

Navigating information to create
narratives by means of typography

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A c k n o w l e d g e m e n t s

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A b s t r a c t

Key words: Reading / Grid Systems / Text Systems / Visible to the Invisible / Navigation / Book design / Legibility / Data visualization / Maps / World War II / Submarines / Allied ships / Micro-, Macro- Micro-Macro typography

Main goal: Finding ways to navigate information in order to create narratives by means of typography.

Key elements for research: Legibility / Navigation / Readability / Reading Comprehension / Data visualization / Information Design / Book Design

Target audiences: Regular readers / Readers with no interest in a particular topic (Submarine war, WWII)

Navigating information to create narratives by means of typography, is a collection of letters, here understood as ephemera, that discusses the invisible battle field that exists in the North Sea during WWII. The reassembled information forms a new and dynamic navigational system, that through the use of typographic display allows for a previously hidden narrative to appear. In other words, *the navigation of information*, which guides and prompts the viewer through the page in a way that creates further discovery and depth to the narrative through the use of typography.

The elements of the used typography have been researched on both micro- and macro-levels. In order to create a uniform and hierarchical system that uses adjustable typographic play on a micro-level in a way so that it influences and interacts with the macro-level (which references to the larger map used in the installation), just as much as the macro-level influences the typographic form on a micro-level. Meaning, that on a macro-level what is created is a moving grid that changes its density of field depending on the amount of people that were on board at the time of sinking and on a micro-level the amount of people that survived or were lost will influence the size of the typography. Having the lay-out move on both a micro- and macro-level allows the typography to move within the dynamic grid, creating a unique collection of ephemera that are never the same, while still containing a sense of uniformity within the chosen hierarchy. Creating a text system that is fueled by the placement and not only informs the viewer but can also be easily interpreted and link the ephemera together. The ephemera are presented in combination with and are linked to a larger map, presenting an overview of what is shown on the ephemera. Both elements are connected through the coordinates of where these vessels now lay in rest on the bottom of the seabed. This design approach makes it possible to show information in a way that creates a narrative in order to immerse the reader and make it easy to comprehend. It is an innovative way of using navigational design on raw information.

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I n t r o d u c t i o n

Books have always been a big personal interest, the notion of an author creating a story, imaginative or not, and immersing the reader into that experience is something special. When reading, the viewer usually only perceives the meaning of the text, the attention is not on how the words are shaped, or how the letters help the viewer with the interpretation of the words that they are reading. In Gerard Unger's essay 'Legible?', written for Emigre magazine¹, he states: "Reading creates its own silence. [...] For a short moment, all those black signs disappear off the stage, change their outfits and return as ideas, as representations, and sometimes as real images." There are different ways of reading: when reading a novel, the viewer performs deep or continuous reading; when reading informative texts, the viewer performs glance reading at first and then the reader looks for connections of meaningful information. The different articulation of the typographic elements, provide different ways of reading which help the reader to navigate through a text and understand it. The complexity of the system that articulates the typographic elements are usually not noticed by readers. But just because it is not seen, does not mean it is not there. Typography can be organized in such a way that fits the best to understand that specific content for any specific target. We categorized this organization in the micro-, macro- and micro-macro levels. Whereas the micro-level looks into the details of the typography itself, the more general lay-out is done on a macro-level. The spacing between letters and/or words, the leading, using serif or sans serif, etc. all these elements have a functional purpose to enhance the reading comprehension. Typography is first and foremost a means of communication through forms².

1. ROOTS. Gerard Unger. April 1st 2021. Dutch Graphic Roots.

2. Academy Contributor. The importance of typography in communication through graphic design. December 13th 2019. Academy of Art University.

In my master project I delve into the ways of reading that we apply when reading informative texts. In particular, when the amount of information is vast and complex so that it is difficult to comprehend the content when just applying glance reading. Because of this, I want to search the possibilities of typography to provide readers an aid to navigate through complex informative text by creating meaningful narratives that help the reader to understand the content.

In order to conduct my research I bring a topic that has always fascinated me: the naval war during WWII. When visualizing this topic, typography will be used as a navigational tool to retell a specific time period of history. The theme is the submarine war during WWII (1939-1945). More specifically, the German submarines that were sunk in the North Sea along with the allied ships that they sunk during their years of service in the war. There are many landmarks caused by the second world war that are still visible and remembered to this day, but the wrecks and the quantitative stories of the war at sea are mostly forgotten and buried beneath sea level. The sunken submarines and allied ships are harder to reach and thus it becomes more difficult to envision them.

Discussing the entire submarine war in the North Sea is a big and overarching topic that is usually shown with a lot of details and links to other possible events that happened within this timeframe. Having all these interconnections may make the information too complex and overwhelming for the reader. My master project will use this topic to create a visual narrative, through the use of typography, where raw information on an historic timeframe is displayed in a way that it creates a narrative and becomes easy to comprehend for the reader by using typography in a navigational system.

While doing research about the war at sea during WWII, it becomes clear that most information found on the internet is very scattered. Sites such as the *naval encyclopedia: the first online warship museum*³, lets the viewer choose what to view. For instance, you can make the decision to look only into the American naval ships used during the war, but the chance to make distinctions or to create connections between these vessels is not present. What is more, the information is quite complex to navigate through. The focus of this website is on the allied forces, not providing many details about the navy of Nazi Germany.

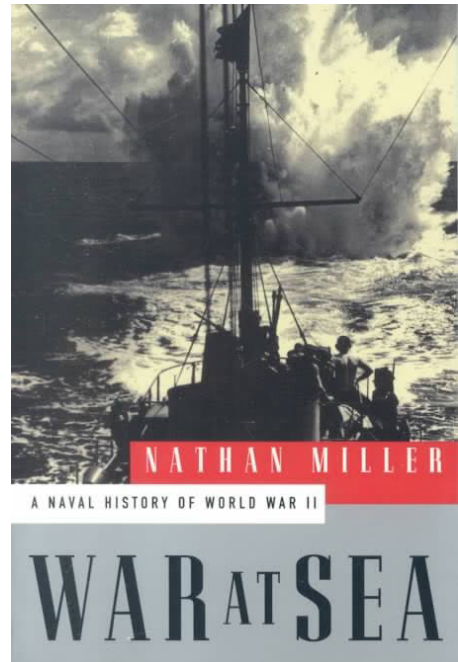
Because of having such an overwhelming amount of information available, it is easy to get lost and lose sight of the big picture, which is creating an overview of the submarine war that took place in the North Sea during WWII. Since the website *uboat.net* cater the biggest informational source, this dataset will serve as the starting point of the collected data used for my master project. Namely, all the information about German submarines and extra information that is connected to them, one of these connected elements are the allied ships that these submarines sunk.

