

STATEMENT BY

IRWIN FEERST, P.E.

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Irwin Feerst, P.E.
368 Euclid Avenue
Massapequa Park, NY 11762

Consulting Electronics Engineer
Contributing Editor, New Engineer
Founder, Committee of Concerned
Electrical Engineers
Candidate for President, Institute of
Electrical and Electronics
Engineers (IEEE)

Who am I? My name is Irwin Feerst and I am a consulting electronics engineer from Massapequa Park, New York. I am also a former college professor. I am the founder of the Committee of Concerned Electrical Engineers, which seeks to improve the professional lives of the American electrical and electronics engineers. And, finally, I am a candidate for president of the 180,000-member Institute of Electrical and Electronics Engineers, the world's largest technical society.

But to the point. I have researched and written an article about a program funded by the National Science Foundation which is supposed to encourage students to pursue careers as entrepreneurs while at college. As a result of this research, I have become aware of some shortcomings of the Institutional Patent Agreements. Some examples will illustrate this.

The universities which I have studied are Massachusetts Institute of Technology (Cambridge, MA) and Carnegie-Mellon University (Pittsburgh, PA). These institutions were given government funding to start up experimental innovation centers and to develop programs in association with these centers. These programs include formal classroom work in the invention and innovation concept as well as new company start-ups -- performed for profit in a tax-free environment. Students are encouraged to develop innovative ideas and, if approved, the products which result are pushed into the market place.

But in some cases, the actual inventor appears to have been frozen out. This may have occurred at Carnegie-Mellon University

where an oximeter was developed. An oximeter is a device which measures the oxygen saturation of arteries, veins, and tissues. It is an important adjunct during surgery. A company, Jesika Corporation, was formed to finalize and market this device. Professors Richard Longini and Ron Krutz, of that school's Electrical Engineering Department, are stockholders.

But Dr. Robert Hirko, now an Assistant Professor of Electrical Engineering at Memphis State University and formerly a graduate student under Carnegie-Mellon's Professor Richard Longini, claims that the oximeter is his idea. Indeed, Carnegie-Mellon's Second Annual Report to the National Science Foundation seems to acknowledge Hirko's invention when it states, "In September of 1974, a Ph.D. dissertation was submitted by Robert Hirko of the Medical Systems Engineering Laboratory that completely detailed the concept and circuit diagrams for an oximeter."

Yet, although it would appear that Hirko reduced the invention to practice, he was offered only a paltry share in the corporation formed (Jesika Corporation) to market the device. It appears that Carnegie-Mellon University did investigate the possibility of patenting the original oximeter. But their present strategy seems to be to build up a network of improvements to the original idea, made by others, and to patent these improvements. In an unusual action, Carnegie-Mellon University refused to permit Dr. Hirko's thesis (which disclosed the operation of the oximeter) to be released to the general public for fully 18 months.

What we have here is an example of a device which was

developed at a university using public funds which is now being marketed by a private company, some of whose principals are the same professors whose government-funded research led to this product. Moreover, the original inventor may have been frozen out.

I have discovered a case at MIT in which it would appear that the interests of the student inventors were not properly protected. Some years ago, officials of MIT's Innovation Center were approached by a local company which offered to sponsor a project to develop a marketable package of electronic games. In 1975, MIT issued a glowing description of the program: "The project has provided an opportunity for five electrical engineering students to gain firsthand experience in the innovation center from conception, through engineering design and prototype construction, to production scheduling, and finally to marketing the finished product." The five electrical engineering students did indeed come up with the idea and MIT patented it. The local company, Kemtech received a license to manufacture these games. The projected sales were estimated at \$35,000,000 -- a figure which was not disputed by MIT's vaunted Sloan School of Management, which is contractually obligated to provide support for MIT's Innovation Center. The five students did receive a total of about \$15,000 in royalties.

But now Kemtech (and its marketing arm, Executive Games) are both bankrupt with combined debts of \$700,000. Of this sum, about \$100,000 is owed to MIT and a sizable chunk of this is owed to the students. But an official of MIT's Innovation Center did not even know about the bankruptcies; MIT is not listed as a creditor.

When informed about the bankruptcies, another official of MIT's

Innovation Center called it an unfortunate business experience. He said, "Part of the game is to expose the students to the real-world work environment."

