Comunicación y Sociedad
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# Artificial lighting as a media: seventeenth century oil lamps in Amsterdam and Haarlem[1]

*La iluminación artificial como medio: Lámparas de aceite en Ámsterdam y Haarlem en el siglo XVII*

*Iluminação artificial como meio: lâmpadas a óleo em Amsterdã e Haarlem no século XVII*

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This paper analyzes artificial lighting as a means of changing human perception. It presents oil lamps used in Haarlem for domestic lighting and in Amsterdam for urban lighting in the seventeenth century. The theoretical framework is media archaeology. The methodology used is qualitative archaeological, involving the analysis of different sources including texts, images, archival documents and archaeological remains.
Keywords: Lighting, new technologies, environment, cultural studies, media archeology.

*En este artículo se analiza la iluminación artificial como un medio capaz de cambiar la percepción humana. Se basa en las lámparas de aceite utilizadas en Haarlem para la iluminación doméstica y en Ámsterdam para la iluminación urbana en el siglo XVII. El marco teórico es la arqueología de medios. La metodología usada es cualitativa arqueológica, lo que implica el análisis de distintas fuentes que incluyen textos, imágenes, documentos de archivo y restos arqueológicos.*
*Palabras clave. Iluminación, nuevas tecnologías, medio ambiente, estudios culturales, arqueología de medios.*

*Este artigo analisa a iluminação artificial como meio capaz de alterar a percepção humana. Baseia-se nas lâmpadas a óleo usadas em Haarlem para iluminação doméstica e em Amsterdã para iluminação urbana no século XVII. O referencial teórico é a arqueologia midiática. A metodologia utilizada é arqueológica qualitativa, que envolve a análise de diferentes fontes que incluem textos, imagens, documentos de arquivo e vestígios arqueológicos.*
*Palavras-chave: Iluminação, novas tecnologias, meio ambiente, estudos culturais, arqueologia da mídia.*

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## Introduction

This paper looks to analyze artificial lighting as a medium in the Netherlands in the seventeenth century, and, therefore, draws on media archaeology. It begins by presenting its current status, methodologies and theoretical framework so as to provide a transversal view of media research, before describing the oil lamps used in the context of seventeenth-century Amsterdam and Haarlem. Consequently, it analyzes both domestic lighting in the interior paintings of Dutch painter Judith Leyster (Haarlem, 1609 - Heemstede, 1660) and explores public lighting in the street lamp designs of Jan Van der Veiden (Gorinchem, 1637 - Amsterdam, 1712).

Two subjects of study are considered for the paper. One is to advocate the inclusion of media archaeology as a methodology for researching media in the context of the Spanish-speaking world, where it remains largely uncommon. Media archaeology surfaced in Germany around 1990 through academics such as Kittler and Zielinski and as an alternative to a genealogy-based perspective. Within academia, Perriault was the first person to speak of audiovisual architecture in his 1981 book *Mémoires de l'ombre et du son: Une archéologie de l'audio-visuel* (Parikka & Huhtamo, 2011, p. 4).

Zielinski (2006), for his part, puts forward a study method as an alternative to the linear genealogy of the media according to its productive capacity or the perfecting of illusion, to "undertake field research on the constellations that obtained before media became established as a general phenomenon, when concepts of standardization were apparent but not yet firmly entrenched" (p. 33), propounding a methodology in qualitative terms that critiques the myths of progress. Moreover, this author introduces the geological term coined by McPhee of "deep time", according to which there is a need to expand historical temporality to study the media and to avoid being under the illusion of a constant modern renewal.

In the context of media studies, media archaeology aims to critique academic, industrial and advertising narratives which still tell a story of the media that starts with Thomas Alva Edison, the Lumière brothers or Alexander Graham Bell. As Crary (2001) asserts: "Edison's importance

lies not with any particular device or invention but rather in his role in the emergence, starting in the 1870s, of a new system of quantification and distribution" (p. 31).

