

Article

# Application Research of Image-based Methods in Aby Warburg's Emotive Formula

Xiaoyi Duan<sup>1,\*</sup><sup>1</sup> Faculty of Humanities and Arts, Macau University of Science and Technology, 999078, Macau, China

\* Correspondence: Xiaoyi Duan, Faculty of Humanities and Arts, Macau University of Science and Technology, 999078, Macau, China

**Abstract:** This paper centers around Aby Warburg's theory of 'motive Formula' and applies the image-based research method known as the 'Good Neighbor Principle' to analyze two case studies, aiming to validate the interdisciplinary applicability of the 'Good Neighbor Principle.' Firstly, the method is employed to analyze and interpret Plate 30 from Warburg's work, 'The Goddess of Memory Atlas,' to validate the theories related to Warburg's image-based emotive formula. Subsequently, the same research method is applied to analyze a case study in design, revealing that the design genes of Apple products originated from the German classical functionalism of Braun. This further confirms the effectiveness of the 'Good Neighbor Principle' and demonstrates how Warburg's concepts of memory and emotion are given new interpretations within the current social context. Drawing conclusions from these two case studies, it is evident that the power of memory and emotion has long been present, not only in artistic works but also in various other fields and different eras. Warburg's image-based re-search method, the 'Good Neighbor Principle,' can be applied across multiple disciplines and establish energetic connections among research subjects in different fields.

**Keywords:** Aby Warburg, Emotive Formula, Good Neighbor Principle, Image-based Method Application, Mnemosyne Atlas

## 1. Introduction

Aby Warburg was one of the most influential cultural and art historians of the 20th century in the West. He is regarded as a pioneer of iconology research in art history, and his life was filled with legendary stories. The Warburg Library, which he established based on the principle of 'good neighbors,' attracted the attention of researchers worldwide with its unique collection and cataloging methods. His academic propositions encompass various fields such as iconology, cultural studies, psychology, and anthropology [1]. In a commemorative lecture in 1999, Gombrich reminded people that Warburg explicitly denied interpreting his research as iconology. However, Gombrich soon expressed dissatisfaction with this denial. He believed that what sparked classical iconographic studies in the Renaissance was the artists' ability to 'dialectically utilize' existing expressive values. This liberating power resonated with the tragic force that Warburg was concerned with—a force that always emerged when humans attempted to break free from fate. Warburg described the works he studied as products of the interaction of various forces. For similar reasons, we will also use diagrammatic forms to outline Warburg's intellectual contours[2]. With the rise of the 'Return to Warburg' movement at the end of the 20th century and the beginning of the 21st century, Warburg's ideas and theories have once again come under renewed attention.

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This paper primarily conducts an applied study on Warburg's 'good neighbors' principle. It first attempts to interpret and analyze his final work, *nemosyne Atlas* focusing on the 30th panel, through Warburg's research methods. This study aims to provide academic supplementation to the existing body of research, bringing us closer to his intellectual theories. Additionally, the interdisciplinary application of Warburg's 'good neighbors' principle and the energy connections between research subjects across time and space are worth studying and exploring. This paper applies the method to a second case: analyzing the design genes of Apple products.

## 2. Research on Aby Warburg

Gombrich's *by Warburg: An Intellectual Biography* and the works of French art historian Georges Didi-Huberman, such as *The Surviving Image*, provide important references for domestic academic research on Aby Warburg. Warburg-related studies in China can generally be divided into three categories, with overlapping content but differing emphases. The first category mainly focuses on interpreting his research theories and ideas. For example, Wu Qiong highlights the 'good neighbors' principle and detailed reading as fundamental characteristics of Warburg's iconography research, analyzing the development and intellectual framework of Warburg's iconology by examining the relationship between antiquity and modernity[3]. Wu Qiong also explored Warburg's theory of haunting, wherein the dislocation of time and space causes the symbolic forms expressing the life force in ancient 'survivals' to constantly transform. Each rebirth is like the ghostly return of primal life force within historicity. Particularly in the early Renaissance, this 'critical moment' saw the most complete expression of the polarization of life force through the bipolarity of symbolic forms. These forms thus became the symptoms of history, life, and art[4]. Additionally, some scholars investigate Warburg's theory of image memory from philosophical, psychological, and art historical perspectives, reconstructing its academic value within art history[5].

