

AMERICAN ENGINEERTM

A PUBLICATION OF THE AMERICAN ENGINEERING ASSOCIATION

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MARCH, 1993 Volume 3, Number 2

Happy Anniversary!

This is the 2nd anniversary of our publication the "American Engineer" and in March of 1991 AE reached the engineering community for the first time. The response to AE has been more than favorable indicating that its mission is significant, of value and should be continued. We have a reason to celebrate because AE and thus AEA have been accepted and are being cited by members of the trade press as depicting the true state of engineering in the United States. So, Happy Anniversary!

Congratulations are also in order for those that make AE possible. First, Robert (Bob) Bruce, AE's editor with a 30 year engineering career ending in a premature early retirement, has also managed to contribute 20 years of involvement to professional concerns. Robert (another Bob) Rivers, a microwave engineer has also spent more than 20 years fighting engineering shortage propaganda (ESP). Rivers' covers our Manpower News. Both Bobs gained much of their experience trying to convince IEEE that there are problems facing our engineers. Bill Reed, AEA's president and sustaining force, has a lifetime of engineering experience and 15 years of professional activities which include testifying before Congress on behalf of the engineering community. Bill kept AEA alive through the lean years with little help or encouragement. Audrey and Mike Perugini deserve the credit for publishing AE and putting up with our corrections, last minute changes and even some issue cancellations. R.T. Pinkerton, AE's artist, gets the credit for enhancing our profession with his cartoons reflecting life's realities.

We have other contributors, some who wish to remain nameless, that write and keep us on our toes, contribute an editorial or just send a letter to our Reader's Voice column. They have all helped nourish our publication. Happy Anniversary!

Of course, AE's primary function is to keep you informed about the activities of the American Engineering Association and what our members are doing to enhance the engineering profession and U.S. engineering capabilities. You should also know that there are times when it is easy to get out an issue of AE and there are difficult times. It is much easier to produce a publication about things that are happening than to write about nothing. This is our present dilemma. So, don't just think about writing or doing something. Just do it!

This copy is our 18th issue of "American Engineer." We should have, would have, could have had more if we had the membership, funding, and the material necessary to fill 24 monthly issues. Still, considering this, "American Engineer" has found a place in the engineering community and we continue to grow and gain visibility.

In our second issue of AE, and referring to our goal to improve the economic and technical health of the engineering profession we said, "each and everything we do will bring us closer to its realization. Every contribution, no matter how small, will benefit you and the engineering community." Remember this and do something for your engineering community. Engineers can make things happen.

This year we had to retain Metro Office Management to handle our administrative office chores. Someone blew our cover, gave us more visibility and we had to get a dedicated business telephone line to answer requests for information from non-members about AEA. Our new telephone number is (817) 431-1319. Advertisements for AEA are appearing in the trade publications. New AEA membership brochures have been printed for 1993. If you're concerned about image, our AEA MASTERCARD has some nice benefits with the

AEA Logo across it to identify you as a member of the American engineering community. We are looking into insurance packages for our members and will keep you informed as we progress.

And finally, we celebrate because, through the "American Engineer", we have the ability to reach members of the entire engineering community, in all industries, disciplines and locations within the U.S. in a timely manner to act on issues of our concern. We just have to add these people to our membership. We have members of Congress on our mailing list and we can reach them just as quickly. And, we don't have to raise our hand and say, "May I." Have a very Happy Anniversary!

Richard F. Tax, AEA Vice-President

Meeting Notice

On April 8th AEA vice president, Richard F. Tax, will be the guest speaker at the North Jersey Section, IEEE, meeting for Professional Activities. The subject will be "Professional Activities—The Second Chapter."

Richard will provide a brief review of the history of professional activities. He will discuss the AEA's current activities to enhance engineering opportunities and the areas where improvements are needed and members can help. This meeting is important for engineers who are concerned about their engineering career and provides them with the opportunity to combine their efforts. We have a large concentration of AEA members in New Jersey and we encourage them to attend and meet their associates.

Time: 7:30 PM, Thursday, April 8, 1993.

Place: JCP&L Co., 300 Madison Ave., Morristown, N.J.

Further Information: Robert Sinusas (201) 228-3941.

Editor's Column

SUPPORT FROM CONSULTANTS

I'm on the mailing list of an Illinois consulting engineer named T. Edward Black. Mr. Black handles both electrical and mechanical problems in technologies like magnetic recording systems, fiber-optic cutting tools, high-speed precision paper handling systems, etc. Recently I received his latest mailing and noted "member AMERICAN ENGINEERING ASSOCIATION" printed on the address page. I've decided that any consultant who lists membership in AEA prominently in his/her literature deserves a brief mention in this newsletter. Mr. Black can be reached at 1127 Miller Lane, Buffalo Grove, IL 60089; 708/259-5747. Mention in these pages does not constitute an AEA endorsement of skills, since I have never engaged the services of engineers whose names I mention. However potential customers can find out for themselves about consultants' talents.

