previous case brought by NCID in 1990 successfully challenged the authority of Secretary of Defense Cheney to waive a large number of By American laws. Though not as a plaintiff, AEA participated in that suit also. The victory in that case has been estimated to have saved some 100,000 U.S. jobs.

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Please let us know if you change your address. Just send the address label or a copy from current issue of the "American Engineer" along with your new address to: AEA, P.O. Box 820473, Ft. Worth, Texas, 76182-0473. You are very important to AEA—WE DON'T WANT TO LOSE YOU!

Editor's Column

FUNDING FOR THE NATIONAL SCIENCE FOUNDATION

The June issue of AE, which elicited much reader comment, was one we could be proud of. Among other things, it contained commentary about the National Science Foundation (NSF), and reprints of articles that described Congressional investigation and hearings about NSF. The investigation and hearings explored the NSF role in propagating stories about an imminent shortage of engineers in the U.S. which shortage never materialized. However NSF contentions were the reason why a law was passed that opened immigration of technical specialists to the U.S. from 40K/year to 140K/year. It's time for AE readers to take advantage of the harsh light thus thrown on NSF. I ask you to write your Congressmen. Request that they obtain copies of the Congressional hearings on NSF and use them to justify cutting the NSF budget. Send them a copy of the AE articles and reprints on this subject. The June issue also contained addresses to write your Congressmen. Write Senators at U.S. Senate, Washington, DC 20510. Write Representatives at U.S. House of Representatives, Washington, DC 20515.

THE IEEE AND IMPROVEMENT OF THE PROFESSION

Many past issues of AE contained sharp criticism of the IEEE (Institute of Electrical and Electronic Engineers), which is the world's largest professional/technical society. If we at AEA find so much fault with IEEE, you may wonder why we mention it so often. The answer is that among all the old-line technical societies, IEEE is the one that appears to offer the greatest possibility of professional improvement for the practicing engineer. Since 1974, IEEE has engaged in professional activities. And because it is so large, its "voice" is the most prominent among engineering societies. I acknowledge that the National Society of Professional Engineers (NSPE) also lobbies for the engineer, but its membership is about five times smaller than IEEE, and its range of interest is much narrower. Because IEEE is so large and represents not only engineers, but also corporate executives and college professors, its public statements often degenerate into mild, compromise positions that afford no one and produce little tangible result. I can tell you from 36 years of engineering experience that this so-called "profession" is in desperate need of a strong "voice" that will be heard and heeded in Congress, as well as in corporate America. A college professor named Marlene Dixon published an article in the 1950's about professional status vis-a-vis the engineer. The gist of analysis was as follows:

"A professional is a person who through years of specialized training has acquired an expertise known only to his/her peers. He/she is able to confront on equal terms the client or clients that pay the fees. The professional's clients acknowledge their ignorance of this expertise and grant him/her the right to solve their technical problems. The salaried engineer is not a professional, because he/she is totally subservient to the one client that pays the salary. True

professionals acquire professional standing through recognition by a government body, which confers upon them the sole right to purvey their specialized skill. This right is called a license or certificate. A college degree is not such a license."

There was much more in the article, but I think you get the idea. Universal licensure in the U.S. would be a step in that direction, but it doesn't seem to be winning many converts, except those engineers who already have a P.E. I don't now know any instant path for the salaried, practicing engineer out of subservience and into professionalism, but I do know that a strong professional association is a step in that direction. AEA is a professional engineering association that is completely dedicated to improving the career climate of practicing U.S. engineers. How can it be made stronger?

1. By more people joining and supporting AEA.
2. By writing state and federal legislatures and the executive branches, whenever the interests of practicing engineers need support. AE contains suggestions about issues that require this tactic (like portable pension legislation or awarding defense contracts to foreign nations or cutting the NSF budget).
3. By being more active in other professional societies, so that these old-line organizations are converted into a force for the practicing engineers. This would benefit AEA, because more "voices" would be singing the same tune. It would also benefit the profession.

All the above items require action of one kind or another. Just sitting on one's duff does not compute.

TECHNOLOGY TRANSFER

I read in the March, 18, 1992 issue of the *Chronicle of Higher Education* that a group of House Republicans wrote the presidents of 60 American universities, to request that academia not transfer "...technology critical to our economic growth to competing nations intent upon capturing American markets." The letters ask these college presidents about their institutions' policies on sharing technology with foreign nations that offer funding. A House Republican aide said the Republican Research Committee was disturbed by reports that universities refused to share with American companies the results of foreign-funded research, after receiving years of federal support to build up these facilities. The General Accounting Office awaits a report on transfer of American technology from American universities to foreign nations. The aide said the replies to the Committee letter could be used in a House hearing on the matter.