When looking at the websites that provide information on events of the second world war, the information is presented in an overwhelming way, having access to all kinds of hyperlinks and subcategories. The reader may find themselves lost in the many options visible on the homepage of a website, not knowing where to start. Meanwhile, books on the topic of the second world war, are usually shown like a novel, presented in a way that is comfortable and easy to read like any other novel. Or it is designed like an atlas/catalog, providing images that show the war in action, drawing maps of different routes the troops took or the areas that were besieged by Nazi Germany and the counterattack from the allies. It is designed in a more traditional sense, like an educational book that provides the raw information so that it is easy to understand. Navigation is usually shown through placing the events in chronological order, using

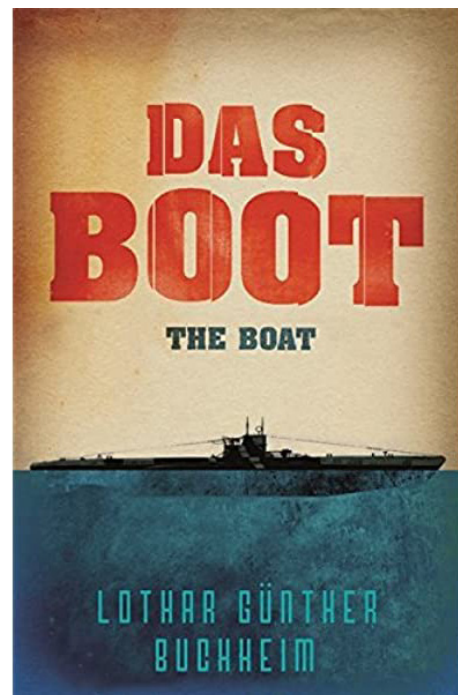
3. Naval Encyclopedia. The first online warship museum. 2010.

maps to visually guide the viewer by showing what is being told in the text.

So when looking at books, there is usually an overview present, but the focus is more on the war at land or it is too general to create a concrete idea of what happened during the war at sea. For example in *War at Sea: A Naval History of WWII* by Nathan Miller^A it tells a general story of the war at sea, talking about the big battles such as the sinking of Bismark, but not going into detail about each and every ship. It is more about the general impact that the war has on people instead of the personal stories that each of those ships might hold. Another direction that the books can take is by focussing solely on a single ship, for example the book *Das Boot* by Lothar-Günther Buchheim^B, here a story about a single submarine is told, namely U-96, and the journey that they experienced, but this can not be seen as a universal experience for all submarines.



A. Nathan Miller. *War at Sea: A Naval History of World War II*. 1996. Book, 17.15 x 3.81 x 24.77 cm.



B. Lothar-Günther Buchheim. *Das Boot*. 1999. Book, 13.34 x 3.49 x 20.32 cm.

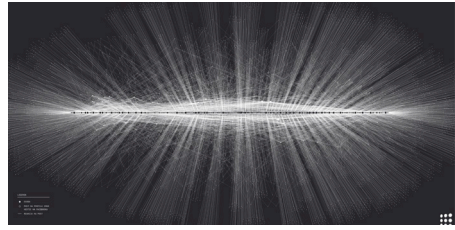
The goal of my master project was to implement the usefulness of an online resource, while containing the theories from book design to enhance the comprehension. Or in other words, to create a dynamic navigational system that will bring upon a narrative through the use of typographic play. The reasoning being that, even though the reader is looking at raw information, the hidden narrative that is present will immerse the reader and enhance the comprehension.

A navigational system's first and foremost purpose is the discipline of creating, analyzing and implementing ways for users to navigate in a meaningful way via the typographic design in order to get informed. The system plays an important role in how users can interact with the design. The most common way to enhance the users understanding and provide them with more confidence to continue is to present recognizable patterns that repeats itself throughout the design. If the navigational system created is too complex and the navigation is not made clear, the user might have trouble with the interpretation of the information. A quote from Alan Cooper, from his article written in 2001 called 'Navigating isn't fun', mentioned on *Navigating design: Almost everything you need to know*: "A well-designed business program must make its structure and organization as clear as possible. Users don't want to waste time solving the mystery of where resources and information are hidden." A good navigation system is best based on a user-centered perspective⁴. Creating a navigational system that hides a narrative that becomes clear through the use of typographic elements may stimulate people who have no prior interest in the topic, such as the submarine war during the WWII, to give it a chance and read through it.

4. Navigating design: Almost everything you need to know.
Justinmind.com. Consulted on: May 2021.

An inspiration when looking into ways to visualize complex data was a project done by Hanna Piotrowska (Dyrcz). She made a design for an annual report of the ERGO Hestia group^C. It was a visualization of the network in context to social media. It shows users activity, such as who likes certain posts, who shares posts with others, etc. After collecting all the data, she tried to make visuals focussing on large quantities of statistical data. Trying different elements and making everything else revolve around the visualization that was chosen is something that was reincorporated in my design project, making the amount of people on board a key element to determine how the layout on a page will look.

There are multiple successful examples of how navigation was integrated into book design, more specific designers such as Janneke Janssen's work *Periodical Issues 1* (2018) or the book from Karl Gerstner *Designing Programmes* (2019). Using an index to guide the reader through the work to make the information more accessible to comprehend and navigate through. Janneke Janssen's work is about reading and the meaning of the book as a medium. Her work compromises different viewpoints on Mary Devotion, its connection to religion and the role of women in society. Her research results in a renewed, interactive and interlinked construction of the book in which navigation is the key element⁵. As for Karl Gerstner, he was one of the leading representatives of the Swiss Typography. His book, *Designing Programmes*, is one of his most important works where he provides the reader with an introduction to his design methodology and a model for the design in the early days of the computer era. Many different examples are brought to light in this work from worlds of graphic design, as well as music, architecture, and product design⁶.



