

Invisible Media¹

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With the revolution of mass photographic and electronic media production, the twentieth century was celebrated as the century of visual media. Twentieth-century visual artists and humanities scholars devoted themselves to a critical analysis of mass-media images, in laudable undertakings such as subversion, reflexivity, deconstruction. Prudent academia inaugurated programs in visual studies in the last decade of the century. But the visible, as McLuhan predicted, is no longer the lively and productive arena of struggle it has been. In terms I will explain below, the image is merely the selectively unfolded surface of enfolded information.

I propose that the most interesting and urgent areas of communication to study now are *invisible* media. Invisible, but not immaterial. The media of the military, science, financial institutions, and mass communications are increasingly invisible, as advances in chemical and biological warfare, nanotechnology, the corporate-driven decoding of the human genome, quantum and other non-digital computing, data encryption, and other “small-scale” research areas attest. To engage these media on their own territory, rebellious media adopt similar strategies of invisibility. More precisely, they adopt strategies of enfoldment. These are waiting, hiding, latent media, coiled up like vipers or jacks-in-the-box. Invisible media constitute what Hakim Bey calls the Temporary Autonomous Zone: “a guerilla operation which liberates an area (of land, of time, of imagination) and then dissolves itself to re-form elsewhere/elsewhen, *before* the State can crush it.”² The TAZ does not achieve permanent revolution but a mercurial liberation; it is defined by stealth and liquidity. After laying out the hiding places in between material experience, information/capital, and image, I will suggest that “temporarily autonomous media” can follow certain strategies of invisibility: these include making visible; sabotage; latency; and hiding in plain sight. My examples will mainly include computer-based media, though cinema, the refuge of the visible, will appear as well.

enfolding/unfolding

A good way to understand the materiality of invisible media is to think of them as enfolded or implicate.³ Communication entails a material connection between the utterer and the recipient.⁴ We may think of those communications that haven’t happened yet as enfolded, or (in the latinate word for the same phenomenon) implicate, while those communications that

take place are unfolded, or explicate. Physicist David Bohm used the term explicate, or unfolded, for that which is apparent in a given system, and implicate, or enfolded, for that which is latent in the same system. His elegant illustration is a model of two airtight glass cylinders one inside the other, with a layer of viscous fluid, like glycerin, between them. When a drop of ink is put in the liquid and the inside cylinder revolves, the ink drop is drawn out into a thread; when it is revolved in the other direction, the thread of ink is enfolded back to a dot. The line is implicate in the dot.

war and invisibility

Two recent wars offer an index of the shift of power from visibility to invisibility. The Gulf War, Paul Virilio argues, was the first real-time war, in which military intelligence could be transmitted and acted upon in an immediate feedback loop.⁵ Military information bypassed the mediation by an image, or at least bypassed the delay that translation and transmission previously required. We could say information was potent to the degree that it remained invisible. If the Vietnam War was the media war, the war of extreme visibility, the Gulf War was the first in a new era of invisible warfare. Images from the Gulf War indexed information, not concrete events; the concrete events, the actual deaths, remained enfolded.

John Greyson's film *Law of Enclosures* (2001; based on the novel by Dale Peck), set in Sarnia, Ontario during the Gulf War, graphically demonstrates how the military-media complex selectively enfolds and unfolds information. For the characters attempting to watch the war on television, poor rural reception further clouds the sketchy images relayed by "smart bombs" of their Iraqi targets. Myra struggles with her satellite dish and shoots her remote in frustration at her TV: "Show us the fucking war! We want to see the fucking *war*." One character is an American soldier, Stanley, serving in the ground troops. When he returns he refuses to tell his friends what he did in Iraq. Later we learn that Stanley took part in the attack upon fleeing Iraqi soldiers after the cease-fire, part of which came to be called the "Highway of Death."⁶ Barely reported during the war, the concealment of this massacre behind the rhetoric of a "clean war" set a precedent for the separation of image and information. Greyson unfolds this doubly concealed information in a stunning montage sequence. An image of the heads of hundreds of Iraqis at a rally dissolves into an overhead shot of contestants at the annual Sarnia kiss-a-thon; the latter release thousands of coloured balloons, which dissolve into the black-and-white snow of a television receiving no signal (or too many signals). The true image of the Gulf War, the film suggests, is the image of the disturbed signal: Myra need not adjust her television, because war now is invisible. The war images indexed nothing, because the reality of the war remained enfolded.

