Autonomous Universities and the Making of the Knowledge Commons

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Introduction

This is the last of my four scheduled Russell Scholar lectures on the theme of academic freedom. I would like to briefly recapitulate for you their trajectory.

In my previous lectures I discussed the threats to academic freedom coming from the state and market and I began to sketch a theory of academic freedom taking us beyond our need to defend academic work and institutions from these threats. I argued that the notion of a knowledge commons is crucial in defining the positive aspect of academic freedom and that the proper expression of academic autonomy in the 21st century is the preservation, defense and expansion of the knowledge commons.

In this lecture I address the role autonomous universities can play in the practical task of making the knowledge commons.

Communal Lessons from Maine's Lobster Gangs: From Hobbes to Rousseau

Let me begin with the conclusion of my previous lecture: *autonomous universities must be involved in the making of the knowledge common*. However, what exactly is required to make a knowledge commons or indeed any commons at all? Commons require at least three elements for their constitution: (a) a common-pool resource (i.e., a resource that combines "difficult excludability" and "high subtractibility"), (b) a set of

people who desire continuous, long-term access to the resource (commoners), and (c) a set of rules and procedures that commoners use to manage the resource. Any attempt to go from this abstract framework to actual commons usually leads us to examples of either historical interest--evoking the cozy village commons in medieval England redolent of Tolkein's Shire--or commons in "exotic" locales, e.g., small forest communities in contemporary India (e.g., Shiva 1989).

But there is a world-famous commons in Maine that can help us to understand the making of a commons. The coast from Kittery to Eastport is one of largest commons on the planet. The common-pool resource is the millions of lobsters living there, the "commoners" thousands of lobstermen (and a few lobsterwomen) whose livelihood is based on selling lobsters, and the rules and procedures they use to manage the lobster fishery is a complex combination of informal "deals" among the lobstermen as well as formal laws. A rather remarkable feat of co-management between the "commoners" and the government is responsible for the survival and success of the lobster industry at a time when other types of fishing in the Gulf of are facing extinction.

The present management of the "lobster commons" is based on the "Zone Management" law of 1995 that gave legal authority to a pre-existing informal territory-based system of access to local "gangs" (to use James M. Acheson's term) (Acheson 2003). The law divides the Maine coast into seven segments and each segment has its zone council made up of elected lobstermen who deliberate on issues like trap limits, the permissible size of lobsters taken to market, and licensing procedures in their area. The councils also arbitrate the inevitable disputes that come with lobster fishing. The most prominent ones being, of course, boundary disputes both among individual lobstermen in a zone and interzone conflicts between gangs.

A Solon from Maine did not devise the present "settlement" of lobster fishing that is based on the participants' self-management of the fishery. It arose out of more than a century of struggle among lobstermen themselves and between them and government officials. The making of this common was not irenic, but neither was it tragic.

This process had at least three stages. The first was territorial. A lobsterman who owned an island or a home on the coast presumed to have the surrounding waters as his fishing "turf." Thus, "the first fishing territories were small, close to shore, fished mainly

in the warm months of year, and vigorously defended by their owner or owners, who were usually close kin" (Acheson 2003: 42). The battles to preserve these small areas mostly involved trap molestation (often by cutting traps' buoys and warp lines or destroying all or part of them) and had the quality of a Hobbesian war of all against all.

The second stage saw the emergence of the harbor or island gangs who organized the territory on the basis of the geographical features of their residence. The average tourist looking over a Maine bay would not see what the lobstermen see: the dividing lines separating the territory allotted to the members of a harbor gang and between different harbor gangs. These gangs also carefully control the entry of new lobstermen and often reject claimants by destroying their traps and in one way or another harassing them until they leave the fishery.

In both these stages territorial, access, and entry rules were informally created (and enforced) by individual lobstermen or by harbor (or island) gangs. This was the period when the commons was formed. The third stage has been one where the confrontation between commons and state initiated a gradual shift to the introduction of formal rules negotiated between lobstermen and officials. This process has been aided and abetted by the increase in law enforcement (e.g., stiffer penalties for trap molestation) and an expansion of lobster fishing into the open sea where traditional and legal territorial claims largely disappear.

