

No One Knows Everything:  
Open Source and “The Crisis is Public Opinion.”

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## Abstract

By looking at some lesser known writings of Harold Adams Innis- in particular an unpublished speech from 1943 entitled “The Crisis in Public Opinion”- this thesis hopes to bring a few good tools and frameworks to the study of open source, and vice versa. This thesis looks at open source in terms of the tactics and systems- technical and interpersonal- involved, and is premised on the idea that software is a media and communication system.

This thesis argues that, according to the open source process, and the writings of political economist and communication theorist Harold Innis, the creative commons is capable of constructing alternatives to “monopolies of knowledge” by protecting conditions for the freedom of thought. Innis spent his academic career mapping economic, political, and communication networks, and throughout his work he makes suggestions about systems (technical and interpersonal) that might intercede against monopoly formation. The communication and collaboration system that *is* open source is a contemporary manifestation, I think, of the tactics Innis suggests (with his words and actions) for surviving and redirecting our networks' historical tendency toward monopoly and cascading crisis.

No One Knows Everything addresses the methods Innis describes for balancing out against monopolies of knowledge, and maps those mechanisms against some of the mechanisms of open source.

## Chapter 1.

On Wednesday May 12 1943, Harold Adams Innis gave a speech called “The Crisis in Public Opinion” to members of the Canadian National Newspapers and Periodicals Association. He made scathing and witty critiques of the modern press, traced the history of the Fourth Estate from Britain to America and Canada, played the avuncular, non-threatening academic, and made fascinating suggestions about the roots and trajectories of civilizational crisis. The Crisis speech had never been published when Dr. William Buxton gave it to me to help footnote in my second term as a Masters student. This new bit of Innis code, found and opened up by Dr. Buxton, is, I think, the best place to begin to try and articulate Innisology to open source.

In the Crisis speech, Innis argues that something had distorted our systems for thinking about and working over our opinions. During war time, the pressure to support the government had created conservative rigidities of thought.

One might expect opposition to the Cabinet – that is, to the centralized power of a small, dictatorial group – to come from the Press. But the former Liberal Press has become conservative, from the necessity of supporting the Government, and opposition seems to reside alone in the Conservative Press, or what used to be called the reactionary Press, in the weekly Press, and especially in the type of periodicals which is represented here.<sup>1</sup>

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<sup>1</sup> Innis, Harold Adams. “The Crisis in Public Opinion” Harold Innis Papers, University of Toronto

Given the dangerous potential for bias in this system, Innis appeals passionately to his audience to remember the importance of their task. He emphasizes the relationship between open systems and successful civilization.

At the very end of the speech, in the dark middle of world war, he makes a case for public conversation:

(T)here is no final answer in a democratic society. The planning is done by all. There is no way of working out a blueprint covering a long period. Democracy must be sure it knows what its ideals are, and that it is in some way reaching its objectives. But it can only survive by an intelligent public opinion, and therefore the crisis in public opinion becomes a crisis for modern democratic state in general, and for civilization as we know it.<sup>2</sup>

Innis calls for an attitude of openness and an intelligent public to characterize democracy. There is no final or complete solution to produce a good society, and so it only happens when we have time and space to go over public opinion, and triangulate our way away from bias. For problems of a certain complexity- like a “free” society- a closed system will be inadequate.

Open source consists of computer programs and languages, published with their source code legible and accessible on line, under license structures that guarantee

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Archives, B72-0025/25. 1943. 11.

<sup>2</sup> Innis, “Crisis,” 14.

that the information will remain legally free for use. This creates a kind of open source ecosystem that is sustainable and expanding, and implicated in large scale questions about free speech, organization and governance.

The international free and open source software movement is at least partially motivated by the belief that in a world faced with unacceptable poverty, economic imbalance and environmental degradation, ideas should be drawn into an accessible space for mutual consideration.

Every license for Office plus Windows in Brazil - a country in which 22 million people are starving - means we have to export 60 sacks of soybeans (...) For the right to use one copy of Office plus Windows for one year or a year and a half, until the next upgrade, we have to till the earth, plant, harvest, and export to the international markets that much soy. When I explain this to farmers, they go nuts.<sup>3</sup>

Instead of some people being other peoples' tools by reason of their positioning in a power geometry<sup>4</sup>, open source imagines a growing network of independent peers, drawing from an endlessly refilling and evolving tool box.

This is not a new concept. "Open source" did not invent the idea of public knowledge, nor does "open source" reject competition. Instead, the open source process is related to familiar and ancient processes, enabled by new technologies. Open source is

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<sup>3</sup> Marcelo D'Elia Branco Dibbell, Julian. "We Pledge Allegiance to the Penguin." *Wired* 12:11. <<http://www.wired.com/wired/archive/12.11/linux.html>> (Feb. 14 2006. 2.)

<sup>4</sup> Massey, Doreen "A Global Sense of Place" Space, Place and Gender. Minneapolis : University of Minnesota Press, 1994. 3. <<http://www.geog.umn.edu/courses/1301/GlobalSenseofPlace.pdf>> (Feb 14 2006.)



connected, at least rhetorically, to every debate about whether ideas and abilities should be made public and free. As the authors point out in the introduction to Open Sources:

Voices of the Open Source Revolution:

The scientific method rests on a process of discovery, and a process of justification. For scientific results to be justified, they must be replicable. Replication is not possible unless the source is shared: the hypothesis, the test conditions, and the results. The process of discovery can follow many paths, and at times scientific discoveries do occur in isolation. But ultimately the process of discovery must be served by sharing information: enabling other scientists to go forward where one cannot; pollinating the ideas of others so that something new may grow that otherwise would not have been born.<sup>5</sup>

To further “the process of discovery” we share what we know. We do so in the hope that we'll be able to add up solutions to get closer to solving our more complex and disastrous problems.

Both Innis and open source communicate a deep desire for the world to be a better place, and both suspect that for this to happen we will have to tackle the layers of subtle biases and closures that haunt our systems. This alone seems to me reason enough to launch a concatenation.

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<sup>5</sup> Chris DiBona, Sam Ockman, and Mark Stone. Introduction. Open Sources: Voices of the Open Source Revolution. O'Reilly, 1999. (Feb 14 2006)  
<<http://www.oreilly.com/catalog/opensources/book/toc.html>>

## Chapter 2.

In “The Crisis in Public Opinion” Innis contrasts “the instruments of public opinion of the 1850's” with the instruments of opinion that came after. “The instruments of public opinion” is an interesting phrase. It manages to simultaneously suggest that public opinion plays the instruments, and is played by them. Rather than blaming the instruments for the sounds they make us make, as a technological determinist would, Innis is interested in all sides of the equation that formulate this interaction.

Power in the contemporary period, Innis tells his audience in 1943, is tending toward the totalitarian. "There has been a sharp decline in the power of parliamentary opposition," says Innis; the senate "has become a pasture for old party war horses" and "the Supreme Court has been weakened through division of tasks with the Privy Council"<sup>6</sup>. This political poverty, Innis tells the assembled editors and owners of the Canadian Press and Periodical Association, needs to be balanced out by a strong, independent press- and he names the periodical press in particular.

Already this is interesting from the perspective of open source: the Crisis speech implicitly suggests that there is a quietening of rational discourse and dissent that

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<sup>6</sup> Innis, Harold Adams. “The Crisis in Public Opinion” Harold Innis Papers, University of Toronto Archives, B72-0025/25. 9.

comes when the means of communication and dissemination are inaccessible. This argument explicitly challenges the people who have power over the organs of communication to own up to their responsibility to public knowledge; and it names those organs which are more time-tempered, and which require less operating capital (the periodicals) as the ones to look to in times of crisis. Innis tells his audience that in order to combat the crisis in public opinion the public's ability to cease taking "results as given"<sup>7</sup> must be enabled. Open source gives users access to the equations and arguments that generate results in every computer-related field of endeavour. By doing so, the competition for users, and for loyalties, between proprietary systems can be completely recontextualized by a wash of new options and previously marginal ideas.

In the Crisis speech the dominant media, those perpetuating the crisis in opinion, are the daily press which, since the days of Northcliffe in Britain and Pulitzer and others in the United States, had grown to become hugely expensive enterprises, and to wield enormous power. Innis tells his audience that:

With the enormous increase in circulation from improvements and little wars an entirely different development was evident in the whole field of journalism, in the Daily Mail, Lord Northcliffe's paper, and in Mr. Hearst's New York World. (...) It was that deterioration and that general swing in the whole field of journalism which brings us to the problem of the present day: the problem of public opinion and the press<sup>8</sup>.

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<sup>7</sup> Ibid., 10.

<sup>8</sup> Ibid., 7.

This dominant media had, in Innis's time, been used to aid and abet the propaganda efforts of state institutions. In his view, the task of registering public opinion had fallen to the weekly and periodical press.

Underlying Innis's argument were deeply held views about the role of dissident and marginal groups in the formation of publics<sup>9</sup>. In the Crisis speech Innis calls our attention to the character of the Press in the "eighteen-fifties in particular," in order to demonstrate how, for a while, there had been a climax in quality. To exemplify the writing and attitude of this time, Innis quotes from Delane, editor of the Times.

The first duty of the Press is to obtain the earliest and most correct intelligence of the events of the time, and instantly by disclosing them to make them the common property of the nation. The Press lives by disclosures. Whatever passes into its keeping becomes a part of the knowledge and history of our times.<sup>10</sup>

In the 1850's a centralized organ of the press, the London Times, "was protected by a monopoly under taxes, and had the prominent editor, Delane, to direct its activities" and yet was determinedly independent-thinking, committed to making contributions to public

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<sup>9</sup> "This concern was evident in his participation in the Jones Commission of 1934, orchestrated by the media-savvy premier (and close friend of Innis), Angus L. MacDonald. Innis not only helped MacDonald to monitor the press coverage of the Jones Commission's final report (which advocated more autonomy for Nova Scotia in its economic planning) but also wrote a companion report, which was quite explicitly designed to sway public opinion. Innis also opened up a Western front in his efforts to help develop alternative publics. In this case, he came to closely identify with the Cooperative wheat-growers movement in Saskatchewan, and took it upon himself to edit the diary of Alexander McPhail, whose leadership in the cooperative movement Innis very much admired." (Dr. Buxton, footnotes to the Crisis speech)

<sup>10</sup> Innis, "Crisis," 5-6.

knowledge, and even famously in opposition to the desires of the Monarchy<sup>11</sup>.

Perhaps the editorial ethics at the core of this system had a cascading positive effect, or maybe these benevolent ideas rubbed other folks, with less central, communicative power the wrong way, galvanizing them into action. Whatever the explanation, independent periodicals from other cities also blossomed at this time with challenging and productive discourse:

Whether one turns to the Times or to the Edinburg Review or to the Quarterly Review or to other contemporaneous media which had such influence, one can see the manifest vigour of a journalism which was responsible for bringing about major reforms instrumental in changing the whole political character of England.”<sup>12</sup>

The papers that arose to compete with the Times' monopoly in the 1800's contributed to a widening of public perspective, and to the creation of a rich atmosphere of dialogue. For example, Innis mentions Leigh Hunt who, in 1808, established with his brother John, The Examiner, an important liberal weekly. According to Hunt's biographer, James Thompson,

Hunt's was not an auspicious beginning; but he had virtually invented the objective theatre review; and he now proposed that the same degree of journalistic impartiality be applied to contemporary politics. Although the Examiner was the mouthpiece for no party, it developed before very long into the chief spokesman for liberal reform in a nation in full reaction to post-French Revolution and

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<sup>11</sup> As Innis points out on page 4 of the Crisis speech, when he reminds his audience of Delane's famous “objection to the pressure which was put on him by Queen Victoria and the Prince Consort at the time of his constant nagging at Germany and his constant questioning of German Policy.”

<sup>12</sup> Innis, “Crisis” 2.

Napoleonic fears.<sup>13</sup>

Noticing the change in quality that objective analysis was able to bring to the theatre, Leigh Hunt turned his gaze to politics.

By mentioning Hunt, and, a few paragraphs later in the speech, quoting from Oscar Wilde<sup>14</sup> - two authors who were imprisoned for actions which were considered immoral: political caricature and homosexual love- Innis reminds his audience of the ways reactionary fear can close minds and restrict freedoms; and of the ways journalists can resist or be complicit with that closing. Though there can be no blueprint for democracy, Innis suggests that there might be behaviours and attitudes worth emphasizing on the road to righting civilizational crisis. These good protocols have something to do with protecting the voices of oppositionality and otherness; and with viewing public discourse as an essential, balancing resource. The editors whom Innis admires see knowledge as public property, and truth-telling as essential public service.

The press in its decline is characterized by competition between amalgamated, expensive organizations; a focus on snappy, interesting writing; and an

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<sup>13</sup> Thompson James, R. Leigh Hunt. Boston: Twayne, 1977. 20.

<sup>14</sup> Innis quotes from Oscar Wilde on the subject of the “new” press of the 1890's on page 6 of the “Crisis” speech: “There is much to be said in favour of modern journalism. By giving us the opinions of the uneducated, it keeps us in touch with the ignorance of the community. By carefully chronicling the current events of contemporary life, it shows us of what very little importance such events are. By unvariably discussing the unnecessary, it makes us understand what things are requisite for culture, and what are not.”

unmoored attitude toward the truth:

In the United States there was Mr. Hearst, who was coming into New York from San Francisco. There was Mr. Pulitzer, who came to New York from St. Louis. And in Great Britain there was Lord Northcliffe, who came to dominate the newspaper field about the same time. In the Spanish-American war, Mr. Hearst sent Frederick Remington the artist who was to draw pictures for him to Cuba. Mr. Remington cabled back that he did not think war with Cuba likely, whereupon Mr. Hearst allegedly replied: "You furnish the pictures and I'll furnish the war."<sup>15</sup>

For countless reasons, different organizations and individuals at different times have worked to stop or control the flow of information and opinion, and by doing so to puppet international events for their own profit.

In Canada, as Robert E. Babe points out in "Innis, Environment and New Media," in the months preceding the ratification of the Kyoto protocol, "the Globe and Mail, arguably the most influential paper in the country, virtually barred its environmental reporter, Martin Mittelstaedt, from writing on the issue (...) - an indication indeed of a monopoly of knowledge in action."<sup>16</sup> In other words, the problem of distorted and monopolized communication continues to haunt us. If a national paper, in a democratic country during peace time, exerts control over debate about the growing crisis that is climate change, then we can only imagine how much more pressure must have

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<sup>15</sup> Innis, "The Crisis in Public Opinion." 5.

<sup>16</sup> Babe, Robert E. "Innis, Environment and New Media." In Marita Moll and Leslie Regan Shade, eds., Seeking Convergence in Policy and Practice: Communications in the Public Interest, Vol 2. Ottawa: Canadian Centre for Policy Alternatives, 2004. 392.

been put on communicators during the unfolding national crisis of Canada's involvement in world war. The climate for many authors must have been fearful and stifling.

The Crisis speech is full of deft touches and subtle, satirical twists, and so it seems likely Innis was seriously trying to galvanize his audience, to goad them into a deeper engagement with the politics of their medium. Why else would he throw in a saucy jab like this one, which is embedded in a quote from Sydney Smith:

These fellows (Canadians) are the veriest flunkeys on earth; they are always spouting loyalty and scrambling for small titles and all the crumbs that fall to them from the table of aristocracy. There is nothing in the universe lower than the colonial snob who apes the English gentleman<sup>17</sup>.

