

The Dissolving Fortress

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The true founder of civil society was the first man who, having enclosed a piece of land, thought of saying 'This is mine', and came across people simple enough to believe him.

Jean-Jacques Rousseau.¹

We live from birth to death in a world of persons and things, which is in large measure what it is because of what has been done and transmitted from previous human activities. When this fact is ignored, experience is treated as if it were something, which goes on exclusively inside an individual's body and mind. It ought not to be necessary to say that experience does not occur in a vacuum. There are sources outside an individual which give rise to experience.

John Dewey.²

1.

The fundamental tenets underpinning the system of intellectual property are again a matter for political, social and philosophical debate.³ Until recently they have been treated as established 'facts of life', irremovable elements of market capitalism's undisplaceable natural order. 'It is an empirical fact,' Peter Drahos writes, 'that intellectual property rights are universally recognized' – on, that is, the juridical plane.⁴ On this plane, even the most progressive actors have until recently tended to confine themselves to investigating how, for example, restructuring legal and administrative regulations can help economic welfare by 'aiding development' or 'stimulating progress'. Such enterprises have classically respected the 'natural' right of inventors and authors to the fruits of their creative efforts. The liberal orthodoxy that the free market is the best, and only, way of regulating innovation has been left unchallenged.

The tectonic plates of history, however, are shifting beneath the edifices of the law. Today, information and communication are the commodities that determine the global distribution and organisation of work, win elections, sell products, make stock-market value, and marshal what takes place in the West's industrial back yard. Information is the backbone to its movable, dispensable physical inventories. Material production may be as necessary as ever, but its value is created only in conjunction with immaterial signs and codes. It is the immaterial, we can say without any rhetoric, that gives the material substance. Yet in ways this article explores, information in digital form traversing the network, is beginning to exceed capital's mandate and control. In the darknets that have realised popular use of the internet's distributed, peer-to-peer structure, proprietary media is eluding the legal and technological measures put in place to control it.⁵ Meanwhile, projects underway are successfully establishing a set of common, shared informational resources. Taken together with a social and economic crisis, these conditions mean questions about the role of the proprietary system in organising intellectual work are inevitable.

¹ *Collected Writings of Rousseau* (Hanover, N.H.: Univ. Press of New England, 1990-), Vol. IV (1994): *Social Contract*, trans. Judith R. Bush, Roger D. Masters, and Christopher Kelly, p. 55.

² J. Dewey, *Experience & Education*. (New York: Collier Books, 1938/63), p. 39.

³ Concerning the generalising use of the term 'intellectual property', see Richard Stallman of the Free Software Foundation, at www.gnu.org/philosophy/words-to-avoid.html#IntellectualProperty. The term does have the potential to predetermine treatment of a broad swathe of phenomena as property. That granted, working under the phrase doesn't *always* indicate assent to the order it implies. One can imagine here, if preferable, all instances enclosed in quotes.

⁴ See Peter Drahos, 'THE UNIVERSALITY OF INTELLECTUAL PROPERTY RIGHTS: ORIGINS AND DEVELOPMENT', available at <http://www.wipo.org/tk/en/activities/1998/humanrights/papers/word/drahos.doc>. Since most references here use easily available online versions, page references are often unavailable.

⁵ See, on this issue Evan Jones, 'The Darknet And The Future Of Content Distribution' (2004) available at [://evanjones.ca/researchpapers/darknet.html](http://evanjones.ca/researchpapers/darknet.html)

This article begins with a short survey of the ways in which knowledge, property and self have been conceptualised historically, vis a vis intellectual property law. The idea of the individual that is the absolute basis for market theories of organising knowledge, this review suggests, is a more contingent device than it might first appear, founded on particular social-technical circumstances. If today's circumstances are different, this might explain why intellectual property has become a contested category for activists and legal theorists alike. Further, if the fundamental contract of market capitalism is in crisis, then this will help us to understand why we should seek new models for organizing our intellectual labour: there is less and less faith that the free market represents 'the only noncoercive means of coordinating activity in a complex industrial society.'⁶ In seeking to understand what a post-IPR model of social organisation might look like, this article concludes with a review of some groundbreaking models for rethinking the way in which we manage the creativity and innovation, focussing on Free Software, and the developmental Treaty On Medical Research and Innovation.

2.

It is impossible to divorce the notion of 'intellectual property' (IP), a phrase coined by the libertarian legalist Lysander Spooner, from the modern conception of the self -- and its abstraction, the individual.⁷ The juridical apparatus around IP describes an ontology of more-or-less isolated selves, with independent ideas exploited for personal benefit. In this description of the world, there has never, nor can there ever be, reasons other than 'rational' self-interest for a person to innovate or create.⁸

However prevalent this view may be, the most cursory examination of history suggests it is inaccurate. People have not always conceived of thoughts and ideas as objects of property, and the alienated self so necessary to today's order appears to have been entirely missing for a good deal of the Middle Ages.⁹ Then, as many commentators argue, self was experienced primarily in terms of a relation to the social.¹⁰ For Heidegger, medieval Europeans did not conceive of themselves as separate and autonomous from the inflexible, inevitable, known socialities surrounding them. Rather, they were recipients of a common truth revealed by God, through Church hierarchy, and expressed in their immediate environments.¹¹

When Augustine, in his Confessions, searched for an 'I', he found a soul -- 'trapped' in his body -- that was not individualised and unique, but like every other an extension of God's pure rationality. Other medieval texts too locate the individual in a universal scriptural context. Individual voices may speak clearly, and even with apparent self-consciousness; but the individual's experience is conditioned by a collective intellect. In the rare cases it appears, the isolated individual of the Middle Ages manifests itself as a voice of despair: its misery lies in having been stripped of the group identity and rendered, in effect, proto-modern.¹²

3.

