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"Observing the Maelstrom" is a design research and writing project that explores the topics of technology, society, and design. The material result of this project is a publication bearing the same name and a digital typeface called “Artisan”. The publication consists of texts in the form of short articles, interviews, quotes, and excerpts as well as images and illustrations from various sources.

In my writing, I aim to inform the reader about issues that face us in the digital realm and reflect on the effect they have on society. This is done by looking at the history of technology and how it relates to design while contemplating the effects of new media. The texts present critical perspectives on technology, society, and design. The topics explored in the texts include manipulative web design, biased algorithms, and commercial surveillance. The reader is encouraged to consider shoes, smartphones, faucets, lightbulbs, arrows, typewriters, books, wheels, and quantum computers as technologies that expand our abilities and shape our behavior.

Typography always reflects the dominant techniques and technologies of its time. In the publication, the relationship between technology and typography is examined with a particular focus on the typewriter era and the typographic history of IBM. The typeface Artisan was popular with users of the IBM Selectric typewriter but has since been mostly forgotten. For this project, I created a new digital version of Artisan. Therefore Artisan gains a second life as a digital typeface and its history is given a unique context in this publication.
2. Background/Thinking

2.1 The starting point

This project builds in part on the research I did for my graduating project from a bachelor’s in visual communication at Linnaeus University, which I completed in the spring semester of 2020, shortly before attending Konstfack. That project is titled “Log in or Sign up”. In that project, I was interested in commercial surveillance on the web and how the digital ecosystem affects our behavior and self-image as well as the role that design plays in constructing that environment. The end result of that project was an interactive e-book consisting of short stories and poems that revolve around digital surveillance and its effects on the self and society. [1]

With “Log in or Sign up” the focus was on the state of the web at the point in time when the project was created. The book specifically explored dark patterns and how experiences are designed on the web. In the project, I used graphic design and creative writing to give these experiences a context and to allow the reader to contemplate their relationship with technology.

When I began working on my master’s project at Konstfack my starting point was to explore other ways to create experiences where the reader could reflect on the effects technology has on our lives. I wanted to expand my practice which combines writing and graphic design and figure out how I could present my perspective and reflections in the best possible way.

There were a number of topics that I was interested in involving in my project. Early in the process, I categorized them as dark patterns, algorithmic bias, and commercial surveillance.

What they had in common was that they are “invisible” problems that exist in the digital realm. To me, it was both interesting and important to find a way to explain and visualize them. I wanted to involve them in the conversation when designers talk about their relationship with technology in the digital world we live in today. Another reason why I wanted to include those topics was that I believe that they are too often overlooked and very easy to ignore. My goal was to make the reader wonder about them and what effect they have.

2.2 Examining my practice

During the first semester, I was encouraged to examine my practice in order to better understand what the master’s project would become. Through discussions with my first-year tutors Jonas Williamsson and Parasto Backman I came to the conclusion that since social critique was a central theme in my practice, I should try to focus on how to sharpen my design so that it best delivers the ideas I’m putting forth.

To better understand that category of graphic design, that is, graphic design that delivers social critique, I started to research other designers that have done exactly that. I looked into both historic examples and contemporary ones.

I gained insights into my own practice from every designer, to whose practice I felt drawn. I studied and analyzed their work, as well as interviews and books about them. To name a few examples:

From Dutch graphic designer Jan Van Toorn (1932–2020) I learned about creating new narratives from existing images or stories.
His practice inspired me to question the role of the graphic designer. From American designer Sheila Levrant de Bretteville I realized how strong a small gesture or single reference can be. Her approach to community and collaboration also challenges the conventional graphic design practice. One can sense a strong sense of awareness and sensitivity in her work—something that inspired me and gave me clues for how to implement my values into my work.

The French graphic design collective Grapus, founded after the student movements of Paris in May 1968, inspired me to create my own symbolic vocabulary. It made me consider how photographs and images can be used to create a new radical meaning. Their vibrant visual language brought together culture and politics in a way that I found very inspiring.

2.3 Marshall McLuhan and Quentin Fiore

“The Medium Is the Massage: An Inventory of Effects” is a paperback book created by the philosopher and media theorist Marshall McLuhan and graphic designer Quentin Fiore. [2] It was published in 1967 and it presents McLuhan’s thesis “The medium is the message” from “Understanding Media” (1964) in a creative way. [3]

McLuhan’s writing style in the book is very concise and to the point. He makes a lot of comparisons and presents his philosophy in a way that reminds more of copywriting in advertising rather than a philosophical or academic text. His phrases and analysis are juxtaposed with images and quotes from many different directions.

This format of creating a collage out of both different texts and images was inspiring to me and changed how I wanted to present my writing. The way the language interacts with typography and how the content is brought to life with expressive typesetting gave me a lot of ideas for how I could handle the content in “Observing the Maelstrom”.

Various posters by Grapus
The Medium is the Massage
Marshall McLuhan
Quentin Fiore
Co-ordinated by Jerome Agel
"Now for the evidence," said the King, "and then the sentence."
"No!" said the Queen, "first the sentence, and then the evidence!"
"Nonsense!" cried Alice, so loudly that everybody jumped, "the idea of having the sentence first!

electric circuitry,
an extension of the central nervous system

disrupts change.
3. Work process/Making

3.1 Type design

I started to experiment with type design during the second semester of the first year. I learned how to use the font-editing program Glyphs. Some of the experiments I did were designs that made their relationship to technology apparent. All letter shapes are influenced by either the technology they are drawn or printed with: a pen, a brush, knife, chisel, lead, etc. Or the format or technology that they are presented on: printed on a paper, painted on a wooden sign, or displayed on a screen. In my opinion, the limitations of the typefaces are what make them interesting.

For one design I drew a grid, based on an analog screen I found and constructed an uppercase alphabet that could be displayed on that screen. This modular typeface found its character and voice in its technical limitations (See next page).

When I thought about which typefaces are associated with technology, the most obvious ones are monospaced typefaces. On one hand, slab serif monospace designs are associated with typewriters (See further on page 80 in Observing the Maelstrom, section 5). On the other hand, in a contemporary context, monospaced typefaces are associated with computer code and digital technologies. This is what sparked my interest in monospaced typefaces and resulted in me digitizing Artisan.

3.2 Writing

My approach to writing changed a lot during the course of this project. When I came to Konstfack I was very comfortable with academic writing. In the early phases of my project, I was trying to put the topics into context through the voice that I had found earlier in my own approach to academic writing. But as the format of the project kept evolving my approach to writing changed. The language I was using did not match the tone of the project. The writing gradually became less academic and more concise. Fewer references and more questions. Summaries instead of multiple examples. This was inspired by the aforementioned eclectic writing style of Marshall McLuhan in “The Medium is the Massage”.

As I experimented with new approaches to typography, that is, drawing my own typefaces, my approach to writing and language also changed. The voice I used in “Observing the Maelstrom” is more personal than the voice I used in academic writing. It does not claim any neutrality and neither does the typography. It felt like a very natural progression.

My new approach to writing also helped me with the struggle of being the editor, writer, designer, and type designer in the project. It resulted in the texts being more open-ended, leaving it up to the reader to make connections between topics. I no longer felt the need to explain something to the reader but rather a willingness to show them something or lead them through a journey.
Before I started working on a digitisation of Artisan I had a few different ideas for how I could design a typeface that makes its relationship to technology apparent. All lettershapes are influenced by either the technology they are drawn with: a pen, a brush, lead, knife, chisel etc. Or the format/technology that they are presented on: printed on a paper, painted on a wooden sign or displayed screen. In many cases the limitations of the typeface are what makes it interesting. I drew a grid, based on an analog screen I had seen and constructed an uppercase alphabet that could be displayed on that screen. This modular typeface found its character and voice in its technical limitations. In the same way, Artisan, a san-serif monospaced typeface makes the limitations of the typewriter apparent.
4. Method/Completing

4.1 Artisan

Because of my interest in monospaced typefaces, I began looking into the typographic history of IBM. When doing so I came across a sans-serif typewriter typeface called Artisan. What made it stand out from most other designs available for the IBM Selectric typewriters was that the letterforms followed the sans-serif logic in a strict way. This was and is rare for a monospaced design. That unusual aspect is what made me interested in the typeface. (See image on next page)

My initial idea was to make a typeface that mixed together elements of Artisan (1956) and the recent corporate typeface of IBM called “IBM Plex” (2020). IBM Plex has all the characteristics of a well-designed contemporary monospaced typeface. It is clearly designed for the screen and is the in-house font used for typesetting all code that is written by IBM employees today.