C. Hanna Piotrowska. *Hestia: Annual Report Network*. 2016. Book.

5. Janssen, Janneke. *Periodical Issues 1*. Book.

6. Gerstner, Karl. *Designing Programmes*. 2019. Book, 18 × 25 cm.

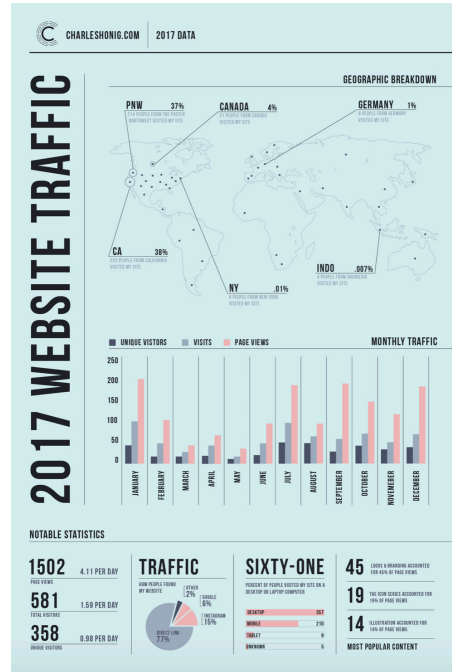
Having discussed the current problems of handling complex information in print, and discussing the importance of navigation, the question arises of where exactly navigation is of importance, and what role do typographic elements play in creating such a system?

When dealing with raw information there is usually not a lot of thought put into how to use this information in a way that enhances the comprehension through a good design. So, for my master project the objective is to create a new dynamic navigational system, that through the use of typographic display allows for a hidden narrative to appear within the information and enhance the comprehension. In other words, navigating the information in order to guide and prompt the viewer through the page.

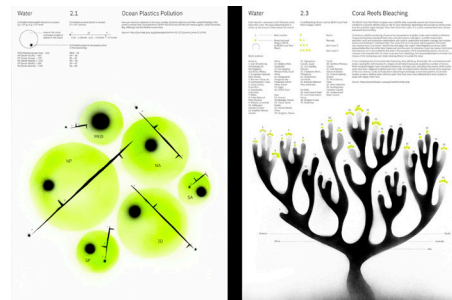
Methodology of the Master Project

The content of how the information is presented, alongside the lack of designs, are the main issues that are to be tackled in my master project. Looking into different ways to show the data in a visually coherent, cohesive and organized way so that it makes the communication easy to comprehend and for a narrative to become visible. The indicated objectives (navigation, typography, creating a narrative with raw information) will cause the viewer to get a better understanding of the topic, as well as create an insight that can be built on through a typographical navigation system. The typography will make for a more interactive experience with the content for the viewer, as seen in Janneke Janssen's work mentioned above. Having the typography be a deciding factor in the dynamic grid, that will move depending on the information that is being told, such as the amount of people on board of the ship. The system will use information found through sources of the internet and bring the narrative, that till now has only been present in books, to life through the forms of a map and printed documents, the ephemera. It seems imperative that a system is created to organize the information collected in a way that is accessible and understandable. As a default consequence linked to this new system is innovation.

There are varied ways to display information, the ones discussed within my master project revolve around the difference between the so-called “data visualization^D” and “information design^E”. Creating this distinction may help to clearly define the framework of this dissertation. The main goal of data visualization is to show raw data, allowing the user to make their own conclusions, information design on the other hand uses more context to communicate the information in a visual way^{7, 8}. For the master project, a combination of data visualization and information design is made. The proces of showing the information in a functional way while still providing context is achieved by symbolic uses of paper format, color and typography. These elements play a part in showing the different layers of meaning, which will be explained more in a later chapter.



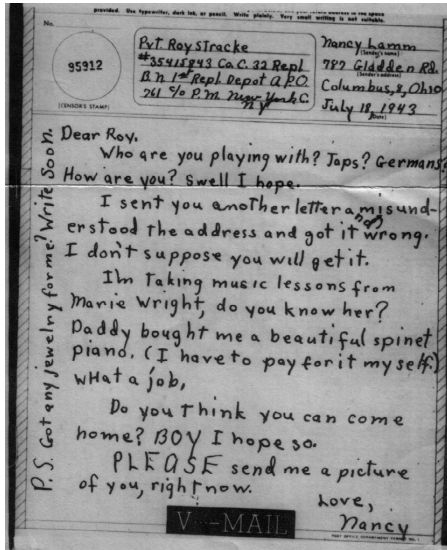
D. The top 10 types of data visualizations made simple. Boost Labs. Consulted on: October, 2020.



E. Maria Bublik. Cell Theory. 2019.

7. What is Information Design and Why It Matters Now More Than Ever. Easel.ly. Consulted on: February 13th 2021.

8. What Is Information Design and Why Is It Important? Visme.co. Consulted on: February 13th 2021.



F. Mail Call: V-mail. The National WWII Museum. Consulted on: February 2021.

When looking at books, the design is usually tackled in a way that stimulates deep reading or continuous reading. Whereas for this master project it is more about information and data design, so there is no need for deep reading. There is, however, a need for skimmed reading and search reading. Skimming will help the viewer to grasp the general idea of a text, scanning/search reading will allow them to locate precise information and identify key terms which will alert them to where the subject is being addressed⁹. Because of this the research is about creating possible new designs where a big quantity of complex information is present. In order to do this, a dynamic navigational system by means of typography was created. To show the narrative that is hidden within this information, namely the stories of the wrecks sunk in the North Sea during WWII. In following chapters it will be explained how this narrative can be discovered through viewing the work in an interactive way and by linking the prints together with a map.

As mentioned before, the project will consist of raw information that will be shown through a navigational system that transforms this information into a narrative by the use of typography in a dynamic way in order to boost the awareness of a hidden narrative. The navigational system will be made clear through the placing of the text by using a flexible grid, using typographic elements and paper color to highlight the disparate layers of meaning. One of these layers is shown through the chosen paper format. During the war there was a new invention of mail that rose in popularity named "V-mail"¹⁰, it was an American mail system that stood for 'Victory Mail', the purpose was for messages from loved ones left at home to reach the soldiers at the front in a faster way¹⁰. Having this form of communication available for soldiers was very important, the ephemera held a lot of emotional power that motivated them¹¹. The ephemera are very small in size and this added even more to the personal feel of them, they were easier to hold on to as well.

9. Reading Techniques. Monash University Library. Consulted on: May 2021.

10. Letter Writing in WWII. Smithsonian. Consulted on: March 26th 2021.

11. V-Mail. armyhistory.org. Consulted on: March 26th 2021.

Looking at how books use navigational systems, the work of Emil Ruder *Typography: A manual of Design*¹² was able to provide an overview on how to go about book design and the use of typography. One of the parameters discussed goes, “Organize things which are of a very disparate nature. The whole text of a book is so unwieldy that it has to be divided up in such a way that the reader can manage each page comfortably and follow the print without impediment.” - Pg. 14.