Clearly this unselfish self of the early Middle Ages was not an ideal locus for intellectual property rights. For the individual to have ideas it could own, society had first to be able to separate its ideas from others'. By the fourteenth century, forms of intellectual property had developed, but these were not based on an appeal to the rights of creators. 'Right from the beginning,' Drahos and Braithwaite explain in *Information Feudalism*, 'a ruthless trade morality' -- rather than any concern for 'natural rights' of the creator -- 'drove the development and use of patents.'¹³ 'Open' or 'patent

⁶ John Gray, *Liberalism* (Minneapolis, Minnesota University Press, 1995), p. 61,

⁷ See Lysander Spooner, 'The Law Of Intellectual Property: Or An Essay On The Right Of Authors And Inventors To A Perpetual Property In Their Ideas' (1855) available at <www.lysanderspooner.org/bib_new>.

⁸ Although in certain rare exceptions, acts of 'selfless' valour are, for example, admitted and indeed lauded.

⁹ 'Alienated' here indicates both the classic Marxian sense, 'alienated from the object of one's labour', but also 'alienated from others.'

¹⁰ As Peter Stallybrass has pointed out, medieval Latin had no term for 'individual'; see 'Shakespeare, the Individual, and the Text', *Cultural Studies*, ed. Lawrence Grossberg et al. (New York: 1992), pp.593-612

¹¹ Martin Heidegger, 'The Age of the World Picture,' trans. William Lovitt, in *The Question Concerning Technology and Other Essays*. (New York: Harper Torchbooks, 1977), pp.115-54..

¹² See for example the English elegies of this period.

¹³ Peter Drahos with John Braithwaite, *Information Feudalism - Who Owns the Knowledge Economy?* (London: Earthscan, 2002)

letters' were used to encourage technology transfer in England, for example, by coaxing foreign master craftsmen to its shores. In return for introducing English apprentices to the 'mysterie' of a process, the artisan would receive exclusive trade privileges in her respective field.¹⁴ These rights may have been dispensed to individuals, but they did not have the individual creator as their focus. Indeed, the creator was rarely the recipient of the privilege.

Most accounts place the proper recognition of the rights of a creator over his or her ideas in the early Renaissance. Scientists' and inventors' wide use of ciphers to protect their ideas, such as Leonardo's mirror-image script, suggests some creative individuals of the period already considered themselves the proper owners of their ideas, and others as potential looters of their intellectual possessions. This was accepted as juridical fact in 1421, when Filippo Brunelleschi was granted a patent for an invention his contemporaries dubbed *Il Badalone*, 'The Monster'. 'The admirable Filippo Brunelleschi,' the preamble to his patent read,

... a man of the most perspicacious intellect, industry and invention, citizen of Florence, has invented some machine or kind of ship, by means of which he thinks he can easily, at any time, bring in any merchandise and load on the river Arno and on any other river or water, for less money than usual, and with several other benefits to merchants and others [...] he refuses to make such machine available to the public, in order that the fruit of his genius and skill may not be reaped by another without his will and consent [...] if he enjoyed some prerogative concerning this, he would open up what he is hiding and would disclose it to all.¹⁵

Under the provisions handed down by Roman law, property had hitherto been irrevocably tied to the material, limited to what one could touch. Now, Brunelleschi received protection for an immaterial idea. Without it, he argued, the 'fruit of his genius' might be 'reaped by another without his will and consent.'¹⁶ This was the first incorporation of the emergent *ingegnere* into law, the legal articulation of a self-interested, calculating agent acting in the possessive society of the commercial Italian city-state. Cities like Florence, having developed trade-fostering banking and insurance provisions, had become hubs providing access to diverse markets. In this environment, exposed to others with different languages, gods, and desires, a new, selfish self was formed. It was not only thoroughly aware of its own difference, but was able to speculate on the possibility of increasing personal fortune through exploiting that difference – to consider, in other words, the fiscal possibilities of selling knowledge in domains in which it was not yet held. Brunelleschi would have been aware of the commercial advantage his invention could offer other cities. He could have envisaged knowledge of it spreading on the physical routes out of Florence; and the knowledge that an idea could traverse into unfamiliar hands could only make control of it seem more crucial.

4.

Brunelleschi's arguments won him exclusive use of his design, as its proper inventor.¹⁷ He himself, not a guild, state, nobleman or king, stood to profit or lose from it. For those who followed him, this spelled a progression in the economic and legal relationship to the state and other individuals. But the question raised by the terms of the progression is as pertinent today as it was then. What is the relationship of the individual to society? Once we separate the individual's interests from others', how do we manage the relationships and obligations that then pertain between them? This is a fundamental problem intellectual work, which is built up over time by many different people. The question of what constitutes true 'originality' has been well vexed. Even in theory, strong IPRs cannot hope to accommodate the massively complex layers of attribution that a human environment inexhaustibly suffused with the achievements of previous generations would require.¹⁸ IPRs rely on the fiction that there can be distinct and calculable boundaries

¹⁴ See, for example, the letters patent Edward II gave the Flemish weaver John Kempe in 1331, or the protection granted to two Brabant weavers to settle at York in 1336. Other examples are found in P.J. Federico, 'Origin and Early History of Patents', in *Journal of the Patent Office Society* (1929) pp. 293-95.

¹⁵ See 'Brunelleschi's Patent', *Journal of the Patent Office Society* (1946), page 109.

¹⁶ 'Brunelleschi's Patent.'