This story of the evolution of Maine's lobster fishery can be read as a familiar transition from a Hobbesian "state of nature" to a Lockeian "social contract," but to do so misses the peculiar character of what has resulted in this process. For instead of rights to fish on private patches of waters sold to the highest bidder, the coast of Maine lobster fishery is organized primarily as a commons, where the "commoners" have a significant voice in the management of the resource. The political theory explanation of the development of the industry based on Hobbes and Locke neglects the fact that throughout these stages a "conservation ethic" has been growing, i.e., a collective lobstermen's concern to keep the common resource healthy and plentiful over the long run.

The Hobbes-Locke story misses what I would call the Rousseauian element. For Jean-Jacques Rousseau's "myth of social origin" is rooted in an attempt to prevent species

(not individual) annihilation rather than a defense of one's private property (Locke) or a concern for one's bodily safety and comfort (Hobbes). He writes:

> I suppose that men have reached the point where obstacles that are harmful to their maintenance in the state of nature gain the upper hand by their resistance to the forces that each individual can bring to bear to maintain himself in that state. Such being the case, that original state cannot subsist any longer, and the human race would perish if it did not alter its mode of existence (Rousseau 1987: 23).

In other words, the "resistance" that threatened to overwhelm dispersed human "forces" and bring about total human extermination was the stimulus "to form by aggregation a sum of forces that could gain the upper hand over the resistance, so that their forces are directed by means of a single moving power and made to act in concert" (Rousseau 1978:23). The beauty of Rousseau's myth is that it reduces the origin of society to a simple application of mechanics (sum of forces versus resistance). Moreover, it is plausible, since sociality arises out of physical necessity and does not suffer the circularity that other philosophical myths of origin like Hobbes' exhibit.

It also has a direct fit with what the change in lobstermen's attitudes before and after the cataclysmic developments in the 1930s when lobster catches went to historic lows. Colin Woodward describes the lobster industry then as heading straight to a "tragedy of the commons":

> Between 1905 and 1929, Maine lobstermen increased the number of traps they used by 62 percent and fished over ever-longer seasons, but their catch fell by 28 percent. Only the ever-increasing prices kept an economic disaster at bay. The stock market collapse of 1929 dealt the final blow to the industry...Lobsters were by then an expensive luxury item, and both demand and prices crashed during the Great Depression of the 1930s (Woodward 2005: 191).

The lobstermen in the 1930s discovered an overwhelming natural-social "resistance" that required their creation of a "sum of forces" as a response. They realized that their individual violations of conservation laws were leading to a collective catastrophe. As Acheson notes: "Increasingly, people became convinced that those violating the

conservation laws were doing far more damage than they had thought previously" (Acheson 2003: 81).

The period since the 1930s has seen a remarkable reversal. "By the 1990s," writes Acheson, "the lobster conservation laws became almost self-enforcing" (Acheson 2003: 81). In many cases this trend was further intensified. For example, between 1997 and 1998 all the seven "lobster management zones" voted on "trap limits" (i.e., the maximum number of traps an individual lobsterman can operate). This was meant as a conservation measure, and was heavily supported even though it led to a sharp division in the various harbor gangs between the "big" fishermen and the others.

The success of this conservation ethic and the co-management of the lobster fishery has become evident in the survival and even flourishing (until the recent energy price jump and financial crash) of the industry. Thus we have an example of the more than century-long making of a commons. What does it teach us who are involved in the constitution of a knowledge commons?

Certainly the experience of the Maine lobstermen encourages a healthy skepticism towards both "top-down" governmental and "short term" market approaches to management of common resources. As the doyen of the academic study of common property resources, Elinor Ostrom, concludes: "A frequent finding [of studies of the commons] is that when the users of a common-pool resource organize themselves to devise and enforce some of their own basic rules, they tend to manage local resources more sustainability than when rules are externally imposed on them" (Ostrom 2000: 148).

