

the universities license the corporations they sit on.

We call this 'insider trading in public goods.'

If you open up a university handbook or catalog nowadays, usually the first page is their intellectual property policy — that is, who gets to have proprietary control over the knowledge that they produce. It often will say that graduate students and faculty have to waive their patent rights.

We're also seeing co-operative research ventures, new laboratories, of many kinds. The corporations come in with \$1 million, \$2 million, whatever it is — it's petty cash. The only way to evaluate it is to measure it against what they're buying.

So the true measure is, what would it cost the company to reproduce what it is buying? Staff, laboratories, equipment, the knowledge base, etcetera — many, many times what they're paying. And the companies are very well aware of this. They're coming to the university, which has been sustained for 150 years by the public, and for petty cash, they access — leverage — the entire university.

NOW THE CONSEQUENCES. When people talk about universities these days — and there's a lot of talk about universities — what's usually not mentioned, astonishingly enough, is education. People talk about research, they talk about how universities can increase the competitiveness of the society, how universities can increase the health of industry. And what's forgotten in the discussion, and not accidentally, is the presumed mission of the university — that is, education.

The reason is because universities are getting out of the education business. Education is costly, it has very little return. The people who are running the universities, these corporate insiders, are transforming the universities. Just as steel companies get out of the steel business and get into real estate, universities are getting out of the education business and getting into the industrial research business.

And you see this in a sweeping reorientation of the allocation of resources in universities. On every campus you see massive construction of laboratory buildings — engineering, polymer labs, chemistry labs, usually at public expense. And at the same moment, there are cutbacks in staff, cutbacks in curriculum, cutbacks in enrollment, increasing class sizes, restrictions on access, increased tuition — the educational function is being eclipsed as the universities are being moved in this commercial direction.

It's been a long and old story of administrators saying 'God, if we could only get rid of these students we could get something done!' And now that wish is being fulfilled.

David Noble has written a number of books on the history of scientific thought, including *America by Design* and, most recently, *A World Without Women*. He was the co-founder, with Ralph Nader, of the US-based *National Coalition for Universities in the Public Interest*.

SHOOTING OURSELVES IN THE FOOT

Claire Polster

Universities are indeed being hijacked by industry. But it's important that it be said that it's not without a lot of help from the air traffic controllers, who in this case are the Federal and Provincial governments as well as their agencies.

Since 1987, Ottawa has cut transfer payments to universities by something like \$2.4 billion. At the same time as this money is being taken out, a lot of money is actually being put back in — through a bunch of programs and initiatives.

It's going back into very specific projects and targeted areas — such as the Centres of Excellence. This is a \$240 million program to sponsor 15 offices that bring leading-edge university researchers together with industrialists. One of the prime goals of these Centres is to create opportunities to commercialize the results of this research.

SINCE THE MID-EIGHTIES the most prominent programs that have been developed are what we can call *partnership* arrangements. What these consist of, in a nutshell,

is that industrial 'partners' pay up to half the cost of the research project, and for the money that they put in, they get to determine not only the general area that research is going to be done in, but they also get to specify parameters of the research projects. In some cases what they also get is first dibs on any research results that materialize.

So control over the content of the research is being taken out of the hands of the people who are doing the research — the academics — and going into the hands of the people who can afford to pay for it — most often, but not only, industry.

If you look at the rates of growth of these programs, they're really significant. The budget of the partnership program at the Natural Science and Engineering Research Council (Canada's main science granting agency) went from \$3 million to \$43 million between 1984 and 1992. That's an increase of 1400 per cent. At the same time, the budgets for what we'll call the *basic* research grants increased by a whopping 0.33 per cent.

YOU SHOULD KEEP IN MIND the reason why the federal and provincial governments are trying so hard to harness the universities' resources for industry. And that is because of the belief that *knowledge is the key to our nation's competitiveness in the new global economy* — and I'm sure you've heard enough about competitiveness and the new global economy to last you a lifetime. The assumption is that the more the university helps industry, the more competitive industry is going to be, and the better off all Canadians are going to be.