Robert Bruce, AE Editor

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PETITION

We the undersigned members of the American engineering community and other concerned citizens, recognize a strong, experienced citizen-based engineering community is necessary to maintain our nations' technological leadership and is vital to our nations' economy and national defense. Recognizing that thousands of American engineers are unemployed; and recognizing every engineering shortage projection has been wrong in both methodology and substance; and recognizing there will be thousands more American engineers displaced by future defense reductions; we petition the United States Senate Subcommittee on Immigration and Refugee Affairs and the United States House of Representatives Subcommittee on International Law, Immigration and Refugees to revise the United States Immigration Law to vastly reduce the numbers of visas available for foreign engineers; to reduce the number of foreign students allowed to remain in the United States after completion of their education; to revise the labor certification process to ensure the protection implied but never delivered to American engineers; and to remove the built-in bias for foreign engineers within that process.

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The Dissident Engineer's Bookshelf

Engineering Enrollment in the United States

Norman N. Barish, Editor. New York University Press.

The editor, Norman Barish, professor and chairman of Industrial and Management Engineering at New York University, wrote some of the chapters of this book himself. His chapters contain interesting observations about professional issues in engineering. Here are some examples:

Supply forecasting: "A conventional method of forecasting the number of entering freshman engineers has been to estimate the expected number of college freshmen; then take a fixed percentage of these as the estimated number who will enter engineering. Based on past experience, this method does not appear to be valid." pg 33. (Of course, that doesn't stop the National Science Foundation or Betty Vetter, et al.)

Salaries in general: "Industry is looking for large numbers of good, competent engineers at very good pedestrian (sic) salaries which, however are not unusually high compared with those in other fields... One must work hard to encourage people to stay in this field, a permanently higher wage scale is called for." pg 41-42.

Salary compression: "Percentage-wise the salaries of experienced engineers have increased much less than the salaries of starting engineers. The spread between experienced engineers' salary rates and those of beginners is too small." Barish also quoted the following from a survey conducted by the American Management Association: "Considering the great demand for professional personnel and the short supply of professional personnel, the range of salaries is surprisingly narrow... The pay level for these 20 administrative and technical positions is just about the same as that of production foremen..." pg 42.

Underutilization: "How far should industry go in restricting engineers to engineering work? This is really a question of economics. If it is cheaper and more efficient to use engineers in capacities

which employ their engineering skills only a portion of the time, then it is logical to do so. If all types of engineering talent remain in severe short supply, the cost of this talent becomes so expensive that it will not be economical to 'misuse' it. Such 'misuse' will then be abandoned." Quotation marks on *misuse* are in the original.

Obsolescence and age discrimination: "Industry wants and needs the superior creative engineers. That is why it places such emphasis on the young graduate. (Some companies appear to be following the theory that to increase the statistical probability of finding the relatively few creative engineers they should hire as many promising young graduates as possible.)" pg 46.

ESP (Engineering Shortage Propaganda): "A self-defeating reaction to over-enthusiastic broadcasting of a general engineering-shortage theme is possible. If at any time, on a short-term basis, the availability of new engineering talent becomes greater than the industry is willing to employ at high salaries, the attractiveness of engineering studies to high-school graduates will be damaged for many years to come." pg 47. (However, despite a dismal engineering job market, employers and academia have been able to maintain sky-high engineering enrollments by (1) exaggerating the extent of the enrollment decline, thus giving the false impression that engineering is becoming uncrowded, and (2) resorting to grotesque levels of age discrimination and salary compression—though the recent job market has been bad enough to hurt even new graduates. Also the ills of the engineering profession are chronic, not 'short-term'.)

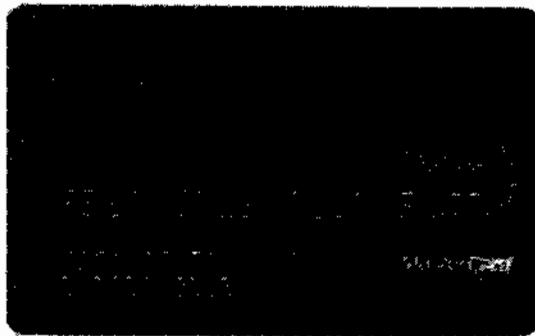
The NSF and ESP: "...a report was released by the National Science Foundation stating that the supply of qualified research scientists and engineers falls far short of industry needs." (The NSF report also noted that)... "of the eight companies interviewed in the motor vehicle equipment industry, only one reported difficulties in recruiting needed engineering personnel..." pg 45, 46.