Indeed, the commons operates in the conceptual "terra nullius" between market and government, hence the process of its "making" is different from the "makings" of the market and government as well. However, bourgeois political philosophers (with the partial exception of Rousseau) were hostile to the reality and concept of the commons and directed their arguments to the undermining of communal forms of ownership and management. Not surprisingly this hostility was first directed to de-legitimating the indigenous Americans' claims to collective ownership of land--indeed, John Locke, as colonial administrator for the Carolinas, was especially anxious to accomplish this task (Arneil 1996: 153)--but it soon encompassed the claims of so-called "savage" peoples throughout the planet (Linebaugh 2008: 144-169). Thus when it came to genealogy, the

key issues for political theory were the "making" of the market (private property and contract) and the "making" of the state (authority over life and death), both of which involved the "unmaking" of the commons!

Although 19th-century anarchists like Petr Kropotkin drew attention to "the making of the commons," the statist turn in the Socialist and Communism movements made the issue of the commons a matter of "pre-capitalist" history (Kropotkin 1955). So from Right to Left the problematic of the making of a commons was neglected until its renaissance in the late 20th century which developed in response to the triumph (and now tragedy) of neoliberalism (Caffentzis 2004, 2006). Cooperation, trust, reciprocity, "niceness," altruism and similar phenomena were revalorized and made central to political theory often under the rubric of "social capital" (e.g., Axelrod 2006, Kolm and Ythier 2006)). In this context, the story of the Maine lobster common is especially enlightening, for it illustrates many of the themes of this turn to the commons.

Let us consider three central features required in the making of the lobster common: (i) increasing the shadow of the future, (ii) training in communal values, and (iii) struggling against both the anti-communal restrictions of the state and the temptations of the market.

*First, increasing the "shadow of the future" on the present is crucial for the making of a commons. In our case, this has two elements: the future shadow of the lobsters and the future shadow of the lobstermen. Lobstermen deal on a daily basis with other lobstermen who are largely local residents and whose livelihoods will depend upon their access to an abundant stock of lobsters far into the future. Moreover, they expect to communicate with and to make deals with the other potential competitors concerning the lobster stock in the future. So if someone breaks the evolving rules of the commons (especially conservation laws which affect the future stock of lobsters) s/he can expect to lose the cooperation of others and, given the need for continual interaction, this could be a heavy burden especially in Maine where trap molestation is a constant threat while social sanctions and ostracism of defectors can "be more effective than a dozen wardens" (Woodard 2004: 269).

Second, the training of the values of cooperation and reciprocity are important in the making of a commons, since they frame and weigh on the decisions concerning

whether to cooperate with or defect from the rules of access and contribution to the common resource.

This is clearly seen in the informal apprenticeship served by all who enter into Maine lobster fishing, for it is an artisanal industry that requires enormous communal efforts especially in times of immediate danger (from storms to border defense). Lobstermen's communities or "gangs" carry on this education in values and skills and in the process they have created a remarkable social system over many generations that has survived both capitalist as well as ecological crises by creating a distinct "moral economy" in the midst of supplying an international market and exploiting an animal species that occupies a very fragile niche in the Atlantic's ecology.

Third, the commons needs to be valorized and its fetters need to be broken. Academic students of the commons know this process as "changing the payoffs," for all too often the state criminalizes communal cooperation and the market tempts many to break communal bonds and limits. Together they often nip commons in the bud, so it is at this point that the struggle with the state and market is especially pronounced in the drama. Consequently, in the making of a commons it is important to end the criminalization of pro-commons behavior and to show that following the commons rules leads to prosperity and not economic suicide.

The confrontation with state and capital in the making of the commons is especially clear in Maine's lobster industry. For almost a century many of the daily activities of the lobstermen and women (from territorial defense to the hazing of unwelcome entrants to a harbor or island gang) were considered violations of law that carried heavy penalties. It was only since the passage Zone Management Law of 1995 that these practices were transformed into the realm of quasi-legality. For example, "in 1999, the zone councils were...empowered to make proposals to limit the entry of new fishermen into their zone as older license holders retired" (Acheson 2003: 97). Similarly, the market continually tempts fishermen with a lot of capital to employ larger boats with many crew members and in general to "be a pig." This has led to something of a class struggle between the "big" and the "little" lobstermen. Before the 1995 law there were many informal efforts to impose trap limits with all the tensions and dangers such efforts

imposed, but in the late 1990s formal, state-sanctioned and locally voted upon trap limits were installed throughout Maine.