Did the crowd laugh? Did they think about whether their Canadian character involved any aping, or whether there were many Empire-authorized opinions in circulation? Were they, given long years of fellow citizens fighting the Nazis at England's side, offended? We don't know. We do know that the Press and Periodical Association asked Innis if they could circulate his speech, and, in almost the same breath, asked whether he could adjust the tone of it to better communicate the importance of advertising. We do not know if Innis ever replied.<sup>18</sup>

Innis quotes from a journalist named Albany William Fonblanque who was

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<sup>17</sup> Innis, "Crisis," 5.

<sup>18</sup> I have benefited here, as elsewhere, from research done by Dr. Buxton.



Leigh Hunt's successor at the Examiner. “(A)t the height of the attack on the Aristocracy”

Fonblanque wrote scathing critiques like this one, which Innis quotes:

If it be the constitutional policy of this country to maintain the Aristocracy and Magistracy, it is also the policy of this country to maintain them in the manner least onerous to itself. (..) It will be wiser to vote a yearly supply of pounds, shillings, and pence, for the maintenance of the Aristocracy and Magistracy of these realms, than to keep them by means of a tax on bread, which cramps the industry of the country.<sup>19</sup>

The Corn Laws were that tax on bread, first put in place in England in 1804. This legislation and taxation was intended to protect landowners' profits against competition from French agriculturists, even if it meant that English and Irish citizens suffering through the potato famine could not afford the price of the bread.

When the Corn Laws were finally repealed, however, “it had a disastrous effect on the larger Irish farmers. They were forced to accept lower prices for their grain just as their Poor Tax burden increased dramatically.”<sup>20</sup> This collision of strategies brought down the middle layer of the economy and contributed to the cascading failure and tragedy of the Potato Famine. The repeal of the Corn Laws was well-intentioned, and did bring a measure of economic relief in England, but for Ireland it represents a

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<sup>19</sup> Innis, “Crisis” 3.

<sup>20</sup> Friend, Pat. Corn Laws. All About Irish. (Feb 14. 2006.)  
<<http://www.allaboutirish.com/library/bits/cornlaws.shtm>>

tragic and decided blow<sup>21</sup>.

The cascading failure of this early, Whig implementation of Free Trade demonstrates the necessity of building policy in an open, layered, responsive and recursive way. When building a new program, or adding new code to a website, the process is similar. One needs to test and check at each interval whether the delicate system one is building is surviving the inevitable strings of problems and mistakes one is bound to cause and encounter. Innis suggests, in this speech, that we should build public opinion by continually registering public opinion, knowledge, and experience from the centre and the margins; by improvising beyond ideology or planned policy to implement the unique changes real situations require.

Throughout Innis's writing he draws attention to countless incomplete, manipulated, or contradictory applications of policy- the gaps, in effect, between theories and how they play out in practice. He criticises the systems that go into biased legislation. Fonblanque and other journalists of the 1850's helped bring about change to an Aristocratic, reactionary environment, and made themselves worthy of Innis's praise; not by always being right, but by pointing out, with their sharp pens, inequalities in the system, gaps in government logic, and pragmatic solutions. They were problem solvers, like programmers. They were just one important organ in a relatively balanced network,

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<sup>21</sup> This paragraph, worded differently, was originally published in the Letters to the Editor section of Harpers, June 2005.

and their function was to make ideas, opinions and errors public.

In his list of great editors, Innis refers to a friend and admirer of Leigh Hunt's, the editor of The Manchester Guardian for over fifty years: Charles Prestwich Scott. Scott is credited with creating an atmosphere at the paper that drew some of the greatest journalists of their time to Manchester. Journalists actually left London to work for Scott. They moved from their nation's centre to build a new intellectual hotspot out on the margins, and this was possible because they knew that their ideas would not be censored.<sup>22</sup>

Charles Prestwich Scott was a Liberal, and a Unitarian, and under his editorship the Manchester Guardian argued for universal suffrage and prison reform.<sup>23</sup> Scott wrote passionately against the amalgamation of the press, and in favour of a peace with dignity for England and Germany at the end of the First World War:

The time was a time for coolness, for restraint, for dignity in the hour of our victory, so that, if possible, we might achieve that most difficult of all conquests, the conquest of our selves, and win that final success, the success of moderation and of statesmanship, rather than that of violence and self-assertion and letting loose of passion.<sup>24</sup>

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<sup>22</sup> Greenwood Publishing Group. C.P. Scott 1846-1932, The Making of the Manchester Guardian. Greenwood Press, 1974. Introduction.

<sup>23</sup> Schoolnet, Spartacus. Charles Prestwich Scott. (Feb. 14 2006.)  
<<http://www.spartacus.schoolnet.co.uk/JscottCP.htm>>

<sup>24</sup> Scott, C.P. "The Slump in Idealism." Dec. 3rd 1919. Greenwood Publishing Group. C.P. Scott 1846-1932, The Making of the Manchester Guardian. Greenwood Press, 1974.. 172.

With editorials like this Scott attempted to guide public opinion away from short-sighted violence and “self-assertion” in policy. By this time, however, the new press was already nearing the height of its power.

There was an emotional appeal for punishment for Germany being trumpeted in the new, daily press which drowned Scott out. The new mass press held such sway that even the Prime Minister himself seemed, for a while, to follow its dictates: “The policies and predictions to which Mr. Lloyd George- quite unnecessarily- committed himself at this time may be traced almost precisely to the daily vociferation of the Northcliffe Press that the Kaiser should be brought to trial and that Germany should pay for the war.”<sup>25</sup> It was these policies and their collusion with other punitive rhetorics and practices which crippled the post-war economy in Germany, fuelled the young Hitler's racist rage, and contributed profoundly to the civilizational crisis that Innis and his audience were facing in 1943.

As Innis reminds his audience in the “Crisis” speech, The Times began to lose hold of its morality after the 1850's:

It had paid the penalty of keeping too close to the statesmen. Delane had died. There was the making of wrong guesses. It backed the wrong horse in the Civil War. It became involved in the scandal over the forgeries in the Irish question, and its influence rapidly deteriorated.<sup>26</sup>

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<sup>25</sup> Oxford Dictionary of National Biography. “Harmsworth” (Northcliffe). 1922-1930. 401.

<sup>26</sup> Innis, “Crisis” 6.

The Times backed the wrong horse by supporting the South at the outset of the American Civil War- it supported the landowners' right to own slaves without interference from a colonial power. Perhaps this support was quietly motivated by a desire among the upper middle class in London for continued access to inexpensive cotton, and for the profits that were to be made in the arms trade. This support was, with a fearful irony, explained- and perhaps, for some, even understood- in terms of freedom. Freedom for the American landowners to conduct their businesses was privileged above the freedom of others to own their own lives. Clearly, Innis knew how slippery words can be, especially in a racist system that keeps certain interactants from speaking publicly.

In the case of “the forgeries in the Irish question”, the Times printed and defended forged letters supplied to them by a shady character named Pigott. These letters more than implicated the Irish leader Parnell in an assassination.

No one can doubt that the conductors of the Times believed that the documents they published were genuine. But there was apparently no trouble whatever taken to ascertain whether the letters were authentic or not. The letters were given or sold to the Times by a man named Pigott, a person who had once conducted a Dublin National newspaper enterprise, and who afterwards lived, or tried to live, by begging-letters and by blackmail. Again and again this man had written to some of Mr. Parnell's political associates, urging, beseeching, and praying them to get him some help from Mr. Parnell out of the National funds; and again and again Mr. Parnell had advised his friends not even to answer the letters of such a man.(...) There is nothing surprising in the appearance of such a man at the time of a great political crisis; but the very surprising thing is that the conductors of a great paper like the Times should be taken in for a moment

by so pitiful a scoundrel.<sup>27</sup>

Scandals like this shook the Times' position as a reliable source of information and, as Innis said in the Crisis speech, "its influence rapidly deteriorated."

In the History of Communications manuscript- a book Innis wrote but which has yet to be published- he summarizes what happened to the Times in this way:

The Times was too expensive for working men and was forced from the judicial attitude of high political impartiality and compelled to lean on the upper and middle classes which became more conservative and required the Times to follow and oppose the radicalism of the working class and their organs. Its partisanship was deepened and its political views were narrower and its insight shallower. Without independent organs the press became the slave and not the guide of political passion, prejudice and self-interest. (...) It ceased to protect the people from the demagogue and became the main instrument for thrusting him on the public.<sup>28</sup>

This decline in the character, influence and responsibility of the Times was contemporaneous with the rise of a new media style:

The marked expansion of a new group of newspapers in London and in the provinces in the second half of the (19<sup>th</sup>) century was accompanied by the decline of the Times to the point of bankruptcy by 1890 and its sale to Northcliffe in 1908.<sup>29</sup>

Northcliffe was a whole new kind of power in the political arena. Innis mentions him in

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<sup>27</sup> McCarthy, Justin. "Parnellism and Crime." History of Our Own Times from 1880 to the Diamond Jubilee. Chatto and Windus, London. 1897. Available on line, as of May 15 2006, at <<http://www.chapters.eiretek.org/books/General/phoenixmurders.htm>>

<sup>28</sup> Innis. History of Communications. Unpublished. Chapter 10, p 55-56.

<sup>29</sup> Innis. Political Economy in the Modern State. Toronto: The Ryerson Press, 1946. 45.

the Crisis speech as a kind of turning point in the progress of the press towards the current crisis in public opinion.

The Great War brought a loss of anchorage, but the power of the Press, the power of the new Press, probably reached its height during that period. Lord Northcliffe exercised tremendous influence upon the policies of the British government. He was instrumental in bringing down the fall of Asquith, and a reorganization of the Cabinet.<sup>30</sup>

Northcliffe changed the character of the Press by riding and hastening the wave of new technologies designed to drastically increase the efficiency and spread of the newspaper's influence over public opinion. He increased circulation by leaps and bounds with new machinery and new ideas. He chopped articles short, drove down the price of the newspaper, launched dozens of wildly popular competitions, and insisted on publishing articles written in a language accessible to the new middle class.

Northcliffe's force was wonderful and terrible. He believed in the rights and abilities of women, and was instrumental in the strong thrust of public discussion that got my gender closer to the vote. But he also turned the force of his medium against those politicians and opinions that did not fit his formulation of the urgency of the modern moment, and so helped bring down Lord Asquith<sup>31</sup>. In 1918, after serving as director of

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<sup>30</sup> Innis. "Crisis" 7.

<sup>31</sup> Winston Churchill, in his chapter on Asquith in Great Contemporaries, describes the shift that occurred at this time in terms that echo Innis's sense that crisis changes our perspective:

The phrase 'Wait and See,' which (Asquith) had used in Peace, not indeed in a dilatory but in a minatory sense, reflected with injustice, but with just enough truth to be dangerous, upon his (Asquith's) name and policy. Although he took every critical decision without hesitation at the moment when he judged it ripe, the agonized nation

the British war mission in the United States for six months, Northcliffe accepted the direction of propaganda in enemy countries<sup>32</sup>. In 1922, Northcliffe, increasingly infamous for his paranoia and inconsistency, wrote a letter to a friend who was traveling with doctor Sir Frederick Treves. In it Northcliffe wrote: "You have with you the most distinguished medical man in the world. Will you kindly ask his opinion as to my sanity?"<sup>33</sup> Northcliffe wondered about his own perspective, and whether something had gone wrong with his sanity, and he turned to a very famous doctor for an opinion on his mental state.

Funnily enough, Innis mentions this famous Dr. Treves as well. He is Innis' first example in the Crisis speech of the way technologies, phrases and tactics can become viral (or trendy) to the point of banality:

I am reminded of the story told of C.P. Scott, sometime editor of the Manchester Guardian regarding a story written by a reporter which said, "The Hon. So & So was operated on for appendicitis by Sir Frederick Treves." Mr. Scott drew a circle around it and added the annotation: "All distinguished people have appendicitis these days - - and they are all operated on by Sir Frederick Treves!" In other words, what the reporter had written was not news. Well, in the same way, I am afraid a crisis has ceased to be a crisis. The word has been used on numerous occasions and, as often used, means very little.<sup>34</sup>

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was not content. It demanded a frenzied energy at the summit; an effort to compel events rather than to adjudicate wisely and deliberately upon them. (24)

<sup>32</sup> Oxford Dictionary of National Biography. "Harmsworth (Northcliffe)". 1922-1930. 401.

<sup>33</sup> Wintour, Charles. The Rise and Fall of Fleet Street. London: Hutchinson, 1989. 2.

<sup>34</sup> Innis. "Crisis" 2.



Opinion among “distinguished people” is as susceptible to monopoly formations as opinion among “the masses”. In all realms it is possible for a useful technique, like appendicitis, or a powerful concept, like “crisis”, or “evil”, or even “freedom”, to be irrationally, wastefully, even dangerously applied. This possibility becomes more likely when a relatively small portion of individuals have a dis-proportionally huge access to one-sided communicative power, and, as Northcliffe’s experience suggests, this can take its toll on the individual mind as well.

Innis asks his audience in the Crisis speech: “Why has there been a continued deterioration in the post war period?<sup>35</sup>” and the reasons he lists in response include the influence of finance, and the large and expensive scale of the business of the press, “and finally, there was the rise of Radio, one of the striking features of our time.”<sup>36</sup> The problem is two fold: one, the means of production are too expensive for real competition to be possible. Two, the technology allows widespread, rapid dissemination without the kind of flexibility and two-way dialog necessary to make the ideas balanced, or complex enough to meaningfully address complex issues. In other words, the real danger is that opinion can become a rigid, unquestioning machine when under-supplied with new knowledges, oppositional opinions, questions, research, challenges, and ideas.

Innis sees this potential everywhere, in every culture. Rather than direct his critique

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<sup>35</sup> Innis “Crisis” 7.

<sup>36</sup> Ibid.

toward Germany or other nations with more complete examples of totalitarian thought, Innis challenges his Canadian audience to be awake to the tyrannical potential in their own systems. Perhaps he was motivated by Christianity's command to deal with the problems in one's own sight before criticizing a neighbour's gaze or opinion, or perhaps he was being a stereotypically navel-gazing Canadian. Whatever his motivation, Innis argues that structures had been built in Canada during war to navigate the quick waters of crisis time, and that those same structures would tend toward monopoly formation in the post war period if they went unchecked.

### Chapter 3:

Thoughts and opinions are sensitive properties. Innis and open source agree that things like power, money and fear can seem to narrow the range of options available to our free will. We are all pulled, in small and large ways, by the wills and opinions of other people, and certain mediating processes can exaggerate the potential for distortion.

Throughout his body of work, Innis is concerned with the history of knowledge monopolies. “Monopolies of knowledge” are formations of opinion that block consideration of other ideas and interpretations. Monopolies of knowledge are rigidities of thought. They are biased idea structures, shared by many, which simultaneously impose and obfuscate dehumanizing imbalance. Given Microsoft's enormous monopoly in the operating system market, and open source advocates' concern with competitive tactics designed to distort opinion<sup>37</sup>, the application of Innis's ideas about monopolies of knowledge to conversations about code makes sense. In fact, Innis might help orient open source discourse away from an adversarial rhetoric, and toward a more balanced critique of the subtle ways we can lose freedoms.