BILL REED'S LETTER TO PAST IEEE PRESIDENT

On October 5, 1992, AEA President Bill E. Reed wrote to the then IEEE President Merrill W. Buckley, Jr. about the petition AEA circulated, to persuade certain Congressional Committees to modify immigration law. This petition appeared in the Sept. '92 issue of "American Engineer." Here's the text of Mr. Reed's letter:

(Continued on page 2)

(Editor's Column continued)

"Dear Mr. Buckley: I am aware of your concern for the health of the engineering profession in the United States. I am also aware of your concern about the engineering unemployment crisis facing our engineering community. The members of the American Engineering Association also share your concern.

"AEA has asked the House Subcommittee on International Law, Immigration and Refugees to reconsider past immigration changes which potentially tripled the number of engineers admitted to the U.S. Providing preferential treatment for immigrants with engineering skills only discriminates against American engineers and places them at a professional and financial disadvantage. Your IEEE USAB Entity Position Statement 'Enhancing U.S. Productivity Through Improved Utilization of Engineers' depicts the advantages of keeping our engineering community properly employed.

"We have recently released a petition and published it in our September issue of the 'American Engineer.' AEA would like your support and the support of IEEE-USA members in assisting us to add signatures to these petitions. AEA will assume the responsibility of collecting and collating the petitions received. We appreciate any assistance that you and your members may provide."

Mr. Reed never received a response to his letter. I think, no response is newsworthy. Perhaps IEEE President Buckley actually forwarded the AEA petition to other IEEE members to circulate; if he did, we're not aware of this. I note that IEEE has recently emphasized its transnational nature—since the late Erik Sumner was IEEE President in 1991. It has been quietly transnational for many years. Although the U.S. has over 250K of the 300K worldwide IEEE members, non-U.S. members obtain positions on the IEEE Board of Directors. Case in point: Louis Gandia, a candidate for 1993 President elect is from Puerto Rico, which is in IEEE Region 9, where Regions 1 through 6 comprise the U.S. I can see how it might be embarrassing for the IEEE to back a change in immigration law that could offend non-U.S. IEEE members, especially those on the IEEE Board of Directors. At the same time, I have the greatest respect for Merrill Buckley, since he has elsewhere demonstrated by public statements that he is concerned about U.S. engineering unemployment. Of course most of his statements reach only IEEE publications or the trade press. I would like to see IEEE statements that support the working engineer to appear in the *Los Angeles Times*, the *New York Times* or the *Wall Street Journal*. That's where IEEE statements appeared that applauded the talents of U.S. engineers who designed the products that helped win Operation Desert Storm. These published statements cost the IEEE about \$100K, and did very little to improve the unfavorable supply/demand ratio for working engineers. Because IEEE is such a large and influential organization, AEA continues to inform our readers about its activities, whether beneficial to the working engineer or not.

GLOOM AND DOOM

Some of our readers point out that this newsletter has a tone of pessimism: it seems to emphasize what's bad about engineering careers in the U.S. It's time I responded to such statements. They're right. I'm not familiar with jobs of salaried, practicing engineers that have ample paraprofessional support, excellent working conditions, a supportive management staff, job security, generous salaries and lots of room for advancement as an engineer. I'm not familiar with such jobs, because I'm not aware they exist. If the engineering profession were as described above, then AEA would be as useful as a haberdasher in a nudist colony. The reason AEA exists is to enhance careers of U.S. engineers which, by the way, are badly in need of enhancement. This judgment is based on what our readers write and my experience of 36 years as a salaried, practicing engineer.

To a certain extent, the information in this newsletter amounts to "preaching to the choir." That is, AEA members may already be aware of the adversity facing U.S. engineers. They may not need the incentive to take action that "American Engineer" provides, although some probably do. What I'd like is for AEA members to get the message to non-members. The message is simple.

Technical professionals in the U.S. face adversities that they need not face. JFK once said that "poverty is intolerable, because it is unnecessary." I say that our professional impoverishment is intolerable, because it is also unnecessary. AEA works to reduce professional impoverishment by legislation, litigation and this newsletter. Support AEA, and get the word out.

ILLUSORY JOB ADS

Here's a job ad from a reputable trade paper that's not really a job ad. You'll see what I mean.