If the Gulf War was a war whose invisibility benefited the Western allies, then the recent and supposedly ongoing “war on terrorism” was a struggle to define the terms of invisibility. For a while in November 2001 the war seemed to be going horribly wrong. It looked like Osama Bin Laden and his cohorts had a kind of invisibility on their side that the Americans and their allies did not. As Britain’s Admiral Sir Michael Boyce told the *New York Times*, “This is not like Kosovo”:

It’s not like Desert Storm where you had very clearly defined phases and relatively straightforward objectives. This is a much more murky area in which to work, obviously because the prime element is not actually visible — Osama bin Laden and the Al Qaeda — in the same way that Milosevic and the Serbs were or the Iraqis were. This is something much more intangible.⁷

For a while the Taliban seemed to defeat the technically superior Americans because it had the invisibility not of smart weapons—information—but of clandestine networks and caves (caves!)—materiality. Material reality was imperceptible to a military that refused to put soldiers on the ground. Of course, the “war on terrorism,” manifest in the bombing of Afghanistan, turned out in the end to be just as ugly in its materiality as the Gulf War: at least as many Afghan civilians were killed as the innocent inmates of the World Trade Center. Meanwhile, as of this writing, the man supposed to be the center of Taliban terror evanesced like a particle of anti-matter. As I write, “terror” still retains its power of enfoldment. The global powers of visibility remain daunted by the power of the invisible.

Everybody was trying to unfold the paths travelled by Taliban funds. U.S.-based global capitalism celebrates “transparency” as the basis of fair financial exchange and the smooth transfer of capital. Opacity, in the form of unsanctioned cash, flows through fake charities, drug money, trade in diamonds, counterfeiting, tax havens, and the “primitive”⁸ Hawala money transfer system,⁹ is a slap in the face of global capital. These alternative financial routes were successful because they occurred far *below* the speed of light. In a sort of purloined letter strategy, the Taliban cash flow remained material, unencoded, and thus resisted detection. It was an affront, a scandal that this money did not flow along the recognized pathways of global capital. “How could they do this to us?”

Experience : Information/Capital : Image

One more concept and we’re ready to go. The world of computer-mediated capitalism is well summed up by a triadic relationship of enfolding, Experience : Information/Capital : Image.¹⁰ By experience I mean the full

complexity of material life. Experience enfolds, or holds in latent form, information and capital. Thus, information and capital selectively unfold experience. In turn, information and capital enfold images. Thus, in the digital world, images (or other palpable expressions, such as sound: computer music is the unfolding of digital information) selectively unfold information and capital. Image, being the third term, can also immediately enfold Experience. The photograph of my stepfather Jack astride a concrete zebra in the yard of an amateur sculptress in Sutherland Springs, Texas, does not enfold information, just the material event of Jack riding the zebra.

Like all Peircean triads, the relationship among these three terms is very fluid. Images, information, and capital become part of experience, the first term in the triad. So we can understand the material world of experience to encompass images (not just visual), as well as the abstractions information and capital. In the rest of this essay, I will look at ways TAZ media can work with properties of invisibility and latency at the three levels I've described.

level 3: image

As I am not very optimistic about the ability of visible images to produce TAZs, I will begin with this third term. As the triadic relationship implies, there are two kinds of image: images of material experience, images as manifestations of information/capital. Unfortunately for the first kind, as soon as an image is born from the world of experience, it gets taken up in the service of something else. Recall a few years back when Benetton piqued consumer interest by appending its logo to the photograph of a boatload of Albanian refugees. There seems to be no image so abhorrent or transcendent (or quirky, like Jack on the concrete zebra) that, with a swoosh logo appended, it can't sell sneakers.