Though concerned with individual moralities, Innis avoids blaming specific

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<sup>37</sup> See the Halloween Papers for examples and explorations of the conscious use of Fear Uncertainty and Doubt in Microsoft's marketing. Available on line, with (biased?) footnotes by Eric Raymond, at <http://www.catb.org/~esr/halloween/> as of May 15, 2006.

individuals or instruments for the crises and catastrophes of the past. Instead he looks at layers of complex factors involved in the movements of public knowledge, and the changing climates of opinion. In The Bias of Communication he writes:

Inventions in communication compel realignments in the monopoly or the oligopoly of knowledge. A monopoly of knowledge incidental to specialized skill in writing which weakens contact with the vernacular will eventually be broken down by force. In the words of Hume: "As force is always on the side of the governed, the governors have nothing to support them but opinion. It is, therefore, on opinion that government is founded; and this maxim extends to the most despotic and the most military governments as well as to the most free and popular."<sup>38</sup>

Throughout the rest of The Bias of Communication Innis links long chains of history, zooming in and out across thousands of years, to show the ways in which centralized opinion emerges, turns to distortion, murder and violent control, and is brought down. He insists throughout that this rise of knowledge monopoly occurs in conjunction with closed, or inaccessible, communications. Specifically, it is a "specialized skill in writing" that usually holds a knowledge monopoly; divorces daily, vernacular opinion from that which is authoritative; and needs eventually to be broken down by force. Since we know that public opinion has supported even the most despotic governments, the question is: how do you keep specialized writing in contact with the vernacular? How do you keep public opinion informed?

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<sup>38</sup> Innis, Harold Adams. 1951. The Bias of Communication. Toronto: University of Toronto Press. 4.

At the end of his life Innis rephrased the question that had haunted all his work in this way: “one-sidedness seems to lead to monopoly and to general corruption and bureaucracy to the point that it is eventually burned out ... The problem seems to be that of working out a sustained attack on the factors responsible for the one-sidedness”<sup>39</sup>. Usually Innis tries to avoid giving answers to the big questions he asks, but in the Crisis speech he traces a vague but, from the perspective of open source, pretty fascinating argument for what exactly it is we're going to need to sustain this attack on the “factors responsible for one-sidedness”.

I should like to emphasize the necessity of trying to build up some system of Government, or some system of political machinery, which will make for the more effective registering of public opinion. The Sirois Commission, for example, was set up primarily as a basis for definite public discussion, but it failed to set up or improvise any machinery whereby such discussion could be carried on. There is real need in a democracy for the means of machinery whereby there will be some sort of effective registering of public opinion. The concern of the Sirois report was with legislation, and not with the machinery by which legislation was to be made sensitive to public opinion. We shall have to concern ourselves with the possibility of thinking out some new type of machinery which will check the trends towards a diminishing public opinion, so that we will not be in the position of having to take results as given, but will be able to think in terms of trying to bring about some better arrangement through the more effective registering of public opinion<sup>40</sup>.

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<sup>39</sup> quoted in Acland, Charles and William J. Buxton. Harold Innis in the New Century. Reflections and Refractions. “Introduction.” Montreal & Kingston: McGill-Queen's University Press. 1999. 3.

<sup>40</sup> Innis, “Crisis” 10.

Innis is concerned with the machinery of politics, or of public discussion. The machinery of registering public opinion. The machinery to make legislation sensitive to public opinion. Machinery to check the trend and help bring about some better arrangement. He repeats the word machinery as though it were important. As though the nature of the system would make a difference to our communications.

A related claim was made by Melvin Conway in 1968 about the relationship between technological systems and the organization and communication system that builds them: “Any organization which designs a system (defined more broadly here than just information systems) will inevitably produce a design whose structure is a copy of the organization's communication structure”<sup>41</sup>. Conway demonstrates the layered way that organization builds on bias to enable coordination, and how this translates into results that reflect those biases. From Innis' perspective, in dangerous situations where knowledge can begin to take a monopoly formation, manipulated by rhetoric and (im)morality, what is necessary is the creation of space and time for a more thorough going-over of opinion: a “means of machinery”<sup>42</sup>, whereby the planning can be done by all. Following Conway's thinking, if it were possible to build Innis's ideal system in spite of the biases that orient us, it would have corresponding effects in the building of future

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<sup>41</sup> Conway, Melvin E. “How Do Committees Invent?” Datamation Magazine, 1968. Available on line, as of May 15 2006, at <<http://www.melconway.com/research/committees.html>>

<sup>42</sup> Innis, “Crisis” 10.

systems, perpetuating its own openness.

It may seem odd to connect software to Innis's ideas about Crisis and Civilization, unless we remember that phrase “the instruments of public opinion” and think about the fact that the vast majority of our contemporary discourse moves through code. Code is a ubiquitous layer in contemporary television and radio programming, in the gathering and transmission of news, and in the making and distribution of films and music. Code undergirds most acts of writing, organizing, and planning. As we continue to embed processors in our cameras and parking meters and clothes, on the one hand; and to input our personal data onto the Internet with the new types of user/server interaction, the question of who can own and author code becomes increasingly political. And the contents of code becomes instrumental in our ability to access and dispute powerful opinions.

The size of some software-created spaces, and the ability code gives to determine, close, and regulate those spaces, has led some of the most prominent open source theorists to claim that code is like law. In Code and Other Laws of Cyber Space, Lawrence Lessig argues that free and open code changes the potential for centralized regulatory control over communication:

(E)ven if open code does not disable government's power to regulate completely, it certainly changes that power. On the margin, open code reduces the reward from burying regulation in the hidden spaces of

code. It functions as a kind of Freedom of Information act for network regulation. As with ordinary law, open code requires that lawmaking be public, and thus that lawmaking be transparent. ..[O]pen code is a foundation to an open society.<sup>43</sup>

Lessig is a specialist in constitutional law who thinks that open code will be key to preserving an open society. Open source adds an element of public consensus to incredibly complex systems of regulation, meaning that only what is individually acceptable to users, and collectively chosen by developers, will become standard.

Each program creates a new potential for exchanges about how communication should be organized, and what users will value. Proprietary production of knowledge can contribute great tools and innovative ideas, and can extend across space with a speed which open source probably cannot rival. There is potential for a powerful, and mutually beneficial, circuit to exist between closed and open knowledge production, in the same way there can be a positive balance between government and opposition. However, open source (and oppositionality) is required to complete the circuit. Without it, public discourse dwindles, biases get entrenched, and all kinds of knowledge, ideas, freedoms and options fade from view.

In 1930, Innis published his first major tome, called The History of the Fur Trade. In this book he unfolds a sprawling history of a country formed by civilizations interacting and monopolies forming. In the conclusion Innis writes, “We have not yet

<sup>43</sup> Lessig, Lawrence. Code and Other Laws of Cyberspace. New York: Basic Books, 1999. 102-105



realized that the Indian and his culture were fundamental to the growth of Canadian institutions”<sup>44</sup>. Original people's knowledge was learned and embedded in the growing structures of the nation, but then their contributions and identities were re-narrated and obfuscated by knowledge monopoly justifying its expansion.

The native people in Canada went from being treated as important allies with knowledge essential to the newcomers' survival and to the growth of enterprise<sup>45</sup>, to inconvenient and therefore lower beings taking up too valuable space, to uncivilized heathens needing conversion, education, plowshares, and even less land<sup>46</sup>. The desires of the over-centralized system- consuming land in order to consume fur- distorted how the Native Other was seen and treated. This biased framework allowed for layers and subsets of immoral interaction. From the beginning, in other words, Innis' research into the history of economics and trade was tangled up with questions about where the truth goes, who profits, and who's freedom gets quashed.

In the introduction to Political Economy in The Modern State Innis suggests that when there is a monopoly of knowledge forming, “the dangers must be met by an appreciation of the limits of specialization and a recognition of the necessity of

<sup>44</sup> Innis, Harold Adams.. “Conclusions” in The Fur Trade in Canada. An Introduction to Canadian Economic History. Toronto: University of Toronto Press. 1956. 392.

<sup>45</sup> Knowledge of animal patterns and trade routes, for example, not to mention knowledge of alternative political formations like the Mohawk Confederacy.

<sup>46</sup> Tobias, John L. “Protection, Civilization, Assimilation: An Outline History of Canada's Indian Policy” Sweet Promises, Reader on Indian-White Relations in Canada. Toronto: University of Toronto Press, 1992.

perspective”<sup>47</sup>. The open source process seems to answer this requirement in a layered and effective way by simultaneously enabling independent and collaborative work. By focusing on the construction of free, flexible and sensitive machinery, the open source process clears space for one to learn without purchasing and teach without selling. This creates a widening circle of freedom for speech and endeavor that is best understood, for our purposes here, when considered with reference to Innis's conception of freedom<sup>48</sup>.

In his essay “Innis's Conception of Freedom” Richard Noble demonstrates that Innis's theories build from the three interconnected components of an older, eighteenth century, Whig conception of freedom<sup>49</sup>. An idea about freedom, in other words, that would have been familiar to the great editors and journalists Innis admired. The first component of this idea about freedom is that:

it sees the individual's liberty as a zone of non-interference that is consistent with and indeed guaranteed by law (...) The claim here is that freedom can reliably exist only when the law creates and maintains a civil culture in which individuals are protected from the arbitrary wills of others<sup>50</sup>.

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<sup>47</sup> Innis, Political Economy in The Modern State, viii.

<sup>48</sup> Another interesting comparison, I think would be to First Nations' politics and ideas about freedom. One book that makes an especially interesting counterpoint to open source history and philosophy is Native Pragmatism: Rethinking the Roots of American Philosophy by Scott L. Pratt.

<sup>49</sup> Noble, Richard. “Innis's Conception of Freedom” in Harold Innis in the New Century. Reflections and Refractions. 1999. Acland, Charles and William J. Buxton, eds. Montreal & Kingston: McGill-Queen's University Press.

<sup>50</sup> Noble, “Freedom” 32.

Law is an agreement arrived at over time between citizens. The purpose of law is to create and maintain civil cultures- accumulations of opinions and systems- that cherish and protect the individual's right to be safe from other people's arbitrary wills.

The second branching feature of this idea Innis has about freedom, according to Noble, beyond the zone of non-interference provided, is located in the realm of culture. Culture is the environment within which we come to understand the value of our actions. "Freedom inheres in specific historical and cultural conditions- in customs, conventions and institutions that have evolved gradually over a long period."<sup>51</sup> Freedom emerges gradually, it's like something that awakens in our minds and systems when the legal and cultural machinery that supports it does its job well.

Innis thinks that "freedom is contingent on a nation's historical experience. Its nature and extent depend on the institutions and practices that have evolved over that nation's history, and these may vary substantially"<sup>52</sup>. Rather than believing that his own nation had achieved a unique triumph in terms of freedom, one that should be written up and copied by subsequent nations, this second dimension of Innis's conception of freedom can be read to imply an open humility. It allows that freedom might look differently in different places with different histories. It might not look like something we'd recognize, and still might feel happy, free, and enabling for the individuals, men and

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<sup>51</sup> *ibid.*

<sup>52</sup> *ibid* 33.

women, who live it. Protecting freedom then, and finding ways to support its (re)emergence over time, is a slippery and difficult endeavor, and not one that is well served by the transplantation of closed systems.

This conception of freedom is, as Noble points out, in decided contrast to the Rousseauian idea of freedom provided by a social contract: “For the latter, freedom derives from some aspects of human nature, such as reason or natural goodness, and as such imposes universal standards of right upon human social organizations”<sup>53</sup>. The problem with the social contract is that, over time, it can become another kind of rigidity: not flexible enough to improvise new shapes of freedom, or to embrace new Others and their other rationalizations, talents, or novel contributions to the sphere of 'goodness'. The social contract is based on a written agreement, rather than a dialog between equal interactants over time.

These two Whig/Innisian ideas about freedom- the zone of non-interference and the emergence out of historical experience- are found in, and maybe even optimized by, the open source process. Many different licenses with different points of focus agree to advance open source code in the interest of creating a free space to compete, collaborate, explore and innovate. The space is the code itself, and the architectural worlds of websites and forums that are built using it. This is a zone of non-interference

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<sup>53</sup> *ibid.*

that is also a 'free intellectual mart' and it's a free market that values and protects the creator's name and embeds it in the code, so that consistently good contributions can be visible over time. Authority grows with reputation, and gains power without needing to be enforced. In this way, open source tries to get out of the way of the unpredictable trajectories of ideas and innovations, and so to allow balanced systems to emerge in spite of the inevitable distortions of individual and systemic bias.

In The Success of Open Source, Weber refers to the license that served as the basis for the General Public License, the Debian Social Contract, “as a de facto constitution”<sup>54</sup>. What is unique about these open source 'constitutions' – and what makes them resemble the Innisian idea of freedom more than Rousseau's - is, first, that they are multiple. There are very many different licenses in use, different legal and social agreements being simultaneously tested by individuals and groups between and beyond national boundaries. While this process is going on, and it may go on endlessly, no one license governs the communities, and there is an evolving dialog about rights and freedoms happening between them.

What is unique about these constitutions is, second, that they are written by both users and developers:

At that very general level, the statement is partly a result of the open source process itself. In practice, most developers who participate in

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<sup>54</sup> Weber, Steven. The Success of Open Source. Cambridge: Harvard University Press, 2004.

open source expect to be on both sides of a license- that is, acting at different times as licensor and licensee. This naturally produces an *internal balancing of interests* when it comes to developers thinking about the structure of a license; the process is one step removed from the usual legal dynamic of adversarial interests in which each party is trying to get the most advantageous terms that he can for that particular side.<sup>55</sup>

The open source contracts are collaboratively written, as the code is, by distributed contributors suggesting and arguing. This is done with an idea about time that allows for individuals to exist on different sides of an issue at different places in time. By operating with distributed collaboration and an idea about time that is structured by the channels and databases of the Internet, open source maintains a diverse culture that helps foster freedom.

The third feature of the Whig conception of freedom names the institutions that, for freedom's sake, must be in balance: “our liberties are best preserved by a system of government that divides and balances power among the executive, the legislative, and judicial branches of government:” so that those who make the law are also subject to it<sup>56</sup>. Representative bodies emerging from accumulated individual needs and desires should be kept in check by other, equally representative, equally powerful institutions. Their messages should be challenged, broken into pieces and examined; and their ability to

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<sup>55</sup> Weber 174 (*my emphasis*).

<sup>56</sup> Innis in Noble, “Freedom,” 33.

disseminate their version of reality balanced out by other opinions.

Kings, Lords, and Commons in Britain were seen to represent different orders of society; and their proper balance in the legislative process meant that law would be directed at the good of society as a whole rather than at the good of the faction in control of the machinery of government.<sup>57</sup>

Innis values this idea of a balance that guides the law toward the good of the whole, but he has slightly different ideas about where it comes from. “For Innis, liberty in the overwhelmingly space-biased cultures of the West is to be found in what remains of their oral traditions”<sup>58</sup>. Freedom is protected and fostered in institutions, or network formations, that have the improvisational dynamism and liquid, shifting history of orality.

In the next section I'll take up Innis' desire for some sort of effective, sensitive machinery that will support and encourage his ideal freedom. In order to accomplish this I'll have to look at Innis' complex and controversial ideas about “orality”.

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<sup>57</sup> Noble 34.

<sup>58</sup> *ibid.*

## Chapter 4

The right for voices to be vastly disseminated is protected in the American constitution by the 14<sup>th</sup> Amendment. Or so it was argued by the radio monopoly NBC in 1943, until the almost unanimous anti-monopoly verdict was returned which broke the national network into a few pieces, and handed over more regulatory power to the radio commission. What this decision was meant to convey was the difference between free speech and speech which is effectively imposed by its omnipresence.