Design Engineer to design, code, test and debug application software in C, V+ and AIM DMB for electronic Robotic Assembly System Functions, specifically Surface Mount, Solder Post, Adhesive Dispense (sic), Test Systems, Load and Package, Pick and Place, 10 Display, Error Handling, Conveyor Control and Teach Pendant Control of Serial Devices. Salary for a 40 hr wk. 9 AM- 5 PM is \$29,120 yrly. Applicants with Master's degree in Engineering or Computer Science with 6 mos. exp. in the job or as Software Engineer send resumes to: Job Service of Fla. 2660 W. Oakland Park Blvd., Ft. Lauderdale, FL 33111-1347. Attn: Job Order #FL 076 3213.

I have no grievance with the newspaper, but several aspects of the ad bother me. First of all, it's not a job ad, it's a biography of someone who I'll bet is already in the company, and his/her visa is about to expire. I'd also guess that there are fewer than five people in the U.S. who conform to that job description, and the other four probably won't apply, because the salary is so low. If one of the other four is out of work and applies for the job, he/she will be rejected in favor of the alien. I'm not qualified to apply for that job. If I were, I'd send my resume and let the company behind the ad fly me to Florida for an interview, if in fact they would. I'd love to see some of our readers send in a resume.

There's another aspect to this ad. I understand there's a category of lawyers who earn their living by processing aliens, and they know exactly what kind of ad to write to hire an alien and keep within the law. However there's an ethical question here. A lawyer takes an ethical oath, and this ad exhibits questionable ethics, since it circumvents the law. I don't know if a lawyer wrote it, but if one did, and I could identify him/her, I'd contact the Florida Bar Association. The IEEE Manpower Committee is looking into a mechanism for dealing with such ads. Readers please mail me a photocopy of engineering job ads that conceal the employer, have lengthy requirements and a low salary. Tell me the name of the periodical and the date of publication. Maybe I can do something about them.

ANOTHER IEEE PETITION

In the November '91 issue of "American Engineer," we published an IEEE petition to have all the IEEE Vice Presidents voting-member elected. We helped to get it on the IEEE ballot, but the Board of Directors opposed it, and it went down to defeat. At the present time, several IEEE Vice Presidents, including the important position of VP of Professional Activities, are appointed by the Assembly, which is a subset of the Board of Directors. I view this as undemocratic, since it keeps power in the hands of the Board of Directors instead of in the hands of the IEEE voting members. It sometimes happens that the person filling the VP of Professional Activities position has an agenda that doesn't help practicing engineers.

Mr. George Abbott, a former member of the IEEE Board of Directors is circulating a similar petition that is reproduced on page five of this newsletter. I urge readers to tear out that page, circulate it for signatures of IEEE voting members and then mail it back to Mr. Abbott. This time it might win. Every time any such petition appears that will give more control to IEEE voting members, I try to help it along. The IEEE is a society that has the potential to help practicing engineers, if we shape it to do so.

Robert Bruce, AE Editor

American Engineering Association Seeks CAD-Training For Ex-Defense Workers

AEA is seeking Labor Department funds to provide CAD-related training to engineering workers who have lost their jobs because of Defense Department cutbacks. These jobs could have been either direct or contract jobs with defense contractors.

Getting a grant from the government is a long process (as it probably should be); one of the things the government wants to know is: are the eligibles interested in the proposed training?

Readers of this article, and others, can help themselves—and AEA—by providing the information needed. First, we cover who is eligible; second, what AEA plans to offer; and third, the information that is needed.

Eligibility. The Defense Conversion Act enables the Department of Labor (DoL) to provide services to people who have lost Defense-related jobs. The eligibles include those now unemployed because of a defense cutback, or who have received a written notice that they are about to be laid-off. NASA cutbacks do not count.

Proposed Program. AEA is seeking funds to offer services to engineering workers who (1) are eligible under the rules noted above, and (2) who think that they could improve their work prospects by undergoing CAD-related training. Within this framework trainees need not be: members of AEA or degreed engineers; we are primarily interested in engineering workers whose background is such that CAD-related training is a logical next step in their training.

AEA is currently talking with CATIA and Pro-ENGINEER and probably will talk with other CAD software firms as well. Training probably will be located only in those areas where the software firms have training facilities; at the moment that looks like California, Texas, Illinois, Michigan, New Jersey and Massachusetts. It is not clear at this writing, but the grant might not cover travel expenses to and from these locations.

Working with AEA on this project is TransCentury Development Associates in Arlington, VA; TransCentury, a 25-year-old non-profit organization, has managed millions of dollars worth of DoL and other government contracts over the years.

Needed Information. If you think you are eligible and are interested in this idea, please tell us the following, preferably on one sheet of paper:

Name _____

Address _____

Phone number (also fax, if you have access to one) _____

Age _____

Name of last employer (the one who suffered the DoD cutback) _____

Date of layoff _____

As exact a description as you can give of the DoD cutback; was your employer the prime or a subcontractor?; what was the contract that was cut back, (get the DoD contract number if you can)?; what weapon system or component did you work on?