Is the Making of the *Knowledge* Commons Possible?

With the general notion of a commons and a concrete example of the making of Maine's lobster commons established, I now turn to the question of autonomous universities' involvement in the making of the knowledge commons. According to the general definition of a commons cited above, at least three elements are necessary: (a) a common-pool resource; (b) a community that accesses the resource; (c) rules for accessing the resource and meta-rules form making these rules. A number of oddities and paradoxes posed by the notion of the knowledge commons must be successfully addressed before we can actually engage in its making.

The first difficulty is with the resource itself: knowledge. As I mentioned in the third Russell Scholar lecture, the notion of knowledge used here is a common-pool resource:

> ...made of texts, concepts, images, sounds encoded and stored in the form of binary electro-magnetic states or ink and paper or vinyl or magnetized tapes or film or even stone inscriptions. Although made up of individual points of access (often called commons as well), it is a vast (potentially infinite) expanse that includes anything from the languages of the ancient Mayans to the latest cultural productions in Portland.

This resource ontologically differs from the stock of lobsters on the coast of Maine, of course. After all, lobsters are spatially and temporally specific and have a relatively well-known process of reproduction. Knowledge has no defined location in space and time, its mechanisms of accumulation are not well known, and it spans the material/immaterial, the abstract/concrete, the specific/general and many other divides.

In a word, the totality of knowledge is hard to grasp but, *pace* the Maine Lobstermen's Association, it is more important for human existence than all the lobsters on the coast of Maine. In fact, it seems to escape from control by any particular government in the way "global commons" like the atmosphere, the oceans (and the

minerals in the deep seabed), outer space, and Antarctica do. Similarly, the market (or Capital) is incapable of subsuming it, since the market itself requires this commons to operate (in the form of "background information"). Hence the power relations between a Knowledge Commons, the State and the Market differ profoundly from the lobster commons that is pressed on each side by State and Market. After all, knowledge transcends and pre-conditions the State and Market. Finally, the end of the lobster commons is primarily to allow the commoners to make enough money to support their needs through selling a commodity to a buyer--whereas the end of the knowledge is not primarily monetary.

The immensity of the epistemic resource combined with its partial lack of tangibility makes it similar to language that also has a status of a potentially infinite resource (since anyone using the grammar and vocabulary of a human language can generate an infinite number of sentences). Just as language is a product neither of government nor market, but an immense diurnal communal product of millions of speakers, listeners, readers and writers, so too is knowledge a vast communal product being produced prodigiously on a daily basis. Just as one would be foolish to refuse to acknowledge the wealth of the gift of language because it is unruly and transcendent, one would be equally foolish to refuse to recognize the wealth of knowledge because it too is unruly.

Yet, however vast, wild and transcendent it is, knowledge is increasingly being privatized and commodified. Consequently, the powerful political charm of knowledge's "low subtractability,"--i.e., my use of an item of knowledge does not deprive you of its use--is being challenged by corporations and states. Corporations are often using copyright and patenting against their "original intent"--if I may be so bold in stealing a favorite term from conservative commentators on the Constitution--in forcing us to pay to use an item of knowledge that had previously been in the public domain, hence creating an artificial scarcity and increasing its subtractibility. States are increasingly using their powers of secrecy and surveillance to make it possible, on the one side, to know that you and I know a particular item of knowledge and, on the other, to keep us ignorant of its knowledge of our knowledge. Together these transformations of knowledge (which reached a new maturity in the Bush Administration) create the need to protect the non-

state and non-market access to the knowledge as a resource for life and set the stage for the knowledge common.