The second category of research focuses on analyzing Warburg's academic achievements, specifically the interpretation of his works. For instance, in a comprehensive analysis, Xing Yue attempts to interpret the visual archives of German cultural historian Aby Warburg, aiming to explore the transformation process of the 'serpentine gesture' within the psychological field of images in Warburg's visual archive using Warburgian methods[6]. Dai Dan, after providing an overview of *Mnemosyne Atlas*, briefly analyzes panels A, B, C, 78, and 79, and discusses the impact of the Warburg Library's relocation to London on British art history[7]. From a more detailed perspective, some research delves into individual panels of *Mnemosyne Atlas*. Wang Bin offers an interpretation of panel 76, beginning with the Niobe image and gradually extending to images from different periods and types, attempting to trace Warburg's study of the manifestation and circulation of the Niobe image. Wang's research reveals how the emotional formula, centered on the primal maternal fear, circulated and was repurposed from antiquity to modern times[8]. Wang Xinmeng interprets panel 55 of *Mnemosyne Atlas*, focusing on the historical sources of the composition of Manet's *Luncheon on the Grass* and the secular transformation of the mythological theme of *The Judgment of Paris* in medieval illustrations and modern pastoral paintings. This interpretation reflects Warburg's long-standing interest in the emotional formula and social memory theory[9]. Yang Yini offers an interpretation of panel 41a, using the Laocoön sculpture as a central theme to demonstrate how ancient emotional formulas became exemplars of expressive gestures and how they became detached, losing their original power. She points out that the Renaissance marks the transition between symbolic thinking and allegorical thinking[10].

The third category of research compares Warburg's iconology with other iconographic methods. For example, Riegl's *Theory of Style* and Warburg's *Iconology* have long been considered two distinct, even opposing, perspectives and approaches in art

history. However, by examining their core concepts, 'artistic will' and 'pathos formula', it becomes evident that both theorists, in their efforts to overcome historicism, appeal to an objective dynamism. This not only breaks the rigid intellectual models established by Wölfflin and Panofsky—namely, 'formal analysis' and 'iconology'—but also offers a new methodology and artistic force[11]. Additionally, some studies view Warburg's iconology as a particular phase in the development of 20th-century image theory. In classical art historical understanding, iconology developed from early forms, such as Ripa's *Iconologia*, to the modern concept of image studies as found in Warburg and Panofsky[12].

The research literature listed above represents examples of the existing domestic studies and serves as important references for this paper. Based on current research, there remains room for further analysis of individual panels of *Mnemosyne Atlas*, and the application of Warburg's 'good neighbors' principle has largely been limited to analyzing Warburg's own research achievements. Therefore, this paper attempts to apply the 'good neighbors' principle to two cases: interpreting panel 30 of *Mnemosyne Atlas* to enhance the academic understanding of all 63 panels and analyzing the classical German modernist design genes reflected in Apple products to explore the feasibility of applying the 'good neighbors' principle to other disciplines and research subjects.

### 3. Pathos Formula and the Good Neighbors Principle

Warburg believed that art serves as an organ of social memory, preserving and presenting humanity's deepest collective memories in the form of memory traces. In his theory of memory, images are not merely illustrations or representations of history but function as 'genes' that link individual and collective memory, as well as partial and overall memory. The *pathos formula* (*Pathosformel*) is a highly condensed concept of these 'memory traces,' suggesting that powerful human emotions are expressed through specific and detailed patterns. These emotional formulas are encountered at moments and by specific individuals, undergoing a complete transformation in ways previously unimaginable. This reconnects the past with the present and future, highlighting culture's ability to transcend space and time through migration and regeneration. In ancient works of art, rigid formulas preserve early emotional memories, transmitting them through the most intense intermediary forms in human civilization. Artists reappropriated these ancient formulas, drawing from their energy and essence to bring images back to life, oscillating between primal passion and intellectual activity. In this process, the image gains a posthumous existence, and the artist repositions themselves as a new historical subject.

