# INTRODUCTION

The internet is now a more sophisticated multidisciplinary space that enables users to create content, communicate with one another, and even escape reality (Dentzel, 2014). The demand for new online spaces where users can frame extentions of themselves is increasing. We are susceptible to accept new tech, either by convenience or peer pressure. It is becoming compulsory to carry personal tracking devices like cellphones and smartwatches, and users agree with all the protocols that monitor them. The everyday netizen is compromising their identity because digital surveillance is normalized. Currently, as an example, citizens from Portugal don't need to carry an identity card anymore; the government created digital versions of them that can be stored on smartphones. There is the need to register to access libraries with personal cards, and once you are a member, you need these cards to photocopy archived material. A chain of power is created where it is almost mandatory to get digital, from passport checkpoints at the airport to exhaustively detailed residency permit requirements. Without acknowledging it, we are expanding our online footprints and becoming more responsible and easily accountable for digital imprints. Policies that affect the control over our data are more challenging to get a grasp of, and at the same pace, we are losing our ability to influence these decisions. The use of technology to surveil and control the conventional individual is expanding, making us more liable and, at the same time, vulnerable to these very organizations that are themselves converting into less responsible for the surveilled populace. (Mann, 2003)

While the awareness of digital surveillance is more popular and exists within a bigger audience, digital authoritarianism is impacting new forms of digital communication, violating fundamental human rights, such as the right to freedom of expression. For instance, albeit China is promoting the usage of technology to influence the growth of its industry, the Chinese Communist Party adapted and understood the power of the internet within their authoritarian regime and currently use it to maintain political stability. Even though censorship is not a new phenomenon; online censorship is more recent, making its impact more unpredictable. While governments use the control of the internet allegedly justified by protecting societal stability, this usage of web espionage has a cascading effect (Erixon and Lee-Makiyama, 2011).

I aim to explore the outcomes of strategies of online censorship within the contemporary panorama of digital surveillance. I aim to delve into the systems reinforced in the realm of publishing. The reality by now in academic publishing is universities and governments outsourcing the publishing of research papers to private companies such as JSTOR and Elsevier. These journals are maintained within paywalls that demand payment of approximately 30 euro per article, making access practically impossible to anyone who is outside institutions that have a paid subscription. In parallel, within book publishers, the same strategies are being reinforced, customers are forced to keep a file that they have paid for in airtight areas, such as their computers, iPads, or Kindles. More critical, these users are not able to transform these files into sharable ones.

A wide variety of infrastructures exist to publish files that have been made exclusive for a wide diversity of reasons, to hide/share governmental secrets, until copyrighted material. It is necessary to reflect not only in the creation of these places to share protected/copyrighted material but also to explore the required strategies to reach less informed audiences.  While at the same time enabling this process to happen safely and anonymously. I aim to question how can publishing bypass surveillance. Concurrently, reflecting over the contemporary panorama where academic publishers build-up strategies such as watermarking to making their users more aware and liable for sharing digital files. At the same time, book publishers are reinforcing methods of Digital rights management (DRM) to prevent the distribution of unauthorized media restricting user actions. My questions focus on how is digital surveillance is influencing who gets to publish and how it is motivating the creation of reactive measures. I will provide insights into my creative response using *Tactical Watermarks* as an alternative form of anonymization, questioning authorship, and users' identity while appending messages that can subvert surveillance in physical and digital media.

### *Bypassing Surveillance*

To understand the issue of the internet being used as a tool for enforcing surveillance by authoritarian regimes, we must step back. We must delve into how censorship was applied in repressive regimes way before the internet. And also how it still functions as a political mirror used by these countries. For example, in China and Turkey, reactive measures like restricting Internet access, filtering content, monitoring online behaviour, or even prohibiting Internet use entirely are put in place. (Kalathil and Boas, 2001). By comparing these measures to what used to happen when governments would suppress analogue media, we can establish connections and parallelisms between identical counter-strategies. Nowadays, the use of Virtual Private Networks and internet extensions are playing an essential role in establishing encrypted and secure connections online, providing privacy and helping to bypass surveillance. These online strategies may be compared to how different analogue media shaped parallel publishing streams throughout history.

After the Second World War, around the 40s and 50s, the Soviet Union made the flow of art and music circulating from the West illegal, making these kinds of cultural expression extremely limited. Against this, the *stilyagi* which were members of youth counterculture in the Soviet Union found a way to bootleg and smuggle western records. While the main problem with DIY vinyl was acquiring the material to use in homemade record presses, this new method consisted of going through hospital dumpsters and collecting used x-ray sheets. Music would then be engraved in this vinyl material x-rays, and the hole in the middle to fit on the spindle would be burnt with a cigarette. More often than not these types of vinyl would picture old images of bones and medical material, and started to be called "music on the ribs," and "bone records", creating space for a black market and leading to a cultural revolution. (Grundhauser, 2015)

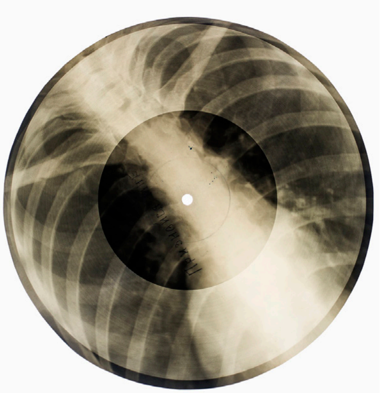
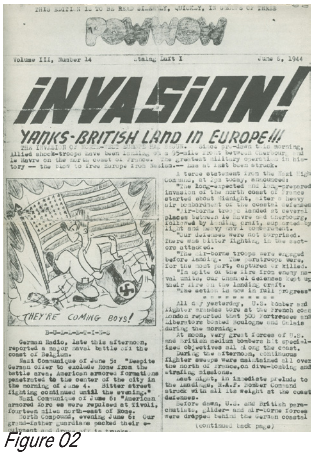


*Figure 01*
*"Bone Record"*

Alongside this phenomenon, during the 60s' post-World War II, within the American, Western European and Asian context, illegal or clandestine publications start to emerge. Dominant governmental, religious, or institutional groups would prohibit any publications that weren't officially approved before publishing (Miles, 2016). The term "underground press" refers to all the underground periodicals and publications that arose associated with the counterculture of the 60s and early 70s. These periodicals were inspired by their predecessors, such as the *POW WOW*. *POW WOW, standing for Prisoners Of War - Waiting On Winning*, was a periodical published in Germany during World War II, and was considered "the only truthful newspaper in Germany" also advised "to be read silently, quickly in groups of three". Prisoners of war published it in the Stalag Luft I camp in Nazi Germany to give insights on what was happening outside of the camp. It ended up being the most abundant circulating daily underground newspaper in Germany during World War II, even though germans made an effort to eliminate it. From March 1944 to

May 1945 not one edition was missed. (The POW WOW Newspaper, n.d.) Another notable endeavour within the phenomena of the "underground press" was the *samizdat* a "do-it-yourself" underground publishing that operated in the Soviet Union during the cold war (Kind-Kovács and Labov, 2015). Across the Eastern Bloc, readers would reproduce censored materials by hand, and these would be passed from reader to reader. Harsh punishments existed to anyone caught with these publications in their possession. Vladimir Bukovsky gives an overview of this phenomenon as: "Samizdat: I write it myself, edit it myself, censor it myself, publish it myself, distribute it myself, and spend time in prison for it myself." (Bukovskiĭ, 1988)



THIS EDITION IS TO BE READ SILENTLY, QUICKLY, IN GROUPS OF THREE

POWWOW

Volume III, Number 14 Stalag Luft I June 6, 1944

INVASION!