The second kind of image is the skin or visible manifestation of information and capital. It is only a skin. George W. Bush's multicultural cabinet may be understood as the canny deployment of an image that indexes nothing: the image of U.S. state power is different, its function exactly the same. The relationship Interface : Database is a subset of the Image : Information/Capital relationship, and recently the ":" between them has become perceptibly loose. Interfaces can unfold information in many ways: they need not be visual. The arbitrary nature of the visual interface is especially apparent in recent digital blockbusters like *Star Wars: The Phantom Menace* and *The Lord of the Rings*, where the impossibly spectacular image denotes nothing but information. With digital media, Godard's dictum "Money is the film within the film" is truer than ever: the vast onscreen canyons populated by extra-human hordes quickly

become a mental image for costly proprietary software and powerful hardware; these in turn denote megabucks and invisible armies of labouring humans. Aware of the new possibilities of building new interfaces to existing databases, global corporate media have been researching the art of creative unfolding, as in the fountain at Xerox PARC, where the strength of the water stream reflects the behavior of the stock market.¹¹ Unfolding reveals only another surface.

TAZ media can unfold information and capital as well, though we must understand the effects of such manifestation to be temporary. Plenty of activist web sites investigate the poor information disclosure (inadequate unfolding) of corporate and state media, and create possibilities for radical coalition-building. Here are a couple of films that visualize the hidden operations of global capital. *BIT Plane* (1999) by the Bureau of Inverse Technology is an aerial observation of Silicon Valley by a tiny (50 cm) remote-operated plane equipped with mini camera and transmitter. It sees housing, think-tank buildings, the antlike bodies of engineers and cheap/illegal labourers. It sees only the surface. But this is the unfolded surface of the labour and material infrastructure of military-industrial software and hardware development. *The Subconscious Art of Graffiti Removal* (2000) by Matt McCormick is a faux-art history documentary from Portland, Oregon, home of the anti-graffiti ordinance. The film's thesis is that the inherent impulse to make art is suppressed in our society to such a degree that it is manifested unconsciously in the various creative expressions of graffiti *removal* (blocky, free-form, expressionist). *The Subconscious Art of Graffiti Removal* unfolds the anarchic power of creativity, not only in graffiti but also among the minimum-wagers hired to paint over it.

level 1: material experience

I've written that experience is encoded only insofar as it is deemed useful, as information or as money. Thus the first strategy is to be invisible by staying out in plain view, too material to be encoded. Bey is optimistic that the material world is studded with potential infinities, "hidden enfolded immensities," multiplying fractally such that they can never be accounted for, much less put to use, by corresponding "information." I experience such immensities along slush-grey Bronson Avenue in Ottawa, where the squeegee operators work their aggressive dance among the cars waiting at the red light, a jerry-rigged tangle of red and yellow cables decorates the side of the Olympia Meat Market, and a gamely hand-drawn "Smile for the Camera" indicates that we're under surveillance outside Leslie's Garage. I also experience such immensities in conversations that happen for their own sake, such as one in a class on October 5, 2000

where spontaneously the group imaginatively designed a device that would harness live cockroaches to move in a glass box through which we would slide film, emulsion side up, to make a cocko-rayographic movie. Experience is infinite! Its apparent uselessness (comparable to “junk DNA”) is what makes it immune to the encoding will of information capital. But as Bey points out, this apparent uselessness is also the seed of creative insurrection.

If we were to imagine an information map—a cartographic projection of the Net in its entirety—we would have to include in it the features of chaos, which have already begun to appear, for example, in the operations of complex parallel processing, telecommunications, transfers of electronic “money,” viruses, guerrilla hacking, and so on.