¹⁷ *Ibid.*

¹⁸ This idea can be traced to Hegel (1845), and following Hegel, Marx (1947); it is further found in e.g. Dewey (1938) Durkheim (1912), Leontiev (1932), Luria (1928); Stern, (1916/1990); Vygotsky (1929)

between ideas. In fact those boundaries are almost always fuzzy. Perhaps unsurprisingly, the rules that determine how this fiction is worked out favour those who have money to spend on lawyers.¹⁹

Even strong IPR supporters sense this problem. Brunelleschi could not have invented in a vacuum – nor would his invention have had any application or value were he to have been living in one. Proprietary relations depend on their context in shared, common culture. Thus the proprietary system must take pains to support, and ensure it has access to, non-proprietary resources – because it is practically impossible to invent, price, or market anything without these resources. On the other hand, in the quest for profit, capital must constantly loot certain of these intellectual resources, exploiting them as its property and excluding certain others from accessing them. The interests of society and the individual, or the property holder and the property-less, are then at the same time contending and co-dependent. This violent paradox is so no less in intellectual than in physical property, and it was so right from Brunelleschi's patent: it gave him the right to burn any ship borrowing his design for three years,²⁰ but said nothing of the unpatented designs that must have preceded him, and which remain unrecorded.

Along the arc of development in which individual property became one of the hallowed 'rights of man', this notion of a fundamental background of shared resources was lost piece by piece. Obviously, in medieval Europe not all property had been held in common: at least until the monetarization of agricultural relations after repeated peasant revolts, the majority of peasants weren't individual property owners because the land they worked and their bodies themselves (i.e. as agricultural labour or military service) were the private property of the feudal lord.²¹ What was left over was the extraordinarily complex system of open fields and common rights that supported Europe's agrarian community throughout the 1500s. These commons were under community regulation: the peasantry had customary rights over them which had never been encoded in law,²² rights premised on the 'self-governing and customary elements in the structure of the pre-capitalist village community',²³ and on that community's 'collective memory'.²⁴ In seventeenth century England, Locke insisted that 'Every man' had a 'property' in his own 'person'. This was the ideology carried through the Enclosures, through which the landed classes of England, and a rising class of merchant farmers, seized and developed common lands in the advance of what Hannibal Travis terms the 'propertarian ideology'.²⁵ The Enclosures asserted over free farming peasants and their land near-absolute rights of perpetual duration, substituting communal land regulation for individual tenure.²⁶ Through the 1700s and early 1800s, a series of 4,000 acts of English Parliament authorized the seizure of some seven million acres of commons. Village-held lands were fenced off and given to private interests, as customary relations fell, piecemeal, to the forces of law and coercion which supported this 'propertarianisation'.

¹⁹ Information Feudalism.

²⁰ See John Broich and Beth Condie, *Taming Nature, Environmental Engineering Failures In Modern Italy*, available at <http://www.stanford.edu/~broich/tamingnature/>. All the contradictions are contained in this provision: if Brunelleschi's design was useful, others would want to build ships along the same lines using their own resources, implying increased capacity for moving goods and people, to the common good. The inventor's right to prevent this by violent destruction of others' work is premised on protecting his 'incentive' to innovate, which is financial profit from the work, in order to increase the common good. The reason for protecting this incentive is that without it, innovation will not happen; society will be the worse. But the argument is circular: *society* is already the worse for not immediately being able to exploit a good invention freely, and the inventor is the worse for not having the benefit of experimentation with the design. The question of the common good is here moot. As we will see, *Il Badalone* sank without a trace.

²¹ I am grateful to M. Hyland for this proviso.

²² George C. Comninel, 'English Feudalism and the Origins of Capitalism', in *The Journal of Peasant Studies* (July 2000) pp.1-53.

²³ E.P. Thompson, *The Making of the English Working Class* (London: Penguin, 1991), p.238.

²⁴ Thompson, *English Working Class*, p.238.

²⁵ Hannibal Travis, 'Pirates of the Information Infrastructure: Blackstonian copyright and the First Amendment' in *Mark Berkely Technology Law Journal* (Spring 2000)

²⁶ Although the right of 'perfect usufruct', of utilising the land without altering or depleting it, had never existed free of contestation. Even in the sixteenth century it had been in direct antagonism with the Common Law established by William the Bastard after the Norman Conquest of 1066, the so-called 'Norman Yoke' that rested upon the individual rights of freehold tenure. In this light, the prolonged and systematic elimination of custom by Common Law that occurred from the sixteenth century onwards can be seen merely as the realisation of a longstanding ideological conflict.

Now, everything on earth was to be seen as owned from the outset: 'God' had 'given the earth to the children of man', and what had been common had 'of necessity' to be appropriated to 'a private dominion exclusive of the rest of mankind'.²⁷ Again, this is simultaneously a progressive movement, which grants the common man, at least in name and occasionally in practice, potentials previously only held by the aristocracy. In asserting an inventor's property right in his or her discovery as one of the rights of man, the French Revolution's National Assembly aimed at restricting the aristocratic state from exploiting productive and innovative members of the bourgeoisie. At the same time, the limits of this progression are clearly visible. Locke's establishment of private property as part of the natural order works as much to justify and support existing property relations as it does to offer new opportunities for 'self-made men'. Ultimately, it was the interests of society's propertied classes, either made or in the making, that were framed as a juridical right.

Locke's theories explicated a sequence of violent appropriations of shared European lands were taking place, contested by a strong anti-enclosure resistance. This appropriation, not any assessment of imperfect resource allocation, is surely the original 'tragedy' of the commons. Alongside it came a conceptual conversion of common intellectual resources. Only by making an intellectual resource scarce can capital profit from it; but only against a background of non-scarce, culturally common resources can it market its products, and be sure to have new products to market. This dilemma is fundamental to private property rights, and persists throughout their development, through the European enclosures preceding the development of modern capitalism and international industrialisation, to the present day. Locke's himself recognised it, holding that an individual could legitimately create personal property interests as long as there was 'enough and as good left in common for others'.²⁸ Something had to be left to the 'common good' in order to support personal property. This explains why most states, in formation of property laws, recognised the need to mitigate the potentially violent contradiction between what is taken by individuals, and what is left over for all. The American constitution, for example, established patents as a right, but recognised the intrinsic conflict between the utilitarian exploitation of information and its detrimental effects on culture. Patents were, in Jefferson's terms, 'to promote the progress of Science and the useful Arts'²⁹, not the progress of acquisitive individuals.