The one dissenting judge in the case did not disagree with the danger posed by the centralized media. In fact, he was more concerned than the others with the newly concentrated regulatory power being given to the radio commission:

By means of these regulations and the enforcement program, the Commission would not only extend its authority over business activities which represent interests and investments of a very substantial character, which have not been put under its jurisdiction by the Act, but would greatly enlarge its control over an institution that has now become a rival of the press and pulpit as a purveyor of news and entertainment and a medium of public discussion. To assume a function and responsibility of such wide reach and importance in the life of the nation, as a mere incident of its duty to pass on individual applications for permission to operate a radio station and use a specific wave length, is an assumption of authority to which I am not willing to lend my assent.<sup>59</sup>

A law in place to protect a multiplicity of voices and opinions could, in this judge's

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<sup>59</sup> National Broadcasting Co., Inc., et al. v. United States et al. (Feb 14 2006.)  
<[http://www.bc.edu/bc\\_org/avp/cas/comm/free\\_speech/nbcvus.html](http://www.bc.edu/bc_org/avp/cas/comm/free_speech/nbcvus.html)>



estimation, come to exert an exactly opposite effect.

The possibility of constitutionally protected power distortions, and the truly slippery nature of this problem, is behind Innis's insistence on maintaining the oral flexibility of Canada's legislative practice.

Innis quotes Sir Edward Coke, the seventeenth-century English jurist, to the effect that Parliament's authority is ultimately prescribed by the common law. "When an act of Parliament is against common right and reason, or repugnant, or impossible to be performed, the common law will control it, and adjudge such act to be void"<sup>60</sup>.

Innis believed that this overruling could occur in Canada's existing political system without the elaborate written guarantees of an American-style constitution. He favored the parliamentary approach to a balance of powers over the American constitutional approach, and over approaches to governance based on written religious codes, because he thought the common law more flexible and therefore more oriented towards sustaining continuity.<sup>61</sup> In essence, he thought we should take our time to discuss, adjust and adapt our response to each unique problem as it arises.

In "The University Tradition," Innis quotes Macaulay on what constituted the balanced circumstances of the (idealized) ancient world: "In the ancient world it was possible, under the beneficent influence of a free intellectual mart, once the truest,

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<sup>60</sup> Noble, "Freedom," 39.

<sup>61</sup> *ibid.*

simplest and finest expression had been found for anything, to form a consensus”<sup>62</sup>. Innis privileges the intellectual openness of a 'free mart' of ideas over knowledge controlled by church or state or regulatory commissions.

This free market can, supposedly, reduce a problem down to its core components, identify what is crucial and what is superficial, come up with solutions, test them in disparate circumstances, combine results, etc. This kind of free market is only enabled by a balance between written and oral communication, argues Innis, because there is different information circulating in different subsets of publics, using different media, all marked by their own biases. In modern circumstances, most of us are subject to a barrage of media defined by the one-directionality Innis associates with the written, and so what he says we need is more orality.

This orality is a strange concept if you haven't encountered it before, but for Innis it's all important. Orality is close to being the exact opposite of one-directionality. In oral communication, around a dinner table for example, there is something different about our attitudes toward time, power and knowledge. Orality is, at the very least, a good way of explaining a kind of communication that is unpredictable and fertile because the people involved are somehow on a kind of equal footing. For example: when giving a speech, there is a precarious power balance in play. The speaker draws all eyes, and her

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<sup>62</sup> Innis “The University Tradition” Political Economy in the Modern State. 66.

voice is expected to hold precedence, but everyone in the room is reminded by every rustle and cough that the speaker only holds this position of power for so long as the audience chooses. It is this odd, tempestuous, negotiated power dynamic that, I think, most accurately defines the oral.

By “oral” communication neither Innis nor I mean exclusively that which is spoken aloud. “Innis never treated the media as monolithic entities,” wrote Dr. Buxton, for the paper we wrote about the Crisis speech. I presented that paper at a conference in London Ontario in June 2005, and in that room it was clear that there were different kinds of oral organization.

I sat nervously facing a classroom full of communication scholars. They had come to see four people speak on the History of Communication. The panel consisted of Dr Patricia Mazepa, Dr Francois Yelle, Dr. Ira Wagman, and myself, an MA student, sitting where most people expected Dr. Buxton to be. The panel was chaired by Dr. Marc Raboy. From the perspective of Canadian Communications History, I was small fry in impressive company.

First to present was Dr. Patricia Mazepa, who read an excerpt from her doctoral thesis called “Separating Politics and Culture: Historical Exclusions through Canadian Communication and Cultural Policy-Making.” Mazepa pointed out that historically the process of controlling communication had been made up of layers and

subsets of public groups making choices. “Interpreting the British North American Act and acting under sections of the Criminal Code of Canada, the federal government consistently worked to exclude certain expressions of citizenship and not others through to the Second World War.”<sup>63</sup> Not only did the federal government write legislation restricting what would be broadcast in Canada, but, according to Mazepa, provincial and municipal government also played their part, choosing to limit the activities or deny the right of assembly to local community groups. Mazepa's research made a critical commentary on the way the Canadian system had navigated the demand for freedom and communication on the one hand, and continuity and control on the other, and we didn't come out looking particularly good.

Mazepa also highlighted the space between policy and practice. She had asked what kinds of messages were disallowed, and found the answers largely consistent: Political, communist, labour broadcasts, and broadcasts in languages other than French and English where the content could not be controlled at air time, had been unplugged. She drew our attention to the ways in which we experience the culture which has been allowed, and to the ways wartime fear flowed through and sometimes calcified the organs of the press.

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<sup>63</sup> Mazepa, Patricia. “Separating Politics and Culture: Historical Exclusions through Canadian Communication and Cultural Policy-Making.” Conference Abstract.  
<<http://www.acc-cca.ca/reg/viewabstract.php?id=67&cf=1>> (Feb 14 2006)

Then I presented a paper on “The Crisis in Public Opinion” speech that contained much of the same information as in the preceding pages here, with a focus on Innis's performative engagement with the public. And which, to be honest, is just a blur. I was a young and marginal participant, and no one had any questions for me, so I went back to listening and taking notes while Francois Yelle presented a paper called “What is told by the reflective literature on Quebecois academic research on media communication?”

Yelle looked at work by people who were writing about the field. He tried in this way to put himself at an objective remove. Writing about writing creates the potential for another kind of triangulation between opinions. Yelle looked at Quebec-based communication historiography (the history of writing history, in this case the history of communication) and “state of the field” writing. He argued that both historiography and “state of the field” writing necessarily produce narratives which construct and interpret reality- in this case, the reality of communication history in my home province. A study of these kinds of writing in communication, said Yelle, can reveal larger patterns, from which we might gain some perspective on the forces effecting disciplines and discourses. In Quebec, as in many other regions bearing the marks of multiple colonizations, we sometimes bump up hard against questions about how to write the history of our communication. What do we include or exclude? How do

we narrate past trauma and bias to describe ourselves in a way we can accept and recognize? Yelle's research asked: how are people attempting to do this, how many of them, and what are they neglecting?

The punch line in Yelle's findings was this: reflexive literature written in Quebec was 1. opening its focus to the impact of communications events outside its borders and including them in its narratives of the field, and 2. was nevertheless still repeating a selfhood story from 9 years ago, as though the field, the practices, and the institutions were all the same. "Quebec's reflective literature on Quebec communication studies is now immobilized." He concluded, "Are we watching the Train passing by?"

In response to a question, Yelle suggested that, yes, this perhaps indicated a stage of muchness in the production and specializations of the field. In the face of all the concepts and paradigms that rushed in when the field of Communication in Quebec figuratively opened its doors, it may be that the field was, unsurprisingly, taking some time to chart and improvise new knowledge structures. Having spent a few years now watching my favorite open source programs evolve, adjusting to new programming languages as they come out, migrating to newer, more solid foundations, I know how achingly slow the process of research and writing can be, so this hypothesis makes sense to me.

Finally, the last speaker on our panel, Ira Wagman, presented “The Right Man, the Wrong Knowledge: Charles Siepmann and the Broadcasting Studies of the Massey Commission.” Wagman suggested that in the triangulation he was concerned with- between Communication, Policy and the State- new understanding might be gained by digging back into appendices and histories of major policy documents, like the Massey report<sup>64</sup>. Wagman suggested keeping an open mind about the foundations of Canadian communication. He had discovered that Charles Siepmann, in a recommendation to the Massey commission, had recommended and described a balance between state-owned and private media outlets, but this idea about a hybrid system did not make it into the famous report.

On that big conference day, in between the authoritative arguments of talk-giving time; and the excited synchronicity, and expansive philosophizing, of question-asking time; and the friendly, semi-private conversations which followed, two things became clear to me. The first was that, on some level at least, our collective concern was with the relative openness of communication systems. And the second was that orality is not a guarantee of accessibility.

Innis's methodology, best described by his junior colleague Irene Spry, was

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<sup>64</sup> Massey Report: The Royal Commission on National Development in the Arts, Letters and Sciences 1949-1951.

based on a complex idea he had about orality and perspective. He emphasized learning about one's object of inquiry in its own languages, and understanding its knowledge from many different perspectives:

He taught me that it was useless to ask engineers and farmers questions in economic jargon; I had to learn to talk to them in their own language. As he had shown in his own research, it was essential to go and see the actual setting of the problems that one was struggling to understand – the geography, geology, botany, meteorology, human culture, customs, religion, and technology, in fact, the entire context of the economic problem.<sup>65</sup>

Innis went across the country and learned about the shuttling interactions between economic pressures, technological innovations, interpersonal systems, and individual identities. He sought out opinions that would open up the context of the problem.

Understanding the totality of a problem requires approaching it from different perspectives. This is a piece of methodological opinion that will make sense, I assume, to open source programmers. Programming is problem solving and open source programmers choose to work within the logic of the open source system specifically because of the perspective and tools this gives one access to.

Different people and communities have different kinds of knowledge about how the world works, about how forces play themselves out throughout different

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<sup>65</sup> Spry, Irene. "The Public Role of the Intellectual" in Harold Innis in the New Century. Reflections and Refractions, Acland, Charles and William J. Buxton, eds. Montreal & Kingston: McGill-Queen's University Press. 1999. 106.



contexts and bureaucracies. Innis valued these different perspectives; he sought to shake his own writing from the distortions of the ivory towers by seeking them out. Spry says of Innis that:

In his major works he wrote of attempting to understand the problems he discussed. He never felt that what he had written was the final word on a subject, and he mentioned gratefully that as an economist he had received enlightenment from “a large number of individuals involved in the mining industry”<sup>66</sup>.

Innis's was a methodology of traveling throughout the country, reading stacks of primary and secondary sources, and talking with people from every walk of life, in order to develop his ability to look at systems from as objective a perspective as possible.

From his assessment of the Sirois report in the 'Crisis' speech, it is clear that what Innis wants is some better way of bringing perspectives and their bits of unique knowledge together. Innis believed that if the right system or mechanism were developed, it could be possible to find lines of rational agreement buried somewhere between the biases of the different knowledge structures that shape societies. He saw key elements of how such a system would work in oral culture.

What is most important about oral culture for Innis, according to Andrew Wernick, comes down to a contradiction:

“(H)ow, we may ask, can oral culture be presented both as a time- binding corrective to the space bias of print and electronic media and as the meta-

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<sup>66</sup> Ibid., 108.

place where the interests of space and time are themselves judiciously weighed? <sup>67</sup>

Oral culture is defined by immediacy and by meta-placeness; by the way it connects one-to-one, and one-to-many. It's a contradiction that was difficult for me to embrace, but it began to make sense when I compared it to the Internet, which is also a place of both immediacy and timelessness, with room enough for both the vernacular and the authoritative text to exist. Both are, to use Werner's phrase "multidimensional":

A provisional answer (to the question posed above) lies in Innis's multidimensional meaning of the term "oral culture." For Innis, as for Havelock's Plato (Havelock 1963), the milieu formed by direct speech and its appurtenances is the medium not only for face to face communication but also for the cultivation of memory, indeed for cultivation as such. <sup>68</sup>

The kind of space that oral communication makes is a medium that is flexible and fertile- it can be for interaction, and for cultivation. It has a layered identity and a seemingly contradictory notion of time.

The Internet is and rests on banks of written content, so it's clearly not oral, and will never answer the need we have for the face to face transmission of knowledge, opinion, story, furtive glances, holding hands, etc. But the Internet does share orality's contradictory relationship to time, and maybe that alone is still something worth thinking about. To consider Innisian orality is to think about flexibility, freedom and time, and

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<sup>67</sup> Ibid., 269.

<sup>68</sup> Ibid.

these concepts might be meaningfully expanded by some highlights from the history of digital communication.

Paul Baran, when telling of his piece of the story of the invention of the Internet, describes the people in his world at the time as being either analog or digital.

The key difference between them was the way they looked at time:

If you think in analog terms, the signal arrives instantaneously. If you think in digital terms, time moves very, very slowly, and you can do things like change the path while you're in the middle of a syllable. But it was a mental block. They didn't understand digital. It was mostly generational, but there were young analog guys who had the same problem.<sup>69</sup>

Analog thinking saw messages moving through cables as whole, and the act of transmission as controlled and instantaneous. Embracing digital culture means adapting to a contradictory version of time where communication seems instantaneous, and yet is endlessly divisible, and this sounds a lot like the contradictory nature of time in “oral culture”<sup>70</sup>.

Oral culture and its mechanisms appears repeatedly in the history of open source, emerging as a feature of open source development:

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<sup>69</sup> Baran quoted in Brand, Stewart. “Founding Father” Wired 4. Issue 9. 03. March 2001. <[http://www.wired.com/wired/archive/9.03/baran\\_pr.html](http://www.wired.com/wired/archive/9.03/baran_pr.html)> (May 13 2006)

<sup>70</sup> Perhaps this demonstrates my own biases, but I think about this particular quality of time that Innis identifies with oral, and Baran with digital, in relation to sewing. I like hand sewing because the series of tiny stitches makes me feel as though there is always time enough for me to course-correct or change my mind. It is immediate and fluid and prickly, and yet a world of ancient, still being written stories exists in tapestry.

The narrative of the programmer is not that of a worker who is gradually given control, but of a craftsperson from whom autonomy and control were taken away.

Some years later, systems analysts would see more clearly what programmers knew almost viscerally: the high cost of separating out sets of tasks that were much more integrated, often in a tacit way, then they appeared. Ken Thompson understood this intuitively and saw the Multics failure as evidence of a skewed development and organizational paradigm, not of faulty or inadequate technology. The solution was to start over.<sup>71</sup>

A Fordist division of labour might work for assembly, but this kind of complex invention required closer communication. Separated into different rooms, their ability to build components that would work well together suffered. The early programmers Weber refers to were attempting to make an operating system- something to make sense of the new resource they had only begun to understand and make use of: computing power. But early attempts failed.

Beginning again, Ken Thompson- working independently, but inside the university system- wrote a simple and elegant operating system, the first incarnation of Unix.<sup>72</sup> As Unix's usefulness became apparent, the pressure to document the project became a secondary factor in its growth.

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<sup>71</sup> Weber, "Success," 24- 25.

<sup>72</sup> Note that the foundations for great open source programs often come from individuals- Linus Torvalds being the obvious and popular example. This process is far from insisting upon cooperative decision making structures, instead it puts the source material into a public place where individual ideas and desires can encounter it unimpeded.