A second difficulty arises with the community managing the knowledge commons. "No Commons without Community" is an axiom of commons studies on both the Right and the Left (cf. (Mies and Bennholt-Thomson 2001), (Ostrom 1990)). In the case of the Maine lobster commons there has been clearly a specified community managing the common-pool resource for about a century and a half: the harbor and island "gangs." They have gone through many changes in number, equipment, self-definition and attitude (with the crisis of the 1930s perhaps being the most decisive), but they have provided a continuity of work and concern, since lobster fishing has been the basis of their livelihood. But what is the community of the knowledge common? Is it the set of human knowers? If so, then it must include all of humanity. If not, then what subset of humans is distinctly involved in the management of the resource knowledge? The intellectuals, the academics, the literate? None of these subsets seem correct, but then what is a commons that includes all of humanity? Is humanity a community?

These are pertinent questions and they pose conundrums galore, but they cannot be escaped by rejecting global solutions provided by global governance *tout court*. For just as environmental groups like Greenpeace must challenge the crimes of oil dumping and the killing of nearly extinct whale species that take place on the high seas far beyond the reach of local communities, so too must the access to the resource of knowledge be dealt with as a totality. It is true that at the moment most "global solutions only serve as a legitimation of a capitalist and imperial power" (Mies and Bennholt-Thomson 2001: 1022). This does not mean, however, that there cannot be ways of struggling on the level of the knowledge resource and in the process creating the type of communication and reciprocity that is an essential prerequisite for the creation of a coming human community. This indeed is happening with a number of efforts to create new forms of communal ownership and communication of knowledge--from the Creative Commons licenses, to free cooperation, open access, file sharing, peer-to-peer networks, etc.

A third difficulty arises from the rules of access and contribution to the common resource, knowledge. The access rules that were developed in the lobster commons--V-Notching, double gauging, escape venting, etc.--were devised as part of an effort by the

lobstermen to both remain economically viable and escape from the "tragedy of the commons," i.e., the rules were functional to keeping the stock of lobsters large enough to sustain profitable catches. But what is the point of the rules for access and contribution for the knowledge common? How can rules be devised to avert the tragedy of the knowledge commons? Indeed, what is the "tragedy" in this case?

The true "tragedy" of the knowledge commons is the absorption of the totality of knowledge into the realm of state administration or market commodification (this, in Rousseau's terminology. is the "resistance"). Consequently, the aim of the knowledge commons community's rule-making is the creation of a "sum of forces" and practices that can prevent the overwhelming enclosure of the commons by state and market. The criterion for evaluating a successful set of rules would be whether the realm of free access to knowledge enlarges and the contributions to knowledge creation increase as well.

The Making of the Knowledge Commons

In a previous section we examined how the lobster common of Maine was made and noted three essential considerations to the making of a commons: increasing the shadow of the future, commoners learning communal values and practices, and increasing the "payoffs" for cooperation. We shall apply this scheme in examining the making of the knowledge common.

a. Increasing the "shadow of the future."

The "shadow of the future" element is the Rousseauian, apocalyptic or "revolutionary crisis" moment in the making of the knowledge common. A vision of the horrific total enclosure of knowledge by both state and market must be projected on to decisions made today. Such a mental temporal reversal is required in order to motivate the type of mass cooperation needed for the creation of the knowledge commons. Ironically, the Bush Administration's combination of the war on terrorism surveillance and the maximization of neoliberal intellectual property policies of the last decade has unleashed the social imaginary. It may well be that this period will become for the

making of the knowledge common the equivalent of what the 1930s was for the making of the Maine lobster common.

There is now a generalized sense of crisis with respect to the access of knowledge being voiced across the intellectual spectrum. Phrases like "the enclosure of knowledge," "the crime of reason," "the tragedy of the anti-commons," "the silent theft of the knowledge commons," have become shibboleths of a movement that, like the ecological movement of the 1960s and 1970s warning of catastrophic climate change, is now envisioning the complete commodification and/or total sequestering of knowledge [(Caffentzis 1994), (Loughlin 2008), (Heller 1998), (Bollier 2002) respectively]. Let me review a small sample of this "prophetic" literature.