A paragraph about the kind of work that you do

CAD-related programs with which you have substantial experience

CAD-related programs with which you have some experience

CAD-related programs that you would like to learn:

First choice

Second choice

Third choice

Everyone providing this information should realize that they may be wasting a 29-cent stamp, or a fax charge. AEA and its subcontractor, TDA, do not have the grant yet, and may not get it. We do know, however, that no other employees' organization has bid for DCA funds set aside for such organizations, so we think our chances are good.

Send your replies to the address below. Feel free to xerox this article and ask other potential trainees to respond as well. No phone calls, please, but if you have questions we will write, or fax back, right away.

American Engineering Association/
TransCentury Development Associates
Suite 1017
1901 N. Fort Myer Drive
Arlington, VA 22209
Fax (703) 351-5510

Change Of Address

Please let us know if you change your address. We have no way of keeping up with you unless you let us know. The Post Office will not let us know. Just send the address label from the most recent 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!

I am concerned about my career and U.S. Engineering capabilities.

Please enroll me as a member of AEA at the following grade.

SPONSORING MEMBER \$100___ SUPPORTING MEMBER \$50___ MEMBER \$30___

Name: _____ (Please Print) U.S. Citizen: _____

Address: _____ Apt: _____

City: _____ State: _____ Zip Code: _____

Home Phone: _____ Work Phone: _____

Engineering Discipline: _____ Industry: _____

Please enclose check or money order and send to: AEA, Box 820473, Fort Worth, Texas 76182-0473

Signature: _____ Date: _____

All members receive a subscription to the AEA publication "American Engineer."

Annual membership begins on receipt of Application.

Dues in the AEA are tax deductible.

Page 3 - March, 1993 - "American Engineer"

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 March '92 issue of "American Engineer," I published an article "Why End the Industrial Exemption," something that I favor. It is the same as universal licensure. In the June issue, I added information about grandfathering. In December, I gave a talk on licensure at the North Jersey Section IEEE. I told how I thought industry would fight universal licensure. An audience member wrote about my talk (letter below) and thought it was pessimistic. While his ideas are well composed, I think some of them are visionary. What do you think?

From Ron Graziano of Saddle Brook, NJ: - "It was a pleasure to hear your talk on Universal Engineering Licensing at the North Jersey IEEE meeting on Dec. 9. I share many of your concerns about Engineering (as a profession). Licensing would help us upgrade and gain control of the Profession. It is disturbing however, that you are so negative about the prospect for licensing. After giving this matter some thought, I would like to share some ideas with you.

"For the concept of Universal Engineering Licensing to gain popularity, we must demonstrate how it would benefit industry, academia, and the public. We must show how this will help America compete in the world markets and regain economic prominence. Finally, we must convince working engineers and engineering students that it will help them. The transition period must be well planned to prevent denying current practitioners their livelihood.

"America doesn't need engineering quantity; America needs engineering quality. (Amen.) Universal Engineering Licensing should be linked to raising the entry standard to Engineering College significantly, and limiting enrollment to half of present. Loss of tuition would be offset by expanding the program to five years, additional license preparation courses, and expanding two year technician programs.

"The fifth year engineering students would perform a semester of internship. Industry would get the benefit of this free labor, while the student gained valuable, real-world engineering skills. Business would be able to evaluate a prospective employee thoroughly, while colleges would get immediate feedback on the effectiveness of their program.

"The transition could cover a five year period. The license exam requirements could be waived for all engineers with a degree and over 10 years of professional experience. For all remaining engineers, including non-degreed, passing an approved course of instruction, say equivalent to one semester, would be required during the transition. After the five year period, all new graduates would be required to pass the license exam. Non-degreed could no longer qualify for the exam and be titled a Registered Engineer.

"This would be a giant step in elevating our profession into a satisfying lifetime career for the benefit of students and engineers alike. The public would be better served, and our country would be more competitive, because engineers could focus their work on engineering rather than technician and secretarial skills. Engineers could stay in engineering, because the salary would eventually be competitive with management's.

"The tasks to set this plan in motion are great. I believe the key is to harness the energy of retired engineers, like yourself, to direct this effort. I would like to hear your thoughts and comments."

From L.F. of L.A. : - "Here's another abuse of the title, 'engineer.' It's in a *Business Week* article (Oct. 5, 1992 page 66) entitled 'Up

from the Factory Floor - An Ambitious Detroit Effort Aims to Turn the Jobless into Engineers.' This article describes a training program at a place called 'The Center for Advanced Technologies,' that allegedly turns high-school dropouts with 10th grade math skills into B.S.-level 'engineers' in a work-study program that includes only 4-1/2 years of 12 hours/week study. Six years of the program is allegedly the equivalent of a masters degree. It is very doubtful that this program includes calculus, college physics, or any of the other advanced courses that regular engineering students are required to take. A certificate from this program is supposed to be the academic equivalent of an engineering degree from a school such as the U. of Michigan, which is helping to develop the center's curriculum. There are no similar programs that turn people into physicians or attorneys after so little study. I wonder what ABET would have to say about this."