The genealogical narrative does not hold up opposite the rigor of historical and archaeological research, and this is manifested in an incomplete chronicle which reproduces the liberal mandate of the quantification of images and sounds, making use of the ecosystem metaphor as a way to ratify a patent-guided linear evolution. Mumford was one of the first people to talk in evolutionary terms in *Technics and Civilization*, from 1934, in which he suggested "a parallelism between the organic and the technological" (Scolari, 2015, p. 20). An account that would be embraced zealously by North American media ecology, including McLuhan, Logan, Strate, Levinson and Gencarelli, and which relates to the media with elements that evolve and interrelate.

The second objective concerns media archaeology as an academic discipline. Media archaeology has studied the magic lantern or phantasmagorias as media containing the idea of the moving image. Zielinski (2006, p. 135) analyzes the illustration of a magic lantern in Athanasius Kircher's book *Ars magna lucis et umbrae* (1664), or the same invention by astronomer, physicist and mathematician Christiaan Huygens. Like Zielinski, Elsaesser focused on the convex lenses and transparent laminates used to produce animations. Yet Elsaesser (2018) also notes:

> Media Archaeology: a viable discipline or a valuable symptom? Such an account, which opens up parallel trajectories, might start with the nature of light itself, its propagation through space, its absorption by physical bodies and its perception by a sentient subject (p. 15).

There are a number of studies on artificial lighting that allow a status of the issue to be demarcated, for instance "The Light of Lamp-Lanterns: Street Lighting in 17th-Century Amsterdam", written by Multhauf (1985) and published in the journal *Technology and Culture*. This text provides specific data using documents conserved in Dutch archives, which describe the technical aspects of urban lighting. Another example that can be cited is Koslofsky's *Evening's Empire.*

*A History of the Night in Early Modern Europe*, which devotes a chapter to lighting within the multidisciplinary approach to the study of night. Furthermore, *Brilliant: The Evolution of Artificial Light*, by Brox (2010), examines lighting technology stretching from 1500 to the year 2000 and centers on Western Europe and the United States to encompass technology and power, politics and class.

Another essential title, and cited here also, is *24/7: Late Capitalism and the Ends of Sleep*, in which Crary (2011) analyzes the use of artificial lighting in Modernity to control sleep from the Industrial Revolution to the present. Nevertheless, very few examples treat lighting as a medium. Within media archaeology, Gitelman and Collins (2009, p. 1) discuss the analysis of light as pure information, akin to McLuhan's considerations in *Understanding Media* (1961), arguing that communication existed before electricity and, therefore, that the light produced by lamps would have had the same or more information than light produced by electricity.[3]

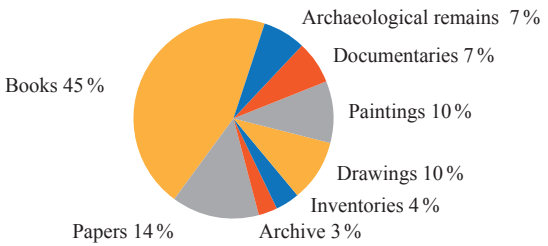
## Methodology

The methodology employed in this paper is archaeologically qualitative. Practically speaking, this translates into an analysis of secondary sources like books and academic papers, in addition to primary sources such as pictures, archaeological remains and archives. The difference between other types of historical methodologies is that, on the one hand, all information is obtained from an array of sources, regardless of

[3] "McLuhan's famous dictum that the medium is the message had one airtight example from the first: electric light. As McLuhan put it, 'The electric light is pure information. It is a medium without a message, as it were, unless it is used to spell out some verbal ad or name'… Isn't it possible –even likely– that people in earlier times were just as blind to the communicative functions of gaslight and candlelight as we are today to electric? Or was McLuhan simply sidestepping the past as he naturalized the present? Gaslight and candlelight are now so outmoded that they do get noticed today, communicating messages beyond the things that they illuminate" (Gitelman & Collins, 2009, p. 1).

format and temporality. As detailed above, through media archaeology, an alternative to the genealogical order of media history is put forward.

