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Gemma Cornetti

Contacts

info@edgarwindjournal.eu
submissions@edgarwindjournal.eu

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Publisher

Bernardino Branca

Contact: Corso Magenta 48, 20123, Milan, Italy

Phone: 0039 3483605940

Email: bernard.branca@gmail.com

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Aby Warburg, Edgar Wind, and the Concept of *Kulturwissenschaft*: Reflections on Imagery, Symbols, and Expression¹

Fabio Tononi

Abstract

This paper analyses Edgar Wind's interpretation of Aby Warburg's opus by focusing on the role of the concept of *Einfühlung* (empathy) theorised by Robert Vischer in Warburg's thought. The notion of empathy is at the core of Warburg's investigation of Renaissance imagery, style, symbols, and human expression. This study also updates Vischer's, Warburg's, and Wind's insights on the biological basis of empathy in light of recent neuroscientific research, as Warburg and Wind desired. As this study shows, the concept of *Einfühlung* can be further developed, considering recent advances in cognitive neuroscience, confirming Warburg's and Wind's understanding of the biological implications of images for both the artist and the observer. To this end, ongoing neuroscientific research on motion, emotion, and empathy is considered.

Keywords

Aby Warburg; Edgar Wind; *Einfühlung*; Empathy; Expression; Imagery; *Kulturwissenschaft*; Neurophysiology; Robert Vischer; Symbols

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Introduction: Wind at the Kulturwissenschaftliche Bibliothek Warburg; 1. Warburg's Concept of Imagery; 2. Warburg's Theory of the Polarity of the Symbol: Between Goethe and Nietzsche; 3. Warburg's Psychological Theory of Expression; 4. Interpreting Warburg: Wind versus Gombrich; 5. The Notion of *Einfühlung* and the Neurophysiological Account of Empathy; 6. The Concept of Immediacy; Conclusion: The Future of *Kulturwissenschaft*

¹ I have benefitted a lot from the fruitful discussions that followed the presentation of a portion of this paper at the conference *Edgar Wind: Art and Embodiment*, held at the Italian Cultural Institute, London, on 28–29 October 2021 <<https://www.edgarwindjournal.eu/announcements/>> [accessed 31 October 2021].

Introduction: Wind at the Kulturwissenschaftliche Bibliothek Warburg

In the summer of 1927, Edgar Wind (1900–1971) made the acquaintance of Aby Warburg (1866–1929) in Hamburg.² Soon after, the two scholars established a close intellectual association, which can be summarised in the following statement by Warburg: ‘I always forget that you are a trained art historian. You know how to think so nicely’.³ With these words, Warburg expressed his admiration for Wind and his way of thinking. They shared a similar research approach to images, with both regarded as not only art historians but also philosophers.⁴ Wind described his approach in the following words: ‘I have tried to develop a method of interpreting pictures which shows how ideas are translated into images, and images sustained by ideas’.⁵ Wind (like Warburg) was interested in the relationship between ideas and images, and the role that ideas have in the creation of images.

At the end of 1927, Wind became a research assistant at the Kulturwissenschaftliche Bibliothek Warburg (KBW), a private research library created by Warburg dedicated to the study of the ‘Afterlife of Antiquity’ (*Nachleben der Antike*) in European culture, or the way in which ancient (visual) cultures continue to exert their power upon subsequent eras.⁶ Since 1910s, the KBW has been regularly visited by renowned scholars such as art historians Fritz Saxl, Gertrud Bing, and Erwin Panofsky, philosopher Ernst Cassirer, Orientalist Hellmut Ritter, Byzantinist Richard Salomon, and philologist Karl Reinhard.⁷ Working in this context, Wind’s intellectual path benefitted a great deal.

One of the most important results of the collaborative work that was carried out at the KBW was the publication of *Bibliography on the Survival of the Classics*

² See Hugh Lloyd-Jones, ‘A Biographical Memoir’, in Edgar Wind, *The Eloquence of Symbols: Studies in Humanist Art*, ed. by Jaynie Anderson (Oxford and New York: Oxford University Press and Clarendon Press, 1983), pp. xiii-xxxvi (xvi).

³ Ibid: ‘Ich vergesse immer dass Sie [Wind] ein geschulter Kunsthistoriker sind; Sie haben es so nett mit dem Denken’. Translated in Benjamin Thomas, ‘Edgar Wind: A Short Biography’, in *Stanrzczy*, 1(8) (2015), 117-137 (119).

⁴ See Fabio Tononi and Bernardino Branca, ‘Introduction: Edgar Wind and a New Journal’, in *The Edgar Wind Journal*, 1 (2021), 1-11; Branca, *Edgar Wind filosofo delle immagini: La biografia intellettuale di un discepolo di Aby Warburg* (Milan: Mimesis, 2019); Andrea Pinotti, ‘Wind, Warburg et la “Kunstwissenschaft” comme “Kulturwissenschaft”’, in *Zeitschrift für Ästhetik und allgemeine Kunstwissenschaft*, 61(2) (2016), 267-279; Bernhard Buschendorf, ‘War ein sehr tüchtiges gegenseitiges Fördern: Edgar Wind und Aby Warburg’, in *Idea: Jahrbuch der Hamburger Kunsthalle*, 4 (1985), 165-209; Creighton Gilbert, ‘Edgar Wind as Man and Thinker’, in *New Criterion Reader*, 3(2) (1984), 36-41; and Ernst Gombrich, *Aby Warburg: An Intellectual Biography* (London: The Warburg Institute, 1970).

⁵ Wind Archive, Special Collections, Bodleian Library, Oxford, I, 9, VI: application for a Guggenheim grant, 1950. Now in Thomas, *Edgar Wind*, 118.

⁶ See Lloyd-Jones, *A Biographical Memoir*, p. xvi. For more on the Kulturwissenschaftliche Bibliothek Warburg, see Fritz Saxl, ‘The History of Warburg’s Library (1886–1944)’, in Gombrich, *Aby Warburg*, pp. 325-338; and Wind, ‘The Warburg Institute Classification Scheme’, in *The Library Association Record*, 2 (1935), 193-195.

⁷ See Emily J. Levine, *Dreamland of Humanists: Warburg, Cassirer, Panofsky and the Hamburg School* (Chicago and London: University of Chicago Press, 2013); and Levine, ‘The Other Weimar: The Warburg Circle as Hamburg School’, in *Journal of the History of Ideas*, 74(2) (2013), 307-330.