From Keith Kendall of Pocatello, ID: - "Well I suppose it's time to renew. I have put it off, because another nine days will mark the one-year anniversary of being laid off. Not that the anniversary has any special significance; it's that being unemployed limits funds. Still, AEA is an important organization, and therefore a check for \$20 is enclosed.

"Perhaps I mentioned it when I first joined. The reason I joined AEA in the first place was the character of Roger Boisjoly. I've heard him speak on a couple of occasions, and also read about the events that he was involved in. It takes a lot of character to maintain your values under such pressure.

"These are difficult times, when all employment has become inherently unstable. Even in Japan, its much-vaunted lifetime employment is largely a fiction. (See *Wall Street Journal*, 10/5/92). Having lived over there, I can say with all our problems I'd rather be an engineer in America.

"Keep working, and don't get discouraged, for all the problems we're addressing are societal and (as near as I can tell) not unique to engineering."

From J. Mendel of Plainfield, NJ: - "I'm renewing and also taking the opportunity to comment on page 7 (9/92 edition of AE), where the issue of non-degreed engineers came up. The company I retired from did a lot of electronic packaging. I had several friends who were non-degreed and classified as engineers. They started in drafting and worked their way up. They were quite capable of doing the nuts and bolts work of packaging and the unending drawing changes. They realized when mathematics was needed, they were beyond their depth. I don't think you'll find non-degreed engineers in the more complex fields of engineering such as electrical/electronics, chemical or nuclear. I know that I've never met one. At any rate, I think this is pretty much a non-problem, when you consider the serious problems we face, such as foreign engineers (with degrees), age discrimination and sending engineering and R&D work overseas."

Editor: Early last September, I wrote my Senators, asking for their support of the Private Pension Reform Act. At the end of October, I received a letter from Senator Alfonse D'Amato, which follows. This is not intended to be a criticism of Senator D'Amato; at least he responded. It is a criticism of the Senate schedule, which apparently grants them a shorter work-year than grade-school teachers. I judge this as contributing to the Washington gridlock.

"I am grateful to you for making me aware of your views regarding S.3184, the Private Pension Reform Act - Retirement 2000. However, no action was taken on this issue before the 102nd congress adjourned on October 9, 1992. Should a similar legislation be introduced in the 103rd Congress, please be assured that I will keep your views in mind. Sincerely..."

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

THE ATTACHED PETITION IS FOR CONSTITUTIONAL AMENDMENTS TO REQUIRE THAT ALL VICE PRESIDENTS BE ELECTED BY THE VOTING MEMBERS, WITH THE TERM OF OFFICE TO BE TWO YEARS.

The purpose of this amendment is to replace the appointment of the Vice Presidents by the Assembly with popular election by the voting members of the IEEE. The term of office would be two years.

This change will encourage greater member interest and involvement in the governance of the Institute, and may possibly even increase voter participation. It will compel the leadership to more actively communicate with the members, and to be more responsive to their needs and desires. By eliminating a potentially highly politicized process it should enhance the credibility and respect of the leadership in the eyes of the members.

It will be argued that the present arrangement is convenient, inexpensive, and permits the assembly to select individuals who are experienced in operating within the IEEE hierarchy. While this may be true, it also encourages cloak room politics of the worst sort. Individuals experienced in IEEE leadership should not object to having their qualifications reviewed by the membership. Presumably, if they are so admirably qualified the membership will be smart enough to perceive that and will make the proper informed selection.

Many of us complain about the IEEE leadership. Here is an opportunity to provide us with a more effective voice in the selection of that leadership.

Proposed Constitutional Amendments

Material to be added is underlined and material removed is ~~struck out~~.

ARTICLE X - CORPORATE OFFICERS

Sec. 1 The Corporate Officers of the IEEE shall be the President, the President-Elect, the Vice Presidents as specified in the Bylaws, the Secretary, and the Treasurer. At the discretion of the Assembly, the offices of Treasurer and Secretary may be held concurrently by one person.

Sec. 2 The Bylaws shall specify those Corporate Officers, other than the President, the President-Elect and the ~~President-Elect Vice-Presidents~~, to be elected by the Assembly. Those elected by the Assembly, by virtue of such election, shall be Directors-at-Large, but not Delegates. The Vice-presidents elected by the members shall be Directors-at-Large but not Delegates. Other Officers shall be appointed by the Board of Directors and as such will be neither Directors nor Delegates.