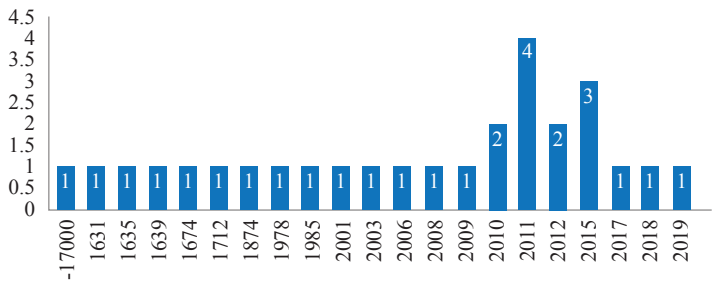
FIGURE 1
SOURCE VARIETY




Source: The author.

To write this paper, a total of 31 different sources have been consulted and divided into: one archaeological remain, two documentary series, three paintings, one drawing, one archive document, eighteen books and five articles, as reflected in Figure 1. The dates of the sources used also respond to a deep-time analysis required by media archaeology. In Figure 2, the data is classified by year, with a total of five sources from the seventeenth century, one from the nineteenth century, four from the twentieth century and twenty-five from the twenty-first century.

FIGURE 2
SOURCE DATES




Source: The author.

One could also say that the use of contemporary sources applied to the temporary framework of the subject of study is considerable and that the bibliography used to analyze it is suitably up to date.

The text gathers data compiled during a research residency in Amsterdam carried out from November 10th to 23rd, 2022, the aim of which was to find primary sources to gain clarity on the theory that whale oil was used for household and public lighting in Amsterdam in the seventeenth century. As a result, the residency focused on the search for information related to the painter Judith Leyster and Jan Van der Heyden.[4]

## Theoretical framework

And so, what media is lighting? What allows for an understanding of lighting as a medium? To answer these questions there is a need to review certain arguments within media archaeology, media ecology and the so-called elemental media, and this involves a series of theoretical strands to study the media which, respectively, expands the temporary framework of the subject of study, puts forward an ecosystemic metaphor for media and, finally, expands upon the conception of media beyond human technology.

As already alluded to, from media archaeology, the capacity of lighting with lamps is about "communicating messages beyond the things that they illuminate" (Gitelman & Collins, 2009, p. 1). Kittler (2010, p. 80) reflects on the flame of lanterns and references McLuhan in his analysis of magic lanterns, yet without delving too deeply into the now famous dictum of "the medium is the message" to assert that the message of the flame for people in the seventeenth century must have meant something completely different, such as "the flames of hell", as McLuhan puts it.

Records show that the concept of media ecology was introduced by Postman at the conference of the National Council of Teachers

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4 Leyster was born in Haarlem, the Netherlands, and was a pioneer in portraying scenes under oil-lamp light, which later spread through Holland and regions of Germany.

of English, in 1968. Postman defined it as "the study of media as environments", although he also claimed that McLuhan had used it previously, between 1962 and 1964 (Scolari, 2015, p. 19). According to Logan, media ecology studies, among other aspects, social effects beyond their content (in Scolari, 2015, p. 198).

Finally, we come to Durham Peters' theory on elemental media. In his work, he makes a brilliant analogy between the media and the medium as an element, and also posits how humans and cetaceans have developed nervous systems which intervene with the element they inhabit. Through the evolution of these species, each one has developed a different perception, conditioned by sixty-five million years of evolution, when cetaceans started to inhabit the sea and were no longer land mammals like people.[5] Within the depths of this temporality, people and cetaceans have developed techniques whereby some can perceive in the ocean via listening, and others, on land and in its atmosphere, through sight (Durham Peters, 2015).

There is relevance in clarifying certain similarities and differences between ecology, media archaeology and elemental media. Although media archaeology and ecology share reference points such as Mumford or Ong, the North American ecological vision from the 1960s understands that technological media evolves (Scolari, 2015, p. 19), whereas media archaeology fully opposes the idea of media evolution as beings within biological metaphor. Furthermore, where media ecology sees technology as environment, elemental media studies non-human environments to broaden thinking around technology. With these differences clarified, this paper duly considers artificial lighting as an elemental medium conditioned by deep temporalities.