Dr. Brinton
What this shows is that the Institutional Patent Agreement has failed to monitor the status of the licensees, to the detriment of the actual student inventors. Where, after all, were MIT's accountants, marketers, and analysts who are supposed to be aware of the status of a company and who are contractually obligated to support MIT's Innovation Center?

I have also uncovered an example of a faculty member of the University of Pittsburgh ~~who has fed for years at the public trough~~ and who owns a major share of a company which will market a product resulting from his research. Moreover, the product is one which is needed and one for which the citizens of this nation have paid -- a vaccine for gonorrhea.

The professor is Charles Brinton of the University of Pittsburgh and the company is Bactex Corp. Dr. Brinton is a recognized expert microbiologist and has been investigating bacterial pili -- hairlike appendages to the bacteria -- for many years. It turns out that these pili make gonorrhea the virulent disease that it is. Since 1965, Professor Brinton has received \$1 million in federal research grants from the National Institutes of Health, a part of the Department of Health, Education and Welfare.

After his last grant request was refused (NIH refused to tell me why, despite a Freedom of Information Act request), Professor Brinton sought the assistance of Mr. Jack Thorne, whom he characterized as "an old friend". Mr. Thorne is associated with Carnegie-Mellon

University's Center for Entrepreneurial Development as an unpaid special consultant. Mr. Thorne is also a member of the Board of Directors of a company called On-Line Systems, which held a contract with the U.S. Senate which is now under investigation by the Justice Department.

Professor Brinton, Mr. Thorne, the University of Pittsburgh, and Carnegie-Mellon University's Center for Entrepreneurial Development formed a company called Bactex. The outlook for Bactex and their vaccine and associated error-free blood test is good. Bactex has attracted the attention of the Department of Agriculture, which financed an experiment to determine if swine dysentery could be prevented by a vaccine similar to the one Professor Brinton is developing for gonorrhoea.

In this case, we have the example of a college researcher who has attracted more than \$1 million in federal grants since 1965. It was this funding which was necessary to bring the product (a gonorrhoea vaccine) to the door of the marketplace. Yet a private company has been formed, with the professor as a principal, which will carry this product over the threshold and on to commercial success.

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What has happened in too many cases is that the granting agency, under the terms of the Institutional Patent Agreement, assigns the rights to the resulting patents to the universities. All the federal government seems to want is a promise from the university that they will try to exploit the patent. To do this, the university turns over the

patent rights to an associated entrepreneurial center, at least in the cases I've cited. The entrepreneurial center then forms and finances a new company, ostensibly to give students experience in entrepreneurship and innovation, to market and further develop the product. But it turns out that the company so formed has, as its principals, one or more faculty members who worked on the original research, using federal funds. Baseball fans may conclude this to be a variation of the Tinker to Evans to Chance double play. But since the public pays for the necessary research in the form of research grants and pays again since the entrepreneurial centers are tax free organizations, a more proper characterization would seem to be Tinker to Evans to Not-A-Chance.

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There would seem to be two avenues open to remedy the situation. The most obvious would be to tighten up all the Institutional Patent Agreements so as to make it impossible for any faculty member, research associate, and indeed the university itself to derive any benefits from any federally funded research effort which advances to the marketplace.

There seems to be a second, subtler solution. What has happened is that the universities have been permitted to depart from their traditional roles. The result is that some of the evils which are present in the business world (corporate, not individual, ownership of patents) now appear in the academic world. But at least in the business world there are laws which can be used to deal with these and other abuses; there are very few which deal with academic

malefactors. But with a decreasing number of college age young people, is it not time to reducing the funding for university research (with its spiralling costs) and return some to the more efficient industrial sector?

Reduced funding for university research has several advantages:

- 1) It would force the universities to curtail their non-traditional activities, which have been the cause of so much trouble.
 - 2) It would cause the universities to shrink to a point where we would once again see a quality filter placed on their output.
 - 3) This nation has a glut of highly qualified, over-40 year old, un- and underemployed engineers who have been fired for having committed the unpardonable sin of growing old. You find this hard to believe? I have attached a copy of a written policy statement of The Aerospace Corporation (a California "think tank" funded by the Air Force) which states that a purpose of their policy of Average Rate Control is *"To control the aging rate of the Company's population, particularly for scientists and engineers."*
- Reducing federal support for the universities would divert more funds into the private sector and lessen the pressures to fire these skilled practitioners.

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I thank you for your attention and for making possible these proud moments in my life.

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