Each of these “areas” of chaos could be represented by topographs similar to the Mandelbrot Set... [which] might prove to be useful in “plotting” (in all senses of the word) the emergence of the counter-Net as a chaotic process, a “creative evolution” in Prigogine’s term. If nothing else the M Set serves as a *metaphor* for a “mapping” of the TAZ’s interface with the Net as a *disappearance of information*. Every “catastrophe” in the Net is a node of power for the Web, the counter-Net.¹²

Writing in 1990, Bey did not mean by the Net only that skein of pallid digital information that so entangles and wastes the time of first-world people now. And by counter-Net he did not mean only the aggressive and creative use of the Internet to germinate counter-information, viruses, and the like, although he anticipated them. Analogue hindsight usefully reminds us of the many kinds of invisible media that predate digital applications: happenings, ephemeral performances, pranks, mail art,¹³ loitering, and the many “useless” and ephemeral activities, often the work of women, that make life better.

At the level of experience, invisibility sometimes manifests as inactivity, undetectable on the radar. Loitering indexes disenfranchisement from the flows of power. In two movies from poor countries, loitering indicates a kind of enfolded or potential energy. Abderrahmane Sissako’s *La vie sur terre* (1999), commissioned by European television for the millennium series “2000 vue par...,” is set in Sokolo, Sissako’s father’s village in Mali. The major activity in this film consists of waiting for information. Nana, a young woman from the next village, waits in vain for a call from her lover on the town’s one, malfunctioning telephone. As the golden daylight moves over the village, time is marked by the row of old men who occasionally shift their chairs to stay within the shadow of a house. They listen on a transistor radio to Radio France Internationale, where live commentators breathlessly describe the millennial festivities at the Eiffel Tower. In a nub of spacetime forgotten by the former colonizer, Sokolo

marks the difference between visibility and invisibility, mattering to the flow of global capital and not mattering. *La vie sur terre* unfolds the enfolded infinity of the village, heartbreaking in its “useless” beauty.

Loitering also marks the time in Elia Suleiman’s film *Chronicle of a Disappearance* (1996) made shortly after the disastrous Oslo accord but before the second intifada: in other words, during a time in which Palestinian political will was enfolded. The protagonist, a Palestinian living in Nazareth like Suleiman, is invisible to the Israeli police who search his apartment. His friend’s tourist shop is invisible to the few camera-toting tourists that still come through. The protagonist and his friend loiter outside the latter’s “Holy Land” shop which remains unvisited all day, the only disturbance being the minute squeaking of the postcard rack. In the stillest, most tentative of movements, the film asks whether there might still be hope for images to unfold—temporarily autonomous images that won’t immediately be pulled into the deathly service of signification and surveillance.

level 2: information/capital

One level down in the triad are powers that are invisible except in their effects. Information and capital are infinitely recodable because they have no true nature except for mercurial liquidity. Power now is the ability to toggle information into either a latent or a manifest state.¹⁴ Thus another goal of TAZ media in the age of invisibility is the time-honoured Marxist strategy of concretizing false abstractions. There are many ways for activists to do this in the digital world, including determining the sources of servers, storage, backbones, and other material sites upon which information media rely. The collective Consume.net invites others to collaborate in building a broadband telecommunications infrastructure that provides a cheap alternative to commercial internet service providers.¹⁵ Other concretizers include programmers who offer their software for free, such as those writing the Unix-compatible GNU (Gnu’s Not Unix) software system.¹⁶ These programmers sabotage a system that relies not on quality programming but on copyright, licensing, and expiry dates.