From the geology of media, a branch of archaeology that delves deeper into mineral materials, Parikka (2012) speaks of airborne particles as matter which influences people's perception in space. This layer of airborne minerals obstructs the contemplation of the sky and

5 Godfrey-Smith (2017) goes even further and, in his study of octopuses and cuttlefish, asserts that this evolutionary divergence has defined minds and thoughts that differ so greatly to humans that they are virtually incomprehensible to us.

stars, wiping out thousands of years of orientation techniques and plunging people into the "trap" of modern technology, as written by Burke (Burke & Jackson, 1978). Artificial light, like airborne minerals, but at a subatomic level, also interferes with the nervous system and space.

The lighting described in this paper results from a chemical reaction that turns vegetable or animal fat into light by applying heat. As with light from the sun, the result of a process of nuclear fusion produced in that star, artificial lighting is at once a vibratory force and matter and thus influences human perception the same way that the oceans described by Durham Peters (2015) influence cetaceans.

Just as light pollution alters the perception of stars, it also alters people's perception of domestic or urban darkness. Lighting creates a virtual day and, with it, alters circadian cycles, lengthens working hours, reduces sleep time and worsens the relationship between people and their environment (Crary, 2011, p. 5).

In his book *24/7: Late Capitalism and the Ends of Sleep*, Crary (2011) analyzes the effects of darkness deprivation in people, referring back to England in 1782, at the start of the Industrial Revolution when it fed off colonial extractivism and bolstered the capitalist economy. Moreover, there is a need to explore further Crary's (2001) idea on light, referring specifically to *Suspensions of Perception*, originally published in 1999. In his book, Crary analyzes certain media which have played a pivotal role in forming contemporary attention and concentration: dioramas, panoramas, magic lanterns, Edison's Kinetoscope, the auditorium and television, all of which are part of the "technologies of separation" (Crary, 2001, p. 74).[6] This series of devices triggers, sometimes deliberately, individualization, whereby a person is isolated owing to screen content. These media "are similarly about arrangements of bodies in space, techniques of isolation, cellularization, and above all separation" (Crary, 2001, p. 74).

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[6] Crary refers to technology of separation in a comparative analysis of Guy Debord's *society of the spectacle* and Michel Foucault's idea of the disciplinary society.

Lighting shapes the illusion of day, inasmuch as it affects the perception of the environment, attentiveness, concentration, work and sleep, and thus enhances individualized perception and sculps its social relations. The nub of this paper, rooted in media archaeology, is that one must study technology further back beyond the twentieth century, in deep temporalities, to better understand how these techniques of separation go hand in hand with the construction of communication and perception in European Modernity.

## Lighting as Medium: Domestic Lighting

The normal-sighted[7] person's capacity to see is regulated by the amount of light in space. Like other animals and plants, people regulated their circadian cycles according to sunlight, adapting to the seasons, rotation and the moon. Farming activity was regulated by these same cycles, yet people have sought to break them over and over again.

In Europe, one of the oldest examples used to produce light in indoor space is a deer-fat lamp found in one of the caves of Lascaux, dating back 19 000 years and conserved in the National Prehistoric Museum of Les Eyzies-de-Tayac, in the same Dordogne region, in Aquitaine, France. During the Roman Empire, olive oil from Bética, Andalusia today, was used en masse in the Iberian Peninsula as fuel to light the city of Rome (Beard & MacGregor, 2012).

For understanding the role of the oil lamp in changes to domestic space, a pertinent visual example are the paintings of Judith Leyster. Throughout the research, there was a consideration of the hypothesis that the lamps depicted in great detail in Leyster's paintings could have been fueled by whale oil. At the dawn of European Modernity, whale

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7 "It is the ability to clearly determine fine details of objects and symbols at a set distance (according to) to the Wecker Scale, which references the fraction 1/10. The denominator is the distance in metres a sighted person sees, and the numerator the distance at which a visually impaired person sees. The closer this fraction moves to the unit, the "more" this subject is believed to see, and when it equals the unit the subject is considered "normal-sighted" (Grupo Académico Hércules, 1998, p. 368).

oil started to be used as lighting fuel on the north coast of the continent. Out of the ruins of Basque industry,[8] the Noordsche Compagnie was established in 1614, a conglomerate of the Dutch whaling companies that had existed previously. In the 1639 painting by Cornelis de Man, *The Whale-oil Refinery near the Village of Smerenburg* (Figure 3), we can see what Muller described in his history of the Noordsche Compagnie, published in 1874 in Utrecht, as: "costly industries right on the beach boiling up to half a tonne of whale blubber in copper pots" (Muller, 1874, n.p.). The fat that was boiled and dissolved into water was treated and poured into barrels, readying it for use.