(*Kulturwissenschaftliche Bibliographie zum Nachleben der Antike*) between 1931 and 1933 in two volumes, edited by Hans Meier, Richard Newald, and Edgar Wind.⁸ In the English introduction to the first volume, Wind writes:

The general theme of this Bibliography – the survival of the Greek and Roman tradition – is familiar to English readers. They may feel some misgiving, however, at seeing on the German title page the untranslatable word ‘kulturwissenschaftlich’, which is meant to indicate the method employed.⁹

As Wind explains, the word ‘kulturwissenschaftlich’ was employed by Warburg to overcome the (sometimes counterproductive) fragmentation of disciplines imposed by academicians:

The word was actually used, whether for good or for ill, by Professor Warburg, on whose method the present Bibliography is founded. He used it in order to designate his attempt to tear down the barriers artificially set up between the various departments of historical research. Historians of science were not to work independently of historians of art and of religion.¹⁰

The linkage between disciplines is, therefore, the origin of a method of investigation – conceived by Warburg and then pursued by the Warburg circle – which applies a comparative approach to investigate the ‘Afterlife of Antiquity’.¹¹

The idea of a comprehensive ‘science of civilisation’ was thus meant to embody the demand for a precise method of interaction and correlation between those diverging scientific interests in the humanities which have shown a tendency to set up their subjects as ‘things in themselves’.¹²

Dialogue among disciplines is also evident in the Warburg Library’s classification scheme, as Wind correctly points out:

Within that specialized field of cultural history and psychology which is circumscribed by the ‘Survival of the Classics’, the Library endeavours to be encyclopaedic; i.e. it

⁸ Hans Meier, Richard Newald, and Edgar Wind (eds), *A Bibliography on the Survival of the Classics. First Volume, The Publications of 1931* (London: Cassel & Company, LTD., and the Warburg Institute, 1934); and Meier, Newald, and Wind (eds), *A Bibliography on the Survival of the Classics. Second Volume, The Publications of 1932–1933* (London: Cassel & Company, LTD., and the Warburg Institute, 1938).

⁹ Wind, ‘Introduction’, in *A Bibliography on the Survival of the Classics. First Volume*, pp. v-xii (v).

¹⁰ Ibid.

¹¹ For more on the so-called Warburg method, or *kulturwissenschaftlich*, see Claudia Wedepohl, ‘Why Botticelli? Aby Warburg’s Search for a New Approach to Quattrocento Italian Art’, in *Botticelli Past and Present*, ed. by Ana Debenedetti and Caroline Elam (London: UCL Press, 2019), pp. 183-202; Peter Burke, *What is Cultural History?* (Cambridge, UK: Polity, 2019); Ernst Cassirer, *The Logic of the Cultural Sciences*, trans. by Steve G. Lofts (London and New Haven, CT: Yale University Press, 2000); Carlo Ginzburg, ‘From Aby Warburg to E.H. Gombrich: A Problem of Method’, in id., *Clues, Myths, and the Historical Method* (Baltimore: Johns Hopkins University Press, 1989), pp. 17-59; and Gombrich, *Aby Warburg*.

¹² Wind, *Introduction*, p. v.

interconnects such seemingly independent subjects as the history of art, of science, of superstition, of literature, of religion, etc.¹³

Wind continues, ‘the system which follows is calculated to ... make interconnections easily visible’.¹⁴

The intellectual proximity of Wind and Warburg is also attested by a letter Wind wrote in French to Jean Seznec in August 1954. In this letter, Wind repeats a sentence the dying Warburg told him in confidence: “It’s simple. I would always be afraid of dying and you know why. But since you’ve been in this library, I’m no longer afraid; I know that everything will be fine when I am gone”. He died a month later’.¹⁵ In sharing this, Wind wanted to declare himself the intellectual heir of Warburg.

Maybe this was the reason that Wind in October 1930, one year after Warburg’s death, delivered a lecture on Warburg’s concept of *Kulturwissenschaft* to the 4th Congress of Aesthetics held at the KBW.¹⁶ Wind’s paper, titled ‘Warburg’s Concept of *Kulturwissenschaft* and its Meaning for Aesthetics’ and published in 1931, was his first attempt to reconstruct the significance of Warburg’s research.

Wind’s aim was ‘to explain the relationship between aesthetics and *Kulturwissenschaft* as it is understood in the Warburg library.’¹⁷ In doing so, he focused on three main points: ‘Warburg’s concept of imagery, his theory of symbols, and his psychological theory of expression by imitation and by the use of tools’.¹⁸ This text will be analysed in the following sections, as well as provided with a fresh interpretation through the application of a neuroaesthetic approach.

1. Warburg’s Concept of Imagery

In analysing the concept of imagery, Wind points to a divergence between Warburg and Heinrich Wölfflin:

With the intention of determining the factors conditioning the formation of style more thoroughly than had hitherto been done, he [Warburg] took up Burckhardt’s work and

¹³ Wind, *The Warburg Institute Classification Scheme*, p. 193.

¹⁴ Ibid.

¹⁵ An excerpt of the letter that Wind sent to Seznec in 1954 is now published in Branca, *Edgar Wind filosofo delle immagini*, pp. 107-108 (108): “C’est simple. J’avais toujours peur de mourir, et vous savez pourquoi. Mais depuis que vous êtes dans cette bibliothèque, je n’ai plus peur; je sais que tout ira bien quand je serai parti”. Il est mort un mois plus tard’. Unless noted otherwise, subsequent translations are my own.

¹⁶ See Wind, ‘Warburg’s Concept of *Kulturwissenschaft* and its Meaning for Aesthetics’, in id., *The Eloquence of Symbols*, pp. 21-35 (21).

¹⁷ Ibid.

¹⁸ Ibid.

extended it in the very direction that Wölfflin, also in the interests of a deeper understanding of the formation of style, had deliberately eschewed.¹⁹

What are the opposite directions undertaken by Wölfflin and Warburg? As Wind explains, whereas ‘Wölfflin called for the separation of the study of art and the study of culture’, Warburg was committed to uniting them.²⁰ In this respect, Wind continues: ‘It was one of Warburg’s basic convictions that any attempt to detach the image from its relation to religion and poetry, to cult and drama, is like cutting off its lifeblood’.²¹ Therefore, as Wind points out, Warburg regarded the image ‘as being indissolubly bound up with culture as a whole’.²²

Warburg’s approach to the study of images required a specific method, which Wind describes as follows: ‘It is not just a matter of training the eye to follow and enjoy the formal ramifications of an unfamiliar linear style’. In other words, Warburg’s method is not a practice of connoisseurship but rather a matter ‘of resurrecting the original conceptions implied in a particular mode of vision from the obscurity into which they have fallen’.²³ This can be accomplished ‘[b]y studying all kinds of documents that by methods of historical criticism can be connected with the image in question’.²⁴ Only in this way is it possible to show how the links between ‘a whole complex of ideas ... has contributed to the formation of the image’.²⁵

Therefore, Warburg’s method consists of ‘a process of recollection’, which also contributes ‘to keeping alive the experience of the past’.²⁶ Correspondingly, this points to the importance of memory, which the art historian must be able to retrace in an image:

Warburg was convinced that in his own work, when he was reflecting upon the images he analysed, he was fulfilling an analogous function to that of pictorial memory when, under the compulsive urge to expression, the mind spontaneously synthesizes images, namely the recollection, or more literally, the revival of pre-existing forms.²⁷

Warburg stresses the importance that memory plays in both art history and making art by referencing the ancient Greek term ΜΝΗΜΟΣΥΝΗ (memory), which, as Wind states, has two intended senses: (i) ‘as a reminder to the scholar that in interpreting the works of the past he is acting as trustee of a repository of human experience’, and (ii) ‘as a reminder that this experience is itself an object of research, that it requires us to use historical

¹⁹ Ibid., p. 24.