Warburg's 'Good Neighbors' principle, which also guided his own work, serves as the research method in this paper. This principle was fundamental to the organization of the Warburg Library and his approach to processing images. By clustering related image materials together, Warburg created an intertextual context among the images, revolving around a common theme. Through the repetition and overlap of specific themes or details, objects from different fields or even distinct time periods and spaces developed an energetic connection, enabling objects from another time to be revived in the present.

In this paper, the 'Good Neighbors' principle is applied to incorporate images from different periods into the 'Good Neighbors' system. The first case, the analysis of panel 30 of *Mnemosyne Atlas*, follows this principle to generate a new interpretation of the panel. In the second case, an analysis of the classical modernist design genes in Apple products, a thematic panel is established based on this principle. The study finds that this method exhibits great flexibility when applied to different disciplines and research needs.

### 4. Application 1 of Aby Warburg's Iconological Method: Analysis of Panel 30 of *Mnemosyne Atlas*

Warburg's analysis of panel 30 of *Mnemosyne Atlas* (Figure 1) focuses on the theme of 'Piero della Francesca; Memory and Separation'[13]. To facilitate subsequent analysis, the author has conducted a preliminary of the image information contained in the panel, as shown in Table 1.



**Figure 1.** Panel 30 of *Mnemosyne Atlas* (Original Content) .

Image Source: Aby Warburg, *Aby Warburg Bilderatlas Mnemosyne*. Berlin: Haje Cantz Press, 2020.

Number	Name	Author	Year	Technology/ Media
1	The John VIII Medal (Obverse and Reverse)	Antonio Pisanello	1438	Cast in bronze and other metals
2A	Constantine's Victory over Maxentius	Piero della Francesca	1458-1466	mural
2B	Constantine's Victory over Maxentius	John Anton Lamb	/	watercolors
3	The Battle of Heraclius and Chosroes'	John Anton Lamb	1840	Hand-colored print
4A	Procession of the Magi	Benozzo Gozzoli	1459-1461	mural
4B	Procession of the Magi (Detail of the South Wall)	Benozzo Gozzoli	1459-1461	mural
5	The Discovery of the True Cross	Antonio Romano	1492	mural

6	The Dream of Constantine	Piero Della Francis	1464	mural
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**Table 1.** Image Information for Panel 30 (Self-drawn by the author) .

Based on the information listed in the table, the artworks numbered 1-6 are not arranged chronologically, nor do they follow a historical sequence based on technical methods or media. Instead, Warburg's Panel 30 is categorized based on the thematic or contextual similarities conveyed by the images, which aligns with Warburg's theories of *pathos formula* and the 'Good Neighbors' principle.

Therefore, the analysis of Panel 30 of *Mnemosyne Atlas* is conducted as follows: First, the images are divided into three groups, each with a distinct name and strong interconnections. Image 1 forms its own group, termed *Symbolic Prologue*; images 2A, 2B, 3, 5, and 6 constitute the second group, named *Constantine the Great and the Cross*; and images 4A and 4B make up the third group, referred to as *The Medici Family's Spiritual Yearning*. These three groups are then analyzed both vertically and horizontally. Finally, the relationships between the three groups of images on Panel 30 are clarified, and the concept of the *survival* of classical values in late 15th-century Renaissance artworks is explored.

#### 4.1. The Symbolic Prelude

Symbols are not only distant from the basic characteristics of human symbolic thought but are even contrary to it. Symbols, in the original sense of the term, cannot be reduced to mere signs. Symbols and signs belong to two different domains: signs pertain to the physical world of existence, while symbols belong to the world of human meaning. Signs are operators, whereas symbols are designators. In the realm of language, it is precisely the general symbolic function of language that endows material signs with vitality and 'makes them speak' [14].