For military, marketing, and surveillance purposes, information is compiled into databases, which lie dormant until they are accessed through interfaces. The kind of interface you use determines what sort of information the database will yield; it unfolds a given database in a specific way. Commercial interfaces pretend to fully unfold the data at their disposal. Search engines, for example, pretend to give access to all the information on the World Wide Web, but (with the apparent exception of Google¹⁷) they are really just giant Yellow Pages with paid advertisers. Similarly, graphical interfaces to the WWW such as Netscape and Internet Explorer

obscure information sources and machine processes. Webstalker, an experimental browser released by the artist/programmers I/O/D in 1997, bypasses the obfuscatory interface. Webstalker graphs the file contents and links of a given web page, unfolding for users the underlying code of the Web.¹⁸

In the new genres of database art, the work's audiovisual manifestation is secondary to its status as an enfolder of information. Database artists, working with information architectures rather than images, mimic the strategies of the information economy.¹⁹ Many forgo the Flash-y visibility available to web design and work at the level of machine code, making visible (in some cases, imitating the look of) the guts of information. They build interfaces to databases that unfold the choices implicit in the design of information platforms. These artists include Emmanuel Lamotte (e_rational), "Netochka Nezvanova" (m9ndfukc.com), Marek Walczak and Martin Wattenberg's project "Apartment," which translates sentences into objects, organized according to linguistic filters, and the famous jodi.org. Often opaque and frustrating, these artists' web works make explicit that an interface is a selective unfolding of data.

A more radical, indeed terroristic, strategy is to bury TAZs within the world of sanctioned corporate and state information. The shadowy collective RTMark deploys the mimic interface for direct purposes of sabotage. Its subsidiary Etoys.com mimics the official site of the company eToys.com. Etoys.com, which appears to sell evil and nasty plastic figures that make explicit the aggression and gender stratification implicit in real children's toys, successfully brought down the stock of the real eToys over Christmas 1999. RTMark's gatt.org mimics the official site of the General Agreement on Tariffs and Trade but unfolds material relations that the real GATT prefers to leave implicit. Gatt.org mimics the drab professionalism of the actual organization's site, but its articles celebrating the advance of global capital link to activist sites revealing its dark side: for example, "The bright side of efficiency," lauding automated food production, links to Food First's "Twelve Myths About Hunger." These sites are *temporary* autonomous zones because pretty soon users cotton on to the fact that these are fake sites and RTMark is instructed to cease and desist. But they are just those nodes of chaos in the Net that Bey envisioned, causing actual economic damage and giving visitors a taste of anarchy.

Above I suggested that loitering is a form of strategic invisibility. Software can loiter too. Viruses and worms exist typically in a dormant state but spring into action, making manifest the material connectedness of computers and users. Viruses are not so different from the "cookies" that commercial web sites deposit on our hard drives in order to survey our patterns of information usage. Most browsers are initialized with the

command “Enable all cookies,” presuming computer users’ consent. As artist Ardele Lister says, the name connotes the benign invitation that opens an abusive relationship—”Here little girl, have a cookie.”²⁰ Viruses, on the other hand, do not presume the consent of their victim. Virus “art,” in making visible the processes of infiltration and co-optation, questions who is allowed such access and what kinds of surveillance are considered acceptable.

The Biennale virus, *biennale.py*, appears to be the first virus produced as a work of art. Produced for the Slovenian pavilion at the 2001 Venice Biennale by a group of artists and hackers, 0100101110101101.org and *EpidemiC*,²¹ the virus is quite benign. Written in the Python language, it can only attach itself to other files in this currently rare language; in addition, the artists provided anti-virus companies with the *epidemic.py*. *Biennale* is more interesting in that it draws attention to the mutual implication of all computer users. This sense of interrelationship is the focus of another of 0100101110101101.org’s projects, *life_sharing*. The anagram of “file sharing” describes accurately the project of making the artists’ entire hard drive open to any online visitor.

Arguably more creative, or at least more TAZ-like, than *Biennale* are viruses designed without such careful restraints. Recently a virus called *Creative infected computers* with an activist message for non-proprietary software. The virus does not damage files but moves files with .zip or .jpg extensions to the root directory of the drive, adding to the file’s name the admonishment “change at least now to LINUX.”²² Of the thousands of viruses out there, I am especially fond of *Joshi*. Reported to have originated in India and first identified in 1990, *Joshi* takes a common Indian surname, perhaps that of the programmer. Every January 5, the virus freezes the systems of infected computers and instructs users to type “Happy birthday *Joshi*!” in order to liberate them.²³ *Joshi* indicates its potential power with an annual flex of the claws, commands the ritual obeisance, then returns to dormancy.