²⁰ Ibid.

²¹ Ibid., p. 25.

²² Ibid.

²³ Ibid.

²⁴ Ibid.

²⁵ Ibid.

²⁶ Ibid., p. 26.

²⁷ Ibid.

material to investigate the way in which “social memory” functions’.²⁸ While studying the early Florentine Renaissance, Warburg formulated the term ‘social memory’ (or collective memory) to refer to ‘the revival of imagery from antiquity in the art of later ages’.²⁹

According to Warburg, the revival of classical antiquity in the artistic culture of the early Renaissance contained a problem with no easy solution, namely, the implications of encounters with pre-existing images passed on by memory.³⁰ It is at this juncture that biology and psychology come into play.

In the English introduction to *A Bibliography on the Survival of the Classics*, Wind explains that Warburg’s notion of memory has a biological root:

It is not sufficient, however, to state the problem of ‘historical memory’ in abstract philosophical terms. It is necessary to observe in detail how that memory actually functions. For this purpose, any historical material might supply a significant group of data. However, the material here selected under the name of the ‘survival of the classics’ must seem of particular relevance to any student – or patient – of European history. The word, ‘survival’, to be sure, is a biological metaphor. When we speak of ‘survival of the classics’, we mean that the symbols created by the ancients continued to assert their power upon subsequent generations; – but what do we mean by the word ‘continue’? Is their significance constantly retained? Or is it not rather forgotten at times, regained and transformed at others? And what are the conditions, what are the effects of ‘forgetting’ and ‘remembering’?³¹

These were the questions that Warburg aimed to answer, to investigate, for example, the way ‘the Olympian gods were revived in the Renaissance as aesthetic ideals’ and the way ‘they came to survive in the Middle Ages as astrological and magical demons’.³² From this reasoning, Warburg derived his concept of polarity, which will be analysed in the following section.

²⁸ Ibid.

²⁹ Ibid.

³⁰ Ibid.

³¹ Wind, *Introduction*, p. viii. For more on Warburg’s notion of memory, see Wedepohl, ‘Mnemonics, Mneme and Mnemosyne. Aby Warburg’s Theory of Memory’, in *Bruniana & Campanelliana*, XX(2) (2014), 385-402; Wedepohl, ‘Mnemosyne, the Muses and Apollo: Mythology as Epistemology in Aby Warburg’s *Bilderatlas*’, in *The Muses and their Afterlife in Post-Classical Europe*, ed. by Kathleen W. Christian et al. (London and Turin: The Warburg Institute and Nino Aragno, 2014), pp. 211-270; and Gombrich, *Aby Warburg*, pp. 239-259.

³² Wind, *Introduction*, p. vi.

2. Warburg's Theory of the Polarity of the Symbol: Between Goethe and Nietzsche

In a diary entry dated 25 May 1907, Warburg reflects on his reading of Johann Wolfgang von Goethe's *Metamorphosis of Plants* (1790), observing a similarity between his own concept of polarity and Goethe's analysis of plants:

Most of all I see that the concept of polarity which I felt to be my own creation also stands in the centre of Goethe's thought. The problem of the Renaissance now presents itself as that of the metamorphosis of the energy of the human and individual self-awareness caused by the polarisation due to the re-instatement of the memory images of energy-peaks in the classical past – more briefly, 'dynamic polarisation through restored memory'.³³

In his *Metamorphosis of Plants*, Goethe observes that plants during their metamorphosis resemble their adjacent parts: 'certain external parts of the plant undergo frequent change and take on the shape of the adjacent parts – sometimes fully, sometimes more, and sometimes less'.³⁴ He continues: 'we will familiarise ourselves with the laws of metamorphosis by which nature produces one part through another, creating a great variety of forms through the modification of a single organ'.³⁵ It is in this metamorphosis of similarities (or a kind of 'borrowing') that, it is assumed, Warburg saw a parallelism between his theory of memory and Goethe's concept of metamorphosis. In this sense, Goethe's work must also have confirmed for Warburg the importance of biology in the transfer of 'formulas' – or *Pathosformeln*, what Warburg calls the expression of emotions through recurrent gestures and movements – from one culture to another and, therefore, in memory.³⁶

Goethe defines the metamorphosis of plants as '[t]he process by which one and the same organ appears in a variety of forms'.³⁷ In this respect, he assigns a crucial role to 'biological science', which, as he states, 'has developed significantly in recent years ...'.³⁸ In another passage, Goethe seems to express the idea of forces used by Warburg in his concept of polarity:

³³ See Gombrich, *Aby Warburg*, pp. 241-242. For Warburg's concept of polarity, see Gombrich, *Aby Warburg*, p. 248.

³⁴ Johann Wolfgang von Goethe, *Metamorphosis of Plants* (Cambridge, MA, and London: MIT Press, 2009), p. 5.

³⁵ *Ibid.*, p. 6.

³⁶ For more on Warburg's concept of *Pathosformeln*, see Fabio Tononi, 'Andrea Mantegna and the Iconography of Mourners: Aby Warburg's Notion of *Pathosformeln* and the Theory of Aesthetic Response', in *IKON: Journal of Iconographic Studies*, 13 (2020), 79-94; and Wedepohl, 'Von der Pathosformel zum Gebärdensprachatlas. Dürers Tod des Orpheus und Warburgs Arbeit an einer ausdrucks-theoretisch begründeten Kulturgeschichte', in *Die Entfesselte Antike. Aby Warburg und die Geburt der Pathosformel*, ed. by Ulrich Rehm and Claudia Wedepohl (Köln: Walter König, 2012), pp. 33-50.

³⁷ Goethe, *Metamorphosis of Plants*, p. 6.

³⁸ *Ibid.*, p. 30.

Thus we have sought to follow as carefully as possible in the footsteps of nature. We have accompanied the outer form of the plant through all its transformation, from the seed to the formation of a new seed; we have investigated the outer expression of the forces by which the plant gradually transforms one and the same organ, but without any pretense of uncovering the basic impulses behind the natural phenomena.³⁹

Therefore, Goethe's main thesis is that the metamorphosis of plants relies on a similarity of forms: 'we have noted only the transformation of the leaves accompanying the nodes, and have derived all the forms from them'.⁴⁰ Similarly, Warburg shows how the metamorphosis of images from one culture to the next is based on a similarity of expressions, gestures, postures, movements, and forms (or formulas), distant in time but close in space. For example, in Renaissance Rome, artists could draw from a large body of ancient art to form their style.

