Gross: Aid cuts will result in engineer shortage

By JEREMY FELDMAN

Robert Gross, dean of the School of Engineering and Applied Science is hardly a dynamo at the podium. His gruff, direct speaking approach is reminiscent of a military general's briefing.

But last Thursday, addressing an audience of over 200 business and government officials at a conference on the promotion of high technology industry, Gross's message came across loud and clear: cuts in federally financed student aid programs will place a strain on university engineering programs, and contribute to the national shortage of engineering and computer science graduates.

"Our resources are being stretched very, very thin," Gross told the conference, held in the School of International Affairs and sponsored by a score of schools and professional organizations in New York. "Perhaps financial aid will be swept away with other federal programs."

Gross urged the high technology industry to contribute to student financial aid programs by providing money for scholarships and fellowships.

Earlier, IBM Vice President for Technical and Personnel Development Eric Bloch lamented Japan's recent inroads into the high technology industry. "In absolute numbers, Japan is overtaking the numbers of engineering Bachelor of Science graduates compared to the US," he said.

Bloch, a balding middle-aged man with a heavy German accent, supported his argument with an impressive amount of evidence—including a beautiful selection of IBM color slides which graphically indicated that "Japan, over the last decade, has invested heavily in research and development—much more than the US," Bloch concluded.

"Quality," Bloch said, is preeminent in this kind of industry." If the US fails to fund more research and development projects, it will fall behind Japan in the next decade, he claimed.

Bloch said he was less concerned with current high technology projects, such as memory chips and semi-conductors. His interest, he said, lay in the long-term—in what the industry terms "fifth-generation computers."

The development of these computers, Bloch said, "is worthwhile to watch. Not only is it worthwhile to watch, but we better do something about it if we want to be in the computer industry in the next decade."

Bang—a colorful IBM slide pops up overhead comparing percentages of the Gross National Product spent each year on research and development in the US and Japan since 1960.

U.S.: decrease. Japan: increase.

Concerned expressions and nodding heads bob up and down in the audience.

Bloch said US industry should help finance students' education so they could obtain more advanced degrees in engineering and computer science. It should also provide funds for updating old equipment in universities and for matching federally financed research grant monies, he added.

Both Gross and Bloch spoke about the need to expand the number of industry-financed research projects at universities.

Yet despite criticizing cuts to student aid, Gross began his speech by praising the federal government for supporting research at universities. He noted that the federal government had been the major source of research funds during his entire professional career.

But Gross immediately added that industry had not competed with the government in providing research projects for universities.

Nuke experts disagree over waste, safety issues

By JOHN ROGOVIN

Despite the ongoing glut of oil, the US still faces the crucial choice of whether to develop nuclear power reactors for the production of electricity. The Reagan Administration supports the nuclear industry, but many critics are still not convinced that nuclear power is safe enough.

And academics, the researchers and teachers who will be charged with advancing—or halting—the industry's technological growth, are divided on the issue of nuclear power.

Supporters of the nuclear industry like Herbert Goldstein, professor of applied physics and nuclear engineering at Columbia, view nuclear power as safer and more economical than coal. They look for nuclear power's contribution to total electricity production in the United States to rise from 12-13 percent to about 25 percent.

"The general conclusion is that nuclear power is one of the safer methods of electricity production," Goldstein said. "We're no longer at the laboratory stage—it's working now."

Dr. Michio Kaku, assistant professor of nuclear physics at the City College of New York, joins other critics of the industry in claiming that the United States is accepting a "Faustian Bargain" by "pushing the state of the art of nuclear technology."

"In an unforgiving technology like nuclear power, the slightest oversight might blow up in your face," Kaku warned. "There are 3,000 reported transiences in the industry a year—any one could set off a cascading sequence of multiple failures."

Two of the better-known nuclear power plant accidents—one last month at the Ginna plant in Rochester and at Three Mile Island in Pennsylvania—did not in and of themselves directly threaten public safety. Yet the danger to the public might lie much deeper than in a mere count of the amount of radiation released from the two plants would indicate.

The lesson of TMI and Ginna, claimed Goldstein, was that nuclear power poses a negligible harm to the public. Goldstein agreed with studies released after the TMI accident that classified the overriding problem there "not as a hardware but as a managerial one." The public should be reassured that the engineering saved the day, said Goldstein, adding that the human error cited in reports by the Nuclear Regulatory Commission—including insufficient training of operators—could be "worked out" by the industry.

Kaku, however, preferred to blame "unfinished" nuclear technology, noting problems with gauging the water level in a reactor vessel and detecting whether the relief valve (PORV) for the core at TMI was open or closed.