YANKS-BRITISH LAND IN EUROPE!!!

THE INVASION OF NORTH-WEST EUROPE HAS BEGUN. Since pre-dawn this morning, Allied shock-troops have been landing on a 95-mile front between Cherbourg and le Havre on the north coast of France. The greatest military operation in history — the blow to free Europe from Nazism.— has at last been struck.

B-U-L-L-E-T-I-N-S

German Radio, late this afternoon, reported a major naval battle off the coast of Belgium.

Nazi Communique of June 5: "Despite German offer to exclude Rome from the battle area, American armored formations penetrated to the center of the city in the morning of June 4. Bitter street fighting continued until the evening."

Nazi Communique of June 6: "American armored forc es were repulsed at Tivoli, fourteen miles north-east of Rome.

North Compound, evening June 6: Our grand-father guardians packed their equipment and drove off in trucks.

A terse statement from the Nazi High Command, at 2pm today, announced:

"The long-expected and long-prepared invasion of the north coast of France started about Midnight, after a heavy air bombardment of the coastal defenses.

"Air-borne troops landed at several places between le Havre and Cherbourg, followed by landing craft, supported by light and heavy navel bombardment.

"Our defenses were not surprised. There was bitter fighting in the sectors attack ed.

"The air-borne troops were engaged before landing. The paratroops were, for the most part, captured or killed.

"In spite of the fire from enemy naval units, our Channel defenses kept up their fire on the landing craft.

"The action is now in full progress"

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All day yesterday, U.S. bomber and fighter armadas tore at the French coast. London reported that 500 Fortresses and Liberators bombed Boulogne and Calais during the morning.

At noon, very great forces of U.S. and British medium bombers hit specialized objectives all along the coast.

During the afternoon, continuous fighter sweeps were maintained all over the north of France, on dive-bombing and strafing missions.

Last night, in immediate prelude to the landings, R.A.F. Bomber Command struck with all its weight at the coast defenses.

Before dawn, U.S. and British parachutists, glider- and air-borne forces were dropped behind the German coastal

(continued back page)

*Figure 02*
*"POW WOW newspaper — D Day June 6, 1944*

With an underlying inspiration on the free press, on counter-culture and empowered by self-publishing, the zine culture starts to emerge in the 80s' within the underground publishing panorama, emancipating print when it comes to overcoming repressive power structures. Zines speak from and to an audience of underground cultures. They are self-published media, either with original or appropriated images and texts with small-circulation and a small print run. Tied to technological developments such as the mimeograph or the photocopier, zines have to be observed within a DIY perspective. These technologies allowed almost anyone to publish because of low printing costs and fast printing runs. Zines are personal statements written by someone to like-minded communities. Their positioning is in between open letters and magazines and almost always not for profit, and even more common; you end up losing money while publishing them. (Duncombe, 2017). Zines main thematics are very broad. They often vary from politics with an emphasis on anarchism, libertarianism or "identity", such as Queer or Feminist; Culture, such as music, sports, pop culture; Literature, such as sci-fi and poems; And so on. Within these genres of zines, there is also one that stands out: Networking, such as the Factsheet 5 periodical founded by Mike Gunderloy. Publishing 44 issues, starting in 1982. These kinds of zines were fundamental to broadcast, index and publicize other zines. As an end result helping to spread these DIY publications, contributing by increasing the audiences and the access to such published material, and leading to the beginning of the emancipation of self-publishing as a strong response to repressive regimes.

The circulation of zines is puzzling. Even though zines are an individualistic medium, their end intent is to establish communication. (Duncombe, 2017) In a time where publishing would need to be previously authorized, this publication, depicturing motivations of counter-culture would have been censored. Albeit mailing existed, it was too dangerous to share these printed publications in this way, creating vulnerabilities, disclosing the one who had sent it, and the recipient. (Gunderloy, 1988). Printed zines were then passed by hand, and became key to engage within smaller communities. Zines would circulate through trusted people. This intimate movement of culture was also significant when it came to starting building communities — more than reading texts, meetings between people alike started to occur.

## *Contrasting fast paced spaces*

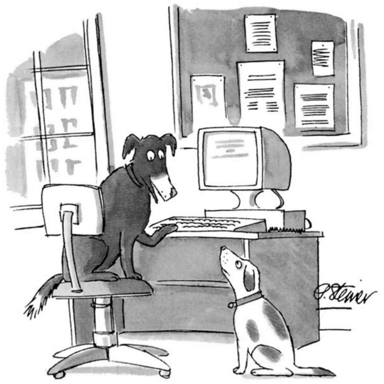
In contrast to the intimate circulation within the phenomenon of the "underground press", the introduction of the internet changed how we relate among ourselves. Digital media have been responsible for some of the most wide-ranging changes in society over the past quarter-century. (Schroeder, 2018). Our notion of control has changed, and our perception of physical spaces tied to new media may be changing how we perceive distance (Munster, 2006). An exciting example of this phenomenon was the website *GeoCities*, founded in 1994 as *Beverly Hills Internet*, a name that didn't last long. Geocities was organized in different regions, as an example, "Hollywood" spaces were assigned to webpages dealing with entertainment, and "SiliconValley" computer-related web-hosted spaces. Not only these web spaces started to create a different perception between virtual and real spaces, but communities were also built remarkably inspired by what happened with passing zines by hand. Webpages were linked in rings, and users navigated within different websites linked related to their interests.

Currently, public discourse is invading free online spaces. And the circulation of media and opinions is is now viral. Political statements penetrate internet spaces, a lot of the times hidden, such as in memes. Memes function as a virus, as an easy way to propagate an idea. But they are used by both left and right wings to spread political agendas. "Memes play a distinct role in protest; they seem to be to the resistance of today what 'political posters' were to yesterday" (Metahaven, 2014). It is also interesting how illegal propagation continues present in the online sphere — coming back to the example of the Chinese government. While censorship measures are being implemented online, by blocking access or hiding digital content, memes are used as a way to mask messages. The Grass Mud Horse Meme gained some protagonism because of its ambivalence; it would explore this dual linguistic feature and evade digital censorship. In Chinese, Grass Mud Horse "When pronounced one way, it refers to an innocuous mythical animal that is apparently related to the Bolivian alpaca. However, when pronounced another way, it means 'fuck your mother' (肏你妈)" (Wu, 2019)

*Figure 03*
*Grass Mud Horse*

## *Analyzing strategies that enable access*

While online spaces seem like safe havens to freedom of expression, the reality is that companies are using users to capitalize on. Users start to be more responsible for their online behaviour, for what they consume online and for what they share. At the same time as this online spaces are free markets to explore uninformed users, trapped in black boxes where they are not able to understand their real value, the need to control and create regulation around these assets are also increasing. On July 5, 1993, a cartoon from Peter Steiner was published by The New Yorker where we can read "On the Internet, nobody knows you're a dog", it pictures two dogs interacting and one is behind a computer. It symbolized the understanding of internet privacy, where users could interact with a certain degree of identity anonymity. Now, it is different, the use of nicknames and pseudonyms is not as present, and a user must display its real identity. Not only the use of a name is reinforced, but it is almost mandatory to connect a face to this name. As an example, Facebook demands real names, abandoning pseudonyms and making us use our real identity. Mark Zuckerberg, CEO of Facebook, even defends this option saying that "having two identities for yourself is an example of a lack of integrity." (Kirkpatrick, 2012)