Figure 1 depicts a medal engraved with the portrait of John VIII Palaiologos, the Emperor of the Eastern Roman Empire. The medal shows both a profile view of the emperor and a scene of him on horseback. John VIII was the penultimate emperor of the Palaiologos dynasty of the Eastern Roman Empire. During his reign, the empire had only two remaining cities: Constantinople and Mystras, which was ruled by his brother. In 1432, John VIII successfully defended Constantinople from the Ottoman Sultan Murad II's siege. Later, to save the empire, he sought support from the Pope's crusaders at the cost of attempting to unify Eastern Orthodox and Roman Catholic churches. This act was seen as betrayal by the citizens of Constantinople. Ultimately, the Pope's crusaders were still defeated by the Ottoman Turks, and John VIII failed to gain his people's trust or rescue the crumbling Roman Empire. He died ten days after the battle.

The medal was created by Antonio Pisanello, an early Renaissance painter and one of the founders of the important commemorative medal genre of the first half of the 15th century. In the context of this panel, Figure 1 represents the earliest work chronologically. From a purely visual perspective, this medal serves as a prologue to the entire panel, as the image of John VIII repeatedly appears in the remaining images. In this sense, it is both a symbol and a form of transmission and inheritance. However, it is worth considering how *the image of John VIII*, which is close to the Renaissance in terms of time, represents the 'classical remnants' studied by Warburg. The analysis of the first set of images has not provided an answer, and the author will carry this question into the analysis of the second set of images.

#### 4.2. Constantine the Great and the Cross

The second group of images consists of five pictures, although they come from three different authors. The core of this group is the work of Piero della Francesca, an

early Italian Renaissance painter and theorist. In 1452, he created the fresco *The Legend of the True Cross* for the Church of San Francesco in Arezzo. Two of the themes expressed in this fresco are depicted in Image 2A, showing Constantine's victory over Maxentius, and Image 6, depicting Constantine's dream. *Constantine's Dream* is one of the artist's representative works, illustrating a scene where Emperor Constantine dreams of an angel showing him the cross before the battle with his enemies. He later replaced the pagan eagle on the Roman military standard with the Christian cross, leading to his victory and the issuance of the Edict of Milan the following year.

Image 2B is an imitation of Image 2A, while Image 3, titled 'The Battle of Heraclius and Chosroes', is also an imitation of one of the themes from Piero della Francesca's *The Legend of the True Cross*. Image 5, with the theme 'The Finding of the True Cross', is a fresco located in the apse of the Church of the Holy Cross in Jerusalem, painted by Antonio Romano. Romano was an early Renaissance painter and a leading figure of the Roman school in the late 15th century. He was known for 'repainting or interpreting old images or creating new images with an ancient flavor'[15].

From the perspective of chronological time, Image 2A was created between 1458 and 1466, making it the earliest work in this group of images. However, the image shows signs of deterioration and some content is missing. Image 2B is a pure restoration and imitation of Image 2A, without any subjective interpretation by the artist, John Anton Lamb. Similarly, Image 3 is a copy of another work by Francesco that does not appear on the board. The reason why Warburg included Images 2B and 3 could be to showcase the complete works of Francesco. Image 5, created in 1492, is a reinterpretation of the same theme by Antonio Romano, reflecting his own interpretation of Piero della Francesca's work. Thus, the second group of images forms two outward extensions centered around Francesco.

In terms of content, this group of images depicts the story of the *Legend of the True Cross* painted by Francesco in the Church of San Francesco, with the story originating from the 13th-century literary work *Golden Legend*. Although Warburg's image study approach focuses more on pure formal aspects rather than the content and background of the images, exploring the content and prototypes of these images helps to understand the 'emotional patterns' Warburg pursued from ancient sources. The *Golden Legend* contains the prototypes of this group of images, including Emperor Constantine, and covers several themes such as the death of Adam (according to legend, the wood of the true cross came from Eden), the Queen of Sheba's visit to Solomon, and the veneration of the wood of Adam; the festival of the cross; Constantine's dream; the discovery and verification of the true cross; and the battle between Heraclius (Byzantine Emperor) and Cosroes (Persian Emperor). These themes link the key prototype figure of Constantine and Christianity with the theme painter Francesco. However, the reason why Image 5 does not come from Francesco's painting but from Antonio Romano can be answered through the formal analysis of this group of images.