A selection of what information will be used for the submarines and the allied ships linked to them was made, as the intention is to create a narrative for the reader, that can also be viewed in a symbolic and poetic way. These pieces of information will provide the viewer the chance to create an overview of the war, while still seeing and reading about details unique to each ship. The viewer will also have the opportunity to transmit narratives based on visual choices they might have. In total there is information collected for 154 ships, 36 of them being U-boats, German submarines, which were sunk in the North Sea during WWII. The remaining 118 ships are the allied ships that were sunk by the U-boats mentioned before. The positions for the allied ships are more scattered throughout the oceans. With the information selected, the navigation can come into play. The purpose being to create a navigational system in relation to typography to help guide the viewer through the collected information, by emphasizing the different ways of reading previously discussed and creating narratives that are hidden within this visualization. To help with the interpretation process the information is divided into two processors that will be explained more in depth later on.

A working navigational system gives the reader the change to gain a better, in depth understanding of the narrative/story that is being visualized¹³. The narrative, in this case, being the battlefield in the North Sea during WWII. There are multiple elements that play a part in connecting the design together, for example the proportions of the print itself play a role in guiding the reader, as well as the

12. Ruder, Emil. *Typografie, A manual of Design*. Niggli Verlag, 2009.

13. Schwanenflugel, Paula J., Knapp, Nancy Flanagan. *The Psychology of Reading: Theory and Applications*. New York: Guilford Publications, 2015.

way the text is presented within the brackets of the grid system. The navigational system is created by the use of a grid system that will move depending on the typography, just as the typography will move depending on the information that is presented on the page. The elements guide each other and this results in a dynamic system that helps invoke the reader's attention to be able to comprehend what is shown on the ephemera¹⁴.

In the context of my master project, the use of typography provides the reader with a dynamic element, this is shown through making the text on the ephemera move, following the grid system that has been decided through the information that is present on the ephemera. The typography also helps to articulate meaning in a text, making the interpretation easier for readers. A quote from Purcell-Gates and Dahl, in 1991¹⁵ fits this ideology, "The big picture': the idea that print signifies language and is intended to communicate meaning" - Pg. 476. The typography will be visualized in three different sizes to truly enunciate the dynamic feel of the ephemera. The sizes will change depending on the information that is present on the ephemera, this way the typography will change with a purpose and enunciate the meaning of the information that is being visualized. The different visual variables that play a role are based on the theory from Jacques Bertin in 'Semiology of Graphics' (1967)¹⁶. Going more in depth about the role that typography plays within the navigation of the design project. All levels of typography will be researched and mentioned, these levels being the micro- and macro-levels, as well as the micro-macro level.

"Typographical design calls for the recognition of values which become visible during the setting process and have to be organized according to the following criteria: What is the relationship between one value and another? How is a given type size related to a second or third? What are the relations between the printed and the unprinted areas? [...] the proper observation of these principles is crucial for the beauty of a printed work, and for its formal and functional qualities." A quote taken from Emil Ruder's paragraph 'proportions' from his

14. Lindsay, Peter H., Norman, David A. *Human Information Processing An Introduction to Psychology*. Cambridge, Massachusetts: Academic Press, 2013.

15. McTavish, Marianne. 'Constructing the Big Picture: A Working Class Family Supports Their Daughter's Pathways to Literacy'. *The Reading Teacher*, Vol. 60, No. 5 (Feb., 2007): pp. 476-485. International Literacy Association.

16. Bertin, Jacques. *Semiology of Graphics: Diagrams, Networks, Maps*. Esri Press, 2010.

book *A New Typography*¹⁷. This quote fueled the parameters that the visualizations of the ephemera had to meet.

M i c r o - t y p o g r a p h y

For visualizing the German submarines, the typeface Futura by Paul Renner, created in 1927, was chosen. The typeface is based on geometric shapes as an ideal font for their ideas of the “New Typography”. Futura finds its philosophy upon the ideals of the Bauhaus organization. *Form follows function* became the key words and careful reasoning constrained all the character shapes to their utmost functional simplicity¹⁸. During its time and up until today, this typeface has a clear and modern feel to it¹⁹. Futura displays a look that was efficient and with an appearance of forwardness²⁰. This fits with the ideals of the German Nazi regime, especially with the concept of U-boats.

As for the allied ships, a different typeface was chosen, Fairfield by typographer Ruzicka in the year 1940. The reasoning behind this typeface being that its origin is a stark contrast to the philosophy behind Futura, considering it is based on traditional serif typefaces, its design rooted in the forms of Venetian Old Face types²¹. Ruzicka’s philosophy goes, “The reader expects optical assistance with reading. He does not want to be distracted while interpreting and understanding the ideas of a text.”

M a c r o - t y p o g r a p h y

The western way of reading was taken into account while creating the lay-out. Treating the page as if it was a title page of a book, it starts at the top, and goes down to the bottom. The reading direction being from left to right. The hierarchy that is used on the ephemera follows this ideology. With the core words to explain what is going on presented at the top of the page, leaving extra information on the situation more on the bottom of the page. When looking at the grid system that is used, it moves to the typography, and in turn the typography moves towards the grid. The designs on each of the ephemera’s are unique, using a grid that moves

17. Tschichold, Jan. *Opstellen over typografie*. Maastricht: Gerards & Scheurs, 1988.

18. Kupferschmid, Indra. *True Type of the Bauhaus. Fonts in use*. Consulted on: April 6th 2021.

19. Fabian, Nicholas. *The Bauhaus designer Paul Renner*. Creative Pro. Consulted on: April 6th 2021.

20. *What are Grotesque Fonts? History, Inspiration and Examples*. Creative market. Consulted on: May 2021.

21. *Font Designer - Rudolf Ruzicka*. linotype.com. Consulted on: April 6th 2021.

while still containing the typographic system that is similar for all the ships and U-boats. The grid helps with the navigation, separating elements while still making them appear together as a whole, to guide the reader through the page. The moving grid adds to the expressive layer, making the overall feel more dynamic instead of stale, to add to the feel of a narrative being present instead of looking at dry data as one would at a computer screen when looking at this type of information. The grid moves the typography, and the typography moves along the grid, to make an intricate typographic system that supports the narrative.

As seen in the work of Edward R. Tufte, *The visual Display of quantitative Information*²², “The grid should usually be muted or completely suppressed so that its presence is only implicit - lest it compete with the data.” - Pg. 112. The grid will provide the expressive layer in a subtle matter so that the reader can see it, but cannot read it.