One of the salient recent expressions (brought to my attention by Prof. La Salla) of the extremity of our epistemic situation is by Noble-prize winning physicist, Robert B. Laughlin. He claims that the national security restrictions on knowledge as well as the patenting and copyrighting of knowledge have increasingly criminalized the exercise of reason and the pursuit of learning. This development justifies his introduction of the catch phrase, "the crime of reason," into the discussion of the contemporary epistemic scene. He writes:

> Our society is sequestering knowledge more extensively, rapidly, and thoroughly than any before it in history. Indeed, the Information Age should probably be called the Age of Amnesia because it has meant, in practice, a steep decline in public accessibility of important information (Laughlin 2008: 5).

Laughlin sees in the "criminalization of learning" a profound contradiction between the desire to give to the Market and State powers to achieve their purported ends for the greater good and the lingering respect for one of the most basic of human rights, the right to know. This desire and this respect are now in contradiction. The consequences of the situation described by Laughlin's epigram, "The Age of Reason is being pushed out of its ecological niche by the knowledge economy," will only be fully felt in the future, but he argues that action to avoid it must begin now and that action will be costly (for many corporations) and dangerous (for many states).

David Bollier, a journalist and media activist, prophesizes that we are on the verge of a "copyright police state." He writes:

> Copyright owners want strictly to control their creative and informational works--in all markets, on all media platforms, and even in how people can use copyrighted products. This is propelling an unprecedented expansion in the scope and duration of intellectual property protection, as well as more intrusive kinds of enforcement and new technologies of control (Bollier 2002: 120).

In effect, cries Bollier, there is an ongoing "silent theft" of the dozens of resources that US citizens collectively own, especially knowledge. "Big Content," computer, and Internet corporations are the silent thieves who are enclosing and privatizing the immense wealth developed by thousands of generations of knowers without firing a shot.

Finally, consider the vision of Nancy Kranich, former president of the American Librarians Association, who claims that the impression of increased availability of knowledge during the Internet era is an illusion. She writes:

> ...even though more people than ever have access to computers and the Internet, much valuable information is being withdrawn, lost, privatized, or restricted from the public, who used to be able to rely on this same information. In effect, this "walled garden" or 'enclosure" on line creates and increasing threat to democratic principles of informed citizens and academic principles of building on the shoulders of giants. Looks are deceiving: while it appears that we have more, we actually have less and less (Kranich 2007: 86).

It is difficult to assess her quantitative claims (is it more or less?), but the evidence she brings to bear on her prophecy is impressive. For example, she points out that libraries that subscribe to a data base have nothing to offer users if they discontinue leasing, even if they had paid fees for decades, due to restrictions on archiving and preserving the material on the data base! "When budget cuts come... 'The library has no trace of what it bought: no record, no archive. It's lost entirely" (Kranich 2007: 89). Do we have more data now and less later?

These individual voices are joining many others to cast the shadow of the future onto the present. They are beginning to become self-conscious and slowly are forming a "sum of forces," i.e., a movement. We are now in a situation when these prophets' hellish vision of an electronic, "free market" Farenheit 451 are echoed by the practical efforts of some universities and "knowledge rights" organizations that challenge both the legal and administrative repression of free access to the knowledge commons (for a review of many of these efforts see [Kranich 2007]). These overt efforts to resist the growing privatized/securitized knowledge order are observable peaks in an ocean of billions of acts of epistemic subversion that have become commonplace in the life of faculty members and students. Together these developments constitute a growing movement of resistance to the complete destruction of the knowledge commons.

This movement is posing to universities and academics a number of questions that cannot be avoided any longer:

*Will *this* university be an advocate for open access to the knowledge common?

*Will *this* university require that its faculty members make their research results available in the public domain?

*Will *you and I* as faculty members self-archive the products of our research and demand that our work be available in the public domain?

*Will *this* university's library "information commons" be transformed into a "copyright-free zone" where all material in the zone would be inalienably in the public domain (Beagle 2006: 187-188)?