However, the history of Europe and its colonial empires had already provided abundant evidence that the urge to accumulate private property overrides any rational imperative for 'enough and as good left in common'. Managing this contradiction, and therefore preserving and protecting property rights, becomes the primary end of a 'civil society' presiding over a public sphere separate from the state but not autarkic.³⁰ In the hands of the civil society, Gerard Winstanley's commons begins to look more like the post-war garden allotment: enough to share the seeds keep us from outright starvation; enough, therefore, to prevent us from revolting completely. Civil society commentators quote the Diggers and anti-enclosure movements in the context of IP, but until recently they have largely refused to step out of their role as managers of the social contract. The progressive goal has been to ensure some access to intellectual resources in the face of the overrunning tendencies of modern capital. 'We're not against intellectual property,' admits James Boyle of Duke Law School for example, 'we're against intellectual property on steroids.' Although commentators like Boyle urge a 'mass movement' in IP, they limit the recommended scope of such a movement to helping policymakers 'recognise the value of the public domain'. The brutal consequences of the post-Renaissance circuit self-property-society are left unaddressed.

5.

The World Intellectual Property Organisation (WIPO) presides over an internationalised regime of ideas contractually agreed upon by dominant colonial nations at the end of the eighteenth century. In the preceding phase of development, IPRs had been patchy, with countries exploiting each others' 'properties' for their own gain. Early nineteenth century Britain, for example, found cause to complain of piracy of British books abroad, especially a thriving trade in Dickens bootlegs in the United States. The US remained cavalier in its treatment of foreign nation states' intellectual works until

²⁷ Locke, *Second Treatise*, at 27, available at <<http://history.hanover.edu/early/locke/j-l2-007.htm>>

²⁸ Locke, *Second Treatise*, at 27 ("it [the legislative power] can be no more than those persons had in a state of nature before they entered into society. . . [and a person has] in the state of nature no arbitrary power over the life, liberty, or possession of another, but only so much as the law of nature gave him for the preservation of himself, and the rest of mankind.") URL as above.

²⁹ U.S. Constitution. (1787). Article 1, Section 8, Clause 8. Available at <<http://www.law.cornell.edu/constitution/constitution.article1.html#section8>>

³⁰ See Marcus H. Lenzen, 'The use and abuse of "Civil Society" in Development', in *Transnational Associations* 54.3 (2002). 170-87.

it recognised that, as a powerful producer of industrial ideas and creative works, there was a value in protecting others' ideas in order to have its own protected. At the international Exhibition of Vienna of 1873, it was amongst those who threatened to stay away if its exhibits were insufficiently protected from potentially piratical national interests.

In decreeing that patents apply transnationally, the 1883 Paris Convention made possible an international market in industrial ideas that the bilateral agreements preceding it had not been able to achieve. The 1883 Congress of the International Literary Association in Berne explicitly set out to follow the example of the Convention with a multilateral copyright agreement. This resulted in the 1886 Berne Convention for the Protection of Literary and Artistic Work.

This creation of an international regime of information law was a basic foundation of today's market in communication and information commodities. Again, it is important to note whose interests the market serves. Developed nations augment the control over processes, ideas, and information their treaties offer with rafts of bilateral and multilateral agreements. 'Developing' countries recognise their disadvantage, and have attempted to block expansions to IP treaties on matters such as universal pharmaceutical patents. The strongest amongst them openly object to WIPO's tactical function, pointing out the undue priority it grants to strong protection at the behest of its richer members, and the lack of attention it pays weaker economies. This so-called 'development agenda' has become a significant force at WIPO, supported by growing civil society participation in some of the WIPO committees. In August 2004, a proposal surfaced by Argentina and Brazil to change the WIPO charter, adopting a new programme emphasising developing countries' concerns with access to knowledge and technology. The proposal called for a moratorium on WIPO negotiations aimed at raising intellectual property standards until these development needs were properly considered.

The Civil Society Coalition (CSC) represents 26 Non Governmental Organisations (NGOs) from 12 countries, North and South, concerned with access to medicine and knowledge, and better mechanisms to support creative activity. In summer 2003 the coalition requested that WIPO hold a major meeting on open collaborative efforts to create public goods and pointed to areas of the modern economy, such as Free Software development, in which significant innovation was occurring without traditional intellectual property protection. Evoking arguments that had not had a public outing since the mid-19th century, they also suggested that poorly designed intellectual property protections could be counter-productive in terms of innovation and creativity.

6.

As these developments suggest, the information regime presided over by WIPO is far from absolute. The reasons for the instability of proprietary information existed in the earliest conditions of the market in ideas. In 1421 Brunelleschi's friend Mario Taccola explained why neither he nor anyone else understood how Il Badalone was supposed to work: 'Ingenuity,' he wrote, 'resides in the mind and intellect of the architect rather than in drawing and writing.'³¹ But even as Taccola made this comment, ingenuity was preparing its escape act from the fleshy prison of the individual. By 1450, the European printing press had realised information as an independent quantity that could move on vectors independent of its creator. Where ideas had been locked to hand-written manuscripts that were not only scarce, but sacred, they could now be easily duplicated. Over the next six hundred years, the reproducibility of media increased, if lumpily, to the point we have reached today, at which it costs next-to-nothing to reproduce and distribute almost all information.

