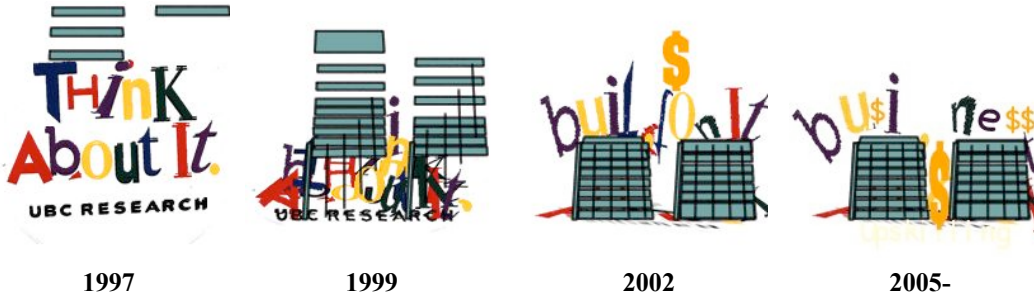




Commercializing Academic Freedom: R&D, Technology Transfer, Patents, and Copyrights

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Kedrick James (Adapted from Think About It®, UBC, 1997)

If you engage in research and the development of new and innovative knowledge, you are creating Intellectual Property (IP). At UBC, the University owns any IP generated by its students and faculty on campus unless it is a literary work.— *UBC Graduate Student Society Handbook, 2004*

Think About It! This was the President Office's campaign to brand University of British Columbia (UBC) research with a logo. Think About It ball caps and refrigerator magnets were everywhere during the late 1990s. What does this have to do with "Freedom of Expression," "Keyboard Wizard" and "WebCT"? All four happen to be protected under trademark laws in Canada or the United States. Of course, Think About It®, the Keyboard Wizard™2.0 and WebCT™ were born here at UBC— a trademark, a hardware product with a patent and software product protected by a trade secret. Trademarking, patenting and concealing trade secrets, along with copyrighting, are legal means for securing intellectual property rights (IPRs). In many ways, IPRs represent key priorities of research universities as globalization intensifies. In this article, we describe recent developments in R&D, technology transfer, patenting, and copyrighting at UBC.

The "knowledge society," notes Michael Peters (2002), means little more than the exploitation of nearly all forms of knowledge for economic activity. Since the early 1980s in North America, patenting and technology

transfer (of research into marketable product) have escalated. Top universities in the US reported that licensing of patents to business and industry more than doubled during the 1990s. A longer term trend than most acknowledge, similar increases in industry-sponsored research in Canada are fuelled by increases in patent applications, licenses and royalties (Atkinson-Grosjean, House & Fisher, 2001). Scholars, such as Janice Newson (1998), Claire Polster (1998, 2000a, 2000b, 2001), Wesley Shumar (1997) and Deborah Woo (2003) note that these trends in universities are part of a larger, global commodification of IP and transformation of the university (see also Currie & Newson, 1998; Newson & Polster, 2001). For example, patent applications and royalties in Canadian universities increased between 500% and 800% since the early 1980s. Between 1999 and 2001, patent applications in Canadian universities increased 41%, from 616 to 867. Royalties from licenses increased during this time from \$19 million to \$44.4 million, or 135%. With the Canadian government's mandate of tripling IP revenues by 2010, universities are aggressively entertaining corporate sponsorships of research

(Association of Universities and Colleges of Canada, 2002; Read, 2001).