A brilliant example of an invisible medium that explicates power relations was the *Love Bug* virus of 2000. Its perpetrator, Onel de Guzman, failed to graduate from AMA Computer College of the Philippines after the school rejected his thesis proposal involving a software program that steals Windows passwords of Internet users. The *Love Bug* was released on May 4, 2000, the date de Guzman’s class graduated without him. It caused worldwide damages estimated to be \$10 million²⁴ (although the value attributed to hours of work lost is itself a symptom of encoding experience in capital, and probably overestimated).

De Guzman’s quite reasonable rationale for this illegal program was “to spend more time on Internet without paying.” Internet access is pro-

hibitively expensive in the Philippines, where it is common to visit internet cafes. One of the main purposes of internet commerce in the Philippines is the mail-order bride market or, euphemistically, dating service. North American and European men, drawn by fantasies of demure, submissive Asian brides, advertise for what they want and are answered by women seeking to emigrate. The potential suitors send money with which the women log on at internet cafes.²⁵ Perhaps de Guzman had a sister who was in the process of selling herself on the international market, a not ridiculous prospect in a country where teachers' wages are below poverty level. Maybe "I Love You" was an ironic comment on the international, internet love market: an unfolding of the neocolonial traffic in women.

I've given several examples of ways that temporarily autonomous media can mimic the invisible processes of information capitalism in order to render its strategies material, and to make manifest things that information capital would like to keep buried. But given the brief life of TAZ media before they are incorporated into the chain of instrumentalization, I celebrate those media that remain latent, viruslike. Invisible media remain enfolded within information, refusing to become an image. Or they remain enfolded within experience, refusing to become information. Bey's examples of poetic terrorism include all-night dancing in ATM machines²⁶: an activity that is invisible because it is useless, and for the same reason, a source of life against the deathful encoding machine. Just a shade further into visibility are those acts of temporary autonomy that remind people that material life is infinitely richer and more chaotic than the poor bonds of information and capital. So I suggest temporarily autonomous media might work at levels just under the radar of information capitalism: media that are less appropriable, less encodable, less "meaningful," and more potentially disruptive. I suggest we think of invisibility as a kind of degree zero: images and information that are always ready to spring forth but refuse to; refuse to be born.²⁷

Notes

1 Originally published in *Digitextuality: Theses on Convergence Media and Digital Reproduction*, ed. Anna Everett and John T. Caldwell (Routledge: New York and London: 2002).

2 Hakim Bey, "The Temporary Autonomous Zone," *T.A.Z.: The Temporary Autonomous Zone, Ontological Anarchy, Poetic Terrorism* (Brooklyn: Autonomedia, 1991), 101. Bey's playful model of the TAZ echoes Guy DeBord's view of revolution as festival, though his focus on the *temporary* nature of autonomous zones precludes revolution *in toto*.

3 I discuss the strategy of enfoldment in computer-based media in great detail in "How Electrons Remember," *Millennium Film Journal*, no. 34 (Fall 1999), updated in *Touch: Sensuous Theory and Multisensory Media* (forthcoming, Minnesota University Press). Bohm's illustration is borrowed from that essay.

4 C. S. Peirce, quoted in Vincent M. Colapietro, *Peirce's Approach to the Self: A Semiotic Perspective on Human Subjectivity* (Albany: SUNY Press, 1989), 18.