Another important source for Warburg's theory of the polarity of the symbol is Friedrich Nietzsche, who in *The Birth of Tragedy* (1872) treats the same concept as follows:

[T]he continuous evolution of art is bound up with the duality of the *Apolline* and the *Dionysiac* in much the same way as reproduction depends on there being two sexes which co-exist in a state of perpetual conflict interrupted only occasionally by periods of reconciliation. We have borrowed these names from the Greeks who reveal the profound mysteries of their view of art to those with insight, not in concepts, admittedly, but through the penetratingly vivid figures of their gods. Their two deities of art, Apollo and Dionysos, provide the starting-point for our recognition that there exists in the world of Greeks an enormous opposition, both in origin and goals, between the Apolline art of the image-maker or sculptor (*Bildner*) and the imageless art of music, which is that of Dionysos. These two very different drives (*Triebe*) exist side by side, mostly in open conflict, stimulating and provoking (*reizen*) one another to give birth to ever-new, more vigorous offspring in whom they perpetuate the conflict inherent in the opposition between them, an opposition only apparently bridged by the common term 'art' – until eventually, by a metaphysical miracle of the Hellenic 'Will', they appear paired and, in this pairing, finally engender a work of art which is Dionysiac and Apolline in equal measure: Attic tragedy.⁴¹

Nietzsche viewed the Apolline/Dionysiac dichotomy as having a physiological basis, inasmuch as he linked Apollo with *dream* and Dionysus with *intoxication*. He states: 'Between these two physiological phenomena [i.e. *dream* and *intoxication*] an opposition can be observed which corresponds to that between Apolline and the Dionysiac'.⁴² In this respect,

³⁹ Ibid., p. 80.

⁴⁰ Ibid., p. 80.

⁴¹ Friedrich Nietzsche, *The Birth of Tragedy*, in id., *The Birth of Tragedy and Other Writings*, trans. by Ronald Speirs (Cambridge and New York: Cambridge University Press, 1999), pp. 1-116 (14).

⁴² Ibid., p. 15.

physiology will be one of Warburg's main concerns for investigating the polarity of the symbol.⁴³

Wind explains Warburg's theory of the polarity of the symbol in the following way:

These two opposing but interconnected forms of transmitting the classical inheritance provide a feature which is characteristic of the transmission of symbols in general. Symbols may work as a magic force to which one must respond by deeds of a ritual nature, or they may appear as a group of intellectual or aesthetic forms which call for analysis or contemplation. The tension between these opposing functions cannot be reduced to a simple antithesis of mutually exclusive terms, for it makes up the drama of civilisation that the same symbols can and will be interpreted in both ways, that from powerful signals compelling superstitious worship or fear, they will evolve into intellectual signs or aesthetic forms appealing to enlightened intelligence. But these enlightened symbols are always in danger of falling back into symbols of superstition, for they remain vivid and significant chiefly by virtue of their oscillation between these two poles.⁴⁴

Memory plays a pivotal role in the oscillation between the two poles that Warburg refers to: 'Memory must assert its constructive power. Memory which revives and re-interprets traditional symbols calls for reflection or instigates action and thus effects periodic reversions'.⁴⁵ Thus, it is the faculty of memory that revives, but also determines, the type of re-interpretation (or metamorphosis) of pre-existing forms.

From the conflicts instigated by the poles of the symbol, Warburg formulated his psychological theory, which Wind describes as follows:

[Warburg was able to] develop a psychological theory concerned with the resolution of conflicts (*Ausgleichspsychologie*), which assigns opposing psychological impulses to different psychological 'loci', and conceives of them as poles of a unifying oscillation – poles whose distance from each other is a measure of the extent of the oscillation.⁴⁶

Wind continues:

And only thus is it also possible to explain how the answer which he found in this theory of the polarity of psychological behaviour to his fundamental question concerning the nature of the response to the pre-existing forms of ancient art was developed into a general thesis: namely, that in the course of the history of images their pre-existing expressive values undergo a polarization which corresponds to the extent of the psychological oscillation of the creative power which refashions them.⁴⁷

⁴³ See Gertrud Bing, 'Editorial Foreword', in Aby Warburg, *The Renewal of Pagan Antiquity: Contributions to the Cultural History of the European Renaissance*, trans. by David Britt (Los Angeles: Getty Research Institute for the History of Art and the Humanities, 1999), pp. 81-87 (81); and Gombrich, *Aby Warburg*, p. 67.

⁴⁴ Wind, *Introduction*, pp. vi-vii.

⁴⁵ *Ibid.*, p. vii.

⁴⁶ Wind, *Warburg's Concept of Kulturwissenschaft and its Meaning for Aesthetics*, p. 26.

⁴⁷ *Ibid.*

As Wind states, '[i]t is only by means of this theory of polarity that the role of an image within a culture as a whole is to be determined'.⁴⁸ For example, Warburg compared and contrasted the Pedagogue from the Niobid group (Figure 1) with Andrea del Castagno's *David with the Head of Goliath* (Figure 2).⁴⁹ Although the gestures of the two figures are basically the same, their meanings are different: whereas the Pedagogue tries to shield himself against the murderous arrows of Artemis, David's gesture is a symbol of triumph. In this respect, the reuse of the gesture was polarised.

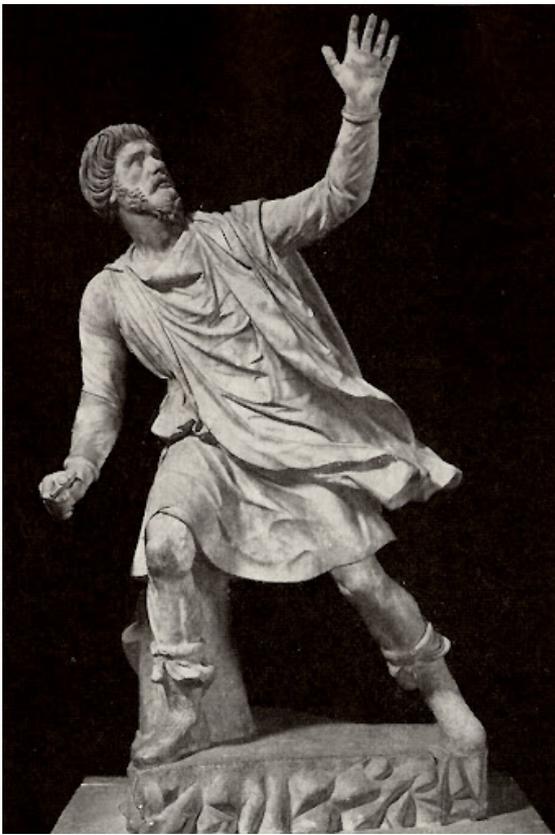


Figure 1. Pedagogue from the Niobid group, Roman copy of a 4th-century BC Greek original, marble. Florence, Gallerie degli Uffizi. (Image in Public Domain)



Figure 2. Andrea del Castagno, *David with the Head of Goliath*, c. 1450–1455, tempera on leather on wood (115.5 x 76.5 cm). Washington D.C., National Gallery of art. (Image in Public Domain)

⁴⁸ Ibid.

⁴⁹ See Warburg, *Der Bilderatlas Mnemosyne*, ed. by Martin Warnke and Claudia Brink (Berlin: Akademie Verlag, 2003), pp. 23, 73 (panels 5 and 41). See also Gombrich, *Aby Warburg*, pp. 247-248.