Returning to the formal aspects of the images, based on the previous analysis, images 2A, 2B, and 3 all depict the content painted by Francis. Together with Image 6, *The Dream of Constantine*, all representations of Emperor Constantine use the image of John VIII, either in profile or riding a white horse. The presence of the cross and the white horse is common in these four images. When we analyze Image 5, we find it repeats three of the common symbols from the previous four images: the image of John VIII, the figure riding the white horse in the lower right corner, and the cross element. It is not difficult to understand why Warburg included this image on the panel, as it conveys a similar 'form' to communicate the 'memory' and 'emotion' of resurrection, interpreting the solemn 'commemoration' under the religious theme.

Thus, the second group of images, centered around Francis, extends a clue that connects with the first group of images featuring John VIII's medals. Through the interpretation of the second group of images, we further uncover that the prototype for Francis's creations comes from the literary work *Legenda Aurea* and is linked to the

historical figure of Emperor Constantine. One notable aspect of Constantine's political career is his formal conversion to Christianity. As a Roman Emperor who actively engaged in battles against external enemies and had a close connection with religion during his reign, Constantine's achievements stand in contrast to John VIII's inability to turn the tide. Constantine, known for his victories in multiple wars, is particularly famous for his triumphal arch.

The reliefs on Constantine's Arch of Triumph record his battle against Maxentius, which is also the reason for the arch's construction. The arch's surface extensively uses materials from older commemorative buildings, integrating them into the architecture of Constantine's era. It celebrates Constantine's victories in war and reflects the core ideas of his activities in Rome, while also praising him for his wartime and civic achievements.

One interpretation suggests that the arch's decorations, referencing the 'golden age' of emperors like Trajan, Hadrian, and Marcus Aurelius, subtly imply that Constantine would be considered one of these 'great emperors.' Importantly, the reliefs on the Arch of Constantine depict the battle between Constantine and Maxentius, and the imagery in these reliefs seems to provide a prototype for Francis's frescoes, such as in Image 2-3. The composition of these reliefs mirrors the depiction of Heraclius and Joscelin's battle in Image 3 (as shown in Image 4). Additionally, the content depicted in the reliefs aligns with the original scenes of Constantine's victory over Maxentius in Image 2A. Thus, it can be inferred that Francis's creative inspiration likely comes from the reliefs on Constantine's Arch. This socio-cultural perspective enriches and extends the mimetic language, demonstrating humanity's unique ability to 'use tools' [16], translating royal passion into the most subtle attempt at Christian lamentation [17].



**Figure 2.** Comparison One.





Figure 3. Comparison Two.





**Figure 4.** Comparison Three.**4.3. The Spiritual Yearning of the Medici Family**

The third group of images is by Benozzo Gozzoli and depicts the *Procession of the Magi*, created between 1459 and 1461. Chronologically, this work aligns with the frescoes by Piero della Francesca. Benozzo Gozzoli, an early Renaissance artist highly valued by the Medici family, was also one of Fra Angelico's most accomplished disciples and assistants. This artwork, while ostensibly depicting the religious story of the *Adoration of the Magi*, actually portrays a grand procession of the Florentine elite during a festival, with various rulers of the Medici family appearing in different positions within the painting.

While a detailed explanation of the *Adoration of the Magi* narrative is not provided here, the stylistic approach of Gozzoli's work is noteworthy. In Image 4A, King Balthazar is shown riding a white horse in a near-profile pose. Image 4B enlarges this figure and details, revealing a resemblance to the recurring image of John VIII Palaiologos in the panel. The annotation on Panel 30 of *Mnemosyne Atlas*—'John VII Palaiologos as Balthasar'—confirms this hypothesis. This use of symbolism links John VIII with religious themes, aligning with the formal usage by Piero della Francesca. However, in this context, the symbolic representation is detached from its original 'memorial' emotion and becomes a symbol of the Florentine bourgeoisie's quest for emotional integration.