*"On the Internet, nobody knows you're a dog."*

*Figure 04*
*"On the Internet, nobody knows you're a dog" cartoon*

It is essential to understand that while the threatened interests regarding privacy are diffuse and disorganized, they are protecting values that are well understood and are compelling, such as security and the war against terrorism. With copyright, the protection is facing the commons, or the public domain, while not being neither compelling nor well understood, these interests are well organized and authoritative. When approaching these two interests, Laurence Lessing states that these differences have the consequences of making a lot of legislative changes to solve the problems within the copyright. Still, few were faced regarding the issues of privacy (Lessig, 2008). Identity is not protected because the parties interested lack power and influence, unlike the entertainment industry who has the authority and knowledge to demand change. This being, strategies to open access to copyrighted materials and protected research journals started to emerge. While researchers are coming across unbearable paywalls that are expensive and inaccessible to everyone, tactics are put together to make them more widely available.

Online spaces such as archives and extra-legal libraries provide spaces to access media within alternative channels, and their structures play a crucial role in who gets to access them. This user filter is implemented using tactics, such as invitations, or requiring specific technological knowledge, such as the ability to use web hidden services. When thinking about extra-legal publishing streams, we have to consider how these will shape the way different digital files are accessed and by which audiences. Different strategies may protect users, restrict communities, or answer more specific needs. I will delve into what strategies as extra-legal libraries and unindexed archives are available and what kind of resources enable gates to access walls to be opened. It is also crucial to introduce infrastructures, policies, and tactics that protect the ones who host such materials and that protect users of such platforms.

Within shadow libraries, libraries that exist in the margins of the law, different organizing structures exist: from public shadow libraries, where no invite is needed to download and upload digital material; to more restricted libraries where an invite or proxies are required; until .onion libraries where the onion services, most known as "hidden services" are reachable via the Tor browser.

Library Genesis started in 2008 as a successor, from library.nu, previously ebooksclub.org and gigapedia.com even before that. Between 2008 and April 2014, this library grew at a fast pace, with 1.2 million records by 2014 (Balázs, 2018). The website owners describe themselves as "random book collectors", which means they don't accept requests or focus on curating materials. The topics are broad: from economy, and geology to housekeeping. The library contains several copies of the same books in different formats and editions. The content is mostly written material, and all users are encouraged to upload and download content. There's no score to maintain, log-in necessary, or price to pay. The desire of the platform to exist is well seen in the possibility of downloading all content, accessing the database and making mirrors. Within their context, they seem to distance themselves from the idea of bringing academic research for people without access. "If you are from India, Pakistan or Iran, you may have difficulties with finances and be tempted to place such requests. Then this answer is for you. There may exist some sites on the net that can help you find certain books upon request, but we simply cannot do this. If you need the book urgently and it's missing in LG, please, do not rely on us and try to get it from some other place." (Library Genesis, n.d.) Although this vast library seems to take information without any specific methodology, the reasons behind it look more as a political statement against copyrighted material rather than pleasing a particular crowd. The focus on dimension rather than curation also provides clues to what appears to be the primary goal, publishing as most proprietorial material as possible, dissolving the idea of ownership. The main page of the website links to a letter of solidarity demanding for action, a manifesto for standing up for what we believe in, incentivising the dissemination of knowledge. In this letter, we can read: "We find ourselves at a decisive moment. This is the time to recognize that the very existence of our massive knowledge commons is an act of collective civil disobedience. It is the time to emerge from hiding and put our names behind this act of resistance." (Custodians, 2015)

aaaaarg.fail is an interesting example, because of the demographics of its users and the connections that are established amongst them, using strategies to do so, such as incorporating RSS, creating a panel where users can discuss and display a contacts list on the landing page. It is mainly used by researchers, academics, students and people interested in theory. To become a member, you need to get an invite, which might feel like you are in a private club, where you don't spot any advertising or even asking donations on the website. As a member, you not only can upload and download but also request new titles through a messageboard augmenting the sense of community and solidarity that exists in this online space.

Libraries like "The library" http://www.libraryqtlpitkix.onion/ and "Clockwise libraries" https://clockwise3rldkgu.onion operate within hidden parts of the World Wide Web. Standard web engines do not index their content. Instead, these libraries are indexed in specific web pages just as "http://mx7rwxcountermqh.onion/". In this index, you can find an annotated list of URLs, with a small description on the focus of each space. These Libraries are not as straight forward to find; you have to Tor, the onion browser to access them, making them hard to come across with, and more specific to a determined public. It is interesting how they form a ring between themselves, bringing a sense of community to the numerous projects found. Regarding their organization, it is noticeable the way how they are curated. A lot of the projects are organized just like a folder in someone's computer. Take for example “The library”, a library that mainly focuses on sciences, with topics such as, biology, chemistry, neuroscience, physics, etc., this one looks just like a computer directory, where there is no index. Other archives appear to be personal libraries just as “Pokedudes Archive of Interesting and Odd Files”, a place where they organize what is described as being “a small list of weird or interesting files”.

Recently, I also came across a more informal system of file sharing. There is a group in Facebook titled, “Ask for PDFs from People with Institutional Access”. It is interesting how from the start, we are compelled to understand that exist two sides to the story when it comes to research within the academic context or outside from it. This group can bring them together by matching the two intervenient needed, the ones who are part of an institution and the ones who are not and cannot afford research papers. What appealed to me the most was how it is using a centralized social media to create a mainstream hackerspace. It is also compelling how they were able to appropriate the design features of Facebook groups’, such as the cover picture. In this feature, they display a graphic (see figure 04) to help guide newcomers. It is a strategy to transform the act of giving access less specific to a hacker community, to the ones who can crack these texts, and almost banalizing it. The workflow is as simple as; If you are part of this group, you post asking for a pdf you might need. Other users that are interested in getting this particular item comment on the post “F”, which stands for following. Due to the design of the platform, if you comment you will be notified whenever the item shows up. It is an informal community of hackers, sharing items among themselves, uploading pirated material to this platform and creating a social library.