The foundation of Warburg's study of Italian Renaissance culture is the psychology and aesthetics of Friedrich Theodor Vischer. Wind stresses the importance that Vischer's *Das Symbol* had for Warburg. In fact, *Das Symbol* is a work that

Warburg cited in his very first work, the dissertation on Botticelli, he read again and again, thinking through for himself the principles that Vischer had developed in the essay, testing them on actual material, and building upon them in his own way. Vischer's work therefore offers the best approach to the study of Warburg's conceptual system as a whole.⁵⁰

In particular, what was relevant for Warburg is Vischer's definition of the symbol 'as a connection of image and meaning through a point of comparison'.⁵¹ By image, Vischer means visible objects and by meaning, he means concepts.⁵² For example, 'a bundle of arrows is a symbol of unity, a star of fate, a ship of the Christian Church, a sword of power and division, a lion of courage of pride'.⁵³ Tellingly, according to Wind, aesthetic enjoyment is capable of recreating the experiential relationship between concept and symbol.⁵⁴

3. Warburg's Psychological Theory of Expression

The third important aspect Wind investigates in his paper is Warburg's psychological theory of expression. By studying the psychology of expression in Renaissance depictions of human figures, Warburg intended to investigate 'the process of the formation of images *in statu nascendi* in the shape of the expressive gestures made by the body', Wind states.⁵⁵ In this respect, psychical 'excitation and physical movement become identical'.⁵⁶

⁵⁰ Wind, *Warburg's Concept of Kulturwissenschaft and its Meaning for Aesthetics*, p. 27. See Friedrich Theodor Vischer, *Das Symbol* (Philosophische Aufsätze, Eduard Zeller gewidmet, 1887), <<https://resources.warburg.sas.ac.uk/pdf/daa25b2587082.pdf>> [accessed 17 March 2022]. See also Buschendorf, 'Zur Begründung der Kulturwissenschaft: Der Symbolbegriff bei Friedrich Theodor Vischer, Aby Warburg und Edgar Wind', in *Edgar Wind: Kunsthistoriker und Philosoph*, ed. by Horst Bredekamp et al. (Berlin: Akademie Verlag, 1998), pp. 227-248.

⁵¹ Wind, *Warburg's Concept of Kulturwissenschaft and its Meaning for Aesthetics*, p. 27.

⁵² Ibid.

⁵³ Ibid.

⁵⁴ Ibid., p. 29.

⁵⁵ Ibid., p. 30.

⁵⁶ Ibid., p. 31.

In many of his works, Warburg's main focus is the relationship between memory and representation of bodily movements and physical and facial expressions.⁵⁷ Wind calls this relationship 'memory function' because these expressions are 'traces': 'Frequent repetition of the same action leaves its traces'.⁵⁸ In another passage, Wind states: 'human muscles serve a further purpose beyond their purely physical one. They serve the purpose of mimetic expression'.⁵⁹ Therefore, Warburg and Wind were interested in muscles that perform both physical and expressive functions.

In this respect, Wind discusses

a language of social gestures, which supplements and extends mimetic language. Taking off one's hat becomes an expression of deference, carrying a sceptre a symbol of majesty, riding high in the saddle a triumphal gesture. And each one of these acts conforms to the polarity of the symbol. For every socially expressive gesture ... can change from a gesture of association to one of withdrawal, from a gesture of seizing and appropriating something to one of relinquishing it or letting it go free, from an act of persecution and conquest to one of hesitation and generous pardon.⁶⁰

Warburg references this concept when he coins the term *Pathosformel*: 'it was the expressive gestures of antiquity or, to use Warburg's words, the 'pathos-formulae' of that civilization, which were taken up by later art and polarized in being redeployed'.⁶¹

In relation to Warburg's concept of *Pathosformel*, Wind talks about the notion of embodiment, a keyword that refers to the appropriation (embodiment) of ancient emotive formulas in a subsequent era. Significantly, Wind incorporates the concept of *Pathosformel* into aesthetics, to the degree that every aesthetic aspect to be investigated should take into account Warburg's achievement in detecting those recurrent formulas in the history of art:

⁵⁷ See, for example, Warburg, *Werke in einem Band*, ed. by Martin Treml, Sigrid Weigel, and Perdita Ladwig (Frankfurt am Main: Suhrkamp, 2010); Warburg, 'The Absorption of the Expressive Values of the Past', trans. by Matthew Rampley, in *Art in Translation*, 1 (2009), 273-283; and Warburg, *Der Bilderatlas Mnemosyne*. See also Frank Zöllner, 'Aby Warburg's "Bilderatlas Mnemosyne": Systems of Knowledge and Iconography', in *The Burlington Magazine*, 162 (2020), 1078-1083; Georges Didi-Huberman, *Ninfa dolorosa. Essai sur la mémoire d'un geste* (Paris: Gallimard, 2019); Didi-Huberman, *Ninfa profunda. Essai sur le drapé-tourmente* (Paris: Gallimard, 2017); Didi-Huberman, *The Surviving Image: Phantoms of Time and Time of Phantoms* (University Park, Pennsylvania: The Pennsylvania State University Press, 2017); Gerhard Wolf, 'Warburg's Botticelli and Botticelli's Nymph', in *Botticelli Reimagined*, ed. by Mark Evans et al. (London: V&A Publishing, 2016), pp. 102-104; Didi-Huberman, *Ninfa fluida. Essai sur le drapé-désir* (Paris: Gallimard, 2015); Spyros Papapetros, *On the Animation of the Inorganic: Art, Architecture and the Extension of Life* (Chicago and London: University of Chicago Press, 2012); Christopher D. Johnson, *Memory, Metaphor, and Aby Warburg's Atlas of Images* (Ithaca, NY: Cornell University Press and Cornell University Library, 2012); Philippe-Alain Michaud, *Aby Warburg and the Image in Motion*, trans. by Sophie Hawkes (New York, London, and Cambridge, MA: Zone Books and MIT Press, 2007); Didi-Huberman, *Ninfa moderna. Essai sur le drapé tombé* (Paris: Gallimard, 2002); and Matthew Rampley, 'From Symbol to Allegory: Aby Warburg's Theory of Art', in *The Art Bulletin*, 79(1) (1997), 41-55.

⁵⁸ Wind, *Warburg's Concept of Kulturwissenschaft and its Meaning for Aesthetics*, p. 31.

⁵⁹ Ibid.

⁶⁰ Ibid., pp. 31-32.

⁶¹ Ibid., p. 32.

It follows that, even if we define the notion of aesthetics in the narrowest sense, as the theory of the conscious cultivation of taste and of the abstract perception of beauty, we cannot fully develop this theory without taking into account these more elementary forms of expression – mimetic expression and the extended form of expression achieved with tools.⁶²

In developing his theories of polarity and expression, Warburg explored different domains that were at that time extraneous to the history of art, such as religious cults, festivals, literary culture, magic and astrology, the history of the book, and so on. This approach allowed him to better understand the connections between art and social life and between religion and science, thereby detecting tensions and polarities in visual culture and the fundamental role of psychology in the Renaissance representation of expressions.