M i c r o - m a c r o t y p o g r a p h y

The text is divided into two processors that interact with each other as if it were a dialog. A dynamic feel was created through the use of word spacing, bold and regular, and uppercase and lowercase. Alongside this dynamic feel through typographic elements, the grid system that moves alongside the typography gives it a fresh and innovative appeal. By using these elements the attention of the reader is more easily kept. The expressiveness is shown through the use of these typographic elements and their placement on the ephemera. These elements combined, display the underlying narrative within the raw information.

“Typographic messages can be analyzed through three different dimensions: semantic denotative representation, color and texture, and shape. These dimensions, when presented to subjects as stimuli, activate a variety of thought, images and meanings [...]” *Design and Emotion*, Pg. 212, Deana McDonagh, Paul Hekkert, Jeroen van Erp, Diane Gyi²³. This connection between using typography in order to activate meaning is one of the key factors to why the typography changes

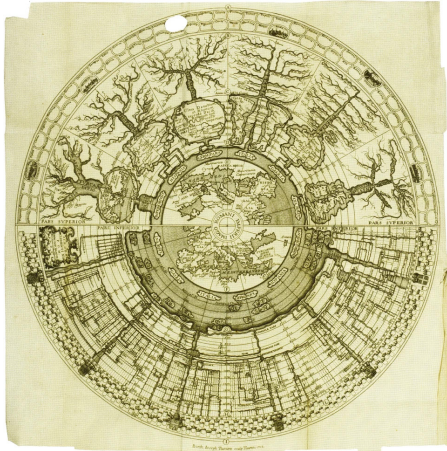
22. Tufte, Edward R. *The visual Display of Quantitative Information*. Cheshire, Connecticut: Graphics Press, 2001.

23. McDonagh, Deana, Hekkert, Paul, van Erp, Jeroen, Gyi, Diane. *Design and Emotion*. CRC Press, 24 okt. 2003.

it's size and location. Placing the text in bold is used on two elements, these being the name and the amount of people on board and whether they survived or not. The name gives the ship/U-boat an identity so that they become easier for the viewer to grasp, while the amount of people on board and the amount of survivors are in direct association with the lay-out of the ephemera. Depending on the amount of people on board, the density of the column width will change, and depending on the amount of survivors the size of the typography will either become smaller or bigger. Giving the typographic decisions not only a more dynamic and unique feel, but also gives a deeper layer of meaning to them.

The coordinates are one of the more prominent elements visible on the ephemera, the reason for this being that it provides the reader to quickly spot it and link it to the map, which will be discussed in the next chapter, to provide the viewer with a more interactive experience.

M a p p i n g t h e e p h e m e r a



G. Jerome Andre Martignoni. Historical Map of Italy. 1721. Map, 16 x 16 in.

A big element of my master project, that works in connection with the ephemera, is a map. The combination of the map with the ephemera stimulates the viewer to find links within this multi-printed document, to help create an immersive understanding of the topic. This connection is made through the coordinates, that are present on both the ephemera and the map, of where these sunken vessels now lay in rest at the bottom of the seabed. The reason for choosing a map is because they communicate information. Symbolization is critical to creating readable maps, all maps are fundamentally abstractions of reality²⁴. This is fitting with the ephemera, as they also communicate information and use symbolic layers to fuel the expressiveness to help show the narrative created by the navigational system.

Looking into the book *Cartographies of Time, A History of the Timeline* by Daniel Rosenberg and Anthony Grafton published in 2010, they provide a broader view of how to visually show a timeline of history through graphic design. In addition, another interesting aspect within the approach of how to present the map, are charts. Charts are not historical maps in the traditional sense of geographical elements dating from different moments in history, rather they are chronological charts that are shown in a cartographic way, for example the multiple charts published by Martignoni⁶ in 1721. This approach leans towards the narrative that is put forward through the navigational system that is used in this master project. However, "The key problem in chronographics, it turned out, was not how to design more complex visual schemes - the approach of many would-be innovators in the seventeenth century - but, rather, how to simplify, how to create a visual scheme to clearly communicate the uniformity, directionality, and irreversibility of historical time ²⁵." - Pg. 19.

Having such a vast amount of information available, decisions in what to show and what to leave out had to be made. Annelys DeVet (2014) words fit this ideology: "A map is a coded compact representation of reality, and coding means making choices, classifying and simplifying many layers of information²⁶."

24. Rosenberg, Daniel, Grafton, Anthony. *Cartographies of Time, A History of the Timeline*. New York: Princeton Architectural Press, 2012

25. Rosenberg, Daniel, Grafton, Anthony. *Cartographies of Time, A History of the Timeline*. New York: Princeton Architectural Press, 2012.

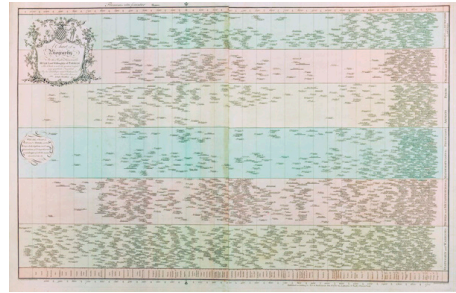
26. DeVet, Annelys. *Unmapping the world* (Chaumont). Consulted on: November 2020.

Another example is Joseph Priestley's 'A chart of Biography'²⁷ from 1765, together with 'A new Chart of History'²⁸ from 1769. For Priestley it was essential to give a broad view within a chronological chart. He sees the lines on his chart as "small straws" that are swimming on the surface of a big river²⁷.

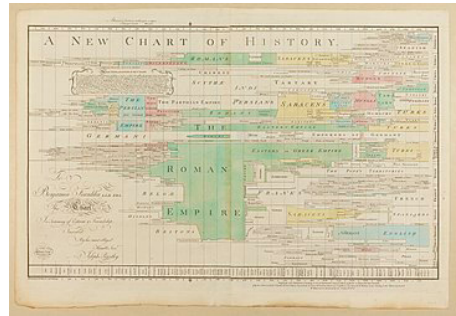
The map in this master project falls more into the category of something that is called *data maps*²⁸. In cartographic terms, data maps are described as 'thematic maps', it is used when a map is a combination of both cartographic and statistical skills. The visualization presents an overview, based on coordinates, to link certain historic events together and that can be read through combining the map with the ephemera. It lacks the elements present in usual cartographic maps and is instead build on visualizing the data. As is seen in "Les Deux Plus Anciens Spécimens de la Cartographie Chinoise" from Chavannes in 1903¹. Modern views on cartography that form a big inspiration originated from a workshop, Speculative Cartographies organized by Paloma Garcia Garcia²⁸. Here, a statement was made that reflects on the ever-changing times and the need for designers to follow the modernization: "In today's day and age there is a certain urgency to find new and effective methods to keep the user engaged and create a link with society." According to them, maps are an extremely powerful tool for achieving this.