These are not easy questions to answer for most universities, mainly because they put into doubt their economic strategy in the neoliberal era. If answered affirmatively, for example, universities would be in conflict with "content providers" like publishing, television, and film companies, and with Internet providers. Unless driven by a vision of a catastrophe, universities would lack the energy to deal with the "resistance" of these "providers" and claim their autonomy.

b. The training of communal epistemic values

The making of the knowledge commons also requires the training of "knowledge commoners" in communal epistemic values. Historically, of course, the creation of

knowledge has been a social and even global process, as we now realize, but the ideology of individualism is still dominant in education. Learning is still treated as a singular enterprise. Schooling as a Robinsonade has been the center of early bourgeois philosophy of education and still has a residual power to this day. "Is this *your* work?" is the primary question of assessment and the violation of the rule of isolated self-creation is the primary sin for this philosophy even though it has been clear since ancient Greek days that knowledge is a collective product. The power of this paradigm is now giving way to a collective methodology of knowledge production.

The kind of training in communal epistemic values is now becoming inherent in the prevailing models of knowledge production. David Bollier writes:

> From libraries to biotech researchers to musicians, many groups are coming to recognize the value of their own peer-based production and understandably wish to fortify and protect it. In one sense, this is simply a rediscovery of the social foundations that have always supported science, academic research, and creativity (Bollier 2007: 36).

These communal epistemic values that Bollier refers to in the above passage have been integrated in the technology of our time. How often do we begin our research on a listserve that makes it possible for us to coordinate our thoughts and knowledge with multiple interested others as if we were in the same room. Similarly, we have all been involved in information and file sharing in networks that stretch across continents. Indeed, the cooperative training of factory workers that Marx so praised in *Capital*--"When the worker co-operates in a planned way with others, he strips off the fetters of his individuality, and develops the capabilities of his species" (Marx 1976: 447)--has now become diffused in the communication and epistemic technology inside and outside the factory or office. So the training in cooperation (that had such revolutionary consequences in Marx's thought) has now become a commonplace experience for workers both in and out of the waged workplace in the US.

Howard Rheingold, a writer on the social implications of technological change, identified eight different "technologies" that provide much of the training in cooperation that are now in use (Rheingold 2007). I will not examine them, but I will simply note his

discussion of "knowledge collectives," which "Rather than treating knowledge as private intellectual property, they treat it as a common-pool resource, with mechanisms for mutual monitoring, quality assurance, and protection against vandalism and overconsumption" (Rheingold 2007: 56). These knowledge collectives need not be small. The most famous, Wikipedia, is organized as a wiki (an easy to edit Web page) that allows groups to create a large, self-correcting knowledge repository with millions of articles in hundreds of languages. But the key to such knowledge communities is the recognition of the exponentially growing power accruing in being a part of a huge coordinated group with enormous surplus capacity (for computation as well as for investigation).

This is one of most surprising developments of the "computer revolution." For along side the get-rich-quick ethos of Silicon Valley, a florescence of communal behavior has emerged. This will undoubtedly add a new dimension to the residual communality of the human species that has been preserved in thousands of agricultural villages throughout Africa, South America and Asia and promises to be the soil of the knowledge commons.

The autonomous university can have a vital role to play in developing the training of communal epistemic values in its involvement in the making of the knowledge common.

c. Changing the "payoffs": the struggle with state and capital

Once the commons is fore-grounded via the apocalyptic-prophetic message and the values of the commons are instilled in the coming generations, the makers of the knowledge commons must deal with the continual threats on the side of the state to criminalize communal behavior and on the side of the market to tempt the commoners to defect from the community. These threats require a structural response, if the knowledge commons is to be established.

The State has a long history of criminalizing a wide variety of "customs in common." For example, workers used to sell the wooden "chips" produced in building wooden ships in 18th century England to supplement their income. This was their custom in common. Samuel Bentham, Jeremy's brother, redesigned shipbuilding yards to make

the surveillance of the workers more effective and to stop the custom of appropriating and selling the chips by making it illegal. This surveillance and law "reform" dramatically lowered the "pay-off" of co-operating with other workers in picking up the chips and smuggling them out of the ship yard (Linebaugh 1992).