In the search for references to the use of whale oil, Leyster's domestic inventory was explored. The post-mortem inventory of Jan Miense Molenaer, her husband, is dated October 10th, 1668, eight years after her death. Found in the study were musical instruments, card games, and so on, yet there was no lamp that would confirm or refute the hypothesis (van Thiel-Stroman, 2006).

Nevertheless, it did verify that Leyster's treatment of light differs from Baroque approaches, for instance the tenebrism of Rembrandt, Caravaggio and Rivera. Judith Leyster's tenebrism, if it can be called that, shares the faithfulness and detail of Dutch interior paintings, yet, in contrast to the sunny rooms of Vermeer, it depicts the half-light, where the lamp's importance is as instrumental as it is symbolic.

Owing to the high glycerin content in cetacean fat, the burning of whale oil produces little smoke and stable light.[9] This must be taken

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8 Following the embargo on the embarkation of ships from the whaling industry for the 1588 campaign of the Spanish Armada, or the Invincible Armada, and the 30% levy on fat exports, the industry had been destroyed by the late sixteenth century. "In view of the Dutch's complete lack of familiarity with whale hunting, ship operators had no other choice but to hire Basques from Amsterdam in 1613. Each *chalupa* (boat) was occupied by three Basques and in each *chalupa* there were at least three whalers, who would also take care of cutting blubber and hair. There was also one or more Basque skippers, and a cook" (Muller,1874, n.p.).

9 During the First World War, "seasonal captures in the Southern Hemisphere increased to exceed 1,000 whales annually. What they [the whalers] were

FIGURE 3
*THE WHALE-OIL REFINERY NEAR THE VILLAGE OF SMERENBURG*,
CORNELIS DE MAN, 1639

FIGURE 4
*THE PROPOSITION*,
JUDITH LEYSTER, 1631

FIGURE 5
*THE MAGDALEN WITH THE SMOKING FLAME*,
GEORGES DE LA TOUR, 1635

into consideration when observing the difference between the paintings *La Madeleine à la veilleuse* (The Magdalen with the Smoking Flame), by George de La Tour (Figure 5), opposite the lamp represented in Judith Leyster's *The Proposition* (Figure 4), which, despite the strong detail in the painting, barely appears to be smoking.

This observation raises reasonable doubt over whale oil being sold in the Netherlands prior to 1614, and notes that Leyster's depictions reproduce a smokeless flame. Moreover, as the basic principles of media archaeology stipulate, there is no linear history in which rapeseed oil makes way for whale oil and this oil for gas and then petroleum. Most of the cited materials were used as lighting fuel simultaneously. Amsterdam City Council may have used rapeseed oil for municipal lighting, while homes used firewood and other people walked through the streets with a pork-fat candle inside a lantern. Wealthy traders could well have used whale oil to light their homes, while other well-to-do people continued to use beeswax, the most expensive form of lighting.

## Lighting as media: urban lighting

Koslofsky (2011, p. 131) carried out a study of leisure, laws and the infrastructure needed for night-lighting in cities. His book includes a sample of the chronology of the first capital cities to be lit –early examples are: Paris in 1667, Lille in 1667, and Amsterdam in 1669.

Given that lighting in cities and the start of Dutch whaling both began in the seventeenth century, the hypothesis is that European night-time lighting from the seventeenth century onwards could have been fueled by whale oil, and, ultimately, there is indeed proof of the use of whale oil in lighting on the streets of London.[10] Multhauf specifies in the 1985 article "The Light of Lamp-Lanterns: Street Lighting in 17th-Century Amsterdam" how urban oil lamps, designed by Van der

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searching for was glycerine, a by-product of whale oil. This alcohol was the main component of nitro-glycerine, necessary for manufacturing the dynamite used in wars and cardiology" (Roman, 2006, p. 120).