In Benozzo Gozzoli's work, both the artist and several members of the Medici family are depicted within the painting. This technique of temporal dislocation and stylistic allusion is of particular interest to Warburg, who focused on the emotional structure behind such artistic practices. Warburg argued that this method of temporal dislocation is a cultural practice that expresses the spiritual yearning or emotional integration of the Florentine bourgeoisie. The image thus serves as a means of reconciling contradictions and conflicts between classical and modern, religious and secular, Christianity and paganism, faith and desire.

Through the analysis and interpretation of these three groups of images, an attempt is made to decode Panel 30 of the *Mnemosyne Atlas*. In this process, the application of Warburg's 'good neighbor' principle is represented in a new panel, as shown in Figure 5. Overall, the work by Piero della Francesca is centered around the theme originating from the 13th-century literary work *Golden Legend*. By tracing the reference to the reliefs on the Arch of Constantine through the figure of Constantine the Great and considering the image of John VIII Palaiologos as a symbolic substitute for Constantine, the repeated imagery on the panel forms a paradigm of emotional expression. This analysis reveals Warburg's focus on the preservation of classical 'expressive value' and the concepts of 'memory' and 'emotional program'. The representation on ancient reliefs is preserved in collective memory, and when combined with medieval figures, is revived in Renaissance emotional expression.