4. Interpreting Warburg: Wind versus Gombrich

An important source for Warburg's research and theories is Robert Vischer's concept of *Einfühlung* (empathy). This is one of the main aspects of Warburg's research that Wind wanted to stress, distancing himself from Ernst Gombrich's interpretation of Warburg's research.⁶³

In 1971, in a harsh review of Gombrich's *Aby Warburg: An Intellectual Biography*, Wind summarises Warburg's most important contribution in one sentence: 'The cultural significance of pagan revivals, as sources both of light and of superstition, may roughly be said to have been the theme of Aby Warburg's bold researches'.⁶⁴ Wind also reiterates that in Warburg's research, 'divergent disciplines are fused together as instruments for solving a particular historical problem'.⁶⁵ Among the diverse disciplines that Warburg applied to his studies, psychology plays an important role. In mentioning Warburg's essays 'Imprese amorose' (1905), 'Dürer's *Death of Orpheus*' (1906), and 'Francesco Sassetti' (1907), which he defines as 'perhaps his finest essay on Renaissance psychology', Wind states that these works are 'exemplary in their union of new archival evidence with psychological demonstration'.⁶⁶

⁶² Ibid., p. 33.

⁶³ On the relationship between Gombrich and Warburg, see David Freedberg, 'Gombrich and Warburg: Making and Matching, Grasping and Comprehending', in *Art and the Mind – Ernst H. Gombrich: mit dem Steckenpferd unterwegs*, ed. by Sybille Moser Ernst (Göttingen: Vandenhoeck & Ruprecht, 2018), pp. 39-62; and Wedepohl, 'Critical Detachment: Ernst Gombrich as Interpreter of Aby Warburg', in *The Afterlife of the Kulturwissenschaftliche Bibliothek Warburg. The Emigration and the Early Years of the Warburg Institute in London*, ed. by Uwe Fleckner and Peter Mack (Hamburg and Berlin: Vorträge aus dem Warburg-Haus, 12, and De Gruyter, 2015), pp. 131-164, 232-240.

⁶⁴ Wind, 'On a Recent Biography of Warburg', in *The Eloquence of Symbols*, pp. 106-113 (106).

⁶⁵ Ibid.

⁶⁶ Ibid., p. 107. See also Warburg, 'On *Imprese Amorose* in the Earliest Florentine Engravings', in id., *The Renewal of Pagan Antiquity*, pp. 169-184; and Warburg, 'Francesco Sassetti's *Last Injunctions to His Sons*', in id., *The Renewal of Pagan Antiquity*, pp. 223-262.

Wind then considers the importance of the concept of empathy, particularly as theorised by Robert Vischer, in Warburg's research: 'he seized with delight on the theory of *Einfühlung* (empathy), introduced into psychology and aesthetics by Robert Vischer, who had coined the term in his revolutionary little treatise *Über das optische Formgefühl* (1873), directed against "die Herbartische Schule"⁶⁷. He continues: 'Warburg referred to this book in the preface to his first work, the dissertation on Botticelli, listing it as the principal source for the study of *Einfühlung*, which he said had some bearing on his own method'.⁶⁸

Warburg applied Vischer's theory of empathy to the study of Renaissance works of art by focusing on the agitation of figures in movement (Figure 3). Wind states:

In describing Botticelli's peculiar trick of animating his firmly-set figures with the help of flamboyant accessories, such as fluttering draperies and flying hair, reminiscent of ancient Bacchantes, Warburg thought he could show in what devious ways empathy became a force in the formation of style.⁶⁹

Therefore, Warburg believed that empathy was comprised of a style that privileged and emphasised the representation of figures in movement and the expression of emotions through facial expressions and body postures.⁷⁰ In fact, following Vischer's theory of empathy, viewers tend to inwardly imitate the body and facial expressions that are observed: 'In the branches of a tree we spread our arms *longingly*, and so on. We may go further: the suggestive facial expression is inwardly carried out or repeated. The static form is empathetically felt as if it could move freely'.⁷¹

The motion Warburg focused on was both in the bodies of the figures and in their garments:

In later years, when he studied the link between Olympian and demonic deities in the transmission of pagan imagery, he noticed a similar bifurcation to that which he had first traced in Botticelli's art: an 'idealistic' firmness of outline offset by a 'manneristic' agitation in the accessories.⁷²

However, according to Wind, Gombrich failed to recognise the importance that Vischer's theory of empathy played in Warburg's works: 'It is a measure of Professor Gombrich's imperfect rapport with some of Warburg's chief sources of inspiration that he has taken

⁶⁷ Wind, *On a Recent Biography of Warburg*, p. 108.

⁶⁸ Ibid.

⁶⁹ Ibid.

⁷⁰ See, for example, Warburg, 'The Emergence of the Antique as a Stylistic Ideal in Early Renaissance Painting', in id., *The Renewal of Pagan Antiquity*, pp. 271-274.

⁷¹ Robert Vischer, 'On the Optical Sense of Form: A Contribution to Aesthetics', in *Empathy, Form and Space. Problems in German Aesthetics 1873-1893*, ed. by Harry Francis Mallgrave and Eleftherios Ikonomou (Los Angeles: University of Chicago Press, 1994), pp. 89-123 (105).

⁷² Wind, *On a Recent Biography of Warburg*, p. 108.



Figure 3. Domenico Ghirlandaio, *Birth of the Baptist*, detail, 1485–1490, fresco. Florence, Santa Maria Novella, Tornabuoni Chapel. (Image in Public Domain)

no account at all of Vischer's work or of the reference to it in Warburg's dissertation'.⁷³ Wind continues:

Einfühlung is a term regularly used by Warburg, and the word 'empathy' occurs quite often in Professor Gombrich's book. But he gives no indication that this term, so important in Warburg's thought, was a new coinage of the 1870s. A closer study of Warburg's method, with an exact analysis of his debt to Vischer and of the constructive ideas that grew out of it, might have led Professor Gombrich to revise his opinion, pronounced several times

⁷³ Ibid.

with an air of finality which would have been ill-judged even if the evidence had been less faulty, that Warburg's psychological concepts make no allowance for the creative imagination and are therefore of little use for an understanding of artistic traditions.⁷⁴

Therefore, one of the main divergences between Wind and Gombrich on Warburg's thought refers to the concept of empathy. Gombrich's criticism and scepticism of Warburg's work appears frequently in his monograph, sentiments that are not shared by Wind.

In another passage, Wind states: 'some perhaps over-refined distinctions introduced by Vischer into the study of empathy – "Einfühlung, Anfühlung, Zufühlung" – recur in one of Warburg's earliest attempts to distinguish between various kinds of magical appropriation ("Einverleibung, Anverleibung, Zuverleibung")'.⁷⁵ Here, Wind is probably referring to Warburg's note written in Santa Fe, New Mexico in 1896:

The ritual acts of Pueblo religion display the essential character of the conception of causality among the 'primitives' (that is, of people still incapable of differentiating between their own selves and the external world). The 'corporalization' of the sense impression.

- I. Incorporation (medical magic)
- II. Corporal introjection (animal, imitation)
- III. Corporal annexation (symbolism of tools)
- IV. Corporal addition (ornamented pottery). (Really belongs to III.)

I believe I have found the formula for my psychological law at last, for which I have been searching since 1888.⁷⁶

Tellingly, the key concepts in Warburg's passage that refer to the idea of empathy resonate with contemporary neuroscientific studies of empathy, in which notions like embodiment, embodied simulation, and inward and outward imitation are widely discussed.⁷⁷

In Wind's review, a crucial passage connects Vischer's and Warburg's theories of empathy to the functioning of the human brain: 'like Vischer, Warburg believed that the physiology of the brain would one day offer the means of giving a scientifically exact account of the workings of empathy and its ramifications'.⁷⁸ Accordingly, neuroscience has

⁷⁴ Ibid.