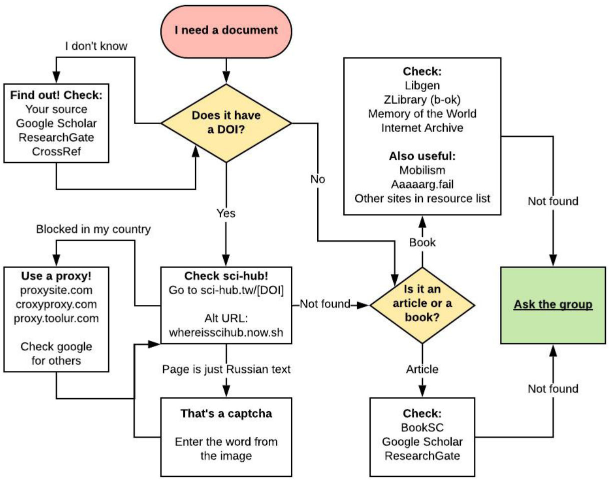


*Figure 05*
*Facebook’s group cover picture*

Apart from shadow libraries, systems such as archives that document and organize perishable sensitive information preserving their digital memory also exist. It is relevant to use MayDay Rooms as an example where infrastructures and counter-strategies demanded to publish and to cease control over experimental culture, play equal parts. MayDay Rooms is an educational charity founded as a safe haven for historical material linked to social movements, experimental culture and the radical expression of marginalized figures and groups. It was set up to safeguard historical material and connect it with contemporary struggle. It is not only a digital archive, where you can browse a catalogue and read pdf but also deals with physical material. The home for this archive is the Birmingham Daily Post’s former London office refurbished over 2012 and 2013. This building is not only used as space to hold material, or as an infrastructure to its digital archive. It is also able to offer communal areas, such as reading, meeting and screening rooms and a canteen. It is a place for informal researching, gathering, and activation of the social aspect of the archived materials, for example, by digitizing and distributing it online. (MayDay Rooms, n.d.)

10.02.2020

After looking into shadow libraries and digital archives, strategies to distribute and preserve copyrighted material, their users and the political agendas behind them, my research will delve deeper into the phenomena of watermarks. Watermarks are often used to identify file owners' as sources of copyrighted material, intimidating them, raising concerns of liability, and as a result, discouraging solidarity. I will focus on this tactic of protecting intellectual property and expand over how this technique is negatively impacting the sociability within texts and restraining the flow of files within online digital spaces.

### *Background on Watermarking*

The internet as a carrier of digital media changed how we share music, books, video and other media. The integration of digital watermarks is becoming more and more popular to fight the fast-paced spaces opened to share pirated material. Currently, research on watermarking predominantly focuses on strengthening security; embedding robustness with respect to compression, image-processing operations, and cryptographic attacks (Shih, 2017). We now understand watermarks as being both digital and physical, but they are not new phenomena, and it is relevant to know where they come from.

The art of papermaking has its roots in China in the 1st Century. The process was first documented in 105 A.D. and ascribed to Cai Lun (Basbanes, 2014). Watermarks only appeared later in 1282. Watermarking happens during the process of making a sheet of paper whilst the paper is still wet. Watermarks are a result of changing the thickness of a specific part of the paper, creating a highlighted area and as a result, its shadow. We track the beginning of watermarks in the town of Fabriano (Hunter, 1987). It is essential to acknowledge the historical importance of the Italian city of Fabriano. From the name "Fabriano", in Latin "Faber > Făbrĭcĭus", meaning "craftsman, artificer, maker" (Latin Dictionary and Grammar Resources - Latdict, n.d.). The practical skills in forging metal and shaping wire were crucial for building the frames used to remove excess water, gather the pulp and to start forming the first sheets of paper.

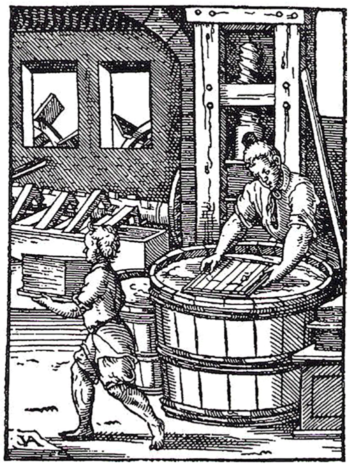
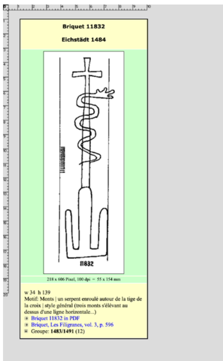


*Figure 06*
*Illustration of a paper mill by Jost Amman. Frankfurt, 1568*

### *Watermarks analogue Intention*

The history of watermarks is still relatively obscure. It is not possible to fully trace back their ancient significance. A few different theories have been discussed on what was the actual purpose and use of these venerable watermarks. One that I came across with was to help with the production of the sheets of paper. Using them to identifying the size of the frames and the sheets of paper produced by these. (Hunter, 1987) Another hypothesis is that the craftsmen that were working in the production of paper were illiterate. Watermarks were then a strategy of appealing with pictures or symbols. This way of communicating a specification would lead to a smaller chance of creating misunderstandings. The first applications of watermarks compel these possibilities, but it is also possible that in parallel these may be an artistic production of the papermakers. These can also be no more than a fashionable imprint left by the artists making the frames, as a way to identify themselves, creating then an aesthetic enhancement or a signature of quality. (Watkins, 1990)

Watermarks are now valuable to establish provenance to manufacturers of papers, paper mills and manuscripts. These also provide evidence about the movement of paper across Europe, Africa and the Middle East. The use of watermarks was then a critical factor in recognition of paper quality contributing to the increasing desire of specific papers. It is wrong to immediately establish the provenance of a book to one particular place solely based on the watermarks due to the commercial trades of paper. While an Italian watermark may be found in a specific sheet of paper, this would only set provenance to where the paper was manufactured and not its afterlife. Watermarks would comprise graphics such as animals, plants and sacramental imagery but also were representations of geographical territories and in general depictions of Western culture. In Umbria, Italy, for example, the Benedictine monasteries endorsed the 3-hilled mount topped with a cross as their symbol. Developed by the French and Venetians, we identify watermarks imagery of the tre lune/three crescent moons. These strategies were adopted because of Muslims in the Ottoman market. They were expected to choose in favour of papers with these kinds of imagery rather than a Christian cross or other similar motifs. (makingmanuscriptsblog, 2017)



**Briquet 11832**

**Eichstädt 1484**

218 x 606 Pixel, 100 dpi = 55 x 154 mm

w 34 h 139
Motif: Monts | un serpent enroulé autour de la tige de la croix | style général (trois monts s'élévant au dessus d'une ligne horizontale...)
⊞ Briquet 11832 in PDF
⊞ Briquet, Les Filigranes, vol. 3, p. 596
⊞ Groupe: **1483/1491** (12)

*Figure 07*
*Western Watermark imagery. 3 Mountain Hill, Snake and Cross. Eichstädt, 1484*

### *Connecting watermarks and library stamps*

There is an active link between watermarks and the introduction of library stamps — both creating a body of evidence when trying to establish connections in a collection. Library stamps are also perceived as an imprint left visible and sometimes glued. Able to question ownership and acquisition. In libraries, books were stamped to record property of books. The relation was created between the physical medium and the library adding traces of provenance to the collection. Library stamps would not be related to the readers of a book, nor they were intended to do so. These connections would happen connecting circumstance and date of acquisition and creating relations in the library itself.