Even traditional economists like Carl Shapiro and Hal Varian recognise what they call the 'experimental' qualities that consequently apply to knowledge goods.³² What is not so readily admitted is that these goods have 'experimental' impacts on the whole category of information an object of property rights. 'A structural and irreversible change', as Andrea Fumagalli says, and one that reaches right down to the fundamental locus of property rights, the individual. What is at stake here is the relationship between the individual and what Marx calls 'general intellect', the social knowledge or collective intelligence of society. Just as collective corporeal power is necessary to complete certain tasks of production, Marx argues, so too production employs collective intellectual power. He predicts that as technologies and machines become more important as a means of production, the creation of wealth will depend not on direct

³¹ See *Taming Nature*, op. cit.

³² Carl Shapiro and Hal R. Varian. *Information Rules: A Strategic Guide the Network Economy*. Harvard Business School Press, Boston, 1998 <www.inforules.com>

expenditure of labour time in production, but on two interrelated factors: technological expertise – ‘scientific labour’ – and organisation – ‘social combination.’³³ The crucial factor in production will come to be the ‘development of the general powers of the human head’; ‘general social knowledge’; ‘social intellect’ and ‘the general productive forces of the social brain.’³⁴

In three distinct moments just such a translocation has occurred in the predominant capitalist countries; from economies driven by agriculture and the extraction of raw materials in the Middle Ages, to industry and the manufacture of durable goods in the nineteenth and twentieth centuries, to the current paradigm in which services and the manipulation of information are the dominant economic factor. This translocation of the business of production into productive technologies – ‘fixed capital’ – has ensured that social knowledge becomes a ‘direct force’ in market capitalism.³⁵ The ‘mass worker’ struggles of the 1960s and 1970s and the ensuing crisis of Fordist capitalism, only accelerated the movement towards high-technology automation and global mobility.

The relationship of intellectual property to these producing machines is critical. Under Marx’ gaze, these machines reveal themselves as what they are: concentrations of accrued intellectual labour: the combined power of the historical general intellect made manifest. As these machines become dominant, IP is all the more necessary: it struggles to maintain the post-Renaissance picture that productive technologies reflect not the combined ingenuity of human history, but the singular genius of the owner. This is why, in the move towards an automated industrial economy, IP plays a critical, if fugitive, role. It is indeed the ‘invisible fortress’ that maintains the machineries of production as functional objects of property. It is not only a question of who owns the ideas, but of who owns the machines in which they are realised, and put to work.

Now, networked, peer-to-peer media brings the individual into constant contact with the productions of others. The development of the Internet at the Advanced Research Projects Agency (ARPA) in the 1960s was indeed a deliberate streamlining of the general intellect, both in order to extract maximum value from the machines (computers, et cetera) invested in by ARPA and in order to put that intellect to work in creating fixed capital (ICBMs, more computers, transport systems, et cetera: whatever proved necessary to ‘beat the Russians’ or at least pacify the general public terrified by the success of Sputnik.)³⁶

Paradoxically it was ARPANET itself, designed to network the general intellect and produce it as a properly efficient factor, which developed most rapidly of all ARPA’s ‘blue-sky’ technologies, a direct consequence of its efficiency not only as a system for networking already-existing fixed capital, but as fixed capital in its own right, a ‘social machine’ that brought network architecture to human discourse. It seems that two key factors contribute to the Internet’s radicalisation of the communication process: digitality itself (form), which provides for non-finite, zero-cost multiplication of media objects, and ‘distribution’ (structure), which allows those multiplying objects to reach potential recipients with the minimum of resistance. This particular form and structure massively augments, for example, the research potential of a scientific or academic community– ARPANET’s original function.

The major consequence of this innovation is that an idea (musical, theoretical, scientific) is no longer limited to a cumbersome physical instantiation, but may immediately take flight, in a variety of digital formats, across the network, multiplying as necessary at zero cost.³⁷ A hypertext document (a web page, say) allows us to follow links to others’ documents; it makes us aware of the ecosystem of ideas that surround any other. In this way, the network re-reveals

³³ Marx, *Grundrisse*, p. 705.

³⁴ *Grundrisse*, pp. 694, 705, 706, 709,

³⁵ *Grundrisse*, p. 706.

³⁶ In the mid 1960s Bob Taylor developed the first elements of ARPANET as a solution to the problem of computing resources becoming monopolised by the work of particular research groups within ARPA’s funding suite. The principle of networking turned out to satisfy a series of economic imperatives: the isolation of ARPA’s computers was leading to costly machines being underutilised, and the general lack of communication between research efforts was leading to duplication of work. By building a system of electronic links between machines, researchers undertaking similar work in diverse locations could share their results and resources. There was a consequent relief on DARPA’s budget.

³⁷ Or, to put it technically, digital information is ‘non-excludable’. Let us by all means avoid Stewart Brand’s 1984 anthropomorphisation. Information does not ‘want to be’ anything, and it is anyway everywhere in chains.

the matrix of co-operation and collaboration hidden inside the invisible fortress of intellectual property. As the phenomenon of massive, distributed collaborations between peers organized without markets emerges, creating any work is increasingly coming to be seen again in the context of the public resources that surround it.

The recognition of this new relation of the self to the social may well be muted by the series of recognitions that have gone before it.³⁸ Many commentators have celebrated the emergence of a 'collective intelligence' or 'hive mind' as a new phase of capital that will improve innovation and lead to an ultimate realisation of the free market. That formulation is both the problem and the challenge. The network is indeed helping to materialise a 'collective intelligence' or general intellect, but as we have seen, the general intellect has been there since the beginning. The crucial question is the relationship of the individual to the collective. As we see how much immaterial labour, and indeed all labour, depends on that which goes before and surrounds it, quantifying work in isolation makes less and less sense. The conception of life that Dewey describes, in which ideas and knowledge are treated, not only for the purposes of law and economy, as locked inside the mind of the individual, may soon reveal itself as the fiction it is. With any luck, whatever the American neoconservatives might like, this will not spell a return to the medieval self, united under one God, but a shift to a social self, whose 'intellectual properties' are taken as held in common with others'.