10 According to Jackson (1978), in seventeenth-century London whale oil was used for urban lighting with government funding.

Heyden for Amsterdam City Council, must have been run on, according to the same inventor, rape oil. Thus, the hypothesis of the use of whale oil for urban lighting in Amsterdam is invalid.

Nevertheless, although one of the hypotheses considered in the study is unresolved, what is undeniable is the importance of Jan Van der Heyden in the Dutch artificial lighting running through this paper, and the shift in perception in early European Modernity. In the summer of 1669, Heyden submitted planning for lighting that involved 1 800 lanterns, along with the maintenance, repair and cleaning of their glass (Figures 6 and 7). By January 1700, the streets of Amsterdam were equipped with a complete lighting system that could be lit in 15 minutes.[11] The greatest expenditure in this system was rapeseed oil, which was stored in a pump allowing the amount of fuel used by each operator to fill each street lantern to be accounted for. The budget of this system offered by the city was charged through taxes based on the size of each house (Multhauf, 1985, p. 240). In the beginning, the system was unsatisfactory and was reformed over the years.

In Multhauf's 1985 article, literally translated budgets are outlined, showing Heyden's detailed planning, including the lighting and maintenance of the lanterns. The article also contains a translation of Van der Heyden's text:

> Two kinds of oil have to be used, namely rape oil and linseed oil. Rape oil burns best, it gives a clearer light and gives less smoke, but if the lanterns are used at the same latitude as here in the Netherlands, and are to burn nine months of the year from August 8th to May 7th, we cannot do without linseed oil, because rape oil freezes easily and linseed oil not at all (Multhauf, 1985, p. 246).

Van der Heyden's system spread to other Dutch cities such as Gouda, Dordrecht and The Hague, and outside the Netherlands the system was also adopted in Paris in 1667 and Berlin and Cologne in 1682, and in many of them as a control measure to protect the nobility (Multhauf, 1985, p. 250).

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[11] The date rectifies, by a few months, the 1669 plan of Koslofsky (2011, p. 31; Multhauf, 1985, p. 238).

FIGURE 6
*STRAATLANTAARN*, JAN VAN DER HEYDEN, 1674-1679

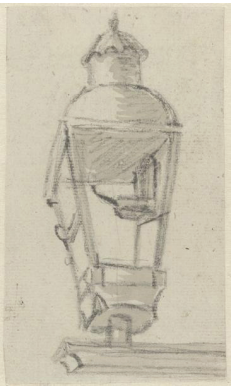
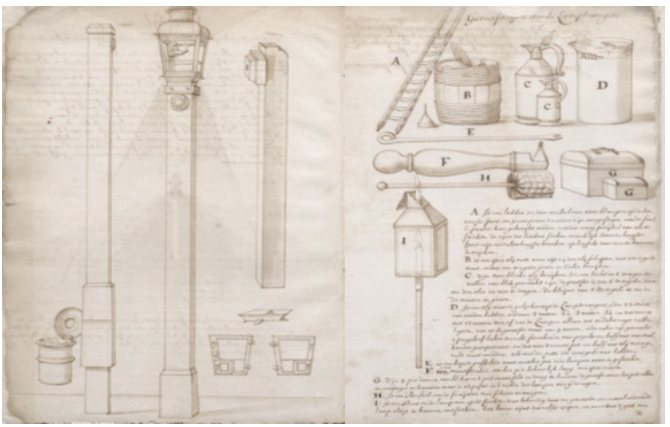


FIGURE 7
*DOCUMENTS CONCERNING OBTAINING ADVICE ABOUT CITY LIGHTING FROM THE OVERSEER OF THE CITY LANTERNS IN AMSTERDAM*,
JAN VAN DER HEYDEN, 1668



In November 2022 in the Amsterdam Museum, which at that time was only displaying a small part of its collection, there was a transom adorned with allegories that headed Heyden's entry (Figure 8). We can see how a globe is lit by an oil lamp. Indeed, Heyden was part of a history of energy and the use of biofuels that would change perception in the same period, perpetually dominated by the rotation of that planet represented in high-relief in the transom.