(Continued)

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(continued from page 5)

Defense industry: "A large proportion of today's great and unfilled demand for scientific and engineering personnel is created, directly or indirectly, by the national defense effort. Herein lies a danger. A politically determined change in the magnitude, or direction, of this defense effort could produce short-term surpluses of certain categories of engineering talent unless proper steps are taken to avoid such dislocations." (There's that term 'short-term' again.) pg 47.

We think this book is interesting and sometimes humorous (for those who appreciate black humor). However we don't recommend that you run out to your favorite book store and try to buy a copy, because it's probably out of print. It was published in 1957. The more things change, the more they stay the same.

Name withheld on request.

AEA Funds And Progress

One of our members chastised us after the last newsletter for asking for funds and not explaining why we needed them. I totally agree with his comments. We have not articulated our needs or our intent well.

First let's look at where the money goes. Last year publication of our newsletter cost about \$17.00 per member which included free mailings to prospective members, the press, U.S. Congress, Senate, and other VIP's. If we mailed only to members our cost would be about \$0.86 per member per newsletter. We can't grow by only mailing to members.

Postage: telephone calls which is our primary method of communication with other groups and between staff members; supplies such as computer paper, disks, printer ribbons; copies of testimony, letters etc. to be sent to the press or members of Congress cost an additional \$4.00 plus per member for the year. Brochures, letterheads and stationary cost another \$0.62 per member. As you can see, we have already spent more than our \$20.00 minimum level membership.

Now for the question at hand. What would we do if we had more money to operate with? First, engineers need a voice in Washington, D.C. We have had more than one offer of free office space in the city. Unfortunately we could not afford to take advantage of these offers.

We should have someone working full time on issues such as immigration, unemployment, trade issues which negatively affect the engineer. We should have someone working full time on benefit issues such as portable pensions, portable insurance programs, as well as issues such as age discrimination, unpaid overtime and a host of other things. Each of these issues needs a full-time person or at least a few volunteers working on them. We cannot financially even support a group of volunteers.

One organization spent more than \$300,000 over a period of about three years on one issue alone. This is a very expensive business we are engaged in. We do not have to outspend those on the other side of these issues, but we do have to be able to make special mailings to our members, Congress, and the media. We need to be able to bring people in to lobby when an issue is "hot." We need to be able to bring our directors and a few active volunteers together at least once a year.

We need to purchase studies, other publications etc. We need envelopes, stationary, business cards, brochures, etc. We should have money to do our own studies and publish the results of those studies. We need the ability to buy mailing lists when necessary. We should have up-to-date equipment to produce our newsletter and brochures, and communicate with others. We should have funds to support volunteer efforts and meetings.

We can't do the above on \$20,000 a year. If we are to be successful, we must increase our membership to at least fifty thousand members. With numbers, we gain the economy of scale. We must have the funds to do the things mentioned above. We can be successful, but we have to have your support, both financial and in recruiting new members.

Our failure will almost certainly be followed by a worsening of all the problems we joined AEA to prevent. Above all we need to be more aggressive and increase our capabilities.

Billy E. Reed

Reach Out

We need the cooperation of our readers to improve our ability to enhance the profession. This improvement will result from our heightened visibility to Congress, the media, and the profession.

Reach Out to your Congress, senate, other representatives and the news media. Your "American Engineer" is our way of reaching you with facts, articles and information concerning engineering issues. You can copy these articles and send them to your representatives and the news media to support your concerns.

Reach Out to an associate and encourage them to join and support the AEA. If you're the bashful type, just place your "American Engineer" or a copy in their mail to be read at their convenience. You can also Reach Out to an associate in another department, company, division or state by mailing them your copy of AE. We encourage you to copy AE for a friend or associate in the hope that they will also support our efforts.

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. Believe me when I tell you that it is important to let your volunteers know that you care.

Reach Out to the following:

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Richard Tax, AEA VP
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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.

From H.L. of VA: - "Sorry about the delay—Was laid off for 4 months—Just found something else—I feel like I work for Cesar Chavez—grapes are all picked boys—see you later."

Editor: Cesar Chavez is a union leader for farm laborers. He doesn't lay off grape pickers; the grape farm owners do.

From L.L. of MD: - "Why wouldn't I advise youth to become engineers? Because engineers can no longer afford to raise children.....Aerospace electronics recession began in 1982. Defense depression was well underway before public perception of an economic slowdown.....Keep up the good work. Irwin would be proud."