Once I had gotten quite far with making this hybrid typeface, which I was calling Artiplex at the time, I realized that it did not achieve what I had hoped. I had set out to make a typeface that would embody the typographic history of IBM by mixing a typewriter monodesign together with the current monospaced typeface designed for reading code on a screen. What I had made instead was a typeface with its own characteristics and logic. So I abandoned the design. A few weeks later I came back to Artisan and started working on a digital typeface based only on Artisan. (See comparison on next page)

4.2 IBM

As my research became more situated in the 1960s and early ’70s with the IBM typewriters and the McLuhan and Fiore paperback novels I started to realize how powerful it was to bring stories and events from the past into this project that was in its initial stages focused solely on contemporary digital issues.

I started to write texts that could be described as micro-histories linked with the arrivals of new technologies and their impact on society. This happened to go well with my earlier writing and the philosophy of McLuhan. As I started to add more material it became apparent which texts would become a part of the publication and which texts would not fit into the theme. The editing process felt intuitive and natural to me, although I recognize that it was a result of many factors.
When I was researching the typographic history of IBM I came across a beautiful sans-serif typewriter typeface called Artisan. What made it stand out from most other designs available for the IBM selectric typewriters was that the letterforms followed the sans-serif logic in a strict way. This was and is very rare for a mono-spaced design. Perhaps it is the reason why Artisan is one of the IBM typefaces that is forgotten, while serif-designs such as Courier have lived on.

My first idea was to make a typeface that mixed together elements of Artisan (1954) and the brand new corporate typeface of IBM – IBM Plex (2020). IBM Plex has all the characteristics of a well executed contemporary mono design. Slab-serifs on the narrow letters, ink-traps and many optical adjustments. However, once I had gotten quite far with making this hybrid typeface, which I was calling Artiplex at the time, I realized that it did not achieve what I had hoped. I had set out to make a typeface that would embody the typographic history of IBM by mixing a typewriter mono-design together with the current mono-typeface designed for reading code on a screen. What I had made instead was a typeface with its own characteristics and logic. So I abandoned the design and started working on a digital typeface based only on Artisan.
“Observing the Maelstrom” became a unique publication that might be hard to place in a specific genre of books. But it does follow the format of a paperback anthology. Some would perhaps classify it as a type specimen that takes the curation of the texts and the concept of the typeface to an extreme. I find it interesting that the book exists somewhere between those two. That is somewhere between an anthology and a type specimen.

The design of the book is minimalistic at times and follows a strict logic. Its layout relies on typographic conventions. Most design decisions were made with readability in mind and with the idea that the typeface would be presented in the best possible way. The book does not immediately communicate what it is about. The cover is an abstract image and the title is a reference to McLuhan. The norm challenging aspects of the book come through when one engages with the material and one is asked to consider norms and standards in relation to technology and design.

My hope is that the publication contributes something to the conversation of my profession. I want graphic designers who read the publication to consider their contemporary tools from a larger perspective. Apart from graphic designers, I hope that any reader interested in the topics and ideas put forth in the book can consider the effects of technology and gain some new perspectives.
Observing the Maelstrom is a publication that presents critical perspectives on technology, society, and design. It explores topics such as manipulative web design, biased algorithms, and commercial surveillance, by looking at the history of technology and the social impact of new media. The concept of technology is stretched and questioned. The texts consider shoes, smartphones, faucets, lightbulbs, arrows, typewriters, books, wheels, and quantum computers as technologies that expand our abilities and shape our behavior.

Typography always reflects the dominant techniques and technologies of its time. In the publication, the relationship between technology and typography is examined with a particular focus on the typewriter era and the typographic history of IBM. The typeface Artisan was popular with users of the IBM Selectric typewriter but has since been mostly forgotten. For the project, the author created a new digital version of Artisan. Therefore Artisan gains a second life as a digital typeface and its history is given a unique context in this publication.
Observing the Maelstrom
Emil Gunnarsson
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"Technology is the art of never having to experience the world."

Max Frisch, 1959
Noticing Technology

Have you ever turned on the faucet in your home only to be surprised by the fact that no water comes from the faucet? At that moment you are reminded of the fact that there is a system in place that supplies you with water. You think about the faucet, not just as a source of water, but as a piece of technology. A technology that you are so dependent on and so used to that it has long ago rendered itself invisible to you. The same can be said about any technology that you use on a daily basis, be it something as advanced as the smartphone, or something as simple as the lightbulb. All new technology that enters your daily life becomes invisible to some extent. When a piece of technology makes itself more noticeable or visible by not working or doing something unexpected your perspective changes, momentarily, and you can reflect on it. When you open the Instagram app on your phone and you are met with an error message, it’s the same feeling as not getting water from the faucet. At that moment, there is space for a reflection.
“We live invested in an electric information environment that is quite as imperceptible to us as water is to fish.”

Marshall McLuhan
1884
The German-American inventor Herman Hollerith, files a patent for an electromechanical tabulating machine. This machine could read and summarize data stored on punched cards. The invention brought about the era of mechanized binary code and semiautomatic data processing systems. It set the standard for tabulating and computing data for the next 80 years.

1885
Julius E. Pitrap patents the computing scale. Pitrap’s patents are soon purchased by businessmen who form The Computing Scale Company.

1888
Dr. Alexander Dey invented the first dial recorder to track the hours worked by employees.

1889
Harlow E. Bundy and his brother Willard L. Bundy incorporated the Bundy Manufacturing Company in Binghamton, New York. It is the first time recording company in the world to produce time clocks.

1911
On June 16th Charles Ranlett Flint forms Computing-Tabulating-Recording Company (CTR) based in Endicott, New York by merging the companies owned by the Bundy brothers, Julius E. Pitrap, Herman Hollerith, and Dr. Alexander Dey.

1914
Thomas J. Watson (1874–1956) joined the company in 1914 as General Manager and a year later became president of the company.

1924
The Computing-Tabulating-Recording Company changes its name to International Business Machines.
McLuhan in the Maelstrom

“The medium is the message” was Marshall McLuhan’s way of saying that the way in which we communicate, that is through what medium, will dictate what we communicate. He believed that because we get used to the medium we stop noticing it and therefore we need to be reminded of its importance. We can only focus on the content or the “message”. Yet the message cannot exist without the medium.

According to McLuhan, all technologies are extensions of the body. The wheel, an extension of the legs, the book, an extension of the eyes, and clothes an extension of the skin... Most notably however he claimed that all new media or electronic media are extensions of the central nervous system. The reason why the media shape us is that we repeatedly use them until they become part of us. He declared that we become so immersed in the media that they become our environment. And as the media become extensions of us and remove us from the old environments, they numb our bodies and our minds. He claimed that every extension was at the same time an amputation.

In Edgar Allen Poe’s short story “A Descent into the Maelstrom” a fisherman recounts a near-death experience when his ship was caught in a whirlpool. While in the middle of the vortex, the narrator has a moment of clarity and starts to analyze the workings of the whirlpool. He notices that some objects sink to the bottom of the vortex, while others are catapulted to the top. He manages to save himself by latching onto an object which eventually is shot out of the whirlpool. McLuhan often used Poe’s short story as an analogy for his own methods of understanding media and technology. He saw mass media as a giant overwhelming maelstrom. The only option is to become a maelstrom observer, like the fisherman in the story, who looks for patterns and figures out how to save himself.

Maelstrom

Oxford dictionary definition:

A very strong current of water that moves in circles

(literary) A situation full of strong emotions or confusing events, that is hard to control and makes you feel frightened

Example 1. A maelstrom of conflicting emotions

Example 2. They were being sucked into the maelstrom of war.
The book is an extension of...

...The eye
As I felt the sickening sweep of the descent, I had instinctively tightened my hold upon the barrel, and closed my eyes. For some seconds I dared not open them—while I expected instant destruction, and wondered that I was not already in my death-struggles with the water. But moment after moment elapsed. I still lived. The sense of falling had ceased; and the motion of the vessel seemed much as it had been before, while in the belt of foam, with the exception that she now lay more along. I took courage, and looked once again upon the scene.