There are numerous "extras" that the utilities could install on reactors to make them safer, but they are not required and the company is not assured of getting its money back on the rate base, said Kaku. The operators did the best that they could with the information and equipment available, he claimed.

Scientists had never foreseen the peculiarities of the accident at TMI, and the NRC was forced to classify it as Class 9—the most serious type of nuclear power accident.

Yet the Ginna incident last month is perhaps more frightening than TMI, representing "a perfect textbook case" of a steam generator simply aging, corroding, and suffering a rupture, Kaku claimed. The accident occurred only ten years into Ginna's projected 25-30 year lifespan, he noted.

Another danger is "embrittlement," the development of undetected cracks on the inside of reactor vessels, Kaku said. The only way to find them, said Kaku, would be to X-ray the vessels—and the industry has so far shown no interest in such an investment. X-raying is not required by the NRC, but it could be the only way of preventing accidents, he claimed.

The persistent problem of waste from a nuclear power plant also poses dangers, Kaku said. At this time, low-to-intermediary-level waste is disposed of through several methods, while high-level waste is stored on site in pools of water.

Goldstein stressed that there was no danger in transporting the low-level waste. He lives a few hundred yards from the Long Island Expressway and is "not worried about transporting nuclear materials" on the highway, he noted.

The issue of nuclear power has become purely political, said Goldstein. Queensborough President Donald Manes, for instance, manipulates the issue for political gain, Goldstein charged. "There are more lies and deceits over nuclear transport than anything," he asserted.

Kaku, on the other hand, termed present methods of disposing of waste insufficient. Low-level waste has been dumped in barrels off the coast of New York City—and of nearly 85,000 barrels, nearly 25 percent have split open, Kaku claimed. Kaku also complained of the "grave danger" posed to the environment by transport of waste, which would possibly contaminate the water table and the land along highways in the event of an accident, he noted.

SPECTATOR/ED KEATING

ACCIDENTS WON'T HAPPEN: Professor Herbert Goldstein claims incidents at Three Mile Island and at the Ginna reactor prove that nuclear power poses a 'negligible' threat.

Feldman

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cowardly observers.

The heroes who, filled with their high school football team's patriotic, pep rally "spirit," had been brainwashed with lists of arguments defending "their country, right or wrong" and "giving it their all." They had been carefully cultivated to insure the system's survival.

The mourners, having known men who had lost their lives and limbs in Vietnam, blamed the draft dodgers who fled the country for the lives lost. For them the choice was clear: they would fight and die for those who had sacrificed before them.

And the cowards who, absorbed too much in parties and "meaningful" relationships to ever take the time to try and understand their world, were just too lazy and ignorant to really care. It was easy to follow the leader.

The cowards will run away when drafted, or join the Coast Guard. In the last war, they refused to help force change on a social system gone mad, choosing instead to allow it to self-destruct.

There were those who did not register. Some got drunk and forgot, waking up in the morning without giving a damn whether their system changed or remained stagnant.

And there were those who cared, who spent days and nights in turmoil, reading about Vietnam and civil rights, arguing with parents and friends, all too hurriedly developing personal philosophies about life, the social system, and the individual's place in the puzzle. In other words, there were those who chose: to choose or to choose not to choose. And those who chose to choose will ultimately change the social system.

Choices are actions and actions force change. Actions lead to change which leads to meaning.

The middle and late 1970's were a period of stagnation and uncertainty. Americans, afraid of past mistakes, chose pathetically to defend the status quo. The progress toward goals for the social system, such as racial equality, sexual equality and the restructuring of urban environments, ceased to continue. Americans lost sight of the model for their social system that had been evolving for so long.

When a man named Reagan decided to allow registration to continue, an obvious step away from that model, and a man named Solomon forces Congress to decide whether nonregistrants' penalties should be increased by refusing them access to their system's goods, I cannot envisage support of the system as a whole. It is impossible—as the system, and support for it, no longer has meaning. It no longer had a just goal.

Once again young men have finally been forced actively to choose between tyranny, oppression, and social self-destruction, or a more just path that they themselves must carve. It is a competitive system, organized specifically so that a chosen few can win and many must lose. It is a stagnant and uncivilized system of complacent observers.

In 1978, the choice was clear. I chose not to register.

For other young men the choice may not seem so clear. Yet, there were about 900,000 (at least, and that is a miniscule estimate at best) who did not register before January 9, 1982. For some this was a conscious act. They care where America goes in their lifetime, and realize that they must shape their society only in ways that can satisfy their soul.

These men will drop their government-issued swords and pick up shovels and start to build—and stop destroying. They will build a nation's future.

It may not be easy looking at yourself in the mirror every morning and seeing a socially defined felon. It may not be too much fun going to jail. But those sacrifices seem so small compared to what must ultimately be achieved.