Though library stamps are helpful when determining the time frame and history of an item in a collection, the process of adding the stamps is not necessarily performed when a book enters a collection. The method of adding this imprint could happen later on. Unlike watermarks where it is unlikely that the act of tempering the paper fibres doesn't occur in simultaneous to when a paper sheet is made, stamps were commonly applied later from the date of item acquisition. This lead to mistakes that are now widely recognized. Along with stamps, to build a body of evidence for determining both the circumstance and date of acquisition clues may be found on bindings, bookplates or inscriptions. (Duffy, 2013)

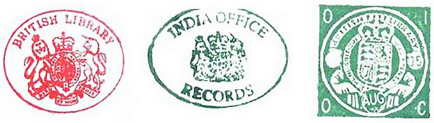
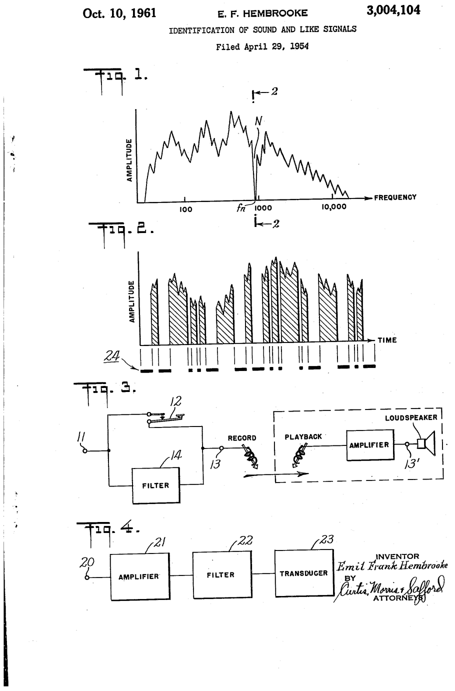


*Figure 08*
*Left: Oval hand stamp for manuscripts with the words BRITISH LIBRARY.*
*Centre: India Office hand stamp for non-small 'claim material' items. These items were treated as part of the British Library collection.*
*Right: Library stamp from previous Oriental and India Office Collections. Use of this stamp ceased on 1 September 2005*

Watermarks got more significant with the introduction of paper currency. One of the notable shifts I identify is when they are first applied to a banknote paper in England, by a papermaker named Rice Watkins in 1697 (Mockford, 2014). Watermarks were added as a way to deter counterfeits and making the act of forging more difficult, enabling easier targeting to the ones who were doing it. In England, 1773, the death penalty was extended to those who would create watermarks with the name of the Bank of England.

Just as in paper money, watermarks are now used to establish authenticity and their digital implementation, started to get more popular. Emil Hembrooke patented the first digital watermark, “Identification of sound and like signals”, US Patent 3,004,104 Filed 1954, Issued 1961. In the US patent, we can read:
“The present invention makes possible the identification of the origin of a musical presentation and thereby constitutes an effective means of preventing such piracy” (J. Cox and L. Miller, 2002).



Oct. 10, 1961 E. F. HEMBROOKE 3,004,104
IDENTIFICATION OF SOUND AND LIKE SIGNALS
Filed April 29, 1954

*Figure 09*
*Identification of sound and like signals Pattent https://patents.google.com/patent/US3004104*

In the 1990’s the interest in watermarks increased drastically. Currently one can find them in various forms of copyrighted watermarked material. Nowadays, as most information and data are stored in digital formats and not in physical ones, being able to provide legitimacy and to prove authenticity is progressively representing a more urgent task. (Shih, 2017) Digital watermarks are mostly known as being visual. The normalization of their use in photographs, on video stored on DVDs is a reality by now. In trial software, these also appear often. Instead of restricting the use of a programme, while exporting the final version of the work watermarks are appended. I read this action almost as an arrogant way of advertisement and capitalizing on the users. We are held responsible for using software and at the same time, we are targeted as a commodity. It might be read as a message where we are made aware that money will be made from their users in any way possible.

Another significant shift on the use of watermarks happens with their appropriation in the publishing business. Watermarks are now used to create a body of evidence on users, adding traces that relate to the subject more precisely with geolocation, IP addresses, mac addresses, email addresses, etc. An excellent example of this is phenomena is Verso Books publisher. They sell their books in an online ebook store. In this store, Verso books appends a new page in the begging of each book with the downloaders name and his' or her's email address. It also watermarks the IP address of the downloader in the footer of the first page of every chapter.

During my research, I stumbled across an article about different forms of DRM. In this article, the writer starts by giving a disclaimer where he begins by portraiting himself as "a supporter of milder types of DRM like digital watermarks". What caught my attention was how the mode of address changed when he started to identify all the unnecessary strategies implemented by Verso Books in their ebooks. More important we can understand that their watermarks didn't pass unnoticed to the store users. A source interviewed states: "Personally, I felt like I was constantly being sent a stalker's note saying, 'I know where you live.' It put me off reading the books entirely." (Hoffelder, 2014) The increase of imprints that identify us as downloaders and as printers is alarming. Verso Books are calling out their users as pirates and companies, such as BooXtream are making this possible, using us as an asset to capitalize on.

I was then able to identify the company that develops the watermarks to Verso Books. It is a Dutch DRM company called "BooXtream®". It is worrying how they portray themselves; the first quality that they promote on their DRM methods is traceability. We can read in a bold font: "A publication that has been BooXtreamed can be traced back to the shop and even to the individual customer." (BooXtream, n.d.) Watermarks are now perceived as something to fear, used to make us feel uncomfortable. Surveillance might be quickly spotted as it commonly happens with CCTV because we can establish a physical connection with it, we can see it, we can choose a different path to walk from it or even try to disguise ourselves. We were able to accept that digital surveillance is a reality, but we didn't feel a close connection to it yet. I consider that digital watermarks are a vehicle establishing this direct connection. It is still tricky, though, to predict what will be the impact of these techniques if users are afraid to share an ebook that they bought and paid for.

Surveillance in publishing not only manifests itself in obvious ways. Another article that I came across was from the Electronic Frontier Foundation, raising awareness of the Machine Identification Code. First published by the PC World as "Government Uses Color Laser Printer Technology to Track Documents" in 2004, this code is formed by a pattern of dots that are appended to every printed page. The printer software adds it in the process of printing. These are almost imperceptible yellow dots carrying information as the date of print, time and the serial number of the machine. Similar technology is used when you try to scan a banknote. A sequence of yellow dots in the printed in the paper triggers the printer to add a striped pattern on the top of the copy, preventing you from copying it.

I delved into trying to understand if this code was still in use, and I had to be able to prove its existence for myself. I started by using methods to identify these invisible dots, such as UV lights, different printers, from HP to Canon and from Inkjet to Lasers printers. Almost when I was giving up, disappointed with all the time invested in this, I started to reverse engineer this machine identification code and implementing my own. While creating messages printed in minimal font size and scanning these printed pages, I began to understand better how to turn them visible. With a new scanner with a resolution of 1200 dpi and after inverting the colours, they suddenly appear. Just as by magic, a mesh of my messages and the tracking dots started to emerge. Ultimately, I was able to identify them in all the printers provided by the school in the Blaak building. It is worrying that this hidden code is infiltrated in documents and can be seen by anyone. They are not only used in case you are a suspect of a crime, but they are also available for anyone at all times. Coming across with them made me rethink what did it mean to publish in print, how safe is it, and how it might affect the ones who depend on printed forms of publishing.