Never shall I forget the sensations of awe, horror, and admiration with which I gazed about me. The boat appeared to be hanging, as if by magic, midway down, upon the interior surface of a funnel vast in circumference, prodigious in depth, and whose perfectly smooth sides might have been mistaken for ebony, but for the bewildering rapidity with which they spun around, and for the gleaming and ghastly radiance they shot forth, as the rays of the full moon, from that circular rift amid the clouds which I have already described, streamed in a flood of golden glory along the black walls, and far away down into the inmost recesses of the abyss.
“Once we have surrendered our senses and nervous systems to the private manipulation of those who would try to benefit from taking a lease on our eyes and ears and nerves, we don’t really have any rights left.”

Marshall McLuhan, Understanding Media (1964)
The design of a website or an app largely decides how we interact with it. We navigate the platforms based on intuition. We are guided by the placement of the buttons, their size, and the saturation of the colors. We skim-read texts and the font sizes tell us which sections are important and which we can ignore.

In e-commerce, the phrasing, timing, and answer options are often used to make the consumer spend more money. The privacy options of social media accounts are buried so far that we can not be bothered to configure them. Creating an account is always a simple process, but trying to delete it can be complicated. Signing up for a free trial can mean entering a maze where you stumble around for an extended period of time trying to find a way to cancel your unwanted subscription. When a consent notice pops up we immediately opt for the 1 click option that allows all tracking so that we can continue reading the article. The other option would be struggling to adjust our preferences to stop tracking every time we enter a new website. These deceptive user experiences we face on the internet that benefit the companies over the user are commonly called Dark Patterns. The term was coined by user experience expert Harry Brignull in 2010 and has since been used to call out services that utilize them. The “darkness” in the phrase refers to the fact that the choices that the user is pushed toward are often to their detriment. It is the deception that is wrong. There is a difference between being blindly tricked into doing something and being nudged towards a certain decision. But when our digital experiences are so marked by nudging, where does that leave us? How do we conduct lives that become more and more dependent on digital platforms that always put their interest first?
Design & Manipulation

Emil Gunnarsson in conversation with Harry Brignull

Harry Brignull is the UX specialist who coined the term “Dark Patterns” in 2010. He launched the website Darkpatterns.org where he collects examples of deceptive user experiences. Brignull has provided expert witness services on the subject and his work is frequently cited in reputable news sources, academic work, and reports.

In May of 2021, we discussed dark patterns and how to regulate them. We also spoke about what their presence on the web means for those who experience it and those who design it.

EG I wonder how much hope one should put on legislation, what do you think?

HB I think well-written rules can make some of these things very explicit. It’s also good to have vague rules or principles. For example, you need to be given a specific opt-in and opt-out. I would have a rule like that, where there’s no default but the user has to say either yes or no to a question that is clearly worded.

If it was specified it could help a lot of organizations make the right decision. As soon as there is any ambiguity in these laws, they will look for precedents in other companies. That’s how a lot of decisions get made.

It’s very easy to manipulate people to go and click a button. You can use trick wording, you can use any principle of good design, on which there are millions of books written, you can revert those principles and use them for Machiavellian purposes. You can use it for your own benefit and to the detriment of the user. It can lead to an outcome of consumer harm. When it comes to privacy it is about actual harm. One issue is that it can be quite hard to put a price value on the harm. Having a user not understand what is about to happen and then having their personal data broadcast from one company and over to another is an outcome of harm and has resulted in fines for companies that have done that sort of thing.

EG How do you think the UX community responds to this perspective?

HB Design is done by lots of different types of people. Those who work in growth or marketing are much more likely to align with business needs because they’re being paid to get more people to do x and y. People who work in growth teams might see a list of dark patterns as a list of techniques to try. They might see them as a way to meet business goals that they are given and might not question the ethics of it so much.

They might think of it all in euphemisms: “of course, people are going to want to subscribe to this”. “we’re helping you to subscribe by making you select the annual subscription”. You can imagine that people have mental gymnastics to justify these things.

Historically the UX community is very aligned with users and less with the business objectives. The user-centered design has an ISO standard called human-centered design systems. It’s all about understanding the user at every step of the way. It’s a cycle, you always interview users and get feedback. That whole approach has proven to be very successful in civic-centered design, like designing government services websites. Governments have to provide products and services to the whole of their citizenship. They can not ignore edge cases. They have to make sure that, no
matter who you are and what situation you are in, you have to be able to use their services. So user-centered design has a niche but historically was much less aligned with business goals than other designers from other backgrounds.

EG  I’m interested in the specifics of certain kinds of user experience design. I found out when I was looking into consent notices that most of them are made by the same companies and that there are three big consent management platforms.

HB  I know what you’re talking about, like OneTrust. They are configurable though, so someone within the business will configure them. They decide what the labels show and how the menu is configured. And then you can wonder if those designers even gave it a second thought or did any research.

I believe there are some kinds of regulations that require companies to show that they have made an effort to do something. They give them a principle and then tell them that they need to have an officer whose job it is to oversee this and to prove that they are doing their very best to do service for the user. In finance that is a normal way to go about regulations. Because the finance world makes so much money that they need that stuff to keep them in check. They need to prove that they’re treating their customers fairly or that they’re making every effort to. And those kinds of regulations work because they cover new forms of deception that haven’t been thought of yet.

As soon as you make a specific rule, for example: “When people are asked about cookies: make sure that the buttons are equal.” Those kinds of regulations are good too. They are very specific though, which means that they are all about solving today’s problems but a new one might come up tomorrow. It’s kind of like whack-a-mole. You hit one down and another one comes up. So I would think that you need both kinds of rules.

Of course, the flip side of regulation is over-regulation. It’s like the regulatory system in our body that’s always trying to keep the temperature correct. You don’t want to get too hot or too cold. If you have an infection your body can overreact and it’s the over-reaction that can kill you. I think the same thing can happen in regulatory systems for businesses. Where if you over-regulate, you kill the industry. Or you can favor large companies because they are the only ones that can afford to hire the lawyers and keep up. Designing regulations is an interesting and difficult challenge. And I think it’s not surprising that the results are often disappointing. Because it involves a complex ecosystem of things. It’s quite hard to foresee the consequences of things.

EG  One thing that I find obvious about dark patterns is that they rely a lot on phrasing or words. If we are thinking about the design of them, it’s very much in how they are written and how they are presented. But if we think about them only visually, let’s say that regulation about the wording becomes very specific as we have talked about, giving an explicit choice, it’s a yes or a no. And you understand the premises on which you are agreeing to the collection of cookies or what personal information you are giving up when you’re signing up for a service. Do you think that only visual tricks, placement of buttons and colors, and the pace of pop-ups, do you think that dark patterns could only be that?

HB  There’s a range of different tricks you can use. If you regulate one, in particular, people will find a way around it because there is a financial incentive to do so. If you are good at regulating words then they will find a way to comply with that rule while deceiving people in another way through the visual arrangement of the page or a sequence of pages, through other tricks and techniques. I would compare it to a well-trained stage magician who will find some way to show a certain trick to you, regardless of the situation or what props they have in their hands, they will be able to deceive you. It’s the same with design.
List of Dark Patterns

The best way to avoid falling for dark patterns is to be familiar with the most common types. Since they rely on cognitive bias, understanding the trick makes them less effective.

Disguised ads
Adverts that are disguised as other kinds of content or navigation, in order to get you to click on them.

Sneak into basket
You attempt to purchase something, but somewhere in the purchasing journey the site sneaks an additional item into your basket, often through the use of an opt-out radio button or checkbox on a prior page.

Roach motel
You get into a situation very easily, but then you find it is hard to get out of it (e.g. a premium subscription).

Privacy zuckering
You are tricked into publicly sharing more information about yourself than you really intended to. Named after Facebook CEO Mark Zuckerberg.

Misdirection
The design purposefully focuses your attention on one thing in order to distract your attention from another.

Trick questions
While filling in a form you respond to a question that tricks you into giving an answer you didn’t intend. When glanced upon quickly the question appears to ask one thing, but when read carefully it asks another thing entirely.

Bait and switch
You set out to do one thing, but a different, undesirable thing happens instead.

Confirmshaming
The act of guilting the user into opting into something. The option to decline is worded in such a way as to shame the user into compliance.

Forced continuity
When your free trial with a service comes to an end and your credit card silently starts getting charged without any warning. In some cases this is made even worse by making it difficult to cancel the membership.