⁷⁵ Ibid.

⁷⁶ See Gombrich, *Aby Warburg*, pp. 90-91: 'Bei den religiösen Handlungen der Pueblo-Indianer zeigt sich der wesentliche Act im kausalen Verhalten des "Primitiven" (d.h. zur subjektiven Differenzierung unfähigen Menschen) zur Aussenwelt. Die "Verleibung" des sinnlichen Eindrucks.

I. Einverleibung (medizinischer Zauber)

II. Hineinumverleibung (Thier, Nachahmung)

III. Anverleibung (Geräthsymbolik)

IV. Zuverleibung (ornamentale Töpferei, eigentlich zu III.)

Ich glaube, ich habe den Ausdruck für mein psychologisches Gesetz endlich gefunden; seit 1888 gesucht. Translated in *ibid.*

⁷⁷ See § 5.

⁷⁸ Wind, *On a Recent Biography of Warburg*, p. 108.

made remarkable advances concerning the neural basis of empathy.⁷⁹ Wind adds: 'It is to be hoped that this interesting phase of Warburg's thought will eventually be studied by a historian who has mastered the physiological psychology of that period'.⁸⁰

In 'Some Points of Contact Between History and Natural Science' (1936), Wind recognises the importance of establishing a dialogue between historical research and natural science. In this sense, he shows where the two disciplines intersect:

Once the form of this transition is being inquired into, the most dreaded questions begin to make their appearance. What is the relation between inorganic matter and organic life? How did we evolve from a state of nature to one of conscious control? How did 'primitive' man, magically subjecting himself to nature's powers and apparently living in an almost a-historical form, produce his 'civilized' descendant who, in the moulding of his surroundings, creates and experiences historic changes?⁸¹

To address these questions, which open the way towards a multidisciplinary approach that aims to build bridges between science and the humanities, Wind proposes 'to illustrate how the very questions that historians like to look upon as their own are also raised in natural science'.⁸² In this respect, he adds: 'scientific and historical research have worked too long independently. It is time that they should be combined'.⁸³

5. The Notion of *Einfühlung* and the Neurophysiological Account of Empathy

In his 1873 doctoral thesis titled 'On the Optical Sense of Form: A Contribution to Aesthetics', Vischer attributes a pivotal role to neurobiology in perception:

We will have to assume that every mental act is brought about and is at the same time reflected in certain vibrations and – who knows what – neural modifications, in such a way that the latter represent its image, that is to say, they produce a symbolic picture inside the organism. Those external phenomena that have such a particular effect on us, into which we unwittingly read our emotional moods, must relate to this internal picture as its objective representation and interpretation. The natural phenomenon accords with the related vibrations, stimulates them, strengthens and confirms them, and with that the emotional state reflects itself in them.⁸⁴

⁷⁹ See § 5.

⁸⁰ Wind, *On a Recent Biography of Warburg*, p. 109.

⁸¹ Wind, 'Some Points of Contact between History and the Natural Sciences', in *Philosophy and History: Essays Presented to Ernst Cassirer*, ed. by Raymond Klibansky and H. J. Paton (Oxford: The Clarendon Press, 1936), pp. 255-264 (255).

⁸² *Ibid.*, p. 256.

⁸³ *Ibid.*, p. 264.

⁸⁴ Vischer, *On the Optical Sense of Form*, p. 90.

According to Vischer, perception affects not only the brain but also the body.⁸⁵ It is on this basis that he conceived the notion of empathy:

[H]ow the body, in responding to certain stimuli in dreams, objectifies itself in spatial forms. Thus it unconsciously projects its own bodily form – and with this also the soul – into the form of the object. From this I derived the notion that I call ‘empathy’ [*Einfühlung*].⁸⁶

Vischer’s main concern was investigating the relationship between mental stimulation and bodily stimulation. He perceived this link to be a ‘mystery that has to be explained by physiology in conjunction with psychology’.⁸⁷ Therefore, according to Vischer, human physiology is essential to explaining empathy, since ‘[t]he whole body is involved; the entire physical being is moved’.⁸⁸

In 1992, a group of neuroscientists based in Parma – including Giacomo Rizzolatti, Giuseppe Di Pellegrino, Luciano Fadiga, Leonardo Fogassi, and Vittorio Gallese – published a paper about their discovery of a group of neurons (known as mirror neurons) in the ventral premotor cortex of a monkey’s brain that ‘discharged both when the monkey performed a certain motor act (e.g. grasping an object) and when it observed another individual (monkey or human) performing that or a similar motor act’.⁸⁹ In 1996, the same

⁸⁵ On the link between brain and body, see Shaun Gallagher, *How the Body Shapes the Mind* (Oxford: Oxford University Press, 2005).

⁸⁶ Vischer, *On the Optical Sense of Form*, p. 92. On the notion of empathy, see Sigrid Weigel, ‘The Heterogeneity of Empathy: An Archaeology of Multiple Meanings and Epistemic Implications’, in *Empathy: Epistemic Problems and Cultural-Historical Perspectives of a Cross-Disciplinary Concept*, ed. by Vanessa Lux and Sigrid Weigel (New York: Palgrave MacMillan, 2017), pp. 1-26; Freedberg, ‘From Absorption to Judgment: Empathy in Aesthetic Response’, in *Empathy*, pp. 139-180; Vittorio Gallese, ‘The Empathic Body in Experimental Aesthetics – Embodied Simulation and Art’, in *Empathy*, pp. 181-199; and Kendall Walton, *In Other Shoes: Music, Metaphor, Empathy, Existence* (Oxford and New York: Oxford University Press, 2015).

⁸⁷ Vischer, *On the Optical Sense of Form*, p. 92.

⁸⁸ *Ibid.*, p. 99.

⁸⁹ Giacomo Rizzolatti and Maddalena Fabbri-Destro, ‘Mirror Neurons: From Discovery to Autism’, in *Experimental Brain Research*, 200 (3-4) (2009), 223-237. See also Giuseppe Di Pellegrino et al., ‘Understanding Motor Events: A Neurophysiological Study’, in *Experimental Brain Research*, 91(1) (1992), 176-180.

group of scientists, led by Rizzolatti, reported the presence of these mirror areas in humans.⁹⁰ These findings have been confirmed by dozens of experiments.⁹¹

Mirror neuron scholars argue that '[t]he mirror mechanism is a basic mechanism that transforms sensory representations of others' actions into motor representations of the same actions in the brain of the observer'.⁹² For this reason, scholars attribute the function of understanding the actions and emotions of others to the mirror mechanism.⁹³ This provides scientific corroboration for Warburg's intuition about the relationship between motion and emotion in the history of visual representation. The mirror neuron system suggests that we can 'understand others directly without resorting to inferential processes'.⁹⁴ The basic difference between inferential and direct understanding is that direct understanding is from the inside,⁹⁵ thereby providing a physiological basis for empathy.