The map created during this master project provides the reader with a choice on how to view the information. It can be viewed as an overview through looking at the map, or more in textual detail through the ephemera. The full impact of the narrative is in the combination of the map with the ephemera, just as much as it will cause for an interactive and immersive experience for the reader. The interactive experience is boosted through layers. The map is unique in the sense that it consists of multiple layers in both the literal and non-literal sense, the viewer themselves can add or remove layers to create their own map, to visualize the narrative in different ways.

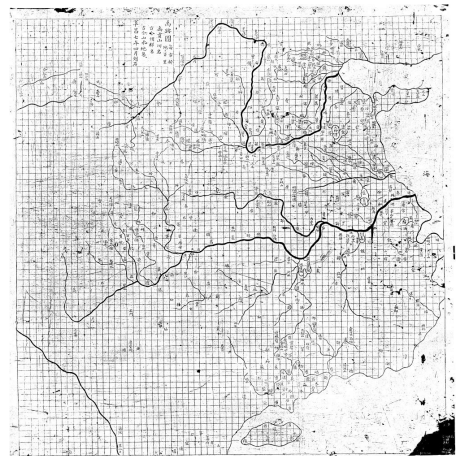
Adding a map to bind everything together is also a throwback to the project that was done during



H. Joseph Priestley. A Chart of Biography. 1765. Map.



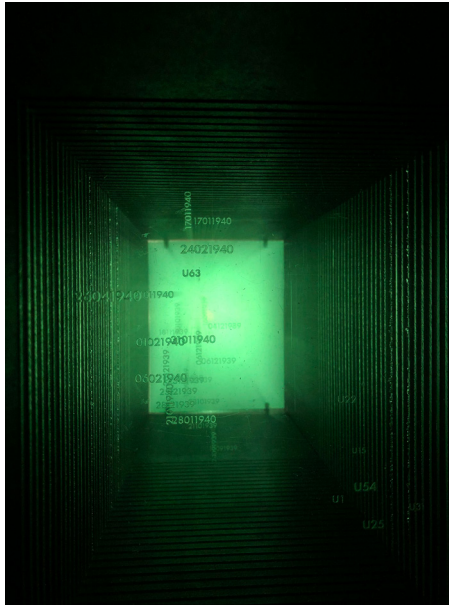
I. Joseph Priestley. A New Chart of History. 1769. Map.



J. Chavannes. E. Les Deux Plus Anciens Spécimens de la Cartographie Chinoise. Bulletin de l'école Française de l'Extrême Orient. 1903. Carte B.

27. Sipes, James L. 'The art of map making'. Landscape Architecture Magazine, Vol. 96, No. 8 (2006): 78, 80-87.

28. García, Paloma García. Speculative Cartographies, Experiments in Mapping Strip-S Digital Workshop. Consulted on: October 2020.



K. Laura Kreemers. Mapping the naval war in the North Sea between the allies and U-boats during WWII, year 1940. Map.

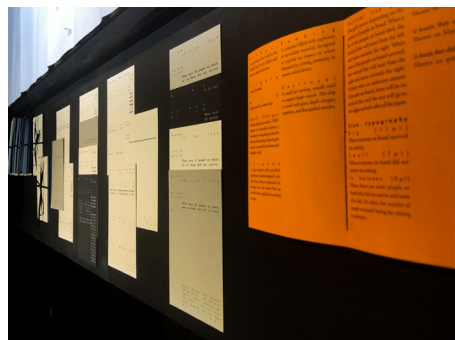
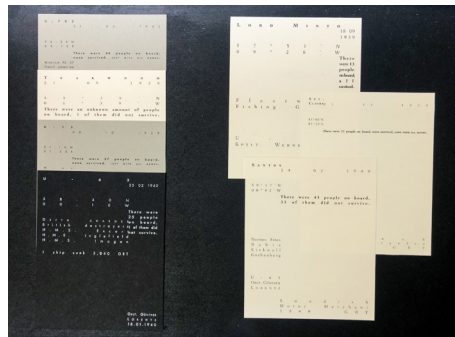
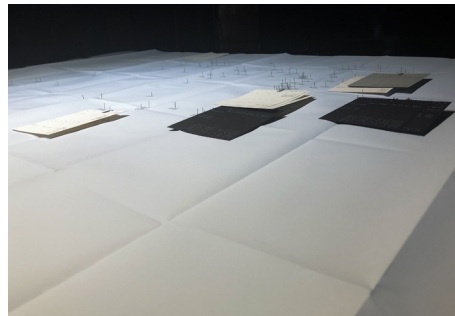
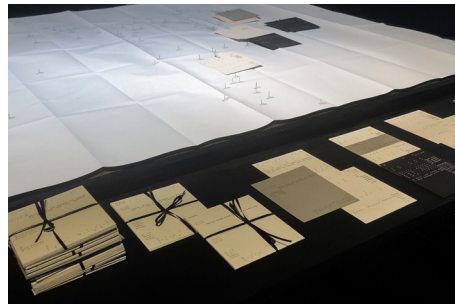
the studio course TYPOTYPE^K, where separate parts of information come together to visually show the story, but don't have to be read as such. This was done using the same theme as with my master project, but on a smaller scale, limiting myself to only one year of WWII. The purpose of the studio was to gain a better understanding on mapmaking and connecting information. How to go about showing a more in depth visual than on the usual map seen in an Atlas. The end result of this studio project was an abstract, layered, map where the viewer can navigate through the typographic elements that were used to find out information all the while having an immersive experience of the historic events that are visually shown on this interactive map. This is shown through a layering system created with transparent plates that each have a date engraved on them was shown. These plates represent the North Sea, the dates on the plates are placed on the position that a ship was sunk on said date. Providing a light at the bottom, the stacking of these plates on top will allow for an in depth view of the sinking that happened during that year.