Hidden costs
You get to the last step of the checkout process, only to discover some unexpected charges have appeared, e.g. delivery charges, tax, etc.

Friend spam
The product asks for your email or social media permissions under the pretence it will be used for a desirable outcome (e.g. finding friends), but then spams all your contacts in a message that claims to be from you.

Price comparison prevention
The retailer makes it hard for you to compare the price of an item with another item, so you cannot make an informed decision.

This list is from www.darkpatterns.org
“Algorithmic Bias, like human bias, results in unfairness. However, algorithms, like viruses, can spread bias on a massive scale.”

Joy Buolamwini

“That new tools are coded in old biases is surprising only if we equate technological innovation with social progress.”

Ruha Benjamin

In 1884 George Eastman filed a patent for the first film in roll form. In 1888 he created the Kodak camera. With his invention, Eastman had made photography available to the masses with an affordable camera that could be carried around. The first Kodak camera came pre-loaded with film for 100 exposures. For decades the Kodak company was at the forefront of producing and selling cameras as well as developing the photos. As demand for photo processing and printing increased photo labs became more common. Kodak supplied many of these photo labs with Kodak printers. These printers needed to be calibrated and standardized. In the 1950s Kodak created a color reference card for their printers called a “Shirley Card”. The card included a photo of Kodak employee Shirley Page as well as color swatches. Because the Shirley Cards depicted a white woman, photographs of people with darker skin did not print well. Kodak did not introduce a multiracial Shirley card until the 1980s.

Today we are so surrounded by cameras that we barely notice them. Many smartphone owners use a camera every day to unlock their phones using facial recognition technology. The same technology is used by police forces around the world to identify people in public spaces. This technology has proven to be plagued by the same bias as the Shirley Cards. The facial recognition technology is mostly trained on white faces, which has led to unlawful arrests of wrongfully identified people of color.

Generally, we think of the algorithms that decide the results we get from search engines, what content we see on social media, and which ads we get. We might wonder what effect that has on us and the ways in which the algorithms categorize us based on how we behave and the profile they assign us to. But today algorithms are used in all sectors of society. Artificial intelligence increasingly
informs decisions on who gets a loan, who gets an apartment, or what kind of medical treatment someone gets. Yet it is clear that these systems are in many cases just as biased as humans. They are trained on data that inherit the bias of the humans that collect or create the data.

In her book "Algorithms of Oppression", Safiya Umoja Noble describes the discrimination that minorities face in the hands of algorithms as "technological redlining". Redlining is a term more synonymous with real estate and banking, where the practice of making minorities, especially from low-income neighborhoods, pay higher interests or premiums because of their race.

Cathy O'Neil, author of "Weapons of Math Destruction" outlines the problem and the solution clearly in the aforementioned 2016 book:

"Big Data processes codify the past. They do not invent the future. Doing that requires moral imagination, and that's something only humans can provide. We have to explicitly embed better values into our algorithms, creating Big Data models that follow our ethical lead. Sometimes that will mean putting fairness ahead of profit."

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1988
Eastman Kodak Company acquired IBM's copier service businesses in the United States and 16 other countries.

2004
Eastman Kodak, the world's largest photography company partners with IBM to make image sensors for digital cameras and camera phones.
Resistance is Futile:  
The Myth of Tech Inevitability  
by L. M. Sacasas

The relationship between technology and narrative is long-standing. Indeed, some have argued that it is at the heart of human civilization.

It was once fashionable to characterize human beings as tool-using animals (although this turns out not to be the best way of getting at whatever might be distinctly human). It has also been suggested that we understand human beings as story-telling animals.

Technology theorist N. Katherine Hayles has implicitly argued for a synthesis of these two positions by framing narratives as a technology for making meaning.

Hayles argued that “the primary purpose of narrative is to search for meaning, thus making narrative an essential technology for human beings, who,” she claims, “can arguably be defined as meaning-seeking animals.”

Historian of technology David E. Nye has also linked narrative and technology in a slightly different, but likewise intriguing manner:

“Composing a narrative and using a tool are not identical processes, but they have affinities,” Nye observed.

“Each requires the imagination of altered circumstances, and in each case beings must see themselves to be living in time. Making a tool immediately implies a succession of events in which one exercises some control over outcomes. Either to tell a story or to make a tool is to adopt an imaginary position outside immediate sensory experience. In each case, one imagines how present circumstances might be made different.”

“To link technology and narrative,” he adds, “does not yoke two disparate subjects; rather, it recalls an ancient relationship.” What’s more: “A tool always implies at least one small story. There is a situation; something needs doing.”

Nye argued that tools and narratives emerged symbiotically, as byproducts of a capacity to imagine what was not temporally encased in the present. He argued, too, that human culture depended on their emergence. In other words, tool making and storytelling are deeply related and integral to the human experience as we know it.

Not surprisingly, we use technology to tell stories, themselves a kind of tool as Hayles suggested, and we tell stories to sustain and direct our use of technology. To better understand our relationship to technology, then, it is certainly worth examining the stories we tell about our tools. Some of these narratives are of the grand variety: stories, for example, that aim to explain the underlying dynamics driving human history or the ostensibly distinctive features of a national culture. The Enlightenment myth of progress, comes to mind, or the myth of American ingenuity. Some narratives frame a particular class of technology, such as the mythos that surrounds the automobile in American culture. Then there are the more modest micro-narratives, which we weave around our own personal devices and tools. These stories order our relationship to technology as individuals and as a society.

Over the past several years, I’ve been especially interested in the role played by narratives of inevitability, that is to say, narratives that frame technological development as a deterministic process to which human beings have no choice but to adapt. I’ve sometimes called this the rhetoric of technological determinism.
Several years ago I also coined a phrase that now strikes me as being rather less clever than then I imagined. With a nod to the Star Trek franchise, I began writing about those who deployed narratives of inevitability as suffering from a Borg Complex. I’m not especially well-versed in Star Trek lore, but it seemed to me that the Borg meme was popular enough to work as a catchy label for the rhetoric of technological determinism. You’ll remember that in the Star Trek universe the Borg are a hostile cybernetic alien race that announces to their victims some variation of the following: “We will add your biological and technological distinctiveness to our own. Resistance is futile.”

Resistance is futile. This seemed like a perfectly apt way to sum up the essence of the rhetoric of inevitability that was such a common feature of tech discourse.

I’ll give you a few of the examples that initially captured my attention.

Here is the notable American tech enthusiast, Kevin Kelly, on the question of automation a few years back:

“It may be hard to believe, but before the end of this century, 70 percent of today’s occupations will […] be replaced by automation. Yes, dear reader, even you will have your job taken away by machines. In other words, robot replacement is just a matter of time.”

Kelly, incidentally, is probably a poster boy, if a rather amiable one, for the rhetoric of technological determinism. He wrote a book about tech trends actually titled The Inevitable.

Writing about ed tech in 2012, Nathan Harden claimed, “In fifty years, if not much sooner, half of the roughly 4,500 colleges and universities now operating in the United States will have ceased to exist. The technology driving this change is already at work, and nothing can stop it.”

A moment’s reflection will, of course, reveal that the trends Kelly and Harden claim to be merely announcing as inevitable outcomes are not merely matters of technical development and innovation. They are also functions of economic policies, legal structures, political power, and shifting cultural values.

Interestingly, around the time that I was first collecting examples of these stories of inevitability, Google was pushing its first iteration of Google Glass. Initially, it was widely touted as a transformative new technology. Gradually, however, it became clear that however many stories of inevitable adoption were told, Glass was not going to catch on.

At the time, the CEO of Evernote, Phil Libin, made the following claim in an interview with HuffPost:

“I’ve used [Google Glass] a little bit myself and—I’m making a firm prediction—in as little as three years from now I am not going to be looking out at the world with glasses that don’t have augmented information on them. It’s going to seem barbaric to not have that stuff.”

This firm prediction has not, as they say, aged well.

Glass is but one relatively recent and prominent example of tech touted as inevitable, which was anything but. As it happens, though, we tend to forget these examples. As historian Thomas Misa has written,

“We lack a full picture of the technological alternatives that once existed as well as knowledge and understanding of the decision-making processes that winnowed them down. We see only the results and assume, understandably but in error, that there was no other path to the present. Yet it is a truism that the victors write the history, in technology as in war, and the technological ‘paths not taken’ are often suppressed or ignored.”
Naturally, most of the examples I’ve collected over the years come out of my own US context, but narratives of inevitability are widespread. I’ll note, for the UK audience, one example from a 2017 report prepared by a Conservative MP presenting the case for a tech friendly government policy. “It is impossible to resist the rise of the machines,” the report concludes, “so we must let them lift us towards a Global Britain that uses the Fourth Industrial Revolution as a springboard to a more productive, outward-looking economy.”