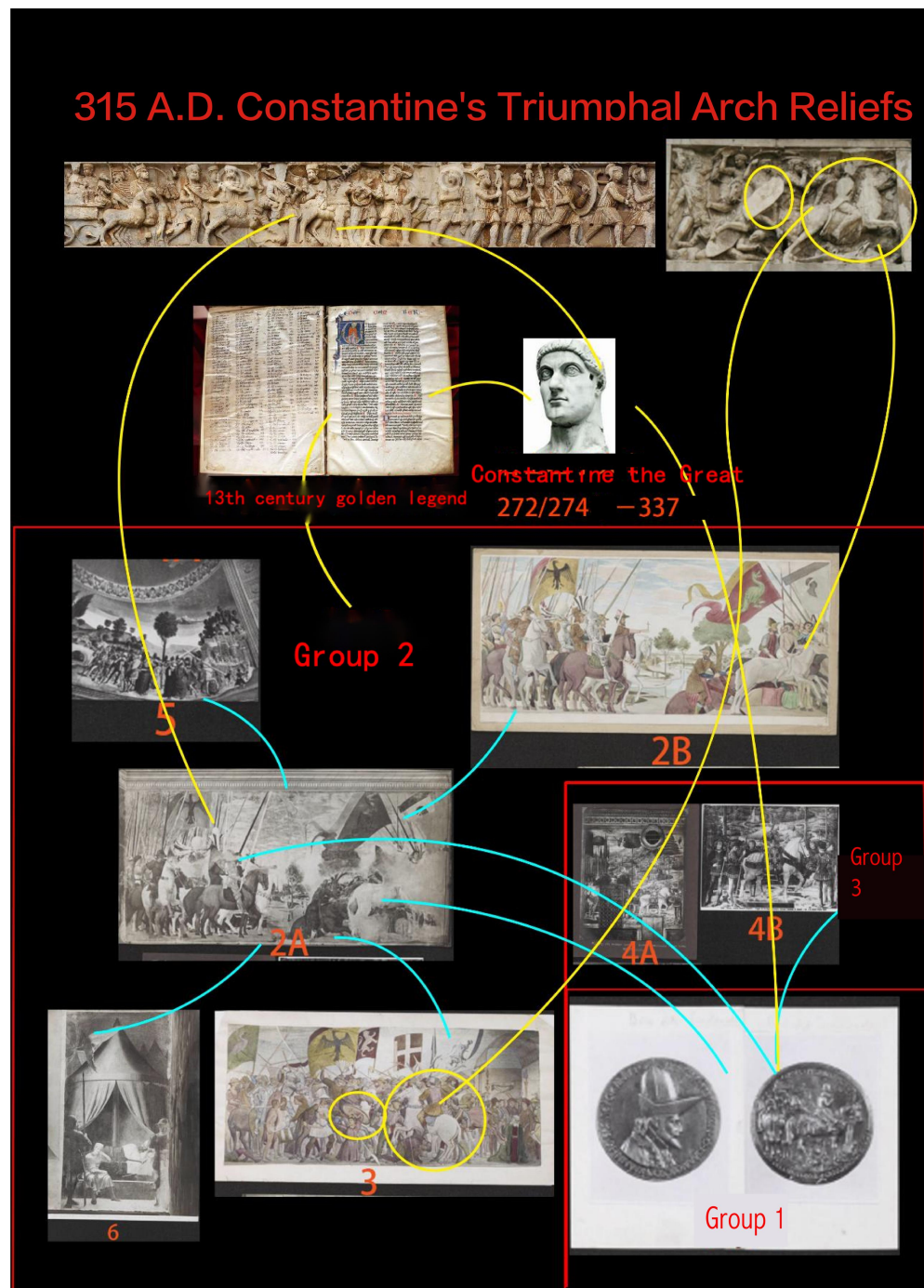


Figure 5. Analytical panel created for Panel 30 of the *Mnemosyne Atlas* using the 'Good Neighbor' principle.

### 5. Application 2 of Aby Warburg's Iconographic Method in Apple Product Design—An Analysis of German Modernist Design Genes

In the previous section, the 'good neighbor' principle was used to interpret Aby Warburg's own work, the 30th panel of the *Mnemosyne Atlas*, in an attempt to understand and explain Warburg's research approach. In this section, I attempt to apply the 'good neighbor' principle to product design analysis, exploring the effectiveness of this research method in the field of design. Using Apple products as a case study, I examine how German modernist design genes are embedded in Apple's product design

—how the ‘memory’ of German modernist design, or its ‘pathos formula,’ is ‘revived’ in the design of a modern American brand.



### 5.1. Analysis of Panel Content

The images displayed on the panel are all from the case study. Due to the extensive amount of image information, I have grouped the images and indicated their connections with lines, as shown in Figure 6. The first four groups of images compare the product designs of German company Braun with those of Apple. The Braun

products are arranged from left to right in chronological order, with Apple products displayed on the far right. These four groups of images address different types of Apple designs, primarily focusing on the visual forms presented in the images.

The first group of images includes Braun's ABK30 wall clock, a cassette tape recorder, and the L2 metal stand speaker, followed by Apple's iPod. It is clear from these images that Apple borrowed forms such as squares, circles, and rings from Braun's designs.

The second group of images features Braun's LE1 and L01 3D speakers, L710 studio speakers, L60 record player and audio system, and Apple's iPod and HI-FI. The transition from large color blocks in Braun's earlier products to rounded rectangles, and then to unified color blocks without borders, is evident. This form was inherited by Apple products.

The third group consists of Braun's Et88 pocket calculator, ET 11, ET 2, ET 33 calculators, and a comparison of Apple's mobile phone calculator UI with Braun's ET44 calculator. The rectangular display frames, round buttons, and distinctive orange button in Apple's design are reflected in Braun's calculators and are still present in Apple's current designs.

The fourth group compares Apple's iMac design with Braun's FS80 and FS100 floor-standing televisions, HF1 television, L810 compact system with a record player, and Braun LE1 amplifier. The last image shows the front view of the iMac. This set of images reveals that Apple's iMac design inherits and evolves from Braun's product designs. The black borders and forms from Braun's products have evolved into regular rounded rectangles in the iMac. The metal stand design in Braun's products has transformed into a unified, connected, and inclined L-shape in Apple's products. This evolution carries Braun's design genes but results in a unique Apple form.

From the formal analysis of these four groups of images, it is apparent that Apple's product design primarily borrows and utilizes combinations of elements such as rectangles, rounded rectangles, circles, rings, and straight supports from Braun's products. While some of these combinations are still used in Braun's current products, Apple has 'borrowed' and integrated these forms into its own brand identity, reflecting a distinct lineage of German modernist design genes in this American brand.