FIGURE 8
PHOTOGRAPHY BY THE AUTHOR. TRANSOM WITH ALLEGORICAL REPRESENTATIONS (LATE SEVENTEENTH CENTURY). AMSTERDAM MUSEUM

## CONCLUSION

This paper has analyzed artificial lighting in the Netherlands in the seventeenth century as a medium. In a metaphorical sense, artificial lighting works as a lens that mediates between our nervous system and darkness, aiding sight. In a literal sense, it forms a membrane of subatomic matter as well as vibratory energy or electromagnetic radiation, perceptible in the visible spectrum, between people and their environment. If, from a material study, Parikka (2015) asserts that airborne mineral particles from atmospheric pollution are a visual medium of the twentieth century, then it can be contended that

artificial lighting, in this case the result of a chemical reaction that turns organic fat into light by applying heat, was a medium in seventeenth-century Amsterdam and Haarlem, and will continue to be so regardless of the era and the reaction it produces (Gitelman & Collins, 2009).

In the sections on state of the art, methodology and theoretical framework, a transversal and fresh perspective was put forward, interweaving learnings from media studies and media archaeology. For such purposes, key academic resources in media archaeology were reviewed and the belief is that the objectives to include media archaeology as a research methodology in the context of the media in the Spanish-speaking world have been met, as well as the study of the lamp in its own right, and without the need for a proto-filmic underpinning of the magic lantern.

In terms of the archaeological qualitative methodology, there was a transparent demonstration of how analyzing a medium entails the use of different sources, and in divergent forms and in different eras. The stress was also placed on strengthening these objectives with a detailed theoretical framework stemming from media ecology to media archaeology, elemental media, history, art history and visual culture. The cluster of disciplines in which the author has trained, within Sound Studies, means the analysis of the painting of Judith Leyster between 1630 and 1660 set out reasonable doubts, along with the transom in the house of Jan Van der Heyden, for understanding the importance of his lighting project in Amsterdam in 1669.

Undeniable in this interdisciplinary use of the theory is the importance of the text *24/7: Late Capitalism and the Ends of Sleep* by Crary (2011), and hence it is reiterated in this conclusion. Crary is a follower of the writings of Michel Foucault and, tracing this theoretical genealogy, it corroborates why for Crary artificial lighting was interpreted in his book as a coercive medium just as the panopticon light was for Foucault.[12] Therefore, it tallies that artificial lighting, as a

[12] "The panoptic mechanism arranges spatial unities that make it possible to see constantly and to recognize immediately. In short, it reverses the principle of the dungeon; or rather of its three functions –to enclose, to deprive of light and to hide– it preserves only the first and eliminates the other two. Full lighting and the eye of a supervisor capture better than darkness, which

medium, had a coercive action, which the author traces to 1782 in the painting by Joseph Wright Arkwright, *Cotton Mills by Night* (Crary, 2015, p. 71).

We believe that the arguments set out here help understand how domestic lighting mediates between person and darkness, between reading time and play, between sunny day and long night in the rooms of the Netherlands. By the same token, night-lighting mediates between person and sky, between discreet darkness and surveillance lighting, between hours of retreat and hours of work. Both forms of the altered perception of darkness have done little more than become established, escalate and have taken root in Europe and expanded to the rest of the planet through colonization, first, and then globalization, leading to a political reality where the amount of rest some people attain depends on class, race or gender.

In a description of Dubai, Butho (2019) talks about a shopping centre where daylight never enters and the collateral damage of this excess of lighting for the uniformed, invisible Tamil workers from India and Sri Lanka.

> No time must be wasted, no man must be less than a machine. The majority of Dubai's residents are not bronzed bankers. They are an invisible population of multinational migrant laborers on slave contracts: Filipinos, Indians, Bangladeshis and Pakistanis rucked out again before the sight of them makes anyone uncomfortable (Butho, 2019, p. 70).

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ultimately protected. Visibility is a trap" (Foucault, 1995, p. 200).

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PROFILE

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