Documentation- speaking the code and its intentions and goals in another language- is an essential feature of a successful open source collaboration. Layers of looking, discussing, and speaking about a system are necessary to refine what the system will be. Writing out the instructions necessary to undertake a task, and then seeing if they hold water once compiled, can make the difference between knowledge and assumption clear. Perhaps more importantly, well-written documentation, help files, how to's, and active public forums make an open source project accessible to other potential users and contributors. The written documentation helps widen the common ground for oral conversation. Layers of talk, story telling, and debate- layers of relaxed discourse and accessible vernacular- make code projects that people care about, effectively widening the base of users. Each time this happens it exponentially increases the positive network effects for users who are linked by this common system. Every marketer is trying to cash in on this “viral” potential, and so corporations are beginning to appreciate the commercial brilliance of giving good things away.

For people to learn about what Unix did, and what needed to be done to develop it, there needed to be more written about it than the lines of code:

Ritchie and Thompson turned the necessity of documenting it into a virtue. Clean and well-designed programs are easy to document; conversely, documenting an ugly piece of code makes it painfully clear how ugly the code really is. As Doug McIlroy (a colleague of Ritchie's and Thompson's) said, “Cleaning something up so you can talk about it is

really quite typical of Unix.” This first edition of the programmer's manual established another important Unix cultural tradition: listing each subprogram with an “owner,” the person principally responsible for writing and maintaining that particular block of code.<sup>73</sup>

This thrust for simplicity and ownership was brought into the Unix philosophy by the desire for documentation, and for efficient and fair communication. The pragmatism of a principled balance between authors and users was already understood.

The Unix operating system continued to unfold its pragmatic and flexible logic with the invention, by McIlroy, of the pipe.

A pipe is a uniform mechanism for connecting the output of one program to the input of another. It is a key element for programming modularization, which is the division of a complex task into a series of simple tasks that can be carried out by essentially autonomous modules that communicate through standard interfaces. Modularization led to the idea of software not as a tool *per se* but as a “tool box.”<sup>74</sup>

Tasks, and the solutions to problems, become more clearly visible in their modularity-like how essays are more legible when they have logical paragraph and chapter breaks.

Once the millions of lines of Unix code were visible, and documented, and conceptualized as a tool box, tasks could be broken down and interconnected by people who were able to move above and through the structured interactions.

Another way open source is and enables a fluid, one-to-one communicative

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<sup>73</sup> Weber, “Success,” 27.

<sup>74</sup> Ibid.

structure has to do with its end-to-end architecture.

The open source process and the Internet share central features of an end-to-end conceptual architecture. Distributing source code and licensing it under GPL ensures low and nondiscriminatory barriers to entry. The decision about when and how to innovate then lies with the user on the edge of the network. The center does not really control the process so much as incorporate pieces of innovation into itself. And if it fails to do so successfully, a new center can always form at what was formally an edge.<sup>75</sup>

In Internet spaces designed with a dedication to open access and open conversation, like a Wiki, or most blogs or forum spaces, conversations take place in real time and are also stretched out over days and years. When a center becomes too rigid, the means and machinery for the construction of alternative Internet spaces is freely available. There is an odd relationship with time here, a deeper understanding of the importance of continuity than the call for continuity that just defends the status quo, and it contributes to the evolution of principled spaces for balanced communication.

These principles have begun to be addressed and summarized in different contexts. One useful list comes from an essay called “Open Source Intelligence” by Felix Stalder and Jesse Hirsh: “These principles include: peer review, reputation- rather than sanctions-based authority, the free sharing of products, and flexible levels of involvement and responsibility.”<sup>76</sup> Freedom, flexibility, peers and reputation: these principles echo and

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<sup>75</sup> Ibid., 233.

<sup>76</sup> Stalder, Felix and Jesse Hirsh. “Open Source Intelligence” First Monday 7:6.

build on older, oral mechanisms for knowledge building.

In the same way that Innis's examples of orally-based systems (common law, university) include elaborate regulatory systems (peer-review, tenure, exams, etiquette) there are also layers of systems and code between us on the Internet. There are many people, and many kinds of soft and hardware, between users of a forum or email service, for example, just as there are protocols and processes between students and professors. Open source programmers help deal with the monopoly formations that can be built into these processes by giving up the right to control what happens with what they make. A liberal open source license allows a maker to communicate to possible users that he or she does not privilege their point of view of the good over others'. Open source software is built by a disparate and independent process of volunteer and paid programmers working openly. They grow by giving their solutions away for free to those who are interested in looking at them; and selling packaged and polished versions of their product to those who are not. Over time, this free software has created a distributed ability for individuals to build new nodes and connections into the network. With this, the public ownership of communication systems, and public debate, becomes possible in new ways.

The way Innis saw for us to negotiate crisis and approach civilizational

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[http://www.firstmonday.org/issues/issue7\\_6/stalder/](http://www.firstmonday.org/issues/issue7_6/stalder/) (Feb 14 2006.)



equilibrium is to keep ourselves balanced, with our media, in our awareness of ourselves in time. Unix, open source code, and the Internet are all products of a long and bumpy encounter between individuals communicating. This interaction is ongoing. It challenges and enables users to see beyond present-mindedness by making the products of past collaborations visible, and it explodes the world of computer programming with ideas and questions from countless marginal perspectives. Together Innis and the history of open source challenge us to emphasize the balancing effect of “oral” principles in order to keep opinion's swings from paranoia to hyperbolic optimism in check, and to be able to continue working toward balanced communication.

Early on in the history of computing the idea of the computer as the 'people's machine' led to the formation groups like the Homebrew club, and to a particular relationship between computing and politics. Steven Weber<sup>77</sup> argues that the Homebrew Club and Unix on the one hand, and Gates on the other, came at the idea of software and computing from two different and incompatible cultural frameworks. That they carried

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<sup>77</sup> Weber, “Success,” 36. “Clubs like the Homebrew Computer Club, which started around 1975, brought together scrappy enthusiasts and hobbyists who were a lot more interested in experimenting and having fun with computers than being efficient. For the personal computer (PC) experimenters there was no distinction between programmer and user, and certainly no meaningful distinction between hardware and software. As in the early days of computing, the code was the machine in a real sense. And code was naturally something you collaborated on and shared. This was natural because everyone was just trying to get their boxes to do new and interesting things, reasonably quickly, and without reinventing the wheel. And so it came as a shock when in February 1976, Bill Gates released an “open letter to hobbyists” about copying software. (...) Gates' letter was simple, direct, and accusatory: “as the majority of hobbyists must be aware, most of you steal your software.””

into this unfolding industry ideas about why people do things, and what people want, and what they will work for. According to Weber,

Both continue to exist in a kind of software industry “dualism” (...) Different ways of organizing work, “based on different markets, rooted in correspondingly different patterns of property rights,” simultaneously prosper. Neither is a technological necessity, and neither can claim to have “won out” in any meaningful sense.”<sup>78</sup>

Neither system is evil, and neither will win. But only one pushed computing deep into the mainstream, demonstrating the ability proprietary knowledge has to rapidly extend its reach over space. Microsoft made computers accessible by selling an interface that did not ask or enable the user to make fundamental technical choices. We got access to relatively inexpensive computing power, but were literally unable to see under the hood. The most obvious and mind-bending thing about using a new operating system for the first time is the sudden visibility of countless choices, structures and metaphors that had oriented your interaction with your previous system without being seen. Like reading another culture's major texts for the first time, it is simply the possibility of difference, of other ways things could have gone, that stands out.

While Microsoft was making a proprietary operating system mainstream, Unix programmers and their hobbyist collaborators developed a system that could be

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<sup>78</sup> Ibid., 37.

individually tailored by the user to different network realities, different investments in hardware, different priorities and protocols. Specifically because it was open to innovation and to users getting their hands dirty, this system was prepared for the kinds of improvisation required to keep up with problems of exponentially-increasing complexity:

The Berkeley (BSD) group redesigned the network software interfaces so, in the future, Unix would be able to use other networking protocols as well, besides the DARPA standard.

(..) In a real sense 4.2BSD lies at the foundation of the Internet as we know it today. Peter Salus put it this way: “TCP/IP, which enabled greater connectivity, was integrated into Berkeley Unix; Unix became increasingly popular, increasing connectivity.” This was a simple, but powerful, manifestation of positive feedback effects in a network economy.<sup>79</sup>

The pragmatic benefits of openness were known by 1983, and so the rhetoric of those who believed in open and free source code began to evolve as well.

The idea of free and open source software has been popularized and brought into the public eye by countless writers and thinkers over the years, all with their own ideas about what in it is good. Richard Stallman has been famously and loudly arguing for a free-speech interpretation of open source since 1984. Stallman formed the Free Software Foundation and the GNU project, in part, because he wanted to "bring back the

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<sup>79</sup> Ibid., 35.

cooperative spirit that prevailed in the computing community in earlier days"<sup>80</sup>. In his book, *Hackers: Heroes of the Computer Revolution*, also published in 1984, Steven Levy outlined what he saw as the core principles of the hacker ethic:

Access to computers—and anything which might teach you something about the way the world works—should be unlimited and total. Always yield to the Hands-on Imperative!  
All information should be free.  
Mistrust authority—promote decentralization.  
Hackers should be judged by their hacking, not bogus criteria such as degrees, age, race or position.  
You can create art and beauty on a computer.  
Computers can change your life for the better.<sup>81</sup>

The open source movement takes up the politics of the hacker ethic: “Since the mid-1990's the hacker culture has been almost coincident with what is now called the open source movement.”<sup>82</sup> Steven Levy and Richard Stallman and many others contributed to the developments (technological and conceptual) that would make the potential they saw in hacker culture possible. They kept the discourse about the right to information and tools, and their vision of what a decentralized architecture would then be like, in the public eye.

The Debian social contract serves as the basis for the Open Source

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<sup>80</sup> *The Biology Wiki*. “GNU”. 23 Jun 2005. 14 Feb 2006.  
<<http://www.biocrawler.com/encyclopedia/GNU>>

<sup>81</sup> Levy, Steven. *Hackers: Heroes of the Computer Revolution*. NY: DoubleDay, 1984.  
<<http://www.answers.com/topic/hackers-heroes-of-the-computer-revolution>> (Feb 14 2006.)

<sup>82</sup> Wikipedia “Hacker Culture” <[http://en.wikipedia.org/wiki/Hacker\\_culture](http://en.wikipedia.org/wiki/Hacker_culture)> (Feb 14 2006.)

Definition, and explicitly furthers an open attitude to future otherness.<sup>83</sup>

The Debian social contract clearly prioritizes the rights of users, to the point at which it recognizes that many Debian users will choose to work with commercial software in addition to free software. Debian promises not to object or to place legal or other roadblocks in the way of this practice. The basic principle is nondiscrimination against any person, group of people, or field of endeavor, including commercial use.<sup>84</sup>

The user can install for free and then make changes and articulations that make sense to them. This choice represents a policy decision based a kind of technological pragmatism, as it was designed to let individuals and communities with different values and desires to interact with the process.

The license Richard Stallman wrote for the Free Software Foundation, the one chosen by Linus Torvalds for his open source program Linux, includes another clause which takes the open source logic further, or perhaps just in a slightly different direction.

It does not allow the use of GPL'd code in any proprietary implementation at all. It is not permitted under the GPL to combine a free program with a nonfree program *unless* the entire combination is then released as free software under the GPL. This last point is sometimes referred to as the “viral clause” of the GPL.<sup>85</sup>

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<sup>83</sup> Debian Social Contract. <[http://www.debian.org/social\\_contract](http://www.debian.org/social_contract)> (Feb 14 2006.)

<sup>84</sup> Weber, “Success,” 86.

<sup>85</sup> Ibid., 49.

This element of open source's struggle has garnered much attention and debate. The decision to not include the viral clause in the Open Source Definition was a major point of controversy between open source developers, and the controversies between the groups continue as they are faced with the ethical challenges posed by new technical possibilities. Despite important differences, these communities share history and principles. They are more like each other than they are like traditional proprietary structures. The debates will continue- life with other people is politics- but with a critical mass contributing to a shared code resource there will always exist the tools required for a small number of people to begin the process of building a new center at what was formerly an edge.

The open source process is premised on a twist in copyright logic that values the rights of the user, and the unfolding generations of possible users. The right that is protected is the right to know how a programmer solved a problem, and the right to use pieces of that program to improve, make changes, collaborate, or solve another problem. Over time, this process accelerates, because the free tools in the commons become incredibly developed and powerful, and are still freely available to any group or individual. This is an efficiency decision, and it is this pragmatism that enables the extensive network of open source programmers, users and thinkers to find acceptable solutions to ethical and technical dilemmas as they come up.

In the late nineteen fifties Paul Baran was among many engineers and scientists working on a system to connect machines across the country enabling a 'second strike' capability. The intention was to build a communication system that would allow the United States to launch a retaliatory strike, no matter which of its major cities had already been hit, and which would, therefor, hopefully deter the enemy from launching that hugely fearful first strike in the first place. At a time of civilizational crisis, the need for efficiency in communication became abundantly clear.

At RAND, in buildings designed to make people take different routes to meet each other, Paul Baran and others discussed the problem of surrender and how wars *end*, though they weren't allowed to use those words <sup>86</sup>. They tested network models, looking for the utmost degree of connectivity and redundancy because they were forced to assume that hubs or hierarchy would attract enemy fire. The network they were building would be used to coordinate a second strike, *or*, if things played out differently, to disseminate the knowledge that the war was over; in which case, it might enable the circulation of opinion and information that would find a way to see and keep the world at peace.

Baran's revolutionary idea, one kernel of the ideas that would grow to become the contemporary Internet, was to build a system that was reliable despite the fact

<sup>86</sup> Brand, Stewart. "Founding Father" Wired 9:03. March 2001. 3.

<[http://www.wired.com/wired/archive/9.03/baran.html?pg=3&topic=&topic\\_set=](http://www.wired.com/wired/archive/9.03/baran.html?pg=3&topic=&topic_set=)> (Feb 14 2006.)

that the components of the system (individuals and machines) were not. He shifted his focus from fixing the communicators, or interactants, to building a system that would work with them the way they were- faults, unpredictabilities, biases and all.<sup>87</sup>

Unix and open source are the product of this moment in history. Its logic emerged out of a resurgence in anti-trust, anti-monopoly prosecution following the Second World War, in concatenation with the intricate philosophy of preparedness and defense that accompanied the Cold war.

Everyone needed a set of basic tools, nobody could afford to build them alone (at least not quickly enough), and efficiency dictated collaboration across corporate boundaries. (...) PACT (the Project for the Advancement of Coding Techniques) brought together software engineers from Lockheed, Douglas, RAND, and other large defense contractors mainly on the West coast to build a set of tools.

All technological systems sit within particular cultural frames. The early framing of software as a tool had a pragmatic foundation. In 1956 it would acquire a legal foundation as well.<sup>88</sup>

The legal foundation came when a Sherman anti-trust<sup>89</sup> case reached a consent decree in 1956 whereby AT&T, at that point the largest company in the world, could keep its companies but could not expand into manufacturing or sales beyond “common carrier

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<sup>87</sup> Ibid., 5.

<sup>88</sup> Weber, “Success,” 22.

<sup>89</sup> The Sherman anti-trust act, the monopoly legislation used to challenge AT&T, was passed in 1890, one year after Canada's equivalent, “The Competition Act.” Both intend to protect consumers and businesses (users and developers) from corporations powerful enough to act in ways that inhibit competition, or manipulate or constrain market forces.



communications” services. So the software AT&T had developed had both pragmatic and legal reasons for being open sourced.