Canada's share of university R&D financed by industry is the highest of G8 countries, and is climbing (Gu & Whewell, 1999, p. 23). Industry sponsored research in Canadian universities has fluctuated over the past decade and is currently about 16% of the externally funded research budget. At UBC, industry sponsored research was about \$8 million in the 1990-91 fiscal year and increased to \$48.4 million (948 projects) in the 2004-05 fiscal year. In 1990-91, industry-sponsored research was 7%, climbed to 21% in 1998-99 and dropped to 13.3% of UBC's external research budget in 2004-05. Licensing royalties increased from \$875 thousand in 1998-99 to \$15.9 million in 2004-05. In the 2004-05 fiscal year, UBC filed for 276 patents, and between 1995-1999, UBC ranked fourth in Canada in total US patents issued, behind Northern Telecom, Xerox and the NRC. UBC now has the distinction of ranking third in Canada, behind Nortel and Siemens, in US patents issued between 1997 and 2004 (UBC UILO Reports, 1998-2004). Its University-Industry Liaison Office (UILO) is Canada's most successful (Chan, 2005). In *Universities for Sale*, Neil Tudiver (1999) historicizes these trends, and in *The Corporate Campus* other scholars (Turk, 2000) explore current implications of "creeping privatization" of universities across Canada (CAUT, 2001). One of the arguments is that such forms of "academic capitalism" (Slaughter & Leslie, 1997), or what David Noble (1998, p. 30) calls "capital accumulation," where faculty and students are effectively running businesses with public funds, erode responsibilities for teaching and research scholarship.

Like most universities in North America, UBC requires its faculty and students to assign rights in all patentable discoveries or inventions to the university. "Naturally occurring" life forms, unmodified gene sequences and software can be patented along with conventional "utility" inventions. A patent is an official document granted by the government (Canada, U.S., etc.), conveying specific rights, to the recipient. These include "the right to exclude others from making, using, or selling" the patentees discovery or invention

within the country where the patent was granted. Patent monopoly critics note that this right to exclude often overrides rights to use. The term of most patents in Canada and the U.S. is twenty years from the date the patent application was filed. UBC's UILO administrates the patenting process and Policy 88, which defines IPRs in general at UBC and specifically the scope of licensing and patent rights. If UBC licenses or sells the patent, the university retains 50% of the net income while the discoverer or inventor receives 50%. The "reward" theory of patents emphasises these individual and institutional royalties, and economic power. The reward theory plays on the "entrepreneurial icon of the inventor-scientist." (Rhoades & Slaughter, 1991, p. 74). UBC's Policy 88 warns that publication of any details of a discovery or invention may nullify patent applications and concomitant rewards. Researchers are advised to be cautious toward academic discourse (abstract, article, interview, presentation, proceeding, video, web site, etc.). For UILO directors, who operate with a reward theory, public disclosures of knowledge can be ticking "time bombs that can blow away licensing deals" and patent rights (Malilay, Mueting & Viksnins, 1997). As Rhoades and Slaughter found, technology transfer "folklore is filled with tales of academics who published something that was patentable and now regret it because of all the money they could have made had they delayed the publication and filed a patent instead" (p. 74). If patenting and licensing are the goals, then secrecy is the best protection.

Advocates for economically driven research argue that patenting forces a disclosure of knowledge. Operating in the marketplace, competition forces universities to expedite disclosures and the processes of licensing or technology transfer. Apologists for industrial sponsors of research note that the *economic* marketplace generates forces similar to the *academic* marketplace. One transfers knowledge toward a publication pipeline, the other toward a patent pipeline. Knowledge in each eventually becomes public; indeed, the two are more or less interchangeable. Academics and industrialists alike have been known to operate entrepreneurially and in secrecy to pursue the rewards of power, privilege, profit, promotion and prestige. As Queen's University UILO

manager John Molloy asks, how do we ensure this entrepreneurialism gets transferred to the economy? "That's not the only priority, but you don't want to waste economic opportunity" (quoted in Lepage-Monette, 2003, p. 15). Of course, the Association of University Technology Managers (AUTM) notes, there are a few barriers to overcome. "The tenure track system— with its emphasis on publication— acts as a disincentive to the maintenance of information as a trade secret," the AUTM says (Innes & Valauskas, 1999, p. 3). "With the increase in cost of other forms of protection, it may be useful for universities to utilize trade secrecy more as businesses do to protect software, hardware, databases, and new processes, as well as more common forms of information such as technical data, know-how, clinical data, and other tangible results of research." Holdovers from an idyllic era, academic freedom, the tenure system and campus unions can be reformed to capitalize on opportunity. Besides, research is research whether in the academic or economic marketplace. The goal is to merely transfer R (research) to D (development). So why all the fuss?