My master project combines theories from book design, data visualization, navigational systems within typography and mapmaking. So, when looking at the grid system that is used, it moves towards the typography, and in turn the typography moves towards the grid. Having the elements of information be placed in a way that is always the same, yet unique. The viewer will know where to look to find certain elements of information and this will cause for uniformity between the ephemera. On a macro-level the dynamic grid will change depending on the amount of people that were on board, while on a micro-level the typography will change depending on what information is being said, as well as if the people survived or died during the sinking. To link everything together, a map is created, that will lack any descriptive visuals and only showcase the coordinates, something that is also shown on the ephemera. This map provides the reader with a different kind of visualization that is interactive and can be read together with the ephemera.

The master project started with a big quantity of information, collected from a topic of interest which is the submarine war in the North Sea during WWII. Focussing on the sunken German submarines and the allied ships that these submarines sunk. The selected pieces of information provide the viewer with an opportunity to create an overview of the submarine war, while simultaneously having access to details of each ship. The reader will partake in skimmed and search reading in order to immerse themselves into the content. To provide this, navigation is needed. Creating a navigational system in relation to typography that interacts with the reader in order to guide them through the information and reveal the existing narrative that lays hidden within. Many different micro-, micro-macro and macro- typographic elements play a part in connecting the design together. All levels are discussed within the project and are taken into account. The same goes for the color of the paper used for the ephemera as well as the text itself, using multiple typographic elements to visualize the information. The grid system that is used moves alongside the type area, depending on the information that is presented. The text is outlined, creating a grid that consists of strict columns, so as much as the typography influences the grid, the grid influences the typography. And even though the grid is not visible, the viewer can still feel it through the use of the outlined typography. All these elements come together to create a set of pages that is thought out and invokes the attention of the reader in a way that the reader is able to comprehend the raw information, connect them together and reveal the hidden narrative that gets further stimulated through the interaction between the ephemera and the interactive map.

The map alongside the ephemera provides a more visual way of showing an overview, using limited amount of text. This being the coordinates of where the ships/U-boats were sunk, placing them in an order so that a timeline becomes visible as well. The map is the backbone of the navigational system. Providing different layers by which the information is shown on the map makes it easier to connect

R e s u l t



L. Laura Kreemers. Navigating information to create narratives by means of typography. Ephemera and map.

Index of the navigational system
used for my master project

	U-boat			name					
					Date	of		sinking	
	Where	she	was	sunk					
					Amount of people on board, amount of survivors/deaths.				
	HOW By	SHE who	WAS she	SUNK was sunk					
	TOTAL AMOUNT OF Total (tonnage)	AMOUNT OF amount of	SHIPS of the	SHE SUNK GRT ship(s)					
					Name of the commander NAME OF THE COMMANDER THAT SUCCESSFULLY SUNK ALLIED SHIPS Amount of time that the commander was in charge				

Ship name	Date of sinking	Where she was sunk	Amount of people on board, amount of survivors/deaths.	Route she was taking when she was attacked by a U-boat	U-boat that sunk her U-boat captain in charge of the command to sink her	N a t i o n a l i t y Type of ship Amount of GRT (tonnage)

Through applying this system on a design, there is an opportunity to provide the project with an expressive layer when dealing with raw information, which makes it more interesting and engaging for the user. While also having the opportunity to reveal a narrative within the information that connects it all together. This way of visualizing has the potential of keeping the viewers attention longer, as the design requires the reader to take on an active role and interact with the work. This is an added value for when a designer is dealing with information design and/or data visualization, because adding this layer provides more depth and can possibly enhance the comprehension of the information that is being shown. The data becomes more than just numbers, there is a narrative present within the information.

This method isn't only interesting for the topic about submarines during WWII, but can be used on multiple topics that have a lot of data and tend to be perceived as too complex.

Because the information that is shown is more selective than what you would find on the internet, it is not as in depth as it could potentially be, so for readers that truly want to delve into the topic this way of visualization would not suffice. It is also not as fast as an internet search, as it is shown on a printed representation and the reading comfort while looking at a screen was not taken into account. However it is more efficient and immersive than an informative book would be. The print adds to the narrative, the tactility makes it feel more real and the user has an easier time filtering through the pages than they would have had with a book. Even though it is not as in depth, for readers with no prior knowledge or interest in the topic, this visualization provides a great introduction. Showing the seriousness of the topic, providing enough information to give a correct overview while also having some details be present for gaining a possibly better understanding in case the reader does want to expand further upon the topic. All the while presented in an interactive, innovative, immersive and coherent way.

Possible further research could be for when there is more information present and trying to translate this into the navigational system used for my master project. Depending on the topic it might not be possible to translate it into the system and use certain parameters to determine the lay-out. So looking into how dynamic the created system truly is and perhaps how to expand upon it in case the information is too much for the system. As seen in my master project, the lay-out is determined by the amount of people on board and whether they survived or not. So further possibilities lay in expanding this system to work with multiple types of information and topics.

B i b l i o g r a p h y

B o o k s & I n t e r n e t s o u r c e s

1. ROOTS. Gerard Unger. April 1st 2021. Dutch Graphic Roots. <https://www.dutchgraphicroots.nl/?p=530>.

2. Academy Contributor. The importance of typography in communication through graphic design. December 13th 2019. Academy of Art University. <https://blog.academyart.edu/the-importance-of-typography-in-communicating-through-graphic-design/#:~:text=Typography%20is%20just%20another%20ways,%20School%20of%20Graphic%20Design>.

3. Naval Encyclopedia. The first online warship museum. 2010. <https://www.naval-encyclopedia.com/>.

4. Navigating design: Almost everything you need to know. Justinmind.com. Consulted on: May 2021. <https://www.justinmind.com/blog/navigation-design-almost-everything-you-need-to-know/#:~:text=Navigation%20design%20is%20the%20discipline,the%20least%20frustrating%20way%20possible>.

5. Janssen, Janneke. Periodical Issues 1. Book. <http://jannekejanssen.nl/gallery/issues-1/>.

6. Gerstner, Karl. Designing Programmes. 2019. Book, 18 × 25 cm. <https://www.lars-mueller-publishers.com/designing-programmes-0>.