You may have already noticed the prevalence of this rhetoric of inevitability. In more recent years, it’s often framed public debates about autonomous vehicles and surveillance technologies.

It’s worth noting, that narratives of inevitability come in all manner of temperamental variations, ranging from the cheery to the embittered. There is also variation regarding the envisioned future, which ranges from utopian to dystopian. And there are different degrees of zeal as well, ranging from resignation to militancy. Basically, this means that the rhetoric of inevitability may manifest itself in someone who thinks resistance is futile and is pissed about it, indifferently resigned to it, evangelistically thrilled by it, or some other combination of these options.

The sources of these narratives also vary. They may stem from a philosophical commitment to technological determinism, the idea that technology drives history. This philosophical commitment to technological determinism may also at times be mingled with a quasi-religious faith in the envisioned techno-utopian future. The quasi-religious form can be particularly pernicious since it understands resistance to be heretical and immoral. Painting with a decidedly broad brush, the Enlightenment, in this reading, did not, as it turns out, vanquish Religion, driving it far from the pure realms of Science and Technology. In fact, to the degree that the radical Enlightenment’s assault on religious faith was successful, it empowered the religion of technology. To put this another way, the notions of Providence, the Kingdom of God, and Grace were transmuted into Progress, Utopia, and Technology respectively. If the Kingdom of God had been understood as a transcendent goal achieved with the aid of divine grace within the context of the providentially ordered unfolding of human history, it became a Utopian vision, a heaven on earth, achieved by the ministrations Science and Technology within the context of Progress, an inexorable force driving history toward its Utopian consummation. It’s worth noting that stories of technological inevitability tend to flourish in contexts were the cultural ground has been prepared by linear and teleological understandings of history.

Of course, narratives of inevitability most often arise from a far more banal source: self-interest, usually of the crassly commercial variety. All assertions of inevitability have agendas, and narratives of technological inevitability provide convenient cover for tech companies to secure their desired ends, minimize resistance, and convince consumers that they are buying into a necessary, if not necessarily desirable future.

Recently, Margaret Heffernan succinctly summed up the underlying message of Big Tech’s rhetoric of inevitability in a personal and eloquent reflection on the theme: “The future might not have happened yet, but it was already decided.” “The goal,” as she put it, “isn’t participation, but submission.”

Once again resistance is futile. One either gets on board or gets left behind.

Narratives of inevitability have the effect of foreclosing thought and deliberation. If outcomes are inevitable, then there’s nothing to do but assimilate to this pre-determined future, to go along for the ride prepared for us whatever the consequences. As Lauren Collee has recently put it, “Techno-determinist futures […] are
used to habituate us to the present." And, specifically, to the present designs of tech companies.

The truth, of course, is more complicated. As historians of technology have demonstrated, historical contingencies abound and there are always choices to be made. The appearance of inevitability is a trick played by our tendency to make a neat story out of the past and project it onto the future. And this tendency is one that tech companies are clearly prepared to exploit.

So, to sum up, beware narratives of technological inevitability. Resistance, if it be necessary, is not necessarily futile, and, as Heffernan reminds us, "Anyone claiming to know the future is just trying to own it."

There is absolutely no inevitability as long as there is a willingness to contemplate what is happening.

Quote on the right: Marshall McLuhan and Quentin Fiore, The Medium is the Massage (1967)
1884
The German-American inventor Herman Hollerith, files a patent for an electromechanical tabulating machine. This machine could read and summarize data stored on punched cards. The invention brought about the era of mechanized binary code and semiautomatic data processing systems. It set the standard for tabulating and computing data for the next 80 years.

1944
The first fully functioning computer, based on electromechanical switches is invented by IBM in partnership with Harvard University. It is called the Automatic Sequence Controlled Calculator.

1956
The RAMAC machines are invented. They are the first to use magnetic data storage in the form of a series of spinning magnetic discs. The same method would become the dominant model for data storage until the 2010s.

1971
IBM introduced the floppy disk. The portable data storage option becomes an industry standard.

1981
The IBM Personal Computer is launched. It is IBM’s first desktop computer aimed at consumers.
Excerpt from:
An Interview with Shoshana Zuboff
By Noah Kulwin


NK There’s data and information collected about people that is used specifically to inform the particular products that are served back to them, but there’s this other data, what you’ve termed behavioral surplus, that’s information that doesn’t have an immediate use but is itself a kind of control and power that these organizations possess that gives them an advantage over other companies. Why is behavioral surplus something that’s so critical in surveillance capitalism?

SZ The idea here is that what is being produced are predictions, predictions of future human behavior that are then sold to markets of business customers who have an interest in what people will do now, soon, and later. So that’s the sequence, the mechanisms of surveillance capitalism. When I say claiming private human experience and then translating it into behavioral data, I’m talking specifically about aspects of private human experience that aren’t what is required for product and service improvement. So, for example, in the world of search, where these mechanisms were first discovered and invented, it was clear that people were searching and people were browsing and you could use the data to improve the search engine, and create ancillary services like translation. But there was collateral data that was also produced in these processes that was not behavior that people understood they were sharing. It was an offshoot of their search experience, of their search activity, but not something they knew they were sharing. In the same way for example that you might do a post on Facebook to meet your friends and family for dinner, and what becomes interesting from the data point of view is whether you say, “I’ll meet you later” or whether you say, “I’ll meet you at 6:45.”

So the point is that there’s a meta level of these data that have tremendous predictive value that you don’t know you’re communicating when you are posting or when you’re searching or when you’re browsing or all of these things, and that’s data that is more than was needed for product and service improvement. These extra data initially, at the beginning of all of this, were lying around, unused, considered data exhaust, waste material. Eventually it was discovered that they had significant predictive value and that’s what was used to create the kind of prediction products of where people would click that became the basis for these new online advertising markets. So the idea here is that there is behavioral data that companies are collecting about us, that are being used to improve what they give us, but there is much more behavioral information that we are communicating that we don’t know. And this is the surplus that they then take for its predictive value, stream it through their production processes to create these prediction products, and all of this is happening without our permission, without our knowledge. It’s happening in a way that is designed to bypass our awareness, it’s happening in a way that is engineered to keep us ignorant.

This is what I call the shadow text. It’s what they can lift from these behavioral flows that gives them tremendous predictive power, and it’s different from what we knew that we were giving them. Which is why today under some of the new regulations, for example GDPR, it says, well, you can go to a company and you can ask them for the data they have on you. But when you go to a company and ask them for the data they have on you,
what you’re really talking about is the data that you’ve already
given them. But the important data they have on you is this
metadata, this stuff that they’ve been able to pull from your
data that you don’t even know about. Like if you use exclamation
points or if you said 6:45 or later, if you use bullet points instead
of just a general paragraph. And a million other things. So it’s this
surplus that is more than what is needed for products and service
improvement that became critical to the fabrication of these
prediction products and laid the basis for this new work.

NK Just to pick an isolated strand of that data, how does
whether or not I prefer to use periods or ellipses or semicolons
become something that has predictive power that’s valuable?

SZ So, there’s something called the five-factor personality
model where you can pick behavioral cues from online material
and you analyze it through this five factor personality model
and come out with very specific personality assessments. Like,
this is at the root of the Cambridge Analytica work. You can take
behavioral data, you can run it through that model and make very
fine-grain predictions. Like they can tell for example, you know,
if you’re gay, or if you’re likely to vote alt-right, or if you’re
likely to be a political malcontent. It’s correlated with all kinds
of other behavioral predictions. So, for example they can take
all the people who use ellipses, and they can cross correlate
that with your outcomes on these personality profiles, and in
doing that, they can see that, you know, people who tend to use
ellipses are people who have uncertainty or don’t like to finish
things. These are huge databases that correlate all these different
tiny little signals. Many of them organized by the five factor
personality model and then there are other models built on the
five factor personality — like IBM’s got 12 factors, and somebody
else has 16 factors. There are these immense correlations that
are running all the time, so somebody who uses bullet points you
know, they correlate that with greater tendency toward precision.