The State's sequestering of knowledge and its support of copyrights and patents criminalizes the dissemination and reproduction of knowledge. The commons responses have been both on a legal level--the challenges to intellectual property laws in national and international courts--as well as by direct action--the sharing of music and film DVDs, the placing of copyrighted material on public domain web sites, etc. However uncomfortable this bifurcated struggle might make us, its power will be crucial to the survival and growth of the knowledge commons in the coming years.

The second aspect of the shift in pay-offs requires a direct confrontation with the market and the rent-seeking character of intellectual property. An item of intellectual property is a sort of meta-commodity that one *rents* in order to produce another commodity or as an object of consumption, just as land is a meta-commodity that one rents in order to produce other commodities (wheat for sale) or subsistence goods (tomatoes for home consumption). The claim of the defenders of intellectual property is that without the possibility of receiving rent (in the form of leases, royalties or licenses) there would be no incentive for people to produce new texts, software, or machines.

Certainly, this rental "pay-off" is a temptation for many to accept the restrictions on textual reproduction and dissemination. Who would not be tempted to accept the royalties for a best selling novel (if one was the author) or the licensing fees of a successful "Windows"-like software program (if one were the designer) while accepting the restriction on copying? Thus intellectual property payoffs are the temptation to reject open access to portions of the knowledge common (even though the novel's plot was based on Macbeth and the program was based on Tim Berners-Lee's "Esquire" program!)

Though the temptation is real and is often the source of the destruction of commons, is its motivating premise empirically correct? Would innovation would stop without intellectual property rent incentives. This is hard to assess, but there are two major pieces of countervailing evidence. First, the human race has been innovating for tens of thousands of years before intellectual property legislation began to be introduced

in the 18th century. Second, in the last few decades there has been an enormous amount of original work done on all levels of the internet (from designing the "world wide web" to writing an entry on an obscure 15th century Italian poet for Wikipedia) that has not been copyrighted or patented.

This evidence reminds us that there are many ways of rewarding people for innovations not based on rents (and their excessive restrictions on reproduction). These range from wages and profits, to "prizes," to "fame," to "gifts." Each of these forms of incentive has weaknesses and strengths, of course, but no argument has yet demonstrated that the rental model is the best. On the contrary, the historical evidence mentioned above puts it in question. Consequently, an important element in the making of the knowledge common is the construction of an alternative, non-rent based form of incentive for contributions to the knowledge common.

Universities are prepared to challenge the rent-based incentives because they have been evaluating scholarly productivity on a different basis for centuries.

Conclusion: The Threat, an Exodus from the University similar to one between the Reformation to the French Revolution

There will be grave consequences, if universities fail to declare their autonomy and independence from State and Market and refuse to take part in the creation of the knowledge commons. I began to understand the gravity of the universities' position a while ago when I was teaching the history of early modern philosophy and I noticed an odd commonality in the cv's of the major philosophers of that era (Bacon, Hobbes, Descartes, Spinoza, Leibniz, Locke, Berkeley, Hume, Rousseau, Diderot): they were not university professors. From medieval times up until the Reformation, most major philosophers were involved in university life. Creative philosophers only began to be professors again in the 19th century. In other words, philosophy absconded from the university between 1517 to 1789.

Why did the conceptual revolutions in philosophy take place then largely outside of the university?

The answer is clear: the level of theologico-political surveillance, inquisition and punishment was so high after the Reformation and Counter-Reformation that it became physically dangerous to inhabit such open epistemic spaces. Philosophers could not afford to present their theories in environments crushed between the forces of Church and State. They went on to develop a whole set of new "occult" spaces (scientific societies, invisible colleges, anonymous publications) to carry on the essential functions of innovative intellectual life (including the training of new generations of philosophers). It was only with the return of academic freedom to the universities in 19th universities, surprisingly especially in Germany, that philosophy again returned to the universities.

If the universities of the 21st century are not to experience a similar exodus, becoming empty shells for the manipulation by Capital and the State, the fostering of both positive and negative academic freedom have to be a priority.

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