7. What is Information Design and Why It Matters Now More Than Ever. Easel.ly. Consulted on: February 13th 2021. <https://www.easel.ly/blog/what-is-information-design/>

8. What Is Information Design and Why Is It Important? Visme.co. Consulted on: February 13th 2021. <https://visme.co/blog/information-design/>

9. Reading Techniques. Monash University Library. Consulted on: May 2021. <https://www.monash.edu/rlo/quick-study-guides/efficient-reading-strategies>

10. Letter Writing in WWII. Smithsonian. Consulted on: March 26th 2021. <https://postalmuseum.si.edu/exhibition/victory-mail/letter-writing-in-wwii>.
11. V-Mail. armyhistory.org. Consulted on: March 26th 2021. <https://armyhistory.org/vmail/>.
12. Ruder, Emil. *Typografie, A manual of Design*. Niggli Verlag, 2009.
13. Schwanenflugel, Paula J., Knapp, Nancy Flanagan. *The Psychology of Reading: Theory and Applications*. New York: Guilford Publications, 2015.
14. Lindsay, Peter H., Norman, David A. *Human Information Processing An Introduction to Psychology*. Cambridge, Massachusetts: Academic Press, 2013.
15. McTavish, Marianne. 'Constructing the Big Picture: A Working Class Family Supports Their Daughter's Pathways to Literacy'. *The Reading Teacher*, Vol. 60, No. 5 (Feb., 2007): pp. 476-485. International Literacy Association.
16. Bertin, Jacques. *Semiology of Graphics: Diagrams, Networks, Maps*. Esri Press, 2010.
17. Tschichold, Jan. *Opstellen over typografie*. Maastricht: Gerards&Scheurs, 1988.
18. Kupferschmid, Indra. *True Type of the Bauhaus. Fonts in use*. Consulted on: April 6th 2021. <https://fontsinuse.com/uses/5/typefaces-at-the-bauhaus>.
19. Fabian, Nicholas. *The Bauhaus designer Paul Renner*. Creative Pro. Consulted on: April 6th 2021. <https://creativepro.com/the-bauhaus-designer-paul-renner/>.

20. What are Grotesque Fonts? History, Inspiration and Examples. Creative market. Consulted on: May 2021. <https://creativemarket.com/blog/grotesque-fonts>

21. Font Designer – Rudolf Ruzicka. linotype.com. Consulted on: April 6th 2021. <https://www.linotype.com/756/rudolf-ruzicka.html>

22. Tufte, Edward R. *The visual Display of Quantitative Information*. Cheshire, Connecticut: Graphics Press, 2001.

23. McDonagh, Deana, Hekkert, Paul, van Erp, Jeroen, Gyi, Diane. *Design and Emotion*. CRC Press, 24 okt. 2003

24, 25, 27. Rosenberg, Daniel, Grafton, Anthony. *Cartographies of Time, A History of the Timeline*. New York: Princeton Architectural Press, 2012.

26. DeVet, Annelys. *Unmapping the world (Chaumont)*. Consulted on: November 2020. <https://static1.squarespace.com/static/5b954e5a25bf02e0c971b12c/t/5b983dd321c67ca6485d418f/1536703960569/UnmappingTheWorld--Briefing.pdf>.

27. Sipes, James L. 'The art of map making'. *Landscape Architecture Magazine*, Vol. 96, No. 8 (2006): 78, 80-87.

28. García, Paloma García. *Speculative Cartographies, Experiments in Mapping Strip-S Digital Workshop*. Consulted on: October 2020. <https://palomagarciagarcia.com/Pages/SPECULATIVE-CARTOGRAPHIES/SPECULATIVECARTOGRAPHIES.html>.

V i s u a l s o u r c e s

A. Nathan Miller. *War at Sea: A Naval History of World War II*. 1996. Book, 17.15 x 3.81 x 24.77 cm. <https://www.amazon.nl/War-Sea-Naval-History-World/dp/0684803801>.

B. Lothar-Günther Buchheim. *Das Boot*. 1999. Book, 13.34 x 3.49 x 20.32 cm. https://www.goodreads.com/book/show/299596.Das_Boot.

C. Hanna Piotrowska. *Hestia: Annual Report Network*. 2016. Book. <https://www.behance.net/gallery/55788467/ERGO-Hestia-Annual-Report-Network-Data-visualization>.

D. The top 10 types of data visualizations made simple. Boost Labs. Consulted on: October, 2020. <https://boostlabs.com/blog/10-types-of-data-visualization-tools/>.

E. Maria Bublik. *Cell Theory*. 2019. <https://www.behance.net/gallery/85089491/Cell-Theory>.

F. Mail Call: V-mail. The National WWII Museum. Consulted on: February 2021. <https://www.nationalww2museum.org/war/articles/mail-call-v-mail>.

G. Jerome Andre Martignoni. *Historical Map of Italy*. 1721. Map, 16 x 16 in. <https://www.amazon.com/-/es/Mapa-hist%C3%B3rico-Imperii-Martignoni-vintage/dp/B086DL69NZ>.

H. Joseph Priestley. *A Chart of Biography*. 1765. Map. https://en.wikipedia.org/wiki/A_Chart_of_Biography#/media/File:PriestleyChart.gif.

I. Joseph Priestley. *A New Chart of History*. 1769. Map. https://en.wikipedia.org/wiki/A_New_Chart_of_History#/media/File:A_New_Chart_of_History_color.jpg.

J. Chavannes. E. *Les Deux Plus Anciens Spécimens de la Cartographie Chinoise*. *Bulletin de l'école Française de l'Extrême Orient*. 1903. Carte B. <https://www.flickr.com/photos/13166455@N05/4632608820>.

K. Laura Kreemers. *Mapping the submarine war in the North Sea during the year 1940*. Map.

L. Laura Kreemers. Navigating information to create narratives by means of typography. Ephemera and map.

Visual and textual inspiration

a. Online Archive. Letterform Archive. Consulted on: February 2021. <https://oa.letterformarchive.org/>.

b. Cover Index. TM RSI SGM 1960-90, Research Archive. Consulted on: February 2021. <http://www.tm-research-archive.ch/>.

c. Swiss Psychotropic Gold. ISSUU. Consulted on: March 2021. https://issuu.com/christoph-merian-verlag/docs/leseprobe_20200218_swiss_psychotropic_gold_ahe.

d. Map of the submarine war WWII in the North Sea. Google.com. Created on: March 2021. <https://www.google.com/maps/d/u/0/edit?mid=1J0NPPguyLfQHsVwQD4zZJ66Zjt8v1AP-P&hl=nl&ll=55.42417797479303%2C-12.30126479822111&z=5>.

e. DeVet, Annelys. Unmapping the world (Chaumont). Consulted on: November 2020. <https://static1.squarespace.com/static/5b954e5a25bf02e0c971b12c/t/5b983dd321c67ca6485d418f/1536703960569/UnmappingTheWorld--Briefing.pdf>.

This publication has been made as a theoretical framework to support the practical design 'Navigating information to create narratives by means of typography'.

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