Sec. 3 ~~Except for the President-Elect, whose~~ The President-Elect shall hold a term of office ~~as such shall be~~ for one year and ~~who shall thereafter shall~~ hold the office of President for the subsequent year and the office of Past President for the year subsequent thereto, ~~the~~ Each Vice President shall hold a term of office for two years. The term of office for all other Corporate Officers shall be for one year and shall terminate at the end of the fiscal year of IEEE, or at such later time as their successors are elected and accepted.

ARTICLE XII - NOMINATIONS AND ELECTIONS

Sec. 1. The Board of Directors shall submit annually to all voting members a list of nominees for Delegates, the President-Elect, all of the Vice Presidents specified in the Bylaws, and other such Officers as may be specified in the Bylaws to be elected by the voting members for the coming term. Submission may be by notice in an IEEE publication which goes to all voting members.

	<u>Print Name</u>	<u>Grade</u>	<u>Member #</u>	<u>Signature</u>	<u>Date</u>
0	George F. Abbott	LSM	0845537		
1					
2					
3					
4					

Petition should be received by me no later than Monday, May 24, 1993. If needed, this petition form can be copied. Please copy petition form in its entirety.

Send completed petition to: George F. Abbott, PE
8712 Westlake Ct.,
Raleigh, NC 27613

EDITORIAL

MANY PEOPLE DON'T FEEL LIKE CELEBRATING ENGINEERS WEEK

Two recent pieces of mail have made a strong impression on me. Both concern engineering, but their tone and tenor are almost diametrically opposed. One is a press release about National Engineers Week, to be held February 14 to 20. It comes from the public relations department of the Institute of Electrical and Electronic Engineers, the "lead sponsor" of the event. There are numerous other organizations involved, and they form a long list of prestigious technical societies, influential government organizations, and large corporations. The group represents the closest thing we have to an engineering establishment.



The other piece of mail is the most recent copy of a newsletter called *American Engineer*, published by a nonprofit group called The American Engineering Association. The guiding lights of this organization are a small group of engineers, some working and some unemployed, whose names and affiliations do not exactly place them at the epicenter of industrial, governmental, or academic power.

The IEEE press release tells how National Engineers Week will celebrate the contributions engineering makes to American life. "Our future depends upon the minds and hands of engineers," it proclaims. The pronouncement then goes on to describe "a series of major events designed both to highlight the achievements of engineers' minds and hands, and to enlist them in furthering the education of tomorrow's technological pioneers."

The message continues in this vein, sounding rather bombastic and out of touch with the real world, especially the one portrayed by articles in *American Engineer*. Reading that publication on a regular basis suggests that a lot of engineers, rather than "celebrating their contributions" to national well-being, are more inclined to be thinking of immediate and less lofty wolf-at-the-door concerns.

The dose of reality in issue after issue of the newsletter makes it clear that many engineers represent a beleaguered force suffering from any number of adversities. These include the collapse of formerly blue-chip corporations, bone-and-muscle cuts in defense spending, all topped off by what looks like subtle or even blatant age discrimination.

Maybe National Engineers Week is fundamentally a good thing. But somewhere in the celebration there should be room to talk about engineering as well as manufacturing jobs being sent offshore. And it should at least mention what hollow victories automotive transplants represent because they don't do much to help engineering employment.

Sponsors might even ponder whether or not youngsters should be encouraged to seek technical careers. Perhaps a shortage of engineers would be good for the profession overall.

Instead of conducting a Pollyanna-type event, the establishment ought to consider taking a cold look at what has happened to engineering as a career in the past 20 years. The sense of travail portrayed in *American Engineer* seems to reflect reality more accurately than the call for celebration from the IEEE public relations department. — Ronald Khol, Editor

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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:

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

Richard Tax, AEA VP
General Information
PO Box 2012, River Vale, NJ 07675
(201) 664-0803

Roger Boisjoly PE
Legislation, Ethics and Whistle Blowing
3047, E. Menlo St., Mesa, AZ 85213
(602) 641-0887

Robert Bruce
"American Engineer" publication and related issues
P.O. Box 4493, Great Neck, NY 11023

David C. Lewis
Immigration
609 Sideling Ct., Vienna, VA 22180

Al D'Nak, Contract Engineering
P.O. Box 465, Plainview, NY 11803

Richard Plummer
Anti-Discrimination
P.O. Box 326, Valley Forge, PA 19481

Robert Rivers
Manpower
AIRCOM, P.O. Box 129, Union, NH 03887

R.T. Pinkerton, Staff Cartoonist
Ideas and subjects for new cartoons
P.O. Box 820473, Ft. Worth, TX 76182-0473

Membership Renewal

Time to renew—The date on your mailing label is the date to renew your subscription, membership and support for the American Engineering Association. Get your renewal in early and save us the time and expense of sending you a reminder.