What I'm going to argue is that things are actually the other way around: the more the university links up with industry, the worse it is going to be for national science, for universities, for industry in the long term, and for Canadian society.

So one of the arguments against linking university research to industry's needs is that it's going to lead to a reduction in *basic* research and an over-emphasis on

isn't simply that their proposal be excellent, but it also has to be relevant to the research mission of the industry. And you have increasing numbers of people from industry on the adjudication boards of these partnership programs.

So the upshot of this is that the scientific merit of research proposals is no longer the only criterion being used to decide who gets money and who doesn't. So while our research may be more and more relevant to industry's needs, the quality of the research being done, the quality of the people being given the funds, may not be the best that we can get in this country.

It's also important to know that all these negative effects endure and they intensify over time. For example, less basic research is being done in Canada; less and less graduate students are going to be trained in doing basic research. Over the long run, then, the quantity of basic research isn't only going to be eroded, but actually the capacity in our country to do this kind of



Graphic by Lori Bellissimo

applied research. Applied research leads to products. It's much more short-term, quick-payoff research. The problem with under-emphasizing basic research is that a) it's basic research that's more often the source of advances in science; and b) it's basic research that gives you the basis to do your applied research.

So by raiding your basic research, in the long run you're not going to have the raw material to do your applied research anyway.

Not only is linking with industry likely to erode the basis of basic research in Canada, but it's also potentially going to narrow the *scope* of research being done in our country. Rather than having a broad knowledge base, there's going to be a more specialized, limited and possibly more fragmented knowledge base in the country.

WHILE TARGETING RESEARCH is really useful for industry, it's not a good idea for science. Because what a lot of scientists will tell you is that the source of the greatest advancements in science is not predictable. What you want to do to maximize your chances is to have a broad base of research in universities.

Another negative consequence for science is that the condition of industry giving money to university is *secrecy*. Knowledge isn't seen as a public good by industry, but as a potential source of profit. So lots of agreements between researchers and industrialists have clauses where research results have to be withheld for a certain amount of time, and patented.

Secrecy slows the rate of scientific advance, and it's also wasteful, because you can have more than one person working on a problem which has already been solved, but nobody knows about it.

This is also taking on new proportions as international competition intensifies. For example, some industries have put pressure on universities not to allow foreign students into certain programs, or not allow them into the university at all because they're fearing that these students are going to participate in industrial espionage, or go home to their home countries and help our competitors compete with us.

This isn't only going to limit the scope of our research and limit the speed of scientific advancement, but it's also going to harm the *quality* of research being done. I refer to the university partnership program. One of the criteria for awarding people grants through this program

research is also going to be diminished.

So for all these reasons, this is a very bad project for science. It's also bad for the university. The withdrawal of base funds that I referred to at the beginning — which industry has been encouraging the government to do — has caused a lot of strain in the university. We all know about larger class sizes, reduced library holdings, run-down equipment, and so forth.

IRONICALLY, rather than making this situation better, some of the money that industry puts into the university actually exacerbates the problem. And this is because, for example, some of the partnership grants that the research councils give to the universities don't come with the *indirect* costs of research. This includes the overhead, the professors' salaries, and so on. In other words, to get a grant from industry, the university itself has to pay money for these indirect costs. So what this ends up doing is forcing more and more money to be taken out of operating costs and re-allocated to finance these grants.

Finally, as new structures such as the Centres of Excellence get produced on campus, people are not all subject to the same kinds of accountability practices. They don't all have to follow the same rules. And this too can cause strains. The more strains there are, the more energy and resources within the university are also going to be sapped. And the more fragmented and individualized people will be, so the possibility of resisting the corporate infiltration into the university is also being diminished — so the vicious circle just keeps on rolling.

The irony — or probably it's more appropriate to say the tragedy — in all this, is that by harnessing the university's resources for its own needs, industry may end up destroying the very things in the university that made it attractive and useful to it — both because it weakens the institution, and because it harms our knowledge production capacity. This strategy isn't even really in industry's long-term interest.

Claire Polster is a doctoral candidate at York. She has published and presented a number of papers on the corporate control of public-sector research in Canada.