Nowhere is this process more advanced today than in software. Since its earliest days, computer programming has been a collaborative art, one that has recognised the essential 'non-rival' qualities of software, and treated it as 'public domain.' In the 1960s, for example, John Kemeny and Thomas Kurtz created the programming language BASIC. Their motivation was not personal profit, but allowing students to create computer programs easily. They had previously designed the first 'time sharing' system, through which a single computer could simultaneously serve many users. BASIC, itself based on the pre-existing public domain languages Pascal and Fortran, was also placed in the public domain. The programmers made it available to high schools and spent a considerable amount of effort in promoting the language.³⁹ At the time, this did not even have implied any strong ethical decision, for computer owners exchanged programs with each other openly, without any commercial transaction; public domain was seen as the natural field for software. By placing their work in the public domain, programmers were able to benefit from each other's labour, forgoing personal property rights over a creation in return for the benefits this brought them in being to have ready access to others' creation, having their own creations improved by others, and so on. Under this model of creation, programmers were either 'hobbyists', inputting causal labour and supported by another economy, or 'professionals' whose work somehow tallied with coding, and who could therefore contribute to the common code.

Unfortunately, this re-assertion of the common property relation did not progress smoothly. An entrepreneur named William H. Gates arrived to demonstrate once again, and in a rather spectacular fashion, the potential of looting common intellectual resources. With Paul Allen, he set to work producing his own proprietary version of BASIC, Altair BASIC, for the first personal computer. When copies of the software began to be exchanged among hobbyists for free, as usual, Gates wrote an indignant letter to the computer community in which he established the category of 'software piracy'. 'As the majority of hobbyists must be aware,' he fumed, 'most of you steal your software. Hardware must be paid for, but software is something to share. Who cares if the people who worked on it get paid?'⁴⁰ The question of who was paying Kemeny and Kurtz, or the communities, who had made his work possible, did not merit Gate's attention.

By most estimations, Gates is today the richest man in the world.⁴¹ His wealth was obtained by continuing to produce and license operating systems for personal computers. Gates' vaunted 'genius' was in seeing the value of proprietising the immaterial code without which the personal computer nothing but potential. The story of Microsoft's inception specifies very well the tendency of the victors to cast others as pirates once they have looted significant enough resources to have obtained a solid commercial advantage. Not only are the looters not gracious to those they have looted; often as not, they pursue them with the full force of their newly-purchased law.

What was revealed in the conflict between Gates/Microsoft and the Homebrew hobbyists was an important difference

³⁸ See e.g., Joel de Rosnay's 'Cybiont' or 'symbiotic man', Kevin Kelly's 'Hive Mind', the Derrick de Kerckhove's 'Collective Intelligence'.

³⁹ See John Kemeny and Thomas Kurtz, *Back To BASIC -- The History, Corruption, and Future of the Language Addison* (Wesley Publishing: 1985)

⁴⁰ See <www.tranquileye.com/cyber/1976/gates_open_letter_to_hobbyists.html>

⁴¹ See, for example, <www.forbes.com/lists/2003/02/26/billionaireland.html> (2003)

in attitude about immaterial labour and ideas. Before Gates, the hobbyists had taken the understandable default attitude that code was free, since it could be exchanged at the cost of media. As long as they were all sharing and benefiting from the work they put into the system, why would they charge each other for it? Gates, on the other hand, transposed the dominant attitude toward intellectual work and physical property to software. It might be non-rivalrous, but the work that went into it was not, and needed to be remunerated. This makes sense when one considers the benefit of the corporation Microsoft, not a group of hobbyists. In order to make money from software, software had to become a scarce thing: -- only then could an economic rent be extracted from it.

In his letter to the hobbyists, Gates discusses the theoretical benefits of corporate-produced code:

To me, the most critical thing in the hobby market right now is the lack of good software courses, books and software itself. Without good software and an owner who understands programming, a hobby computer is wasted. Will quality software be written for the hobby market? [...] Nothing would please me more than being able to hire ten programmers and deluge the hobby market with good software.⁴²

History has proven Gates wrong, and beneath the unwieldy behemoth of Microsoft, the co-operative roots of software production has established itself once again. Gates' 'good software' has turned out to be powers less reliable than Free Software such as GNU-Linux. Statistics consistently show Apache, a Free Software web server, dominating the web server market. This is for reasons of robustness and reliability. The Free Software Sendmail is the leading email server. Largely because of continued problems with security, Internet Explorer is losing market share to Free Software browsers like Mozilla. Studies suggest that commercial operating systems have higher failure rate than GNU equivalents.⁴³

All of this has been achieved with the conspicuous absence of a single author. FLOSS depends on hundreds of thousands of participants acting in networked co-operation, on an agreed protocol. Its organisational structures may not necessarily be flat or non-hierarchical, and there are certainly power dynamics involved in the composing process -- but the relation in FLOSS coders and users stand to the body of Free Software is not the traditional individual property relation Gates imposed on 'his' BASIC. With an ingenious use of copyright law, Free Software has re-imposed a collective property relation on software. In doing so, as Yochai Benkler points out, it has shown that the collective's work on a piece of software exceeds the potentials unleashed by the proprietary model:

The emergence of free software and the phenomenal success of its flagships -- the GNU/Linux operating system, the Apache web server, Perl, sendmail, BIND -- and many other projects should force us to take a second look at the dominant paradigm we hold about productivity.⁴⁴

7.