Counterpoints to this logic and trends in commercial sponsorship of public universities often reiterate David Noble and Nancy Pfund's (1980, p. 252) warning: "With industrial support there is relatively less freedom for the researcher because there is now a single line to follow, the line of the generous benefactor. And this brings us back to the gravest concern of all, the future of academic freedom, the seeming depoliticization of discussion [and] the stifling of debate." In Canada, the most notable recent example of the erosion of academic freedom by industrial influence is the drug manufacturer Apotex's case against University of Toronto professor Nancy Olivieri beginning in 1995. At the core of the \$120,000 contract to submit deferiprone to research trials was a confidentiality clause that would ultimately be used to silence Olivieri's findings that the drug could cause liver scarring in some patients. Not quite a classic case of "whistle blowing," Olivieri merely wanted to inform the patients at risk. Fearing public exposure, Apotex terminated the study and threatened Olivieri with legal

action if she released her findings. In the midst of securing a \$25 million "donation" for a new medical building on campus, the U of T declined support for Olivieri. More recently, in the spring of 2004, the Chancellor of the University of California, Berkeley rejected Ignacio Chapela's bid for tenure. This decision overturned near unanimous votes of support by tenure committee members on campus and 17 of 18 favourable external reviews (www.tenurejustice.org). Chapela and colleagues claim that this was based on the influence of biotech companies on academic freedom. An outspoken critic of the increasing influences of biotech companies on universities, Chapela spoke out specifically against UC Berkeley's \$25 million contract with the biotech giant Novartis (now Syngenta). Chapela has also been speaking out for farmers, such as Percy Schmeiser, a 70-year-old farmer in Saskatchewan, who was sued (2001) and found guilty (2004) for infringing on Monsanto's IPRs by growing unlicensed canola. Schmeiser claims Monsanto's seeds blew into his field from adjacent GMO farms. With considerable pressure, UC Berkeley reversed their earlier decision and finally granted Chapela tenure in 2005.

"Fifteen years ago," Rogers (2005) proclaimed, few British Columbians had ever heard of the term 'biotechnology.' By 2003, according to industry association BC Biotech, 80 companies in and around Vancouver and Victoria represented more than \$800 million worth of public and private investment, and directly employed close to 2,600 people. Between 1998 and 2001 these companies raised more than \$245 million in venture capital, and between 1996 and 2001 they spent nearly \$350 million on research" (p. 25). This biotech industry was basically homegrown with UBC resources. In 2003, the *Biotechnology Focus* referred to UBC's UILO as the "Leader of the Pack" (Lepage-Monette, 2003, p. 14). Since 1984, about 113 BC biotech companies — nearly 60% of the BC biotech industry— were "spun off" UBC's research. UBC's research park, managed by Discovery Parks, Inc., provides multi-tenant lab space on campus, which "start-up companies can't afford themselves, such as animal care facilities or disposal of hazardous chemicals" (11 of 17 in Discovery Parks are

biotech companies as of November 2004). Biotech company notables, such as QLT and ID Biomedical, were started at UBC.

According to UBC UILO Director Angus Livingstone, "the university itself ends up as a bit of a virtual incubator for these companies" (quoted in Lepage-Monette, 2003, p. 14). BC is now one of the "fastest growing biotech regions in North America" (BC Biotech, 2003, p. 54). Increases in the growth of biotech companies between 1991 and 2001 made Vancouver the third largest biotech city on the continent, behind San Francisco and Boston. In 2003, BC Biotech awarded UBC's UILO its Lifetime Achievement award. Since its inauguration in 1984, UBC's UILO has overseen \$1.5 billion in private investments, with a fair percentage of this returning from the biotech industry.