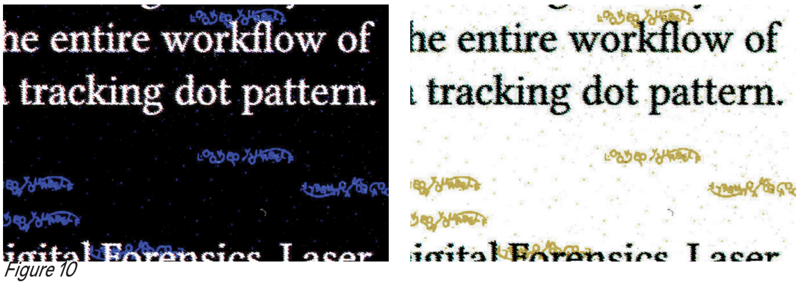


*Figure 10*
*Tracking Dots found in the university printers*

During this second chapter, I explored the progression of watermarks. From their background, until their appropriation, as an asset to incite fear, self-awareness, and to remotely control and constrain user actions. It was essential for the development of my project to emphasize the value of ancient watermarks at this moment. During the next chapter, I will expand my research from the point of view, where I consider the early framework of watermarks crucial to prevail. I desire to demonstrate that what lies at the heart of their use is their ability to portrait crucial interrupted actions and moments in history, granting insights into hidden processes of fabrication documented in the sheets of paper. While at the same time carrying clues to comprehend their artisans, the historical timeframes and different imagery. I will then extrapolate on how the use of digital watermarks can still be prominent apart from what I recognize as their misappropriation, exploring that the current attitude towards digital watermarking is not the only valid. I focused than my research on how the discourse around these reinforcements of copyright can be flipped around. I will delve into how tactics that seem mainly negative can be re-appropriated.

## PART 3 — WATERMARKS OPERATE DIFFERENT ROLES

### *Introduction to my creative response*

With Tactical Watermarks, I describe ways of living within and displaying resistance against a culture of surveillance in publishing. It is relevant to understand and explore what it is living in a culture of increasingly constant tracking, rather than aiming to solve the many problems of surveillance. During my use of watermarks and more specifically, with my creative response, the main objective was to create a positive discourse around the act of watermarking. This discourse is then changed while using them to create a top layer of information, able to embed traces of provenance in different texts. By provenance, I intend to express all the traces not used to surveil users but the ones able to trace historical importance to files and that facilitate precise documentation within an archive or library. Tactical watermarks is not only a system but I will also delve into how it can be deployed, comparing it to what other projects or approaches I have encountered and reflect over their influence in my project.

While challenging centralised distribution channels, I ventured on how the process of adding stains can be twisted and revived. Stains are what I will call user patches or marks that are difficult to remove and that do not play an active role in archives. While exploring the process of adding imprints, different discourses were arising from this: as a way to obscure previous ones, of commenting on the situation and encouraging behaviours, to create relations and communities, augmenting the sense of solidarity in archives, for digital enhancements, marks of quality, etc.

I aim to link my creative response on the case of digital watermarking to what has been happening in parallel within different cultures, from graffiti culture to “crack intros”. Crack intros appeared for the first time in the ‘80s; they were not commissioned for a commercial purpose. Instead, these were introduced by a programmer or a group of coders, graphic artists, and musicians that were responsible for removing the software’s copy protection and that made this crack public (Green, 1995). Watermarks may form a discourse around topics such as anonymity, borders, archives, and provenance; while rethinking watermarks, exploring their hidden layers and aspects of surprise, visibility or invisibility, on different forms of communicating. I find it essential to acknowledge that watermarks have the power to infiltrate and perform different roles and to create a parallel stream of information within various texts. When it comes to publishing, how can watermarks create a critical discourse around the right to access knowledge and represent the ones that fight for it?

### *1 — Displaying provenance of a medium*

It is crucial to consolidate how the term *provenance* will be used. By provenance, I aim to unify all processes that provide clues and evidence from the moment of the origin of a file documenting its life span — providing information on what might be the source of a text, such as, its place of origin. Until the history of its ownership and even the motivation to why an individual made it public. Unifying all this voices part of a stream of empathy, decisions, hidden tasks and actions.

The same way I have delved into the first chapter, the flow of texts, downloads and users are always constrained by the politics of platforms that grant access. It is essential to acknowledge that these platforms more often than not share documents and versions of the same file in between them. With Tactical Watermarks, I aim to create also documentation to make this process visible. With watermarks and without compromising on the users' identities, I aim to set ground to what I find noteworthy. Such as finding ways to translate the flow of users and texts, within this complex mesh architectured in a rhizomatic structure.

I feel essential to merge the hidden processes behind the upload of a new file within itself, documenting this stream of options. This is achieved by documenting the invisible natural connections formed by platforms' uses, adding memory to a collection, while materialising the hidden tasks of digitising a book, processes and motivations behind its selection and all the actions along this process.

### *2 — Signatures*

In *Tactical Watermarking*, I also purpose that digital watermarking may be used as a signature, just as we can spot in graffiti culture or crack intros.

Just as distributing copyrighted material and cracking software, graffiti is a controversial subject. It has a rich background dating back to several cultures like the Egyptians, Greek or Romans, where writing or drawing in walls or other surfaces was common to be found. Graffiti nowadays is seen as a form of artistic expression without permission. Just as in crack intros where we can discover pseudonyms to protect identities and thwart prosecution, in graffiti, a subculture to challenge authority, the same thing happens.

In Crack intros, such signatures referred to as "crack screens" were customarily included in-game title screens displaying the game name, the logo of the producer, and a graphic that provided the player with a glimpse of the game theme. The signatures were initially simple statements, such as "cracked by ...," sometimes intentionally misspelt as "kracked by ..." (Reunanen et al., 2015). The main difference I aim to emphasise between graffiti and crack intros is the is text screen is in many ways similar to graffiti, although the so-called crack-intros invaded the private sphere and not the public space. (Cubitt and Thomas, 2009)

An essential link to all these formats of signatures is found in ancient ways of watermarking. Craftsmen would explore pseudonyms, in this case, in the form of imagery built in the paper frames. This opens a path of exploring digital watermarking to almost an arrogant way of identifying us as liable of the process and decisions without carrying any liability whatsoever. Tactics as using pseudonyms will be reappropriated to challenge authority and to challenge digital identity and accountability.

### *3 — Watermarks to obscure*

*Tactical Watermarking* is not only a system about revealing hidden layers and augmenting the memory of an archive. It is also about creating strategies to suppress unwanted information. It is valuable to stress that in the contemporary panorama of digital watermarking, calling out user identity is the ultimate goal. While recognising the intention to remove this layer of information, I felt like it was relevant to create parallelism to the project *SecureDrop*. This project was first released under the name *DeadDrop*, designed and developed by Aaron Swartz and Kevin Poulsen. *SecureDrop* is a free software platform that enables safe communication between whistleblowers, journalist and different organisations. In this platform, whistleblowers, which are the sources, submit documents and data while avoiding most common forms of online tracking (Ball, 2014). During this process, sources are also assigned a random user name, allowing a journalist to contact and privately chat with them.

The connections I intend to make between my system and *SecureDrop* are that both main intentions are the creation of strategies to anonymously disseminate files not intended to be part of the public sphere. Establishing parallelisms between how either private or public organisations protect secrets and how publishers protect copyright material. In their core, the critical aspect to them is how they facilitate the anonymisation of files. In *SecureDrop* by using private, isolated servers, and using encryption and decryption tools. In  using watermarks as a way to obscure already existing one, by overlaying existing marks found, and by re-writing new subjective metadata to documents, obscuring user traces aimed at making them accountable as explored in the previous chapter of my thesis.