2015
IBM and Facebook team up to make highly targeted advertising by
combining data from Facebook users and IBM’s tools and services
for retailers.
For thousands of years, Native Americans populated The Susquehanna River Valley which lies in the Appalachian Mountain Chain. The land surrounding the river was particularly fertile. Today we can find remnants of their culture all around that area. Old weapons, tools, and technologies of people that lived and thrived in peace with nature.

The town of Union, in the state of New York, was founded in 1791. It is situated along the Susquehanna River and was a market town that served farms in the surrounding area. At the time of its foundation, there were approximately 600 pioneer residents living there. During the American Revolution soldiers were sent to attack natives who were friendly to the British. There are documented attacks in present-day Binghamton, Vestal, and Choconut Township, Pennsylvania, indicating that many natives were killed in these attacks in 1779. Eventually, most natives were forced to move away from the area.

The village of Endicott is situated on the north bank of the Susquehanna River in the western part of Union. It started out as a company town and was constructed by the shoe company Endicott Johnson Corporation, which was founded in 1899. The town was named after one of the founders of the company, Henry B. Endicott. Under the direction of George F. Johnson the company prospered. This can be attributed to his early adoption of a new machine that could stitch together the upper part of the shoe to the sole. For the first time in history, unskilled laborers could manufacture shoes, thanks to this new technology. Prior to this invention, all shoes were made by skilled cobblers. Second-hand shoes were commonly resold to those who could not afford new shoes. Cobblers would replace the soles as they wore out. At the time shoes were often used until the upper portion fell apart.
Massive numbers of immigrants, mostly from southern and eastern Europe, moved to Endicott to work for the shoe manufacturer. The company maintained recruiting sites in the Balkans and Italy at the beginning of the 20th century. In the 1920s the company employed about 20,000 workers. The company’s production plant covered Endicott in red-brick factory building. For a period of time, during the Depression of the 1930s, the company was hurt financially. However, since shoes were a necessity they still fared better than many other manufacturers. Shortly thereafter, orders for military shoes during the second world war set the wheels back in motion.

By the end of the war, the company had become the largest shoe manufacturer in the world. Endicott grew substantially in a short matter of time and became known as a “boomtown”. The town subsequently acquired its nickname “The Magic City”.

In 1888 Willard Le Grand Bundy, a jeweler in Auburn, New York invented a time-keeping clock. Often described as the first of its kind, the clock was designed to record the start and end of shifts for employees working at an hourly rate. His brother Harlow Bundy organized the Bundy Manufacturing Company and started mass-producing the clock. The company was the first time-recording company in the world. In 1900, the time recording business of Bundy Manufacturing, along with two other time equipment businesses, was consolidated into the International Time Recording Company (ITR).

In 1906 International Time Recording Company moved into a brand new three-story brick building in Endicott. Within a year all of the company's operations had been moved to Endicott. In 1911 ITR was united with three other time recorder manufacturers. The company was named The Computing-Tabulating-Recording Company. In 1924 the company was renamed “International Business Machines”.

A 1920 sales catalog from The Computing-Tabulating-Recording Company displaying clocks, scales and tabulating equipment.
IBM built their factory complex just east of the shoe manufacturing buildings. In contrast to the Endicott Johnson buildings, Thomas J. Watson opted for Modernist concrete blocks painted white. The company town continued to be the home of IBM for the next decades and their factories and research centers spread out to more rural areas of the town of Union.

Endnotes

1. A boomtown is a community that undergoes sudden and rapid population and economic growth, or that is started from scratch.
The IBM Selectric Typewriter

Electromatic Typewriters Inc. started manufacturing electric typewriters in Rochester, New York in 1924. They produced a motor and a base for the Electromatic typewriter. They used a Remington Model 12 as the typewriter. When Remington stopped supplying typewriters, Electromatic Typewriters Inc. started producing their own. In 1933, IBM acquired the patents and manufacturing facilities of Electromatic Typewriters, Inc. And the subsequent year IBM invested over a million dollars in typewriter research and service facilities in 1934 alone. Soon after they introduced the first successful electric typewriter the IBM Model 01.

IBM continued to lead the market in electric typewriters for decades, with small adjustments to the Design. However, on July 31st, 1961, they introduced The IBM Selectric typewriter. It was a radical departure from all its contemporaries. It took seven years to work out manufacturing and design challenges before the typewriter was ready for the market. Its groundbreaking design and features were well received. For the next 25 years, the Selectric would become the typewriter most commonly found on office desks.

The most innovative feature of the Selectric was the “type element” that replaced the typebars. For the first 90 years, typebars had been the only effective way to print letters with a typewriter. When you typed on the keyboard, instead of typebars striking the ribbon to create an imprint—a ball-shaped type element positions itself correctly before striking the page to print with incredible speed.

It was this ball-shaped type head, often nicknamed the golf ball that would change how users interacted with type when composing documents. The golf ball was 32mm in diameter with four rows of a total of 88 characters and weighed only 9 grams. With this new technology, one could type at a speed of 14.8 strokes per second. Using the Selectric increased both the typists’ speed and accuracy. Most important to the typist, the typeball eliminated type bars, which were prone to jamming. Another attractive feature of the ball was the fact that it was interchangeable. One could easily remove the type element and change it to a different font. Changing the golf ball could be done in a matter of seconds.

The type choices available were designs made in-house by IBM’s team of engineers and type designers. There were serif fonts, sans-serifs, italics, fraktur, script and OCR.[1] Those who owned many golf balls could browse typefaces in a similar manner as one can in the drop-down menu in today’s word processing or desktop publishing software. Typefaces had become affordable and were for the first
time in history bought and appreciated by the office workers and others who owned typewriters.

IBM produced golf balls for many different languages. The possibility to easily switch between Latin letters, Greek letters and mathematical symbols in the same document made the Selectric useful to scientists writing mathematical formulas. Before the Selectric, mathematical typesetting was a time-consuming process. IBM produces a special type-ball with Athabaskan languages which allowed for typing in Navajo and Apache bilingual education programs.

Typefaces for the first generation of Selectric typewriters were monospaced/fixed width. However, the Selectric Composer released in 1966 used type-balls with proportional spacing. Renowned typographer Adrian Frutiger adapted his typeface Univers specifically for the Selectric Composer. Eventually, 15 different typefaces were available for the Selectric composer but the variety never came close to what was available for the Selectric. Serving a smaller audience the more expensive Selectric Composer could create justified copy and one could typeset pages that looked as if they had been made using a Linotype or Monotype machine. Within a year of the first Selectric Composer being released the Magnetic Tape Selectric Composer appeared. This technology allowed for the recording of typed text, editing, and re-recording. The magnetic tape could hold approximately 25 kilobytes per tape cassette. This was the first system marketed as a word processor.

What made the Selectric Composer desirable among small publishers, businesses and organizations was that for its size and price it was a powerful cold-typesetting system. Usually, the machine was leased, which included a service contract for repairs and adjustments. The Selectric Composer was unrivaled until the Apple Macintosh, laser printer, and desktop publishing software entered the market and became the new standard.

Alongside the Selectric Composer IBM continued releasing new versions of the Selectric typewriter. In 1971 The Selectric II was released. It featured a square design and the ability to change the “pitch” from 10 to 12 characters per inch. In 1973 the Selectric II also came with a ribbon for correcting mistakes. It was the first machine in the history of typing that could make errors disappear. The “Lift-Off” tape removed the ink impression from the page when the typist pressed the correction key. When the key was pressed the Selectric would backspace and use the correcting tape instead of the ink ribbon. This made typing quicker and errors less drastic.
Before the correcting tape, typists would have to align correcting tape manually or use other types of erasing tools.

The last model, The Selectric II, was released in 1980. It featured more complex word processing capabilities and a different typeball that could hold 96 characters instead of 88. The third version of the Selectric was not as popular as its predecessors. This can be attributed to the fact that competitors had caught up and personal computers were slowly beginning to make their way to consumers. The Selectric brand was retired in 1986. By then IBM had sold more than 13 million Selectric typewriters. At its peak, the Selectric typewriters captured 75% of the market for electric typewriters used for business in the United States.

Endnotes

1. OCR fonts are specially designed for computer optical character recognition. They are made to be recognized by both computers and humans. Although optical character recognition technology has advanced to the point where such simple fonts are no longer necessary they are still widely used.