### *5.2. The Spiritual Origins Behind the Form*

Having completed the analysis of the previous four groups of images, it is evident that Apple's designs follow the core mission of Braun's product design, primarily embodied by Dieter Rams, as illustrated in the first image of the fifth group. This provides a basis for understanding the relationship between Dieter Rams and German modernist design, and consequently, the genetic link between Apple and German modernist design.

The fifth group of images, from left to right, shows Dieter Rams, the Ulm School of Design, and the Bauhaus. Dieter Rams, born in 1932, is a product and furniture designer who worked at Braun from 1955 to 1997 and served as the head of the design department from 1961 to 1995. Unlike the executive board, engineering, marketing, and public relations departments, Rams was a pioneer of 'good design'. He served as the chairman of the German Design Council from 1988 to 1998. Rams designed various products including radios, record players, lighters, clocks, and home appliances. His design philosophy primarily drew from classical modernism[18]. Rams absorbed the educational principles of the Ulm School of Design and developed his own 'Ten Principles of Good Design' during his long practice at Braun, proposing the design philosophy of 'Less, but better.' This philosophy is an extension of the German modernist master Mies van der Rohe's concept of 'Less is more', allowing the analysis in this section to extend further in time to the collaboration between Braun and the Ulm School.

In the early 1950s, to find more outstanding designers, Braun's manager, Erwin Braun, attended a lecture in Darmstadt, Germany, where he met Wilhelm Wagenfeld, who had worked at the Weimar Bauhaus. Braun was impressed by Wagenfeld's design philosophy of 'depersonalized' industrial products. Wagenfeld, as Braun's first collaborative designer, brought some of the Weimar Bauhaus ideas into Braun. At that time, the Ulm School of Design had just been established and was considered a successor to the Bauhaus. Its first director, Max Bill, played a crucial role in promoting 'good form', similarly influenced by the Bauhaus as Wagenfeld was. This became a campaign to convince everyone that better, more minimalist products could make the world a better place. Subsequently, Braun repeatedly constructed the assumptions of the Bauhaus, giving them new interpretations, such as with the FreeStyle steam iron, MR5000 hand blender, and ThermoScan Pro3000 thermometer. These products embodied a combination of 'rationalism' and new sensations, as well as a combination of 'functionalism' and soft contours. They reflect the classical modernist characteristics advocated by Braun's predecessors, with designs such as the Activator showcasing functionalism and balanced control tracks with necessary anti-slip features. These products represent the realization of the 'good design' philosophy and pay homage to classical modernism.

In summary, the design philosophy of Braun, represented by Dieter Rams, embodies rationality, idealism, and holistic principles, as well as a social aspiration to organically integrate art and industry. This approach is a continuation and development of Bauhaus ideals, distinctly reflecting classical German modernist characteristics. Through the unified and cohesive forms represented in the images above, it serves as a symbol of 'memory' and a paradigm for rational 'emotion,' which has been 'revived' in today's Apple product design in a similar form. In the contemporary context, this expression of 'emotion' is unrelated to the 'tragic force' that Warburg focused on. Whether for Braun or Apple, their products continuously present themselves in new forms to consumers, yet we can still identify the genetic imprint of classical German modernism. This reflects the result of balancing continuous innovation with enduring recognition.

## 6. Conclusion

This paper makes contributions in two main areas. First, by applying Warburg's 'Good Neighbors' principle, the study provides an in-depth analysis of two cases. The first case involves the interpretation of Plate 30 in Warburg's *Mnemosyne Atlas*, which helps to supplement the academic understanding of other plates in the work and offers a clear exposition of a particular aspect of Warburg's theoretical framework.

Second, the method was used to analyze the German classical modernist genes present in Apple's products. It was found that the principles of German classical modernism, expressed as a form of 'memory' and rational 'emotion,' are revived in Apple's product design in a similar form. However, in the contemporary context, this 'emotion' is detached from the 'tragic force' that Warburg focused on. This also validates the applicability of the 'Good Neighbors' principle in other disciplines or research topics.

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