- 5 Paul Virilio, "My Kingdom for a Horse: The Revolutions of Speed," *Queen's Quarterly* 12, no. 3: 337.
- 6 See Joyce Chediak, "The Massacre of Withdrawing Soldiers on 'The Highway of Death,'" *War Crimes: A Report on United States War Crimes Against Iraq*, eds. Ramsey Clark et al. (Washington, DC: Mazonneuve Press, 1992); <<http://www.deoxy.org/wc/wc-index.htm>>.
- 7 Michael R. Gordon, "Allies Preparing for Long Fight as Taliban Dig In," *The New York Times*, 28 October 2001.
- 8 "Customs Service goes after terrorist funding," CNN, 25 October 2001, <<http://www.cnn.com/2001/US/10/25/inv.terrorist.funding/>>.
- 9 Rachel Ehrenfeld, "Funding Terrorism," talk at Aviation Week's Homeland Security and Defense Conference, Washington, DC, 27 November 2001, <http://public_integrity.org/publications11.htm>.
- 10 The model of the iterative triadic relationship, so wonderfully useful, is borrowed from Charles Sanders Peirce.
- 11 Lev Manovich, *The Language of New Media* (Cambridge, MA: MIT Press, 2001), 330.
- 12 Hakim Bey, "The Temporary Autonomous Zone," 112-113. Note the similarity between Bey's Net vs. Web and Donna Haraway's Informatics of Domination vs. cyborg Web.
- 13 Tilman Baumgärtel traces the prehistory of web art in mail art, teleconferences, and other analogue communications works. "On the History of Artistic Work in Telecommunications Media," in *Net_condition: Art and Global Media*, ed. Peter Weibel and Timothy Druckrey (Cambridge, MA: MIT Press, 2001), 152-161. See also Peter Lunenfeld, "In Search of the Telephone Opera," *Afterimage* 25, no. 1 (July/August 1997): 8-10; and Florian Cramer and Ulrike Gabriel, "On Software Art," Rhizome.org, 20 September 2001, <<http://rhizome.org/object.rhiz?2848>>, for the pre-computer history of communications and software art.
- 14 As I write, it's being discovered that executives of the failed Enron energy corporation "toggled" their soon-to-be-worthless stocks into personal millions of cool cash before the company declared bankruptcy. Global capital, state interests, and elite shareholders already have the power of selective disclosure.
- 15 <<http://www.consume.net>>.
- 16 <<http://www.gnu.org>>.
- 17 Interestingly, at this writing the stocks of major search engines Yahoo!, Ask Jeeves, Lycos and LookSmart were exhibiting a sharp decline in 2001 over the previous year, possibly as a result of Google's success. Google does not release financial information.
- 18 <<http://www.backspace.org/fiod/>>.
- 19 Lev Manovich, "The Database," *The Language of New Media*, 218-243.
- 20 Ardele Lister, personal communication.
- 21 Web artists are hard to identify and their names do not always index real people: 0100101110101101.org includes Moscow artist Olia Lialina; EpidemicC, based in Italy, includes Gaetano La Rosa.
- 22 Michelle Delio, "Wild Worm With Pro-Linux Message," *Wired.com*, 1 December 2000, <<http://www.wired.com>>.
- 23 Julian Dibbell, "Viruses Are Good for You," *Wired* 3, no. 2 (1995).
- 24 <<http://www.usatoday.com/life/cyber/tech/cti087.htm>>.
- 25 L. Clare Bratten, "Cyber Cherry Blossoms: Online Mail Order Brides," talk at the Console-ing Passions: Television, Video, Feminism conference, Notre Dame University, 13 May 2000.
- 26 Hakim Bey, "Poetic Terrorism," 4.
- 27 Independent media remains practically invisible due to old-fashioned lack of access to the means of production. Here are distributors for films and videos described above: *BIT Plane*, Video Data Bank, <<http://www.vdb.org>>; *Chronicle of a Disappearance*, Independent Television Service, <<http://www.itvs.org>>, Aska Films, askafilm@login.net; *The Law of Enclosures*, Alliance Atlantis Pictures International (416) 967-1141, Fax (416) 967-1226;

The Subconscious Art of Graffiti Removal, Matt McCormick, matt@rodeofilmco.com; *La vie sur terre*, California Newsreel, <<http://www.newsreel.org>>.

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