Biotechnology is driven by genomic and proteomic research and patenting, and with the BC government's R&D tax incentives and \$130 million annual UILO funds, universities offer attractive investments and resources. Based on the mapping of the 30,000 genes in the human genome and thousands of sequences, analysts anticipate that some three million patent applications will claim IPRs on related medicines and uses, allowing for a 'patent family' or monopoly on human genes and their uses. As of July 2003, nearly 2000 human gene patents have been issued in the U.S. The Canadian government grants gene patents but has not yet approved animal patents (400 animal patents have been granted in the U.S.) (Petrina, Volk & Kim, 2004).

While engineering, medicine and the sciences are commonly associated with patenting, faculties of education and humanities are pursuing corporate projects as well (see also Petrina, this issue of *Workplace*). When Vtech (\$1 billion USD in revenues in 2000) and UBC's Faculty of Education negotiated a "large collaborative" contract in 1998 to "conceptualize educationally sound tools for the classroom," few were surprised. The only tangible outcome from this collaboration was the Keyboard Wizard 2.0, an electronic device to teach typing to elementary school children. This word processor was typical of Vtech's line of computer products scaled down for children 3-

12 years old. In the field trials sponsored by Vtech, the incentive to attach "significant results" of UBC research to sales of the product was typical of these types of contracts. A disagreement developed between the UBC professor assigned to the project and a sessional that played a leading role in making the project happen. The two signed a private contract in 1999 where the sessional reassigned her IP rights to the "project" but retained rights to the "materials" she developed. These "materials" underwrote the book of typing lessons for the "project." Her expertise in the early stages of the project— developing the keyboard, ergonomics and systematic observations of children— informed the design of the product. Near the end of the project, she realized she had signed herself out of royalties and appealed to UBC lawyers, who reminded her that she was no longer a UBC employee. The case was effectively closed. Vtech stopped production of the Keyboard Wizard in 2001. Coincidentally, a year earlier, the Faculty of Education appointed the vice president of Brainium Technologies, an upstart corporation targeting the K-12 market, to a prestigious research chair.

As indicated by the *UBC Graduate Student Society Handbook* IP clause, which is quoted at the top of this article, the University claims ownership over all forms of IP except "literary works." The Handbook quote affirms UBC's Policy #88: "*Literary Works*: Ownership of and intellectual property rights to "literary works" produced by those connected with the University are vested in the individuals involved." But increasingly, universities are placing an economic value on copyrights, hoping to cash in on the flow of digital property, publishing revenues and the sale of online courses (Townshend, 2003; Wilkinson, 2001) (see Petrina, this issue of *Workplace*). Alliances are forming, such as U21 Global, which consists of 16 universities, the conglomerate Thomson Learning, and the online course business of U21Pedagogica. UBC's investment into U21 signals the university's interest in capitalizing on course copyright (see Walker, this issue of *Workplace*). UBC lawyers argued in the Bryson v. MET arbitration that UBC Press pervades the entire university— The entire institution of UBC is now a publisher. The Bryson v. MET case is

an example of universities attempting to divide the literary by format— UBC wants ownership over digital files while ownership over paper files is left to individuals (see Petrina, this issue of *Workplace*).

UBC has not had a high profile pharmaceutical company versus Olivieri, or Chapela versus the biotech industry, *yet*. However, we could argue that the trajectories of current academic freedom cases at UBC together with the institutional cultures within which they exist provide a map of a possible— and disturbing— future. While the business of patents draws a researcher irrefutably into the world of property, the business of literary studies may appear not to. The culture of literature departments compounds the problem by fostering disciplinary traditions of conservation, protection and dedication to an ethos of correctness and civility, all practices that encourage a distaste for publicity. In this context the defense of research as one's own intellectual property may seem egotistical while, conversely, others may rely on an implicit trust relationship with the institution, a fiduciary duty. Either way, we keep our heads in the sand or perhaps take refuge in the undefined concept of the "literary" which, at this moment, saves it from being claimed as the university's IP.