Serious problems are revealed in this form of networked co-operation for traditional modes of organising knowledge. While those who have most to lose spend a good deal of time working out ways in which the value of an information good can be preserved,⁴⁵ it is becoming harder and harder to separate one particular piece of information from the 'common good', either conceptually or practically. Using laws and technological impediments to preserve scarcity is therefore, at best, a losing battle. Knowledge divorced from physical media is non rivalrous by nature. Nothing short of legislating away the internet itself, or reversing the switch to digital media will re-establish the strong IPRs these measures seek to enforce.

Meanwhile, a further problem presents itself to those wishing to cling to the market as a means of organising information. Manufactured scarcity may be create profits, and those profits may pay for research and development. But given the existence of an effective, alternative way of doing this, how will the proprietary system defend the detrimental

⁴² Gates, op. cit.

⁴³ See <http://www.dwheeler.com/oss_fs_why.html>

⁴⁴ Yochai Benkler, 'Coase's Penguin, or Linux and the Nature of the Firm' (2004), available at <<http://www.benkler.org/CoasesPenguin.html>>

⁴⁵ See for example Hal Varian, 'Market Structure in the Network Age', available at <www.sims.berkeley.edu/~hal/Papers/doc/doc.html>

results of excluding others from information? The pharmaceutical industry, for example, has for some time been at the top of the world's biggest profit makers. Yet there is an ongoing, massive failure to solve critical global problems in health. 19,000 people die daily from AIDS, tuberculosis, malaria, African trypanosomiasis, and visceral leishmaniasis. Despite a sixfold increase in spending on research and development to more than \$30bn a year, the output of new drugs has hardly risen in the past two decades. In the past few years, output has actually declined. The proprietary system in its current form seems to be incapable of responding to this problem satisfactorily. 'These five diseases,' comment Mary Moran and Nathan Ford, 'represent the failure of the pharmaceutical industry to deliver medicines for the developing world, and the non-response from governments to this market failure.'⁴⁶

The situation puts intense pressure on the pharmaceutical industry's central justification for its extraordinary profits: the need to fund risky research and develop new drugs, as well as absorb the high cost of drug failures in clinical trials. Where in the case of material scarcity, high prices can be justified on the basis of material rivalry, in the case of intellectual works, the costs of creation are used to justification profiteering. This is the so-called 'R&D problem' the Love/Hubbard proposal faces.

At an October, 2004 meeting in Geneva, a 'Research & Development Treaty' was proposed by James Love of the Consumer Project On Technology and Tim Hubbard, head of Human Genome Analysis at the Wellcome Trust Sanger Institute. The Treaty responds to a crisis in medicines and healthcare.

Debated by a team of invited experts, the draft Treaty set out a system with three key components:

- (1) Signatory countries would be able to remove patents on final drug compounds, placing them in the public domain. This, Hubbard and Love explain in a recent paper, 'would allow [a compound] to become a freely traded commodity, creating a competitive manufacture and sales market with low generic prices.'
- (2) In return, countries would compensate those companies that had spent money on research and development for the drug or drugs in question, by paying a portion of their GDP into an 'R&D contribution' fund. The contribution would be adjusted to cover total R&D spending.
- (3) The pool of collected R&D Contributions would fund a 'virtual market' in pharmaceutical research and development. This fund would be distributed by a specially created body in ways that actively supported R&D in, for example, neglected and infectious diseases, biomedical research, including databases and tools, drugs, vaccines, and the preservation and dissemination of traditional medical knowledge.

This system sets up an alternative that parallels the current patent-monopoly system for funding innovation in healthcare and medicines. Effectively, a country that felt its interests would be best served by doing so could opt out of the market system entirely.

It implies that the only part of the chain that can safely be left to the market is the provision of generic end-product drugs. A system such as this is thinkable at the UN level, if not immediately implementable, for two reasons. The first is that the conceptual crisis of private property has now become a crisis in practice.⁴⁷ Civil Society is no longer able to fulfil the historical role of mediating the interests of accumulated private property against social good. Facing this crisis, progressive elements within NGOs are taking lessons from the common property relations re-appropriated in the Free Software movement.

As we have noted, in today's economy, information goods have zero marginal cost. Eben Moglen uses this fact to present to the twenty-first century what he calls 'a fundamental moral problem':

If I can provide to everyone all goods of intellectual value or beauty, for the same price that I can provide the first copy of those works to anyone, why is it ever moral to exclude anyone from anything?⁴⁸

⁴⁶ Mary Moran and Nathan Ford, 'The G8 and access to medicines: no more broken promises,' in *The Lancet*, 10 May, 2003.

⁴⁷ See Negri and Hardt, *Empire*, p. 302, but more importantly, see Robert Luxemburg's documentation for his artwork, 'crisis.png', <rolux.net/crisis/>, which explains things much more satisfactorily.

⁴⁸ Eben Moglen, 'Freeing the Mind:

It seems tempting to transpose this formula to the R&D 'problem'. If R&D can be satisfied by an alternative, non-proprietary system, how justifiable is it to exclude access to medicines when 'another way' exists, even if some of the profits from manufactured scarcity are put into R&D?⁴⁹ But as Moglen should certainly know, the moral line of attack is not necessarily the most relevant here;⁵⁰ at the very least, it should be tempered by the recognition that moral indignation never won a revolution. True, there is a growing feeling amongst significant numbers of commentators, NGOs and the general public that corporate profit is an inappropriate organising principle for medical care, but this is as much because a new modality of production has offered itself, as because the current one is leaving people dying all over the world. Another incentive is more crucial than Moglen's 'moral question': as with Free Software, producers of pharmaceutical innovation excluded by the current system must grasp that the non-proprietary mode of organisation holds benefits for them, giving new possibilities for work and innovation, non-alienated work, new means of remuneration and so forth. Likewise, policymakers must see that common, free-as-in-libre medical resources could be more rational, and cheaper, ways to treat sick people. Both of these approaches are stronger than moral statements against Big Pharma, which on the available evidence is all but impervious.