The Other AEA Comes Face-To-Face With Reality

Many engineers, particularly electrical engineers, remember the American Electronics Association, the other AEA, mainly as the author of the infamous 1982 report projecting a shortage of 200,000 EE's by the year 1987. The other AEA arrived at that shortage figure by using the discredited method of surveying employers about their future hiring plans for the following years.

The other AEA just got another lesson in the folly of trying to make long-term growth projections based on optimistic expectations. The other AEA reported (as cited in *IEEE SPECTRUM*, pg 62, July '92)

that the number of jobs at U.S. electronic companies shrank 1.7%, or 40,000, in the first quarter of 1992, in addition to the 90,000 jobs that the other AEA calculated were lost during all of 1991. "It is rapidly becoming apparent that this pattern is not of short-term duration and not wholly the result of the recent recessionary," said J. Richard Iverson, president and chief executive officer of the other AEA, which represents 3,000 companies throughout the United States. "Not one of the past 10 quarters has demonstrated the job growth typical of our industry."

Name withheld on request.

Engineers Facing Exploding Competition

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New immigration law that went into effect in the latter part of 1991 is now having significant impact on the native U. S. engineering workforce. The 1992 engineering immigration was an estimated 16,229 based on an extrapolation of the first 3 quarters of data compared to immigration of 10,492 engineers in 1991. Other engineer work authorizing visas in non immigrant H, J, and L categories have increased from an estimated 19,939 in 1988 to 38,013 in 1992. The above numbers do not include B1 visa holders nor refugees. It has been further estimated that 20 to 30% of a 50,000 per year quota of refugees from the former USSR are engineers as well as 7% of East European refugees with a quota of 75,000.

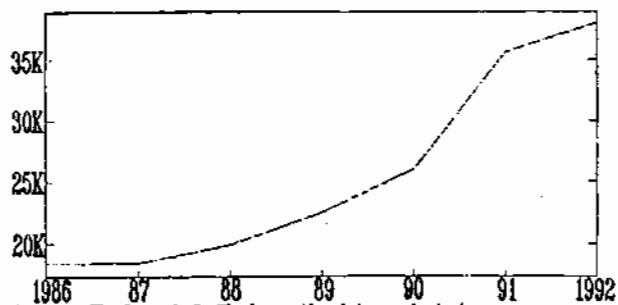


Fig. 1, H, J and L Work authorizing admissions

Figure 1 shows the estimated work authorizing admissions under the H, J, and L categories for Engineers, Computer and Math., and Natural Scientists.(1) While substantially all of the Engineer admissions work in engineering, many of the Computer and Math. also do so as do some of the Natural Science admissions. I estimate that 50% of the Computer and Math. entries end up in engineering and that 20% of the Natural Scientists do so. The estimated combined annual entry level is thus 43,000. Refugees add from 10,000 to 15,000 to that total. Finally, anecdotal information indicates a growing number of B1 entries are working illegally by such mechanisms as expense payments in the U. S. and Salary remittances in the source country.

Since 1990, demand for engineers to cover expansion has gone negative as contrasted with 1984 to 1986 expansion demand of 46,000 per year. Normal deaths and retirements in the engineering population is estimated at 2.5% or ap-

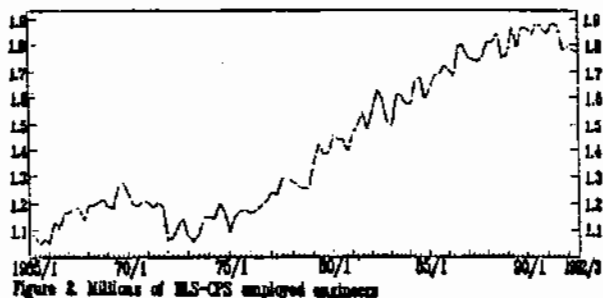


Figure 2, Millions of U.S.-CPS employed engineers

proximately 45,000 per year. Figure 2, shows the level of Bureau of Labor Statistics U. S. engineering employment. It is approximately 1,800,000 at the present time. The immigration level plus the non immigrant workers add up to 70,000. To that is added the U. S. BS educational output of 65,000. In addition, in normal times, 30% of the engineering workforce is populated with upgraded non BS degree holders such as technicians. It is obvious that significantly in excess of 135,000 job seekers in a negative growth replacement demand market of 45,000 will result in dislocation. The results are salary compression, early retirement, increased unemployment, and loss of entry opportunities for new graduates.