What have Canadian courts said about the "literary"? Understandably, not much, and chiefly in the context of obscenity and pornography trials where the "artistic merit" defense is mounted and where an ongoing debate has redirected moral panic from alleged violations of the Criminal Code to poststructuralist theory and to theorists working as expert witnesses (Weir, 1999). At least partially in reaction to the curriculum of a graduate level literary theory course in 2001, a student enrolled in the course launched an \$18 million lawsuit against UBC and four faculty members. Among others was a claim that the curriculum and professor discriminated against certain religious freedoms. The media campaign around this case (*Maughan v. UBC*) in 2002 and 2003, drew on the post-9-11 return in America to an anti-deconstruction, anti-gay, pro-family values agenda reanimating a two-decade-old battle in American universities against radical critique in the Humanities. In this context, then,

the "literary" looks even more suspect as a place of scholarly refuge, prone to eruptions of moral panic. In a somewhat surprising turn of events, the student filed a complaint with the BC Human Rights Tribunal in May 2005, alleging that an analysis of the case, ironically at the UBC Faculty Association's What Price Freedom? Academic Freedom and the Corporate University conference, and briefly within an article (i.e., Petrina & Weir, 1984), constituted continued discrimination. Here, the scholar's ability to explore the intellectual implications of the case is attenuated by demands for censorship.

Upon ruling on the student's appeal to the BC Human Rights Tribunal, Tribunal Member Judy Parrack (2006) provided an extremely significant decision for academic freedom and rights of scholars to speak about and analyze allegations brought against them and cases in which they were involved. The Tribunal Member follows the logic that the complainant brings forward but disagrees that academic analysis is "discriminatory." If this logic were correct, she noted. "it would mean that no respondent could defend or speak about allegations made against him or her in a public document" (p. 18). She continued:

Ms. Maughan alleges that UBC and UBCFA discriminated against her because of her religion when they published the Weir-Petrina Article. She also suggests that CAUT discriminated on this basis when they circulated the Article at the October conference. The Weir-Petrina Article was prepared, and provided to, those who attended the October conference. It was also published in the November issue of the Faculty Focus the newsletter published by the UBCFA. According to Ms. Maughan, it also appears on various websites that are linked to UBC. (p. 27)

The conclusion, again, is a victory for academic freedom. She reasons: "I accept that Ms. Maughan did not like the fact that her legal action was discussed in this publication but that is a consequence of filing an action that is in the public domain. That consequence, although difficult for Ms. Maughan, does not indicate that

the Article was intended to discriminate against her or would likely expose her to hatred or contempt because of her religion" (p. 27). In this case, one could not order a more concise decision on academic freedom. We can easily extend this defense of academic freedom to cases involving corporate sponsorship (i.e., Olivieri) and whistle blowing. At this moment, the "literary" and copyright protection are nonetheless vulnerable to strategies of corporate appropriation.

The new corporate dominance of university practice, Leonard Minsky (1983, p. 13) noted, "represents an unprecedented intrusion into the heart of academic freedom—the hiring process—and an unprecedented giveaway of a public resource." Arguably, the intrusion is also into tenure and promotion processes, graduate supervision, and graduate admissions now that fellowship sweepstakes largely determine who gets admitted to doctoral programs.

As Wesley Shumar (1997) explained in *College for Sale*, the role of university presidents in this era has morphed from academic leader to CEO, a role that UBC President Martha Piper has relished. At a speech to the BC Business Summit, upon celebrating the many "natural resources" she associates with UBC, President Piper (2001) omitted only faculty members from the list. Maybe we need to begin at the beginning and remember that neither administrators nor faculty members can take each other or academic freedom for granted (Smith, 2001).

In 1983, the National Coalition for Universities in the Public Interest was formed "to bring extra-academic pressure to bear upon university administrations who were selling out their colleagues and the public in the pursuit of corporate partnerships" and "to galvanize student and faculty opposition to the corporatization of their institutions, chronicling the consequences of this trend while aiding those who suffered abuse and retribution for refusing to go along" (Noble, 2002, pp. ix-x) Twenty years hence, this type of vigilance in defending the public interest continues to inspire radical labor and collective activism in academic workplaces. At stake is who decides what and when public knowledge ought to be disclosed. The corporatization of

universities may mean the commercialization of academic freedom along with IPRs. Think About This!

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