### *4 — As a means to expression*

Within this framework, and throughout the act of watermarking, I aim to create a space to publish undercovered personal, political and other kinds of messages. With my creative response, I consider that users commenting and publishing their thoughts disseminated hand to hand with the actual circulation of a file is relevant. Having the power of saying that I am here, and I disagree with how paywalls, borders, and how rules are structured and reinforced is compelling and pertinent. These messages must be published and made public.

This being, we can compare these ideas commenting as a strategy of contemporary political resistance to what has been happening in cracked of software, such as Adobe Zii. Adobe Zii or Adobe Zii Patcher is a one-click software program patcher or activation tool for Mac. The developers of this software inserted the quote “why join the navy if you can be a pirate” during the actual process of patching the desired software. It is striking how this intention differs from the one in Crack Intros, creating a reference, not to the one who released this patch but creating a relation to the actual act of copying, commenting on a situation and encouraging provocative behaviours.

I believe that using watermarks as a way of commenting on power structures, dissemination of knowledge and other equivalent situations and opinions will also function as a political mirror to what as been happening to free access to knowledge and information. While achieving this through digital watermarking, we are not only able to reach the ones that are already fighting within this culture, but also the ones that might be uninformed users of shadow libraries and other grey publishing platforms, creating a political discourse around such topics.

During the first chapter, I have explored how different media are used to publish ideas through alternative forms of publishing. This used to happen through zines, the underground press or other types of publishing as the Samizdat. Currently, parallel streams of publishing exist mainly in the form of online platforms, opened to publish all sorts of copyrighted and forbidden materials. Within the context of *Tactical Watermarking* seems relevant to delve further into strategies that facilitate communication, especially the use of steganography.

Even though several forms of communication responsible for avoiding conventional methods of surveillance are achieved mainly by writing an encoded message and by the use of a decoding system when it reaches its target, with steganography, this happens differently. The message is hidden in plain sight as the main strategy. Steganography allows two parties to broadcast a message deceived or disguised within other data. Watermarks and steganography both happen in digital and analogue formats. While both terms can be applied to the transmission of information hidden or embedded in other data, they are often wrongly merged and is vital to clarify them. Steganography relates to undercovered point-to-point communication between two parties. (Katzenbeisser and Petitcolas, 2000) Watermarking has the extra demand of robustness towards potential attacks (Katzenbeisser, 1999).

Steganography is an important subdiscipline of information hiding. In the book, A Cookbook of Invisible Writing from Amy Suo Wu, alternative forms of communication are published in the format of recipes documenting techniques reused from spies to prisoners, but not only old tactics of steganography exist. In China, researchers understood that while digital communications and data security are becoming more sophisticated, there is still the need to develop ways to send hard copy messages securely. These have developed a printing technology only be read with a UV light over the printed medium (Davis, 2019).

All this set of parallel techniques of communication led me to explore which strategies can we reappropriate using watermarks as a way of annotation. How can we open space to communication between users of a system while maintaining their anonymity? One might have felt the thrill when a downloaded file from Lib gen or similar library still contains traces of previous users. It is quite amusing this relation established with someone we are not related with. You feel part of a movement, as you had a glimpse of a moment, captured in time.

With Tactical watermarks, I want to open spaces to dialogue, to publish displays of interest, as well as, demonstrations of solidarity. This can be done, just as writing a message in a paper, drop it in a public space and wait for someone to find it. In a big picture, I do not plan to make this something you may find by chance; I aim to explore what are the possibilities of making someone thrilled to see these messages as a compulsory or a regular habit.

At last, I propose that digital watermarks still have space to produce sensorial enhancements. Enacted through watermarking and with a background in the practice of graphic design, I reckon that we might be able to establish different rhythms and hierarchies within a narrative. Just as introduced earlier in this text, watermarks might have had their origin concerning manufacturing processes, but they might have been an artistic method of expression by papermakers aswell. With *Tactical Watermarking*, digital watermarks may substitute digitally the impact that graphic design has in the process of creating books as a physical media, where they can be recognised as an object by themselves. In graphic design, choices such as the paper, the binding, or even how different chapters are separated become part of an endeavour to heighten the narrative. Interestingly, mixed attitudes can exist towards this process. Either by trying to respect the text, without overpowering it, but also, as a way of exploring it as a medium where restructuring may form new ways of reading and understanding.
Two constants are then present, the exploration of repetition and absence of it, and the experimentation regarding text flows.

The main drive during my research was to explore how can analogue techniques be appropriate and transported into digital watermarking. I find particularly amusing unconventional strategies, such as the use of scented paper in print. Such methods allow us to rethink the flow of information and takes part in shaping the perception we have from texts. Through this scented technology, we explore the vision and the scent at the same time, transporting us to different realities, creating a stimulus that we don't usually experience while reading. In digital files, I compare this to the feeling of encountering graphic elements that exist outside the main narrative. While most digital files lack personality, with new visual elements appended, I aim to incite new sensation while building new experiences through paratextual components.

# REFERENCES

Balázs, B. (2018) “Library Genesis in Numbers: Mapping the Underground Flow of Knowledge.” In Shadow libraries: access to educational materials in global higher education. Ottawa : International Development Research Centre: The MIT Press.

Balkovich, E., Prosnitz, D., Boustead, A., et al. (2015) “The Electronic Surveillance Challenge.” In Electronic Surveillance of Mobile Devices. Understanding the Mobile Ecosystem and Applicable Surveillance Law. RAND Corporation. pp. 1–8. Available at: https://www.jstor.org/stable/10.7249/j.ctt19rmdgw.7 (Downloaded: 25 October 2019).

Ball, J. (2014) Guardian launches SecureDrop system for whistleblowers to share files. The Guardian, 5 June. Available at: https://www.theguardian.com/technology/2014/jun/05/guardian-launches-securedrop-whistleblowers-documents (Accessed: 24 October 2019).

Basbanes, N.A. (2014) On paper: the everything of its two-thousand-year history. New York: Vintage Books.

BooXtream | Social DRM To The Max | eBook Watermarking and Personalisation (n.d.). Available at: http://www.booxtream.com/ (Accessed: 1 December 2019).

Boozhie, E.X. (1988) The outlaw’s bible: how to evade the system using constitutional strategy. Port Townsend, Wash: Loompanics Unlimited.

Browne, S., Miwa, M. and Print > Imprint (eds.) (2016) From the books: State Library of Victoria, Redmond Barry Reading Room 000-099. Balaclava, Vic.: Print > Imprint.

Bukovskiĭ, V.K. (1988) To build a castle: my life as a dissenter. Washington, D.C.: Ethics and Public Policy Center.

Cryptome (n.d.). Available at: http://cryptome.org/ (Accessed: 5 February 2020).

Cubitt, S. and Thomas, P. (2009) Re:live Media Art Histories 2009 conference proceedings. Melbourne: The University of Melbourne & Victorian College of the Arts and Music.

Dam, K.W. (1999) Self-Help in the Digital Jungle. The Journal of Legal Studies, 28 (2): 393–412. doi:10.1086/468056.

de la Passardière, B. and Bustarret, C. (2002) Profil: An Iconographic Database for Modern Watermarked Papers. Computers and the Humanities, 36 (2): 143–169.