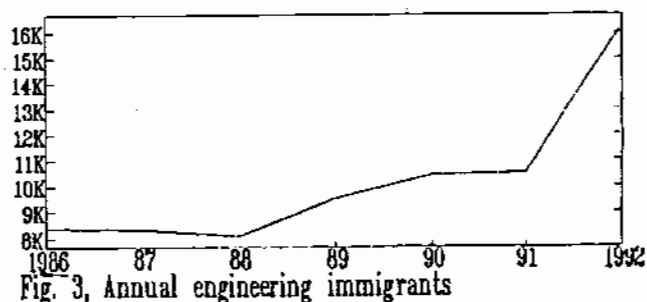


Fig. 3, Annual engineering immigrants

Figure 3, shows the number of immigrants for each year since 1986. In a given year, the workforce contribution of the various categories add arithmetically but, the immigrants include some counted in previous year non immigrant entries. The immigration data represents permanent admissions to the U. S., while the non-immigrant categories are temporary admissions. The engineering workforce is being inundated with competition far in excess of present or expected demand.

(1) Private communication from David S. North, Director, The Foreign-Born Scientists and Engineers Project, Arlington Va. Immigration data for 1992 is an extrapolation of three quarters of data to four quarters. The non-immigrant data is an extrapolation from data where occupational classification is available.

FORUM

Trade Rivals Will Triumph Unless U.S. Cleans Up Act

By Fred Zimmerman

The approval of the North American Free Trade Agreement and the likely emergence of a stronger consolidated Europe with its own currency will unavoidably alter the destiny of the United States. We can all agree to the benefits of free trade—if it is free. However, we may be underestimating what our country must do in order to ensure that we remain world-class competitors long into the future. Given the rapid development of manufacturing capabilities in other countries, we should not assume that we will be able to meaningfully participate in world trade without sacrifice and preparation. Among the things we need to do are:

Shift 12 million people from overhead functions to more productive work. That is about what it would take to make our employment profile similar to that of our major world competitors. Relative to these other more productive nations, we have far too many people in functions unrelated to a strong industrial economy. We have too many financiers, too many bureaucrats, too many lawyers and too many people not working at all. We will never compete internationally with such a huge burden.

Services, finance, insurance, education and government all need to become enormously more cost-effective for the United States to continue as a viable nation. We cannot continue to siphon resources out of the productive units of our society and expect those units to remain competitive in world markets.

Employ old-fashioned, sensible financial practices. Relative to the Deutschmark, our currency has declined 67 percent in 20 years. It is impractical to think of us competing as a world economic power with our financial systems in disarray while we foolishly spend money on useless projects and low-quality administration. We will need to be far more prudent about our investments to make sure the diminishing money we have remaining is spent on beneficial activities that promote long-term, meaningful employment.

Radically upgrade U.S. manufacturing equipment. Independent of the capabilities of the people doing the manufacturing, the quality and modernization of the equipment can be decisive in whether or not a company, or a nation can compete. The differences in productivity can be enormous. Much of U.S. manufacturing equipment is old, slow and out of date. It will be absolutely necessary to spend several billion dollars every quarter updating aging manufacturing facilities in order to compete. Tax policies should not discourage these investments from being made in the United States.

Get people in education to work a full year. If education is important to our future well-being, those of us in education should

treat our responsibilities more seriously. There is plenty to do. There is every reason for us to work a full year. Everybody else does. Though there are many dedicated people in education, the system itself lacks introspection and a sense of duty. We cannot have the most lackadaisical education system in the industrial world and be a world power.

Develop tax policies that meaningfully differentiate between true capital gains and speculation. If people invest in their business or buy stock for their retirement, that is an investment in the classical sense. If some institution buys stock in the morning and sells it in the afternoon, that is not investment but speculation. Our tax policies should differentiate between useful investment and wasteful speculation. Higher tax rates on gains from speculation should apply to institutions as well as individuals. Such a tax policy would remove much of the counterproductive fluff that is jeopardizing the livelihoods of so many Americans.

As a more feverish global economy moves toward us with astonishing speed, it is apparent that we will need to prepare for its arrival. World trade is not a vague theoretical concept but a reality that will require sacrifice and changes in our behavior. We will need to save more, gamble less, drink less, study more, watch less television, invest more wisely, work harder, trim overhead and get more efficient. Otherwise, we are going to suffer.

The United States is roughly 5 percent of the world's population, consuming roughly 30 percent of the world's resources. We are one of the wealthiest nations on Earth, borrowing heavily from poorer countries in order to sustain a standard of living we cannot afford—because we do not produce. We must change our ways.

Fred Zimmerman is director of graduate programs in engineering at the University of St. Thomas and the author of a recently released book from McGraw-Hill, "The Turn-around Experience: Real World Lessons in Revitalizing Corporations." He has served on the board of directors of 10 corporations.

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