Charles Lindblom, after serving as consultant for the RAND corporation during this period, wrote a book in 1965 called The Intelligence of Democracy about the construction of knowledge:

Multiplicity copes with the inevitability of omission and other errors in common problem solving. (...) If, through multiplicity, decision makers mop up the adverse consequences of each other's inevitably imperfect decisions, multiple decision makers will, in addition, compellingly call to others' attention aspects of the problem they cannot themselves analyze.<sup>90</sup>

In the open source world this principle has been summarized as “with many eyes all bugs are shallow,” though this is a simplification of what occurs, and is in some ways misleading. Multiple eyes do not guarantee bugs will be solved, any more than democratically elected representation guarantees perfectly moral organization. Both seem to be crucial, foundational elements on the road to solving the problems they face, but both require a layered dedication to communication, quality discourse, peer review and public access in order to actually be successful. In other words, it's not just people's eyes but also their voices, minds, brilliance, disagreements, understanding and independence that are required.

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<sup>90</sup> Lindblom, Charles. “Introduction”. Lindblom, Charles E. The Intelligence of Democracy: Decision making through mutual adjustment. New York: The Free Press. 1965.

Stanley Deetz, in Democracy in an Age of Corporate Colonization, suggests that “systemic distortion” can take place in democracies that are inhabited by powerful, undemocratic systems, like the modern corporation. If a nation is inhabited by entities with more capital and less ethical responsibility than the government, then there is a great disparity that can result in a bias so big it might legitimately be called a monopoly of knowledge.

Systemic distortion, Deetz argues, is defeated by a process of open interaction. He recommends opening up the “apparently transparent” to reveal the strategies at work at other levels of the hierarchy, strategies that are shaping the ways we see others, ourselves and what is possible. Deetz argues for an ongoing extension of politics into the spheres of everyday life, and for democratic tactics in the workplace: “For a new form of participatory democracy fundamentally rooted in corporate citizenship and moral communicative practice”<sup>91</sup>. This new form of flexible, participatory democracy and moral communicative practice is possible when we are able to be involved in shaping the processes beyond the surfaces of the “apparently transparent”<sup>92</sup>, which sounds, to me, a lot like getting your hands on organizational source code.

With his writings on distortion, Stanley Deetz is taking up Jurgen Habermas'

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<sup>91</sup> Deetz, Stanley. Democracy in an Age of Corporate Colonization: Developments in Communication and the Politics of Everyday Life. Albany: State of NY Press, 1992. 351.

<sup>92</sup> Ibid., 176.

concern with “systematically distorted communication”<sup>93</sup>. In conversations with Giovanna Borradori for the book *Philosophy in a Time of Terror* Habermas explains the wide reaches of systemic distortion, and the way that distortion tends toward crisis:

“The spiral of violence begins as a spiral of distorted communication that leads through the spiral of uncontrolled reciprocal mistrust, to the breakdown of communication. (...) (W)hat is needed is a change in mentality, which happens rather through the improvement of living conditions, through a sensible relief from oppression and fear. Trust must be able to be developed in the communicative practices of everyday life. Only then can a broadly effective enlightenment extend into media, schools, and homes. And it must do so by affecting the premises of its own political culture.”<sup>94</sup>

For Deetz, Habermas, and Innis, identities and pathways can be distorted by the weight and shape of the system they exist in relation to. To establish trust between interactants and the potential for the kinds of interaction that will disrupt biased distortion and allow for mutual growth and peaceful coexistence, the premises of the communicative equation must be adjusted. Interactants must have their independence protected, but must somehow come to see each other as interdependent and equal members of a community, or else their communication will be undermined by inequality, fear and bias.

Trust must be built into communication- perhaps, as Derrida suggests in his interviews with Borradori in that same book about philosophy and terror, with some act

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<sup>93</sup> Ibid., 173.

<sup>94</sup> Borradori, Gianestra, quoting Jurgen Habermas in *Philosophy in a Time of Terror*. Chicago: University of Chicago Press, 2003. p19-20.

of hospitality: "Pure and unconditional hospitality, hospitality itself, opens or is in advance open to someone who is neither expected nor invited, to whomever arrives as an absolutely foreign visitor, as a new arrival, non identifiable and unforeseeable, in short, wholly other." <sup>95</sup> When there is no longer trust between interactants- because of terrorism or a history of racism or violent colonization- the hospitality that might trigger a newly peaceful relationship is challenged by fear on both sides. In a time of terror, for example, it becomes increasingly difficult to welcome people into your home. To escape the speedy peaks of crisis and fear we need to create a balanced situation between us, but if we do not trust each other enough to communicate, then the "spiral of reciprocal mistrust" will overcome us.

There is a fundamental disparity in our society and in the global community, and reason enough for mistrust. By supporting open source abilities and solutions governments, organizations, corporations and individuals might be able to participate in a layered, decentralized, mediated, but ultimately open, exchange. This exchange combines layers of knowledge and opinion; requires interaction that is oral and written; and has the potential to affect the material conditions of individuals, and so to expand the positive network effects of their ongoing communication. We'll look at one version of how this plays out in the next chapter.

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<sup>95</sup> Ibid., 17.

### Chapter 5:

As Innis wrote, “A monopoly of knowledge incidental to specialized skill in writing which weakens contact with the vernacular will eventually be broken down by force.”<sup>96</sup> Or, as another perceptive Canadian put it, speaking from the vernacular's perspective: “any system you contrive without us will be brought down”<sup>97</sup>. If injustice, inequality, and the need for change, becomes apparent, then in order to maintain control the state can either choose to attempt to enforce a distorted version of public opinion (with forged documents, for example); or it can make public restitution and improvements. If they choose the former, Innis and Cohen suggest that individuals inside and outside the distorted system will resist and sabotage that distortion in countless, layered ways (consciously and unconsciously) until they right the wrong, or cause the unjust system to collapse.

Rather than using distortion, violence, or anti-competitive practices to advance their solutions to problems, and their alternatives to monopolistic systems, the open source process performs an act of hospitality. The free code, combined with the vast communication instrument/storehouse of the Internet, twists the culture of competition by

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<sup>96</sup> Innis, “Bias,”. 4.

<sup>97</sup> Cohen, Leonard. “any system you contrive without us” 1989. In Canadian Poetry Volume Two, Jack David and Robert Lecker, eds. Toronto: Stoddart, 1994. 151.

ensuring that the community of interested and knowledgeable programmers, users, testers, entrepreneurs, and innovators can diversify and grow. This is a tactic that has allowed for the creation of stacks of free and open source tools. One powerful, and continuously expanding and evolving example, is the “LAMP” stack.

The “LAMP” stack is a useful interaction between four open source programs: Linux, Apache, MySQL and PHP. Linux is an open and modular operating system. Apache is web server software for hosting data on the Web, making it public. MySQL is a robust database that gets installed onto a server. PHP, and other open source languages like Javascript and Python, answer questions posed by a web site's user by dipping quickly into the banks of archived information.

Software combinations like the LAMP stack allow for the construction of stable, web-based Content Management Systems. There are several different CMS's available for download on Source Forge<sup>98</sup> and elsewhere now. These systems are based on configuration management systems, like Source Forge itself, which have been crucial to the development of open source project coordination<sup>99</sup>. Content management systems are simplified versions of the tools that enable people to collaboratively tackle a complex task like writing and debugging millions of lines of code. They are one example of the

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<sup>98</sup> Sourceforge.net is the world's largest repository of open source projects.

<sup>99</sup> Xu, Neng. An Exploratory Study of Open Source Software Based on Public Project Archives. Master's thesis, John Molson School of Business, Concordia University, Montreal, 2003.18.

ways in which open source development is progressing: having conquered several layers of complicated engineering to get to this point (developing network protocols and name servers and the like), programs are being developed that are increasingly useful and usable from an artist's, writer's, or Communication historian's point of view. For example, I wrote this paper using Open Office, I run my websites using Wordpress, I layout book projects using Scribus, I edit sound using Audacity. I take on creative challenges I wouldn't have otherwise attempted because I know I have free access to cutting edge tools. It has taken time for me to develop an understanding of software- but this is necessary in both the proprietary and open source realms. The difference for me is this: I am willing to put in the time to learn because I know I am not stealing something I will have to steal again in six months, or else be behind. I know the code I invest time in now will always be accessible and improving.

Linux is the kernel, which is combined with GNU components to form a complete operating system. When monolithic kernels were considered extinct, too complex to function, Linus Torvalds bucked the trend and tried to write one. And then he open sourced it, believing that if, together, they could get the complexity right, the result would be a kernel that communicated more completely, and made much more efficient use of whatever resources you could afford to pay for. Google's immense operation was

designed to run on Linux<sup>100</sup>, and the One Laptop Per Child project<sup>101</sup> has Linux at its core. Because it is monolithic, open, and extremely customizable, Linux is flexible enough to be adapted to widely different scales, and to each new and evolving piece of hardware.

The task of figuring out and connecting the unpredictable variations of hardware and software chosen in each unpredictable user's home or lab or office is among the most astounding things we ask machines to do. The kernel knows the name of each piece of hardware and software, and the routes to take when the user wants to use them. The kernel is like a receptionist who knows how an entire business functions as a system, and coordinates each meeting of inside and out, and runs many complex processes for maintenance (many hundreds of programs) which are hardly ever seen. Torvalds' early, oral-esque call for help- his widely distributed mailing-list email- contributed to the opening up of the of software:

I'm working on a free version of a Minix look-alike for AT-386 computers. It has finally reached the stage where it's even usable (though it may not be, depending on what you want), and I am willing to put out the sources for wider distribution ...This is a program for hackers by a hacker. I've enjoyed doing it and somebody might enjoy looking at it and even modifying it for their own needs. It is still small enough to

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<sup>100</sup> Brin, Sergei and Lawrence Page. "The Anatomy of a Large-Scale Hypertextual Web Search Engine." <<http://www-db.stanford.edu/~backrub/google.html>> (May 15 2006).

<sup>101</sup> One Laptop Per Child. <<http://laptop.org/>> (May 15 2006) See also: <[http://news.com.com/The+100+laptop+moves+closer+to+reality/2100-1044\\_3-5884683.html](http://news.com.com/The+100+laptop+moves+closer+to+reality/2100-1044_3-5884683.html)> (May 15 2006)



understand, use and modify, and I'm looking forward to any comments you might have. I'm also interested in hearing from anybody who has written any utilities/library functions for Minix. If your efforts are freely distributable (under copyright or even public domain) I'd like to hear from you so I can add them to the system.<sup>102</sup>

Torvalds' success with Linux suggests that a leader who is also just a user/developer (on both sides of the rights/responsibilities seesaw) can become one recursive mechanism for a community's and technology's smart expansion.

The collaborative process that built Linux is layered and complex now, but it still boils down to this: anyone is welcome to submit bits to the main distribution, and if their submissions aren't adopted, they can still run their customizations on their own end, and even put together and promote their own competing distributions. Decisions are made pragmatically- does this work well, logically, efficiently, does it work well over time, does it scale, does it allow for and enable growth..?

If a contributor fundamentally disagrees with the decisions being made by Torvalds and his close team of lieutenants, they are welcome to attempt to fork the code. "Forking" is to take all the openly available material from the Linux code (which is **all** the Linux code) and to build it in whatever new direction you like, and then to see if you can get people to work on it with you. Forking is an essential option in the ecosystem that is open source.

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<sup>102</sup> Weber, "Success," 55.

The importance of the right to fork makes sense when you think about how the open source process unfolds over space and time. Thinking about open source requires a kind of sliding scale- one that can see the individual creative spark alongside the enormity of the network. Open source is bigger than any one project, (and many projects, like operating systems, are massive in size); it's bigger than giant networks of projects like Sourceforge; bigger than the legal and business realms of open source; bigger than things like the Creative Commons, Lawrence Lessig's license project for different kinds of intellectual property; bigger than its subtle role in enormous battles like the ones playing out in the music and motion picture industries. Open source is big, and this question about scale points to how hard it's going to be to build things that will survive the size of a networked society, not to mention how hard it can be to know which directions will prove right in the long run. Thus the crucial "right to fork". Because we don't know whether a choice will continue to seem smart as it gets applied to increasingly various scenarios, in all kinds of chaotic and tugging contexts. Will a system stay quick and light across the variations of software and hardware? Will a small group of developers with a vision be able to meet all the diverse needs and desires of their user base, or will someone else be more suited to take on certain aspects of the problems they are working to solve?

Similarly, I think individuals and groups sometimes create an operating-system-sized theory on their own. When we're traumatized, tired or under-fed; or when we have access to too much power, capital, or one-directional communication, it is possible for us to create dangerously biased opinions. Given the success of open source, we have to wonder how other bodies of knowledge would fare if they were similarly enabled in their opening up. For Weber, the interface between hierarchies and networks creates an exceptionally fertile space:

The interface between differently structured systems is typically a very creative place where where new forms of order, organization, and even life arise. In physics it has been called the edge of chaos, where order meets disorder and where phases changes take place. In evolutionary theory, it is a source of new species, not just marginal variation. In organizational theory, boundary spanners are a major creative force behind new kinds of organizations. This is also the place where the relationship between the open source process and more traditional forms of organization for production are being worked out.<sup>103</sup>

The potential for mistakes and failures is always present- no one is perfect, no one knows everything. The question for Innis is, can we build and improvise systems that will limit the damage monopolies of knowledge can do? Weber suggests that the open source process might be a big enough answer to that civilization-sized problem:

The success of open source is a story about software. If it were only that, it would still be important for social scientists thinking about collaboration

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<sup>103</sup> Ibid., 262.

problems. And it would still have significant implications for economic growth and development. That is the minimum case. If the open source process has more general characteristics, if it is a generic production process for knowledge that can and will spread beyond software *per se*, then the implications might be considerably larger.<sup>104</sup>

The complexity of the network, the individuality of participants, the right to fork, the nature of time in the circuit, are aspects of a process that rests on a legal tweak and an expanding commons. The process aids and accelerates specialized knowledge production by getting out of its way, but resolves the problem of specialization by keeping the knowledge produced open and accessible in an end to end network.

The open source process- like other kinds of freedom- relies on a combination of tools and attitudes. There is a culture of openness in the software community that doesn't exist to the same extent in other knowledge realms<sup>105</sup>. There are interpersonal tactics which become visible in a public development process like the one Linux has had, and maybe these should be emphasized as well. Torvalds, for example, avoids reducing disagreements to simplified binaries:

More than anything he seeks to avoid taking sides in a way that might splinter his followers. "I'd much rather have 15 people arguing about something than 15 people splitting into two camps, each side convinced it's right and not talking to the other," he says. Often, when things are on the verge of getting messy, he'll consciously avoid making a decision, allowing time for feelings to dissipate. "Eventually, some obvious solution

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<sup>104</sup> Ibid., 264.

<sup>105</sup> Ibid., 270.

will come to the fore or the issue will just fade away." <sup>106</sup>

Herbert Henry Asquith, Prime Minister of Britain from 1908 to 1916, behaved, as we've seen, in this same way<sup>107</sup>.

Repeatedly he prevented the break-up of his government or the resignation of important Minister by refusing to allow a decision to be taken. 'What we have heard today leaves much food for thought; let us all reflect before we meet again how we can bring ourselves together.'<sup>108</sup>

These tactics by no means define either Tovalds or Asquith, they're just interesting. They both suggest a certain understanding of how opinion fluctuates over time, and of how systems might orient their focus toward solutions rather than getting caught up in the highs and lows; and this is central to what Innis draws our attention to.

The open source process had some decided characteristics, and one of these is its support of cultural diversity. Different successful open source organizations have evolved different governance structures, for example. The non-profit software foundation that made open source servers the majority on the Internet is called Apache, and is the second layer in this one interesting extension of the open source process called the

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<sup>106</sup> Rivlin, Gary. "Leader of the Free World" Wired 11:11 Nov 2003. 3.  
<[http://www.wired.com/wired/archive/11.11/linus.html?pg=1&topic=&topic\\_set=>](http://www.wired.com/wired/archive/11.11/linus.html?pg=1&topic=&topic_set=>) (Feb 14 2006.)