2. Athabaskan (also spelled Athabascan, Athapaskan or Athapascan, and also known as Dene) is a large family of indigenous languages of North America, located in western North America in three areal language groups: Northern, Pacific Coast and Southern (or Apachean).

3. A monospaced font, also called a fixed-pitch, fixed-width, or non-proportional font, is a font whose letters and characters each occupy the same amount of horizontal space.
1933
IBM buys the typewriter manufacturing company Electromatic Typewriters, Inc., based in Rochester, N.Y.

1934
IBM invests more than $1 million to redesign the Electromatic Typewriter, expand the research facilities, and open up service centers.

1935
IBM introduced the first commercially successful electric typewriter in the United States. The IBM Electric Typewriter, Model 01.

1941
The Electromatic Model 94 electric typewriter is announced. It features the groundbreaking concept of proportional spacing on a typewriter. Each letter was assigned varied spacing rather than uniform. With this, the machine could recreate the appearance of a printed page.

1961
The IBM Selectric Typewriter is introduced. Instead of typebars the typewriter featured a replaceable golf ball-shaped typing element. The Selectric became a very popular typewriter especially because of the ability to use multiple fonts in one document.

1964
The IBM Magnetic Tape Selectric Typewriter is introduced. It gave rise to the concept of word processing as its users could revise stored text due to a magnetic recording device.
Typing Dance

In December 1973 IBM announced a special typeball for the IBM Selectric to record dance and movement. The typing element was developed together with the Dance Notation Bureau of NYC. Like every other type ball, it had 88 different symbols. The abstract symbols could record movement by notating the motions of the body. The symbols were Labanotation symbols, developed by Hungarian dancer and choreographer Rudolf Laban in the 1920s. The labanotation typeball “joins a growing collection of special-purpose typing fonts which IBM has designed for the technical disciplines,” stated the 1973 press release from IBM.

Being able to type out movements solved a problem that had for long confronted choreographers and teachers, how to accurately record body movements of dancers without having to draw them by hand. Dance Notation Bureau of NYC published a manual for choreographers to familiarize themselves and make use of the Labanotation system together with a Selectric typewriter.

When using the labanotation-typeball the symbols are typed on a grid. The location of the symbol indicates which part of the body is to be used. The shape of the symbol shows in which direction it moves. The shading of the symbol is the level of the movement. The length indicated the duration of the movement.

The Labanotation symbols are, however, not limited to dance. The Laban Movement Analysis (LMA) is a method and language that expands on Rudolf Laban’s work. The method was developed by Lisa Ullmann, Irregard Bartenieff, Warren Lamb, and others. LMA draws from multiple fields such as anatomy, kinesiology, and psychology. It is used by dancers, actors, athletes, physical therapists, psychologists, and other health professionals. Additionally, Laban’s notation system is used in robotics and human movement simulation.
The IBM Selectric Bug

The Selectric Bug was a sophisticated digital eavesdropping device, developed in the mid-1970s by the Soviet Union (USSR). It was built inside IBM Selectric II and III typewriters and was virtually invisible and undetectable. A total of 16 devices were found inside typewriters that were in use during at least 8 years at the US Embassy in Moscow and the US Consulate in Leningrad.[1]

The advanced digital bugging device was built inside a hollowed-out metal supporting bar that runs from left to right inside the IBM typewriter. It registered the movements of the print head (ball), by measuring small magnetic disturbances caused by the arms that control the rotation and elevation of the print ball. A typical IBM Selectric II typewriter is shown in the image on the right.

At least five different versions, or generations, of the bug were discovered by the Americans, some of which were powered by a DC battery voltage. Others were powered by the AC mains or both. Furthermore, the devices were remote controlled by the Soviets from outside the building.

When the typewriter was turned ON, and the bug was activated remotely, it sent its data via radio in short bursts to a nearby listening post.[2] Although there was some ambiguity in the intercepted data, the Soviets were then able to recover the typed plaintext by using the laws of probability.

The first Selectric bug was found after a tip from the French, who found a similar implant inside an embassy teleprinter. As the US considered themselves a high-profile target, the Americans launched the covert GUNMAN project, with the aim to find any implants and respond to them.
11 tons of equipment was seized from the US embassy in Moscow and shipped back to the US for analysis by the NSA. Eventually, the implants were found in 16 IBM Selectric typewriters that were used at the US Embassy in Moscow and the US Consulate in Leningrad from 1976 to 1984.

The bug was fairly large and consisted of state-of-the-art integrated circuits and single-bit core memory. It was completely hidden inside a hollow support bracket at the bottom of the keyboard mechanism, and was invisible to the naked eye, but also to the detection equipment of the era. Only an X-ray scan could reveal the presence of the device, which is shown in the image below. It contains special components to hide its presence even from non-linear junction detectors (NLJD).

The Selectric Bug can be seen as one of the world’s first keystroke loggers. It is the first known attack by the Soviets, that targeted a plaintext device rather than a cipher machine. Modern keystroke loggers exist as software—similar to a computer virus—and hardware. In the latter case it is often a small device that is installed between a computer and the keyboard. Both variants are used extensively today by criminals as well as by law enforcement agencies.

Endnotes

1. Leningrad is known today as St. Petersburg.

2. In order to avoid detection, the data was first stored in a buffer and then sent in short high-speed data bursts in the 30, 60 or 90 MHz radio band. The frequency was chosen close to that of a TV station.

This text is from the cryptography museum in Eindhoven.
This is Artisan Mono

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890

This Artisan digitization was made by Emil Gunnarsson during the period 2021 to 2022. Artisan appeared originally as a typewriter font for IBM typewriters in 1956. IBM does not hold records of who designed Artisan. This mono version stays as close to the original as possible with small adjustments made with the screen in mind.

This is Artisan Proportional

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890

Artisan Proportional has some differences from the original design. A few characters are wider and a few have been slimmed down. Spacing around the characters is proportional.
This is Courier New

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890

Courier was designed by Howard “Bud” Kettler and was released in 1956. Courier New is a digitisation of Courier by Monotype. Courier New appears as a system font on many devices. It has a thin appearance as it was digitised directly from a Selectric golf-ball without compensating for the weight added by the ink-ribbon of the typewriter.

This is Letter Gothic

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890

Letter Gothic was designed by Roger Roberson for IBM. It was created between 1956 and 1962 and was initially intended for the IBM Selectric typewriters. The version above is a digitisation by Adobe Originals.
John Scheppler designed Orator in 1962 for the IBM Selectric Typewriters. The version above is a digitisation by Adobe Originals.

This is an enlarged display of Artisan typed with a typewriter on paper. It includes all characters on the type-element.
Artisan:
About the Typeface

Artisan is a monospaced sans-serif typeface created for IBM typewriters. The IBM archive does not hold records of which designer or designers made the typeface. Very little information is available about the typeface. It is however clear that Artisan was available in the form of typebars for the IBM Electric Typewriter as early as 1956.

Artisan became a commonplace typeface with the arrival of the Selectric typewriter in 1961 where it was available in the form of a typeball. Artisan was often used for correspondence and was one of the more popular type-balls created for the Selectric. Other popular typefaces available for the Selectric such as Courier and Orator are widely used to this day. This is due to the fact that they followed us into the digital age as digital font files.

Courier is a monospaced slab serif typeface. Similar typefaces have come to be synonymous with typewriters. Because of their presence on typewriters throughout history, it can be argued that they have set a standard for how a monospaced typeface should behave. The Remington Model 2 typewriter, released in 1878 featured a slab-serif typeface (See image page 83). It quickly became the leading typewriter on the market. During the years following its release, the typestyle would be a standard on typewriters.

Courier has been digitized by many different foundries and has become one of few fonts recognized by the general public due to its presence as a system font on both Windows and Apple computers. It is industry standard for screenplays to be typed out in 12 point Courier. The reason for that is that the receiver of the manuscript
can estimate the length of the script because of the amount of monospaced letters that would fit on one A4 page. One page of script usually equates to one minute of screen or stage time. Courier was also the standard typeface used by the U.S. State Department—until January 2004 when they changed to Times New Roman.

Orator is a sans-serif typeface consisting of only upper case letters, large and small. It was designed with legibility in mind. Based on the idea that capitals would be more legible than lowercase letters. Orator was described and advertised as an appropriate type choice for speech notes. It has since circulated widely as a digital font.

