

*Billy E. Reed is president of the American Engineering Association. Its members feel particularly hard-pressed by the current immigration law which, in their opinion, badly distorts U.S. educational priorities. Please note the cartoon on page 52.*

# Engineers and Immigration

By Billy E. Reed

Starting in the early 1980s pundits told us that we must change from a manufacturing-based economy to one grounded in services. The smoke stack industries which made America the world's dominant economic superpower were no longer a suitable underpinning for an economy. We were also told we must rely on our technological leadership to take up the slack and provide the jobs of the future. "Our future depends on maintaining our technological leadership." "We must have engineers, scientists." "We need access to the world's best and brightest," the universities and industry explained to us. "We must enlarge the engineering schools to keep the pipeline full," became the battle cry.

Congress reacted predictably. They loosened the immigration laws to allow easier access for foreign workers. They appropriated billions of dollars to update the laboratories and classrooms, to purchase the latest in equipment, and to enlarge our schools of engineering. But, at the very same time U.S. universities were going overseas to recruit students to fill those recently expanded schools.

A huge fraud has been perpetrated on the citizens of the United States! For nearly four decades we have been hearing of an impending engineering shortage not a shortage which is upon us, but one which is five or ten years into the future.

For years the American public has been the target of 'Engineering Shortage Propaganda' or ESP. Here's how ESP works. An industry association or a government agency does a study or survey which is "proof positive" there will be a shortage of engineers. Other studies are made by organizations supporting the first study, often quoting the first study as one of its sources. The ESP is widely circulated by the news media, federal agencies and the universities. They repeat the Engineering Shortage Propaganda until it becomes "common knowledge."

Typical of the predictions of engineer shortages is one of the most widely quoted "sources" of recent times, a survey in the early '80s by the American Electronics Association in which they surveyed themselves. The AEA is an association of manufacturers and this report was the darling of the shortage-shouters for the first half of the decade of the 1980s.

Only after several years of quoting their survey, and three years after the Simpson-Rodino immigration bill passed, did the American Electronics Association admit their survey only indicated a "shortage of electronic engineers" and should not have implied a

"shortage of all engineers." In early 1986 Pat Hill Hubbard of the American Electronics Association finally admitted that "the electrical engineering shortage no longer exists." In an article in the American Electronics Association's publication Update (which, at that time, still maintained there was a shortage of engineers), he characterized it as an "unfortunate editorial misrepresentation" and a problem of "semantics."

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The spokesperson for the American Electronics Association at the March 1983 immigration hearings, Mr. John Calhoun, Director of Business Development for Intel Corporation, 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 lay off engineers. By the first quarter of 1986 Intel had laid off nearly 5,000 workers most of whom were in the United States.

In 1987 the National Science Foundation, (NSF), issued its own report (never officially released) which stated 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, changes were incorporated into the Immigration Reform Act of 1990 that roughly tripled the number of visas available for foreign engineers and scientists, and effectively eliminating any protection for American citizens available in the previous law.

After the NSF report had been the "authoritative source" on the subject of engineering shortages for five years, the Subcommittee on Investigations and Oversight of the Committee on Science, Space and Technology held hearings on the report early in 1992.

Witness after witness described the study as "flawed" and said it 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...."

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The result: we now have immigration laws based on reports characterized as "flawed," which 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, unemployment of engineers has reached record highs. Yet, misrepresentations continue. As late as August 1992, an article appeared in the Los Angeles Times speaking of the "hard time" several of the defense-aerospace companies were having finding engineers. Each of the companies cited had laid off engineers within the last six months. The article also quoted the NSF study mentioned above.

Senate Armed Services Committee Chairman Sam Nunn (D.-GA) estimates as many as two million additional civilian and military jobs will be lost by 1996, even if Congress does not cut the defense budget further than President Bush has proposed.

Through the unemployment of our current stock of engineers, we are losing millions of years of technical experience. Any further immigration of engineers now can only exacerbate the problem. Once this experience is lost, it can never be recovered fully. One prefers to fly with a pilot who has some years of experience in the cockpit; one would rather be operated on by a doctor who has been in the operating suite over a period of time. We face the problem with our engineers of losing their development on the job.

Industry, academia and federal agencies have defrauded the American people, using immigration as the vehicle. Industry gets cheap, imported engineering labor; universities expand and provide tenure for more and more of their own, while the federal agencies' bureaucracy grows, thus ensuring their own existence. The taxpayer and the citizen engineer pay the price.

Though the NSF hearings by Representative Wolpe were both very helpful and necessary, they changed nothing from the engineers' perspective. We now need to revise the current immigration laws to significantly lower the levels of technical and professional

immigrants so we can provide the high quality jobs to our own people and make it reasonable for our own students to enter the engineering profession.

To do less will send a message to the engineering community and to prospective engineering students that they and the contribution they could make to the nation's economic life and security are expendable. To do less will ultimately fulfill the self-serving prophecies of the purveyors of Engineering Shortage Propaganda.

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