<sup>107</sup> Before, that is, he was brought down from power by the speedy fear in the widely disseminated voices of another monopoly of knowledge.

<sup>108</sup> Churchill, Winston. *Great Contemporaries*. London: Butterworth, 1937. 124.

LAMP stack. Apache is an open source project often cited for its governance structure because of its explicit commitment to meritocracy, and because of the layered processes used to give contributors “committer” status<sup>109</sup>. Apache is server software, and so the people who govern its development are focused on understanding the possibility and danger in interaction between private and public on the web. Their system is not without flaws and controversies (no one knows everything) but the relationship between their political systems and the technical systems they use and develop would make for fascinating study.

Programmers are much like artists in many ways, as many people before me have argued<sup>110</sup>. The artists I know communicate their best ideas in their favorite medium, and have difficulty translating those ideas for other kinds of communication. I sense that this is often true of programmers as well: their best ideas about communication and organization exist in the technical systems they have built. If their ideas are developed without the rigorous challenges of public opinion, then they risk becoming inaccessible knowledge monopolies. If, however, they can be continuously adjusted by interaction with new perspectives, then the real potential in these instruments might emerge. The vast majority of computer users- including policy writers- don't know half of the kinds of

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<sup>109</sup> Apache Meritocracy. <<http://www.apache.org/foundation/how-it-works.html#meritocracy>> (Feb 14 2006)

<sup>110</sup> Graham, Paul. “Hackers and Painters” is a good version of this argument and is available online at <<http://www.paulgraham.com/hp.html>>

interaction that are possible between computers and users. Only a very few of these possibilities have been successfully marketed and adopted so far (compare the familiarity of HTTP to Webdav and FTP, for example). For the people who write programs for servers, conversations about connectivity and politics are probably informed by different technical restraints and potentials than the rest of us are aware of.

To have a website of your own on the Web, where information can be shared or contributions traded, you need server software. Server software makes a computer able to host publicly accessible information and to respond to requests from other computers for that information. Server software allows a computer to serve up a website.

“Although web server programs differ in detail, they all share some basic common features. Every web server program operates by accepting requests from the network, and providing an HTTP response to the requester. The HTTP response typically consists of an document, but can also be a raw text file, an image, or some other type of document. Usually these documents are stored on the web server's local file system.”<sup>111</sup>

Whether you pay to have your site hosted, or set up a computer dedicated to this task in your office or home, chances are it's Apache being used.

The Apache HTTP Server Project is an effort to develop and maintain an open-source HTTP server for modern operating systems including UNIX and Windows NT. The goal of this project is to provide a secure, efficient

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<sup>111</sup> Wikipedia. “Webserver” <<http://en.wikipedia.org/wiki/Webserver>> (Feb 14 2006.)

and extensible server that provides HTTP services in sync with the current HTTP standards.

Apache has been the most popular web server on the Internet since April of 1996. The February 2005 Netcraft Webserver Survey found that more than 68% of the web sites on the Internet are using Apache, thus making it more widely used than all other web servers combined.<sup>112</sup>

Server software is essentially an interface between two computers, built on top of an operating system and included free in most distributions of Linux, designed to perform one layer in the series of protocols required for networked communication.

Two other open source servers help expand this process of interconnection (and there are many others, each with their own versions of sharing and security).

SAMBA is a file server (designed for private networks, as opposed to the public network of the Web) which has consistently developed alongside Microsoft's proprietary local network servers for home and business networking. SAMBA provides a way of linking Unix, Windows and Linux machines in one office, making it possible for them to see each other. This is important because on their own, Windows servers literally cannot see, let alone communicate with, others which are not like themselves. The source code for SAMBA is free, and so each office can choose what systems they prefer to use for different but interconnected tasks.

Even more interesting to me, studying communication, is the fact that

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<sup>112</sup> Apache HTTP Server Project. <<http://httpd.apache.org/>> (Feb 14 2006.)



Samba implements UNICODE character sets. UNICODE, another open source project, makes translation possible in ways it never was before by assigning a unique number to each character in every language. Implementing UNICODE character sets in the SAMBA servers makes it possible for people speaking different languages to share information on a network.

While American and Western European IT shops could care less about UNICODE versus ASCII, it's a major deal elsewhere. Indeed, according to David de Leeuw, head of the Medical Computing Unit at Ben Gurion University of the Negev, Israel, "With the release of Samba 3, we are able for the first time to store our files on the computer servers in any language we want. Filenames in English, Hebrew, Arabic, Russian, and scores of other languages, used by our staff and students, mix without problems," thanks to Samba's UNICODE support.<sup>113</sup>

Servers phrase different kinds of possibility out of the muchness of computers and code by building networks (beyond the network of hardware on the individual computer). As such, they provide a base for different kinds of software extensions or applications than the operating system can manage alone.

Another server product from the open source community, called Asterix, extends this ability to connect in new ways. Asterix leaps over old barriers using Voice Over Internet Protocol. It is a private branch exchange able to do the juggling between old and new networks (telephone and Internet). Medium and large-size organizations

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<sup>113</sup> Vaughn-Nichols, Steven J. "Why Use Windows Server When You Can Use Linux?" *EWEEK*. Sept 29 2003. . <<http://www.eweek.com/article2/0,1759,1304571,00.asp>> (Feb 14 2006.)

often use a private branch exchange to connect the phones inside to each other- which is why you need to dial nine to get out, or an extension to call someone within. Asterix articulates a new layer of businesses and individuals to these possibilities by making them closer to accessible.

"Yes Asterisk itself is free, being open source, but it uses hardware that is less expensive then buying a whole package from, say, Cisco," (...) "Of course there are all the features Asterisk provides as well, and if the feature isn't there, you can implement it yourself or hire someone to implement it for you."<sup>114</sup>

With telephone and Internet systems on speaking terms in a massive coded orchestration translating analogue to digital we can expand the accessibility of the information and communication on the Internet. It becomes possible to call-in to content management systems, to post voice instead of text on websites, forums, or blogs.

Open databases like MySQL (the M in LAMP stack) are necessary features of this expanding interconnection. They hold the large amounts of data we type and phone in to the system in an organized way. Having access to this power to build one's own accumulation, and to define for yourself its logic and the connections within it, builds a zone of non-interference. For less than the thousands of dollars proprietary databases are sold for, individuals and groups can organize collaborations, like the

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<sup>114</sup> Kerner, Sean Michael. "Open Source VoIP Ready For Its Close Up" *InternetNews*. Sept 24 2004. <<http://www.internetnews.com/dev-news/article.php/3412951>> (Feb 14 2006.)

collaboration that builds code, around whatever task or craft they decide is valuable. For free, in fact.

Open languages like PHP, (the P in LAMP) evolve (or, in other words, are written) to move through open databases like these, and to stitch the information in there to the web's HTML surface. Because open source developers are drawing from a pool of public projects they can ensure that the paths between publicly adopted programs, not just programs made by friendly companies, are easy to traverse. By developing the tools (ie languages and drivers) that are needed to connect different pieces of software, they make sure that potentially enabling programs like open databases and servers are accessible.

Open source software does not remove the cost of developing new software- of paying a programmer to make something you want. It just gives those programmers the option to remove the constraints and blinders put on that knowledge by proprietary traditions, and allows them to move more quickly past old conundrums. It assumes that there is so much to be done with code, that it is in everyone's best interest to fuel a commons. This has exponential effects, as open source developers use accumulations of code to make their best attempts at open spaces. Free and open systems for publishing and managing content on the Internet, like the ones made of the LAMP stack, provide a powerful support to individuals and groups who would attempt an independent press.

Innis' concern in the Crisis speech was to enact a dialog with the Press, the Fourth Estate in the traditional balance of powers, about the need for a system that was flexible enough to learn from communication. In my opinion, this particular section of the speech is worth quoting from again at length:

I should like to emphasize the necessity of trying to build up some system of Government, or some system of political machinery, which will make for the more effective registering of public opinion. The Sirois Commission, for example, was set up primarily as a basis for definite public discussion, but it failed to set up or improvise any machinery whereby such discussion could be carried on. There is a real need in a democracy for the means or machinery whereby there will be some sort of effective registering of public opinion. The concern of the Sirois Report was with legislation, and not with the machinery by which legislation was to be made sensitive to public opinion. We shall have to concern ourselves with the possibility of thinking out some new type of machinery which will check the trends towards a diminishing public opinion, so that we will not be in a position of having to take results as given, but will be able to think in terms of trying to bring about some better arrangement through the more effective registering of public opinion.<sup>115</sup>

My concern in this paper is to say what I had nervously but adamantly tried to say at the end of that conference in London Ontario: that I think this Crisis speech, with its ideas about systems for effectively registering and going over public opinion, can harmonize with the theories and strategies of the open source process, to make some interesting suggestions about how that “means or machinery” might work.

Beneath the jokes and anecdotes Innis throws in, perhaps to lighten the

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<sup>115</sup> Innis, “Crisis,” 10.

mood, the question “The Crisis in Public Opinion” asks is this: how do we design a knowledge-building, opinion-registering system such that an individual could slip past ideology, rhetoric and red tape to contribute the good idea that was visible from their perspective? One that would that would help problem-solvers produce and repeat fewer bugs, biases, failures and mistakes, or that would enable us to learn from them better?

This is all the web is: a reaching out with long threads of zeros and ones, opening and moving through files on servers. This is, beneath the lovely and useful metaphors that are its surface, all the computer is as well: just stacks and wide branches of information, and climbing, looping applications designed to move through, manipulate, and hopefully help us to make meaning of that data. Code- open or closed- is libraries of experience concatenating with mathematical processes for asking questions, testing opinions, building new habits, and cleaning up old systems. Code is opinion enabled by experiment to become an instrumental piece of opinion about how to solve a problem.

Software then is more than a secondary tool- it is the meeting place of governance and communication. Open source software disrupted a monopolistic system by making open operating systems, servers, databases, and common protocols and languages. Today, open source programs can be combined to create a lot of different things, including systems, like the LAMP stack, which enable an free and independent

press, and so, if you're like me, you have to wonder what kinds of openness are coming next.

## Chapter 6:

Open source users and developers choose a vastly networked system over a hierarchical system for the governance of their computing power, and so perhaps energy circulates differently between them.

Remember that Microsoft (for better or worse) is one of the most profoundly successful organizations on earth when it comes to strategy. It has an extraordinarily well-honed system for managing its relationships with other organizations (too successful by some accounts). It is just as expert and nearly as successful in managing its relationships with governments. But Microsoft has no strategy template for managing the open source community. You can't buy that community; you can't drive it out of business; you can't hire away the talent; and you can't really tie it up in courts (although Microsoft has tried each of these tactics).<sup>116</sup>

Open source is a form of organization that closed systems can't combat. It is only by using these alternative systems, and by asking questions of them and the communities that support them, that one can get a grasp of the tacit knowledge embedded in them, and of the kinds of information open sourcing that we haven't yet attempted.

As the members of the Government Open Code Collaborative suggest, governments can expand the usages of open code and the open source process to enable new degrees of citizen involvement, new access to deep banks of public knowledge, and new potential for “creative refactoring.”

Loosely coupled parts chained together with lightweight web services are

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<sup>116</sup> Weber, “Success,” 260.

a proven route to developing technology to allow for creative refactoring. For government to model this success, it will mean developing with technologies that are flexible enough to be creatively combined and refactored in ways the original architect never imagined.

Currently, government technology often quarantines its data from other agencies and its own citizens. While sensitive government data must be protected, there are many ways that citizens would be better served by making specific public content available through open services.

(...)

It is simply unacceptable at this point in history that a citizen can use web services to track the movies he is renting, the weather around his house, and the books he's recently purchased but cannot as easily monitor data regarding the quality of his drinking water, legislation or regulations that will directly impact his work or personal life, what contracts are currently available to bid on for his state, or what crimes have recently occurred on his street.<sup>117</sup>

In the interest of fertile continuity, government's role in communication might be to build and protect spaces and machineries for end to end communication, and the effective registering of public opinion.

Free and open source software projects, when they are successful enough that a “critical mass”<sup>118</sup> of independent users cares about them, increase the potential in good governance by combining perspectives from centers with perspectives from margins, and then giving it away. Open source, and the right to fork it protects, makes complex tasks conquerable in a multi-dimensional way, which is good if you are

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<sup>117</sup> Government Open Code Collaborative. Willis, S. James. “Rhode Island Govtracker Services”.  
<[http://www.gocc.gov/Members/sjwillis/weblog\\_storage/blog\\_07956](http://www.gocc.gov/Members/sjwillis/weblog_storage/blog_07956)> (Feb 14 2006.)

<sup>118</sup> Weber, “Success,” 271.



attempting something as complex as a global community. Once governments are linked to each other by virtue of these shared components in their communication systems, and by the fact of their original combinations and customizations, they may have an open opportunity to shake the fearful pressure of having to come up with a successful but unique operating system for society; and also to demonstrate the products of their own, ongoing discussions about collective values.

Bill Joy, an inventor of Unix, and also of Java script- an important programming language that is now fully open source<sup>119</sup> - is concerned with what happens when technological innovation is not balanced out by open conversation. He is afraid of the speed at which code and math are being evolved by small pockets of excited scientists. Similarly, as we've seen, Innis was afraid of the “dangers of specialization”. Joy stands in a whole new power geometry, and yet his concerns for civilization are like the concerns of the communication historian and political economist in 1943. Joy writes:

We have, as a bedrock value in our society, long agreed on the value of open access to information, and recognize the problems that arise with attempts to restrict access to and development of knowledge. In recent times, we have come to revere scientific knowledge.

(...)

If we could agree, as a species, what we wanted, where we were headed,

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<sup>119</sup> The most popular way to refer to the kind of programming that allows for quick interaction between user and server without needing to refresh the browser is to call it AJAX. This stands for Asynchronous Java script, and it makes certain favorite elements of my own sites possible.

and why, then we would make our future much less dangerous - then we might understand what we can and should relinquish. Otherwise, we can easily imagine an arms race developing over GNR (genetics, nanotechnology, and robotics) technologies, as it did with the NBC (nuclear, biological, and chemical) technologies in the 20th century.<sup>120,,</sup>

At the cutting edge of science himself, Bill Joy sees the need for a check on our inventiveness, and an agreement, like an arms control treaty, that will balance out against the manic pace of contemporary invention. He suggests that the problems we face now come from an over-emphasis on the circulation of scientific knowledge, without a corresponding circulation of public opinion.

The danger is that solving a problem can become a kind of blinding or distorting obsession, obliterating any rational consideration of constraints or dangers. This is very similar to the kind of changes in character that interest Innis. In the preface to Political Economy in the Modern State, Innis writes,

Extensive government expenditure and intervention and large scale undertakings have raised the fundamental problems of morality. A friend in power is a friend lost. A decline in morality has followed war and the growth of hierarchies in the church, state and private enterprise.<sup>121</sup>

Extensive government expenditure, a change in rank, the ambition of a large scale undertaking, a war, the growth of hierarchies in a religion, power and money: these things seem to often be followed by a decline in morality. They are connected by the way

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<sup>120</sup> Joy, Bill. "Why The Future Doesn't Need Us." Wired 8:04. Apr 2000. 11.  
<[http://www.wired.com/wired/archive/8.04/joy.html?pg=11&topic=&topic\\_set=](http://www.wired.com/wired/archive/8.04/joy.html?pg=11&topic=&topic_set=)> (March 20 2006)

<sup>121</sup> Innis, Political Economy and the Modern State. xiii.

they affect perspective.