Dentzel, Z. (2014) “How the Internet Has Changed Everyday Life.” In Change: 19 Key Essays on How the Internet Is Changing Our Lives. Madrid: Open Mind BBVA. Available at: https://www.bbvaopenmind.com/en/books/19-key-essays-on-how-internet-is-changing-our-lives/ (Downloaded: 10 February 2020).

Duncombe, S. (2017) Notes from underground zines and the politics of alternative culture ; with a new afterword: Do zines still matter? Portland, Or.: Microcosm Publishing.

Erixon, F. and Lee-Makiyama, H. (2011) DIGITAL AUTHORITARIANISM: human rights, (5): 23.

Farnen, R.F. (2014) “Media and Terrorists.” In Farnen, R.F., De Landtsheer, C., German, D.B., et al. (eds.) E-Political Socialization, the Press and Politics. The Media and Government in the USA, Europe and China. Peter Lang AG. pp. 251–302. Available at: www.jstor.org/stable/j.ctv2t4csq.16 (Downloaded: 19 November 2019).

Green, D. (1995) Demo or Die! Wired, 1 July. Available at: https://www.wired.com/1995/07/democoders/ (Accessed: 10 January 2020).

Grundhauser, E. (2015) Soviet Scenesters Used X-Rays to Record Their Rock and Roll. Available at: http://www.atlasobscura.com/articles/soviet-scenesters-used-xrays-to-record-their-rock-and-roll (Accessed: 30 January 2020).

Gunderloy, M. (1988) How to Publish a Fanzine. Townsend, WA.: Loompanics Unlimited. Available at: http://www.zinebook.com/resource/fanzine.pdf.

Harris, N., Ecole de l’institut d’histoire du livre (Lyon) and Institut d’histoire du livre (Lyon) (2010) Paper and watermarks as bibliographical evidence. Lyon: Institut d’histoire du livre.

Hays, M.L. (1975) Watermarks in the Manuscript of Sir Thomas More and a Possible Collation. Shakespeare Quarterly, 26 (1): 66–69. doi:10.2307/2869274.

Hoffelder, N. (2014) Verso Books Shows That it is Possible to Use Customer-Friendly DRM While Still Calling Customers Pirates. Available at: https://the-digital-reader.com/2014/06/07/verso-books-shows-possible-use-customer-friendly-drm-still-calling-customers-pirates/ (Accessed: 17 November 2019).

Hunter, D. (1987) Papermaking: the history and technique of an ancient craft. New York: Dover.

In Solidarity with Library Genesis and Sci-hub (2015). Available at: http://custodians.online/ (Accessed: 7 February 2020).

J. Cox, I. and L. Miller, M. (2002) The first 50 years of electronic watermarking., pp. 26–132.

Kalathil, S. and Boas, T. (2001) The Internet and State Control in Authoritarian Regimes: China, Cuba, and the Counterrevolution. First Monday, 6. doi:10.5210/fm.v6i8.876.

Katzenbeisser, S. and Petitcolas, F.A.P. (2000) Information hiding techniques for steganography and digital watermarking. Boston: Artech House.

Kind-Kovács, F. and Labov, J. (2015) Samizdat, tamizdat, and beyond: transnational media during and after socialism.

Kirkpatrick, D. (2012) The Facebook Effect: The Real Inside Story of Mark Zuckerberg and the World's Fastest Growing Company. London: Virgin Digital.

Latin Definition for: faber, fabri (ID: 20146) - Latin Dictionary and Grammar Resources - Latdict (n.d.). Available at: https://latin-dictionary.net/definition/20146/faber-fabri (Accessed: 25 November 2019).

Lawrence, L. (2008) Code : And Other Laws of Cyberspace, Version 2.0. New York: Basic Books. Available at: https://www.worldcat.org/title/code-and-other-laws-of-cyberspace-version-20/oclc/1109503030&referer=brief_results (Downloaded: 3 February 2020).

makingmanuscriptsblog (2017) Watermarks! Making Manuscripts in the Medieval and Early Modern World. Available at: https://makingmanuscriptsblog.wordpress.com/2017/10/02/watermarks/ (Accessed: 11 December 2019).

Mann, S. (2003) Existential Technology: Wearable Computing Is Not the Real Issue! Leonardo, 36 (1): 19–25.

May, M. (1997) INVISIBLE WATERMARKS. American Scientist, 85 (2): 124–125.

Mockford, J. (2014) "They are Exactly as Banknotes are": Perceptions and Technologies of Bank Note Forgery During the Bank Restriction Period, 1797-1821.

Monbiot, G. (2018) Scientific publishing is a rip-off. We fund the research – it should be free | George Monbiot. The Guardian, 13 September. Available at: https://www.theguardian.com/commentisfree/2018/sep/13/scientific-publishing-rip-off-taxpayers-fund-research (Accessed: 7 February 2020).

Munster, A. (2011) Materializing New Media: Embodiment in Information Aesthetics. Lebanon: Dartmouth College Press. Available at: http://grail.eblib.com.au/patron/FullRecord.aspx?p=1085079 (Downloaded: 19 November 2019).

Owen, D. (2014) Copies in seconds: how a lone inventor and an unknown company created the biggest communication breakthrough since gutenberg--chester carlson and the birth of the xerox machine. New York: Simon & Schuster. Available at: http://rbdigital.oneclickdigital.com (Downloaded: 17 November 2019).

Reunanen, M., Wasiak, P. and Botz, D. (2015) Crack Intros: Piracy, Creativity, and Communication. In 2015.

Ribeiro, N. (2015) Censorship and Scarcity. Media History, 21 (1): 74–88. doi:10.1080/13688804.2014.950951.

Rose, S. (2018) Remembering the Importance of the Mimeograph. FMS-Blog. Available at: https://blog.findmysupplies.co.uk/mimeograph/ (Accessed: 30 January 2020).

Schroeder, R. (2018a) "Media systems, digital media and politics." In Social Theory after the Internet. Media, Technology, and Globalization. UCL Press. pp. 28–59. doi:10.2307/j.ctt20krxdr.5.

Schroeder, R. (2018b) "The internet in theory." In Social Theory after the Internet. Media, Technology, and Globalization. UCL Press. pp. 1–27. doi:10.2307/j.ctt20krxdr.4.

Shih, F.Y. (2017) Digital watermarking and steganography: fundamentals and techniques. Boca Raton: Taylor & Francis, CRC Press. Available at: http://www.crcnetbase.com/isbn/9781498738767 (Downloaded: 25 November 2019).

Stevenson, A.H. (1948) New Uses of Watermarks as Bibliographical Evidence. Papers of the Bibliographical Society, University of Virginia, 1: 149–182. doi:10.2307/40368928.

Swartz, A. (2008) Guerilla Open Access Manifesto. Available at: http://archive.org/details/GuerillaOpenAccessManifesto (Accessed: 7 February 2020).

Tanselle, G.T. (1971) The Bibliographical Description of Paper. Studies in Bibliography, 24: 27–67.

The POW WOW Newspaper (n.d.). Available at: http://www.merkki.com/powwow.htm (Accessed: 9 February 2020).

Woodward, D. (1990) The Correlation of Watermark and Paper Chemistry in Sixteenth Century Italian Printed Maps. Imago Mundi, 42: 84–93.