Artisan has not lived on in the same way as Courier and Orator. In fact, it disappeared with the slow extinction of the Selectric typewriter. One might wonder why another sans-serif design from the Selectric line, Letter Gothic, did not receive the same fate. Letter Gothic has been digitized and was a system font on Windows 95. It is even available in a proportional version as Letter Gothic New.

Artisan differentiates itself from other sans-serif typewriter designs such as Letter Gothic by staying completely true to the sans-serif logic. Artisan has no serifs at all, apart from a small serif sticking out from the top of the lowercase “l”. The effect of having no serifs is that there is empty space around the lowercase “l”. Something other designs avoid by adding serifs to either the top of the letter or to both the top and the bottom. Artisan wears the limitations of the monospaced typeface and constantly reminds the reader of the technology that typed out the letters.

When it was available on the Selectric, type sizes were measured by character per inch—which meant they were measured by their width. This is confusing since typefaces have for a long time been measured by height. In their catalog IBM accounted for this and marked the equivalent. Artisan was available as a 12 character per inch type-size which resulted in 10 pt. Artisan is very legible at small sizes, even down to 5 pt. The effect of the spacious “l” becomes less noticeable at smaller sizes.

The next few pages will present the digitization of Artisan drawn by the author. This typeface will be the first commercially available digital version of Artisan. The type family consists of a proportional sans-serif “Artisan Proportional” and a monospaced “Artisan Mono” which stays close to the original design.
1234567890
!*+#$%&@ï¢§¶•
Punch cards
Punched tape
Selectron tubes
Magnetic tape
Compact cassette
Magnetic drum
Floppy disk
Hard drive
Flash drive
Cloud storage

import java.util.Scanner;
import java.io.File;
import java.io.IOException;
public class DoPayroll
    public static void main(String args[])
        throws IOException
            Scanner diskScanner
                new Scanner(new File("EmployeeInfo.txt"));
            for (int empNum = 1; empNum <= 3; empNum++)
                payOneEmployee(diskScanner);
        diskScanner.close();

    static void payOneEmployee(Scanner aScanner)
        Employee anEmployee = new Employee();
        anEmployee.setName(aScanner.nextLine());
        anEmployee.setJobTitle(aScanner.nextLine());
        anEmployee.cutCheck(aScanner.nextDouble());
        aScanner.nextLine();

import java.util.Scanner;
import java.io.File;
import java.io.IOException;
public class DoPayroll
    public static void main(String args[])
        throws IOException
            Scanner diskScanner
                new Scanner(new File("EmployeeInfo.txt"));
            for (int empNum = 1; empNum <= 3; empNum++)
                payOneEmployee(diskScanner);
import java.util.Scanner;
import java.io.File;
THE WHEEL...

...IS AN EXTENSION OF THE FOOT
Banging fitfully away at an early-model typewriter, Mark Twain dashed off the following letter to his brother in 1875:

"I am trying get the hang of this new fangled writing machine, but am not making a shining success of it. However this is the first attempt I have ever made, & yet I perceive that I shall soon & easily acquire a fine facility in its use... The machine has several virtues. I believe it will print faster than I can write. One may lean back in his chair & work it. It piles an awful stack of words on one page. It don't muss things or scatter ink blots around. Of course it saves paper."

Twain, who made a point of assailing most machinery in his short stories, is reputed to be the world's first author to use a typewriter. His manuscript for "Life on the Mississippi" arrived at the publisher's neatly set down in typewritten form.

"The machine is at Bliss's, grimly pursuing its appointed mission, slowly & implacably rotting away at another man's chances for salvation. I have sent Bliss word not to donate it to a charity (though it is a pity to fool away a chance to do a charity an ill turn), but to let me know when he has got his dose, because I've got another candidate for damnation. You just wait a couple of weeks & if you don't see the TypeWriter coming tilting along toward Cambridge with the raging hell of an unsatisfied appetite in its eye, I lose my guess."

Letter to William Dean Howells, 25 June 1875

"Please do not even divulge the fact that I own a machine. I have entirely stopped using the Type-Writer, for the reason that I never could write a letter with it to anybody without receiving a request by return mail that I would not only describe the machine but state what progress I had made in the use of it, etc., etc. I don't like to write letters, and so I don't want people to know that I own this curiosity-breeding little joker."

Letter to the Remington Company, 19 March 1875
Labanotation - IBM Selectric Typewriter element

Manual for use with the Labanotation - IBM Selectric Typewriter element

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83 Typeproof, made in 1879 on a Remington model 2.

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Artisan first appeared on IBM typewriters in the 1950s. The original designer(s) remain unknown.

Texts and book design by Emil Gunnarsson

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Resistance is Futile: The Myth of Tech Inevitability by L. M. Sacasas

The IBM Selectric Bug from the Cryptography Museum in Eindhoven

Excerpts from:

A Descent Into The Maelstrom by Edgar Allan Poe (1841)

Shoshana Zuboff on Surveillance Capitalism’s Threat to Democracy

This book was published as part of a master’s project at Konstfack University in Stockholm, Sweden.

ISBN 978-91-527-3223-6
6. Exhibition

The 2022 spring exhibition for master and teacher education students was curated by CuratorLab. They proposed that works from different departments would be exhibited together rather than divided into separate sections. In the end, this was not what happened except for in the basement of Konstfack, which also served as a temporary entrance during the time of the exhibition. It was the only space where works from all departments were mixed. I was asked if I wanted to exhibit in the basement which I gladly agreed to because I liked the idea of a mixed exhibition and I liked the ambiance and the rawness of the basement.

Inspired by the space, me and my classmate Laslo Strong came up with a floating shelf solution that both of us used to display our publications. The aluminum shelves matched well with the structure we attached them to. Next to my publication, I placed an IBM Selectric II typewriter. Between the typewriter and one of the shelves, I hung a specimen poster. The poster also features images that are either already in the book or somehow relate to the content of the book. Therefore clarifying that the project was not only a type design project and linking the typeface with the stories in the publication.

I and my classmates Anne Ivan, Zyian Wang, Laslo Strong, Lars Høie, Frederikke Becher, and Bia Costa organized a book store and reading space that we called “Book Hive”. It was a great addition to the individual installations. Most publications are meant to be engaged with for a longer period of time and in the Book Hive visitors could sit down and read the publication and have conversations with each other or perhaps the students who had made the work. I felt more comfortable engaging with visitors of the exhibition in the context of the Book Hive than next to my installation.
Spring exhibition, Photograph by Laslo Strong
The Book Hive at the spring exhibition, Photograph by Anne Ivan
7. Final reflection

By making the publication I have created a method where I can approach a topic and process it into a material outcome such as publication. I would like to continue with this method and make more work that combines research, writing, type design, and graphic design. In conversation with João Doria, who was the guest critic during my examination, I got the chance to formulate what kind of method I had created. At some point during our conversation, he referred to the type design aspect of the project as a “revival”. Although this is a known concept in the world of typography I have never used it to describe what I did with Artisan. To me, the type design also falls into the method of collage that I use in my writing and graphic design. In this project, I used a similar logic to process and present all aspects of the project, the writing, the typography, and the images. Another question that came up during our conversation was where I position myself in relation to IBM as a corporation and whether the project was a critique or a celebration of the company. My response was that my relationship with IBM was just as complex as all the histories that are presented in the project. It does not require a position, it can be both critical of the company and its history while it also wonders if there is more to be discovered by looking into its positive and negative impact on society. IBM was just another ingredient that went into the blender. Having said that, I think it’s important to take a position and to present your own opinions in a project like this. This is why I’m proud to have included so much of my own writing in this project, even though I struggled with finding the right voice.

During the course of this master’s program, my practice has expanded and my skills as a graphic designer have evolved more than I could have hoped. I have added to my toolbox and proved to myself that I can finish a typeface, and write, edit and design a book. This I was able to do with help from teachers, my external tutor, and my classmates.

Most importantly, I have developed excitement and an even deeper interest in my field than I had before I started my studies. I have a different connection with typography after having dabbled in type design. I have felt the power of graphic design and how it can be used to give meaning to a photograph, an object, or a typeface.
References


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p. 13 Artiplex, Artisan and IBM Plex comparison

p. 74 Spring exhibition (2022) Laslo Strong

p. 75 Book Hive at the Spring exhibition (2022) Anne Ivan

*Note that references for Observing the Maelstrom are on the last pages of the publication.*
Thanks

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