From J.F. of NY: - "Please renew my membership."

From V.O. of WA: - "Please don't let me miss an issue of AE."

From R.C. of NJ: - "Are there no qualifications required for one to call oneself an engineer?"

Editor: As far as I know, there are no qualifications required for an employer to call an employee "engineer." Also see the letter below from a CA reader.

From CA: - "In engineering, the question of non-credentialed (or professional registration) is a very touchy subject. Among the professions, it is also a question that is almost unique to engineering; in medicine, law, nursing and public school teaching, for example, some degree or government certification is a requirement for practicing as a true professional or for the use of a professional title.

"Page 75 of the 6-8-92 *Design News* contained a 4-page article, 'Engineers Without Portfolio.' It contained an interesting statistic: according to a study of 2,000 engineers conducted by Simmons Market Research, 32% of design engineers working for American manufacturing companies do not hold at least a bachelor's degree. Unfortunately, the use of the title 'engineer' by non-credentialed people makes it much more difficult to track and evaluate such engineering job-market statistics as the total number of engineers, unemployment, compensation and utilization.

"The article notes that non-degreed engineers are able to function by one or more of the following means: (1) experience, self-study, a 2-year program, or partial completion of a 4-year program; (2) the use of computer-aided engineering software; (3) consultation with engineers who have more technical training; (4) restriction to a narrow field of expertise. Certainly computer-aided engineering in particular has helped many non-degreed people function as engineers; however a degreed engineer is much more likely to have intuitive insights into engineering problems, be able to perform quick back-of-the-envelope calculations, and have a broad engineering perspective.

"In contrast to engineering, other professions have often bent over backwards to restrict competition by supporting laws barring non-credentialed people from offering professional services. Many states, for example, have laws prohibiting non-attorneys from getting paid for filling in the blanks on routine questions on legal documents, even though attorneys themselves often delegate this task to their own secretaries. And many teachers, while often

opposing the most basic competency testing for themselves, have opposed the granting of teaching credentials to college graduates who did not major in education."

Editor: In my opinion it's time that engineers "wised up" about the use of non-credentialed engineers by corporate employers. I admit that the rare genius like Jim Williams (a non-degreed expert in analog circuits) deserves to have employment as an engineer. But engineering societies should strive to have some control over entry into the profession, if for no other reason than to prevent the vast glut of engineers that afflicts the profession today. Such control would, of course, be violently opposed by corporate America. But we engineers need it to improve the terrible supply/demand ratio of today that has existed for most of my 36-year career. The public would also be served by such restriction, because total incompetents could not be rewarded with the title of engineers and allowed to bungle their way into designs. More about this in future issues.

From T.D. of CO: - "I was pleased to read about the American Engineering Association in the *C.E. Weekly* magazine for contract engineering. I'm concerned about engineering unemployment, and I would like to learn more about this association. I am unemployed for over 2 years and am losing my home, after 36 continuous years of engineering."

From J.G. of PA: - "Bill, find renewal of membership. Keep up the good work."

From R.B. of FL: - "Suggest you shake the job shopper image."
Editor: AEA supports and represents the interests of all engineers. We do not seek a job shopper image just as we don't seek a direct image. Professional problems affect all of us.

From N.T. of WA: - "The date on my address label suggests that I am delinquent. Here's a check to bring me up to date....Keep up the good work."

From W.Z. of TX: - "Check enclosed—Keep up your good work."

From J.B. of OH: - "I enjoy your newsletter. Since I survived two force reductions in the past year I am able to send you a check for another year. We sure need to do something to make this a more stable profession. My Grand Dad and Dad were both engineers and my boys show a real aptitude for the profession too. I sure hate to have to tell them what a rotten profession employers have made it."

From R.J. of PA: - "Bill, would like to contribute more but thanks to the Bush depression I haven't worked for over one year."

From B.P.: - "Continue your good work. The profession of engineering is rapidly deteriorating."

From FL: - "Do not use my name. Rockwell Collins of Cedar Rapids, Iowa has announced a 'reduction in force' of 70 engineers. Voluntary severance has been offered." (4/10/92)

From R.B. of CA: - "As I wrote last year when joining AEA, I'm retired and no longer subjected to the hassles of short sighted engineering management. However, I'll try to support as long as I can."

From F.F. of GA: - "I'm sorry, but I can't afford to remain a member. I was fired on my 60th birthday in 1987. This action assured that I will have to work the rest of my life."