Similarly, when the solutions to countless small problems have accumulated into a system for solving complex problems in the blink of an eye, then the opportunity for checks and balances can be lost. As Innis said in another speech, also from 1943:

This paper is designed to emphasize the importance of a change in concept of the dimension of time, and to argue that it cannot be regarded as a straight line but as a series of curves depending in part on technological advances (...) The concepts of time and space must be made relative and elastic and the attention given by the social scientists to problems of space should be paralleled by attention to problems of time.<sup>122</sup>

According to Innis, time changes, is drawn into speedy peaks, and these curves form, in part, because of technological advances. The character of time changes around condensed opinions and monopolizing ideas, especially as they are mass disseminated by space-biased media, and so maybe a kind of gravity emerges as a force affecting human thought and action when a monopoly of knowledge forms.

One new way to understand the formation and consistency of the 'monopolies of knowledge' is to consider the discoveries of network physicists about the relationship between Windows' market share and the "Bose-Einstein condensate"<sup>123</sup>.

Windows' 86% market share in the operating system market makes it the mathematical equivalent of the Bose-Einstein condensate, a formation that somehow shatters nature's

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<sup>122</sup> Innis, Political Economy and the Modern State, 34.

<sup>123</sup> Barabasi, Albert-Laszlo. Linked Cambridge, Massachusetts: Perseus, 2003. 105.

habit of assuming power law, or plateau-shaped, distributions. The condensate reduces individuality in particles until they are all the same.

In the Windows' case, the vast majority of users around the world come at the knowledge in computers through the filters built by one corporation, and so the network looks like this rare form of matter. Not gas, liquid, or solid, but a *condensate* where each individual particle loses its unique spin. A star-like formation where one node has gathered all the links.

We all behave like extremely social Bose particles, convenience condensing us into a faceless mass of Windows users. (...) The operation systems market carries the classic signatures of a network that has undergone Bose-Einstein condensation, displaying a clear winner-takes-all behavior. While many operating systems compete for visibility and market share, Microsoft is locked in the position of a condensate, a star dominating the vast majority of links to consumers.<sup>124</sup>

If we think about an operating system as a mass mediating system then we can see how this network structure, this condensate, relates to the production of a certain kind of knowledge monopoly. We negotiate with our operating system to access and interact with whatever information we've put inside it; we go through it's protocols and opinions to get at the information on the Internet. It is used by programmers for communicating explicit and tacit information to users; and it determines the success or failure of all of our attempts to communicate with subsequent programs. The operating system is the

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<sup>124</sup> Ibid., 106.

governance of the computer, and governance can exert an identity shaping power, and so software is involved in the conditions that will either impede or encourage the individual's freedom of thought.

Einstein, Innis and Bose all lived in times characterized by colonial bias and extreme totalitarian attempts to use communication systems to impose “order” on the unique spins of human minds. In a section of “Innis, the Environment and New Media” entitled 'Delusion' Robert E. Babe quotes Innis at his most foreboding: “the conditions of freedom of thought” Innis says “are in danger of being destroyed by science, technology, and the mechanization of knowledge, and with them, Western Civilization.”<sup>125</sup> The conditions of freedom of thought are endangered by monopoly of knowledge formations. In a monopoly of knowledge, an idea is articulated to a media, spreads quickly, and obfuscates the reality of limitations and violent contradictions in the present, riding high on hopes and promises for tomorrow. A monopoly of knowledge is a psychological framework, and an ordering of public opinion that increasingly justifies a material reality that benefits an elite and distorts perceptions of reality. The monopoly's condensate characteristics- the gravitational pull of language and ideas- are such that a knowledge formation will distort not only the world and identity narratives of those who are disempowered by it, but of those who believe they benefit as well. As people at every end

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<sup>125</sup> Babe, “Innis, Environment and New Media,” 393.

of the system find their day-to-day reality dependent upon the system, and find the communication organs they have access to believing in and defending the narrative, “the danger becomes extremely great”<sup>126</sup>

The condensate, however, cannot stand forever. Scientists trying to produce it in a lab setting have found that “it is incredibly fragile. It is the most fragile thing that has ever existed”<sup>127</sup> Maybe, in the case of social condensates or 'monopolies of knowledge', it is the power of our disruptive uniqueness, reaching out from the margins with new tools and opinions to form alternate communities, that can bring it down. The rise and fall of these kinds of formation, wherever they occur, may have something to tell us about crisis: how we come to a crisis point, what we can learn there, and how we can emerge from that point without triggering cascading failure.

Bill Joy, like Innis, is not terribly hopeful about civilization, but the solution he traces lies somewhere in a dialog about collective values. “My immediate hope is to participate in a much larger discussion of the issues raised here, with people from many different backgrounds, in settings not predisposed to fear or favor technology for its own sake”<sup>128</sup>.” A dialog about technology and collective values; the disruption of “one-

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<sup>126</sup> Innis, “Crisis,” 12.

<sup>127</sup> Colorado University Physics 2000. The Atomic Lab. “Bose Einstein Condensation” Feb. 14 2006. <[http://www.colorado.edu/physics/2000/bec/what\\_its\\_good\\_for.html](http://www.colorado.edu/physics/2000/bec/what_its_good_for.html)>

<sup>128</sup> Joy, “Why the Future Does Not Need Us,” conclusion. <[http://www.wirednews.com/wired/archive/8.04/joy\\_pr.html](http://www.wirednews.com/wired/archive/8.04/joy_pr.html)> (May 15 2006)

directional” communication with alternate, even oppositional, systems and opinions; the ongoing registering of public opinion: these are, it seems, the necessary antidotes to present-minded behavior in corporations, governments, technologies and individuals.

Our responsibility, Innis suggests to the Fourth Estate, is to continue to build spaces where the accumulation and evolution of opinion can take place. Open source creates open and free tools which enrich the commons, and contribute to the construction of spaces for that ideal: the free market of ideas.

Distribution of raw materials and tools, (...) is the fundamental problem that an intellectual property regime needs to solve. Solving that problem allows the system to release fully the creative energies of individuals. Even better, it promises to ratchet up the process over time as a “commons” of raw material grows. Open source intellectual property aims at creating a social structure that expands, not restricts, the commons.<sup>129</sup>

This has been the work of open source: they have evolved tools necessary for their craft- for housing information and opening it up and moving through it- and with this labour they have created systems for sustaining marginal publics on the Internet.

Building on the way people have used and evolved open source Content Management tools, represented in this essay by the functioning of the software in the LAMP stack, we might reconsider Innis' challenge to periodicals:

We shall have to concern ourselves with the possibility of thinking out some new type of machinery which will check the trend towards a diminishing public opinion, so that we will not be in the position of of

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<sup>129</sup> Weber, “Success,” 85.

having to take results as given, but will be able to think in terms of trying to bring about some better arrangement through the more effective registering of public opinion<sup>130</sup>

Wikipedia, and the online journals from which many of the quotes on technology in this essay come, and the online journal that I myself have developed and continued to run since beginning my Master's degree, are built upon these kinds of dynamic stacks.

Weblogs have incredible potential in them to offer evidence and argument from outside cultures of amalgamated communications. And when a blog is kept on stacks of open source software, like Wordpress, then their potential is enabled and accelerated by the waves of new possibilities- additional functionalities and interconnections- being made of code. If you face censorship, you have a community behind you working to make systems that will get you heard. When you are working within a generally open source environment you have less of that sinking feeling of being left behind by technology. There is always insanely much to learn, but at least you can learn without making a capital investment, and improve and modernize without paying again for more closed, inaccessible, upgrades.

Participating in the constructive conversation that is the open source process means seeking out the powerful abilities, paradigms, and techniques that are freely available, and spending the time to understand their difference. Given what we've seen so

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<sup>130</sup> Innis, "Crisis," 10.



far, this participation might be a powerful step that media makers, governments, and corporations could take away from specialized knowledge and the dangers of monopoly, and toward Innis's "conditions for the freedom of thought."

This suggestion- that perhaps one ought to search for solutions to problems in the open source creative commons- is not one that would be easy to implement. In my opinion, it is not a change that should be enforced, nor is it something that could happen overnight. Learning to use open source systems requires a series of conceptual shifts on the part of the user. Aside from the differences in naming conventions- an already familiar disorientation for people who have moved between Microsoft and Apple machines- many of these shifts have to do with the difference between a system that expects you'll want to do things yourself, and one that expects you'll want every technical decision made for you. The vast majority of what you can do with a robust open source software does not come with the basic download. There are hundreds of thousands of user-contributed plugins that you can spend eye-opening days pouring through. To engage with the real abilities of the program you need to think your problem through carefully, and then think of ways your problem might be solved, and then go looking.

There are always multiple ways to solve a problem, (though it will often be in someone's interest to make it seem as though there is only one). With an open source program, it is possible to override the list of potential solutions that a given community

was able to think up and to add completely new solutions of your own. In fact, you can add new options at almost every moment of choice that the user of a program will face, exploding the communicative power of a simple piece of software. For now, this is a step that is far removed from most people's computing power (including my own.) It is a dizzying fact that everything done with code could probably also be done in several completely other ways, and that somewhere out there is probably someone working on each of them. Finding the best way to solve a problem is a conversation that can take a really long time, and in the meanwhile we need to use what we know, what we understand, and what we can get our hands on, to get the job done. Fortunately, it is very possible to work well in a hybrid system. Though Windows machines are not designed to communicate with Linux machines, the opposite is pretty much always true. Coming up from the margins, it has been clear to many open source program developers that if they wanted to be adopted, they needed to connect to the majority.

Working in a hybrid- open and proprietary- environment allows for a side by side comparison of the strengths and weaknesses in each instance of closed and open programming. This puts programs through rigorous testing, which helps the developers identify areas of improvement, and it encourages an ability to think about code as a tool box. A hybrid system, more so even than a strict open source environment, supports conditions for the the freedom of thought by exposing and challenging the biases in our

communicative machinery.

Over the past few years I have had to ask for a lot of help, and to learn a lot, but I've gotten to see the rapid evolution of difficult concepts as programs are picked up and reworked by different, smallish groups of programmers, designers, copy writers, marketers, lawyers, etc. Repeatedly I have seen problems I had a year ago get solved. Simultaneously, the languages themselves are rapidly evolving. After decades of labor it is becoming increasingly possible to do certain things with code, like compose style elements or interact with a database, by using words and grammar that resemble spoken language<sup>131</sup>. As disparate but already existing programs and concepts get articulated, we find ourselves rapidly approaching a situation where even more people can query the Internet orally, or can speak ideas and directions into a program, have the computer attempt to do what they've asked for, and see for themselves what conceptual and ethical constraints reside in that interaction.

One ultimate evolution of this is a Star Trek type future interaction with “the Computer”. Star Trek is a long running future fiction, and over the course of decades, multiple authors, directors, researchers, actors and designers (official and otherwise) have contributed their labour and perspective to its world view. In the Star Trek future, the

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<sup>131</sup> Similarly, my most recent freelance job is writing rules in English that programmers enter into their parser to clean up their databases. I use my English and Communications degrees to help write code, which would making my computer teacher from Grade 7's head spin, given that I failed that class.

computer can be addressed and queried orally, and the vast majority of information is available from anywhere. Individuals can have a specialized skill or knowledge and still work well with others. They interact with access to a pool of shared knowledge, and with a strong foundation of collective values.

Computing evolves to this point, in the Star Trek story, because it is reoriented away from internal competition by an encounter with an alien Other. A civilizational crisis makes the nations of earth decide to work together. The Star Trek future suggests that global hunger is resolved with a more efficient circulation of material and mind resources, one that again relies on computing power. Computing power is even used to transform basic elements into food (or even relatively complex computer components) and to transport them across great distances, balancing out against scarcity.

The Star Trek future, in other words, is premised on the idea (or hope? or dream? or hypothesis?) that if programming languages and computing power can evolve in a direction guided by an open discourse about collective values, then global inequality will be a solvable problem. If, on the other hand, programming languages and computing power evolve in a direction of competition, obfuscation and centralized control then, Star Trek at least suggests, they will become contributing factors in the formation of Borg-like knowledge monopolies.

The choice between these two directions, which Star Trek exaggerates but

still does a good job of exploring, is ideological, but also pragmatic. One path values continuity in the long term and so works on the conditions for freedom of thought. It builds technical and interpersonal systems to enable individuals throughout the network to set up and improvise a common ground for the unbiased exchange of information and opinion. The other direction values market share and dissemination across space in the present, and an idea about continuity that tries to preserve that present where they profit. This direction is good for spurts of growth, but is susceptible to “systemic distortion”; defensive, rigid behavior; the production of systems that are one-directional; and the eventual decline of public opinion, individuality and even morality.

In order to foster conditions for the freedom of thought we will need to register public opinion about technology effectively, and not get caught up in progress for distorted reasons. This thesis suggests that perhaps the hospitality and generosity communicated by the open source process; combined with its dependence on collective assent for its success, and its inherent organizational, even oral, flexibility, might mean that it can provide a counterbalance to the space-binding and time-curving potential in one-directional systems.

The open source process balances out against space-biased proprietary software by building complex systems that can adapt and improve with the voluntary contributions of widely dispersed, personally motivated users. In this way, open source

generates mechanisms and processes for peacefully resisting monopolies of knowledge, and the distortions they cause. Licenses, and a pragmatic commitment to accessibility for new contributors, keeps the code in the public eye. Increasingly lowering barriers and building bridges to entry for novices on forums, and in archives of questions, and in help files, keeps the process public<sup>132</sup>. By protecting the right to fork the code so long as proper credit is given, the freedom to change or be different is empowered.

With this quirk of open-ness, the onus is on the developer to be worthy of being chosen. As John Durham Peters argues, quoting Robert Merton toward the end of his History of the Idea of Communication, when so much communication between our flawed selves and our flawed extensions is bound to fail: “The only refuge we have against communication fraud is the propaganda of the deed.”<sup>133</sup> Beyond bright marketing messages and utopian promises, the challenge for the open source developer, and for all interactants, in fact, in an atmosphere changed by the presence of open source, is to demonstrate with working code and fair systems that ideas and intentions are sound.

For the open source process to fulfill its potentially balancing effect it must simultaneously focus on writing and building systems out of open code, and on writing and building open sourced knowledge content in and of these systems. Innis demonstrates

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<sup>132</sup> In addition, there is a tutorial out there for pretty much everything you can imagine.

<sup>133</sup> Durham Peters, John. 1999. Speaking Into the Air. A History of the Idea of Communication. Chicago: The University of Chicago Press. 271.

throughout his canon that the possibility of monopoly formation exists in every knowledge realm. By binding ourselves to others in a conversation about values and possibilities in a space that will remain accessible to users across both space and time, we may hope, over time, to right some of the damage and inequality caused by monopolized progress.

On that day in London Ontario, our conference panel narrowed in on the historical necessity, and difficulty, of fostering open and balanced communications<sup>134</sup>. In “The Crisis in Public Opinion” Innis suggests that we might be able to accomplish this balancing task by finding “a means or mechanism” for the continuous registering of public opinion. I believe, and have argued, that the real mechanisms of that foreshadowed system already exist and are evolving in the realm of open source.

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<sup>134</sup> I'm sure there were other perspectives on these papers, and so I invite anyone interested to contribute their thoughts on the forums of my own attempt at an open source inspired communicative space: <http://openjournalmontreal.com>

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