Only the practical, rational imperatives outlined above will be able to combat the resources Big Pharma and other proprietors will bring to bear against attempts to organise against market production. 'The challenge in creating a virtual R&D market,' write Hubbard and Love, 'is to find viable business models for successful drug development in the absence of marketing monopoly incentives.'⁵¹ But the challenge did not begin with the pharmaceutical industries, and will not end there: it is a challenge to all areas of the life that property rights are now organizing. Many of the demands of the R&D plan could be readily made in a number of areas in which the market is failing. The pharmaceutical industry is the world's most profitable, and America's second largest. If common property relations can be shown to work there, why not elsewhere?

Whilst even the small print of the R&D Treaty doesn't spell this out, this system takes its place amongst those that propose a complete break with market means of organizing production. Other proposals, in a less complete state of preparation, are circulating in a similar fashion. One, tellingly initiated by multiple parties almost simultaneously, seeks a new form of remuneration in music production. Like the R&D Treaty, it explores the idea that that non-proprietary solutions may be the way forward in helping more artists to live from their work, producing better music, and creating a consistent and fair access to musical resources.

To even have a chance of working, such systems must appeal to producers as well as consumers of informational resources. They will not succeed by making appeals to the proprietors of the old order. But elements of today's social-technological scene are in their favour. To the extent to which machines dominate the process of production, capital has had to mobilise the general intellect, producing terrific numbers of information or 'knowledge workers'. As Marx said, and as many since have noted, this can equal an 'absorption of 'knowledge, skill, and of the general productive forces of the social brain'⁵² by capital; but capital is also made heavily dependent on the general intellect it 'absorbs'. Its technologies only exist because of general social knowledge; and as technology advances in importance, it becomes increasingly exposed to the underlying social forces it has co-opted, which it has to present as non-existent in the face of their increased strength. The crucial question is how far capital can contain what Vincente terms the 'plural, multiform constantly mutating intelligence' of mass intellect within its structures,⁵³ and to what extent the general intellect has already begun to do more than simply facilitate production. What we have seen in Free Software suggests that, where an opportunity for non-alienated labour is offered, even the most advanced knowledge workers will grasp it

Free Software and the Death of Proprietary Culture', available at <<http://emoglen.law.columbia.edu/publications/maine-speech.html>>

⁴⁹ Mallen Baker, 'GlaxoSmithKline - Seeking a cure for public mistrust', in *Business Respect*, No. 54, dated 20 Apr. 2003.

⁵⁰ Not least because 'however much it might be useful to them from time to time to use moralistic language, capitalist collective subjects are simply impervious to 'moral' anguish.' (Matthew Hyland, private correspondence.)

⁵¹ Tim Hubbard and James Love, 'A New Trade Framework For Global Healthcare R&D', in *PLoS Biology*, Volume 2, Issue 2, Feb. 2004 <<http://biology.plosjournals.org>>

⁵² Marx, *Grundrisse*, p. 694.

⁵³ Jean-Marie Vincent, 'Les automatismes sociaux et le "general intellect."', in *Futur Antérieur* 16 (1993), p. 121 (trans. by Nick Dwyer Witherford in *Cyber-Marx: Cycles and Circuits of Struggle in High Technology Capitalism* (University of Illinois: 1999), available at <http://www.fims.uwo.ca/people/faculty/dyerwithford/index.htm>

with both hands even where no opportunity to profit exists, so tired are they of the corporate work-for-hire that pays their way. The question whether this labour could find an economy 'outside' capital to sustain it is moot; for now, the question is merely its impact 'within'.

8.

// *Badalone* sank in May 1428, along with a hundred thousand pounds of marble it was taking to Florence's new cathedral. Brunelleschi lost a third of his wealth; his reputation was severely bruised. Little is known of the design of The Monster, and this is because Brunelleschi wished to protect his flawed invention from others. Experiences originating today in the networks contest this flawed mode of development, which has dominated social development for centuries. To profit or fail alone seems an impoverished model today, in the context of the models of organisation that are now developing.

These models are not just useful for leverage at the international bargaining table, but must be fostered in their own right. Many are working 'for free' in the hope their labour is delineating a set of non-proprietary social relations for the future.

The crisis in the post-WWII 'historical compromise' between state, capital and labour is serving to redirect attention onto the fundamentally merciless process of dispossession that preceded it and have continued to underpin it. Breaking the circuit, and aiming for the production of a radical, transnational, shared 'information commons' is not a task that can be performed solely at the juridical level. It requires a grassroots movement, with demands that exceeds those of the civil society. Where 'progressive' liberal IP theorists restrict themselves to pointing out that non-proprietary peer production is a 'more efficient' mode of production,⁵⁴ which is true, the social movements must work to transpose these relations into other modes of immaterial work. They must fight to assert a new social self that can work with and through a set of common property relations. The fact that free peer co-operation can work, and work well, makes the deliberate manipulation of knowledge for accumulation intolerable. More and more groups are agreeing, from different positions in the political spectrum, that concentrated ownership and control of knowledge, technology, biological resources and culture is to be resisted by any means possible. History tells us that the rights and identities underlying this ownership are contingent. The new modes of co-operation emerging on capital's own network infrastructure are challenging them once again. Let us extend this challenge as far and wide as we can.

⁵⁴ Benkler, Coase's Penguin..