From S.K. of NJ: - "I am unemployed for nearly 2 years now and thus can't afford to pay. Can it be deferred?"

From F.B. of FL: - "\$20.00 enclosed for dues. \$10.00 for Legal Defense Fund."

(Continued)

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From N.A. of CA: - "Enclosed check for \$20.00 for 1992 dues. I still say it is better to speak with one voice."

From W.G. of OH: - "Although retired, I am supportive of your objectives."

From W.A. of CA: - "Enclosed is \$20.00 for renewal. Keep up the good work."

From D.A. of MD: - "Keep up the good work."

From D.T. of MI: - "Enclosed is a check for another year's membership plus a couple of dollars. I hope our staff and advisors can find those few individuals (Congress) who can and are willing to change directions."

Editor: Here's a letter from a reader, commenting on my article "Separation Agreement," in the June 1992 issue of AE. This article contained the complete text of an agreement that employees of an engineering firm were forced to sign, if they wanted to collect separation benefits. The agreement was obviously inequitable. This reader, who is not a lawyer, suspects it is also illegal. I'd like to hear from any reader who is a lawyer, as to the legality of this agreement. If enough readers are interested, I'll rerun the article.

From L.F. of CA: - "The separation agreement is B___S___ And being written by a lawyer does not mean that a document is legal. Indeed, lawyer-written documents are often full of illegal terms inserted solely for the purpose of mystifying and intimidating people. I'm not a lawyer, but here are a few of my comments.

"(1) This agreement contains a non-compete clause ('I also agree not to disclose to anyone any information obtained in the course of my employment and related to the functions of any position formerly held with the company'), but does not specify a time limit, geographical area, or the types of work prohibited—which are required according to the AE article on non-compete agreements. (*Editor: See page 4 of our Jan. '92 issue.*) Also the situation here is like that alleged by Mr. Schuler in the AE article: a threat of denial of severance benefits.

"(2) Under this agreement, only the company has the right to sue: The company may sue for violation of the non-compete agreement. Since countersuits are an important defense and deterrent against lawsuits, I question the legality of what I call 'sitting duck' provisions that leave the employee at the mercy of the employer by allowing only one party the right to sue. For example, what if a former employee wants to countersue on a claim that the company's lawsuit under the non-compete agreement really involves infringement on the employee's patent?"

"(3) The 'gag rule'—this is very questionable. If the employee cannot disclose the terms of the agreement, then how can he get legal advice about those terms? Note the statement: 'I have been encouraged, and have had ample opportunity to discuss and obtain legal counsel concerning this action with individuals of my choice not associated with this Company.' This is self-contradictory. And how can the employee later obtain legal advice concerning his liability under the non-compete terms of the agreement? Furthermore, to sue under the agreement, the Company would of course have to disclose the existence and terms of the agreement. Thus under the 'gag rule,' only the Company would have the right to disclose the agreement. Also the Company's request for non-disclosure implies that they are trying to hide something. If there are no laws about secret agreements, there certainly should be.

"(4) I think a very important question is whether this separation agreement adds any new conditions for giving previously promised separation benefits." (and thus violates a prior hiring contract.)

From K.E. of PA: - "I am a 75 year old retired EE. However I think your work is important. Enclosed my check in amount of \$25.00 for another year. Keep up the good work."

From S.C. of FL: - "Thanks for a very informative publication. Although I've been unemployed for almost one year, I must do my part to support a voice that speaks for all engineers."

Editor: In the July issue of AE, the Editor's Column contained information about a program to retrain displaced engineers that Mr. Robroy R. Fawcett is trying to start. To finance this enterprise, Mr. Fawcett wishes to tap into federal funding for the "Defense Conversion Adjustment Program." I recently received another letter from him with further information. Readers who have more familiarity with funding under this legislation can contact me at my P.O. Box or Mr. Fawcett, whose present address is 341 W. 2nd St., San Bernardino, CA 92401. In answer to his final question, I'm referring the matter to AEA President, Billy Reed.

From Robroy Fawcett: - "I've finally found out how to apply for funds from the 'DEFENSE CONVERSION ADJUSTMENT PROGRAM.' Please find enclosed the Department of Labor Notice of Availability of Funds and Application Procedures dated Oct. 9, 1991. (A 9-page document with tiny type, plus a title page.) Unfortunately, it seems the good intentions of the Program have been converted by bureaucrats into another 'Attorney's Full Employment Program!' Since I am currently studying for the California Bar Exam, I will not have a chance to untangle the regulations until August. Please let me know if AEA is interested in applying for these funds."

Robert Bruce, AE Editor
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