Vittorio Gallese provides a convincing explanation about the role of mirror neurons in embodied simulation: 'Embodied simulation constitutes a crucial functional mechanism in social cognition, and it can be neurobiologically characterized. The mirror neurons matching systems represent the sub-personal instantiation of this mechanism'.⁹⁶ According to Gallese, '[t]he other's emotion is constituted and understood by means of an embodied simulation producing a shared body state. It is the body state shared by the observer and

⁹⁰ See Rizzolatti et al., 'Localization of Grasp Representations in Human by PET: 1. Observation versus Execution', in *Experimental Brain Research*, 111(2) (1996), 246-252; and Scott T. Grafton et al., 'Localization of Grasp Representations in Humans by PET: 2. Observation Compared with Imagination', in *Experimental Brain Research*, 112(1) (1996), 103-111.

⁹¹ See, for example, Rizzolatti and Stefano Rozzi, 'The Mirror Mechanism in the Parietal Lobe', in *Handbook of Clinical Neurology*, ed. by Giuseppe Vallar and H. Branch Coslett, in *Elsevier*, 151 (2018), pp. 555-573; Rizzolatti and Corrado Sinigaglia, 'The Mirror Mechanism: A Basic Principle of Brain Function', in *Nature Reviews Neuroscience*, 17(12) (2016), 757-765; Rizzolatti and Rozzi, 'Motor Cortex and Mirror System in Monkeys and Humans', in *Neurobiology of Language*, ed. by Gregory Hickok and Steven L. Small (Academic Press, 2016), pp. 59-72; Rizzolatti, Fabbri-Destro, and Luigi Cattaneo, 'Mirror Neurons and their Clinical Relevance', in *Nature Clinical Practice Neurology*, 5(1) (2009), 24-34; Cattaneo and Rizzolatti, 'The Mirror Neuron System', in *Archives of neurology*, 66(5) (2009), 557-560; and Rizzolatti and Laila Craighero, 'The Mirror-Neuron System', in *Annual Review of Neuroscience*, 27(1) (2004), 169-192.

⁹² Rizzolatti and Rozzi, *The Mirror Mechanism in the Parietal Lobe*, p. 555.

⁹³ See Rizzolatti and Sinigaglia, *The Mirror Mechanism*.

⁹⁴ Rizzolatti, 'Action Understanding', in *Brain Mapping: An Encyclopaedic Reference*, 2 (2015), 677-682.

⁹⁵ *Ibid.*

⁹⁶ Gallese, 'Embodied Simulation: From Neurons to Phenomenal Experience', in *Phenomenology and the Cognitive Sciences*, 4(1) (2005), 23-48 (42).

the observed that enables direct understanding'.⁹⁷ In this respect, it is worth comparing Gallese's statement with a note from an earlier version of Warburg's thesis not included in the final publication: 'The accumulation of stagy mannerisms is one of the psychological processes that accompanied every decline of art. This kind of touching mannerism is one of the most affective triggers of emotion in the viewer'.⁹⁸ In recognising the possibility of an emotive response by the viewer, Warburg understood the role of empathy and simulation in art perception and individuated the key (or one of the keys) to recognising decadence in art, or the moments of transition between one era and another.

The embodied simulation theory, based on the functioning of mirror neurons, is closely related to the common coding theory put forward by Wolfgang Prinz.⁹⁹ Common coding theory suggests that there is a common neural substrate for executed, observed, and imagined actions and that thanks to this shared neural substrate, predictions are made regarding the nature of action and perceptual representations. Prinz's findings show a functional relationship between perception and action, suggesting that 'perceived events and planned actions share a common representational domain (common-coding approach)'.¹⁰⁰

Marc Jeannerod's research goes in a similar direction, with a study that sheds light on the covert stages of action.¹⁰¹ Jeannerod focuses on intending actions (those that will eventually be executed or imagined), recognizing tools, learning by observation, and understanding the behaviour of other people. His research provides evidence of an activation 'of the motor system during these cognitive states'.¹⁰² He developed the idea that 'the motor system is part of a simulation network that is activated under a variety of conditions in relation to action, either self-intended or observed from other individuals'.¹⁰³

⁹⁷ Ibid., p. 39. See also Gallese, 'Embodied Simulation. Ideas for a Dialogue between Cognitive Neuroscience and Psychoanalysis', in *Setting: quaderni di studi psicoanalitici*, 44(2) (2020), 117-130; Gallese and Michele Guerra (eds), *The Empathic Screen: Cinema and Neuroscience* (Oxford: Oxford University Press, 2019); Gallese, 'Embodied Simulation and Its Role in Cognition', in *Reti, saperi, linguaggi: Italian Journal of Cognitive Sciences*, 5(1) (2018), 31-46; Gallese, 'Finding the Body in the Brain. From Simulation Theory to Embodied Simulation', in *Alvin Goldman and his Critics*, ed. by Brian P. McLaughlin and Hilary Kornblith (New York: Blackwell, 2016), pp. 297-317; Gallese, 'Bodily Selves in Relation: Embodied Simulation as Second-Person Perspective on Intersubjectivity', in *Philosophical Transactions of the Royal Society B*, 369(1644) (2014), 1-10; and Gallese, 'The Manifold Nature of Interpersonal Relations: The Quest for a Common Mechanism', in *Philosophical Transactions of the Royal Society of London B*, 358(1431) (2003), 517-528.

⁹⁸ In Wedepohl, *Why Botticelli?*, p. 196.

⁹⁹ See Wolfgang Prinz, 'Experimental Approaches to Action', in *Agency and Self-Awareness: Issues in Philosophy and Psychology*, ed. by Johannes Roessler and Naomi Eilan (New York: Oxford University Press, 2005), pp. 165-187; Prinz, 'Perception and Action Planning', in *European Journal of Cognitive Psychology*, 9(2) (1997), 129-154; and Prinz, 'Modes of Linkage between Perception and Action', in *Cognition and Motor Processes*, ed. by Wolfgang Prinz and Andy F. Sanders (New York: Springer, 1984), pp. 185-193.

¹⁰⁰ Prinz, *Perception and Action Planning*, p. 129.

¹⁰¹ Marc Jeannerod, 'Neural Simulation of Action: A Unifying Mechanism for Motor Cognition', in *NeuroImage*, 14(1 Pt 2) (2001), 103-109.

¹⁰² Ibid., p. 103.

¹⁰³ Ibid.

Furthermore, according to Jeannerod, '[t]he function of this process of simulation would be not only to shape the motor system in anticipation to execution, but also to provide the self with information on the feasibility and the meaning of potential actions'.¹⁰⁴

Jeannerod's research has been continued by Jean Decety, who demonstrates the existence of a functional equivalence between imagined, observed, and executed actions.¹⁰⁵ Decety defines an action as 'the outcome of several information processing stages: intention, planning, preparing, and execution'.¹⁰⁶ As Julie Grèzes and Decety state: "There is a large body of psychological and neuroimaging experiments that have interpreted their findings in favor of a functional equivalence between action generation, action simulation, action verbalization, and perception of action".¹⁰⁷ In exploring the neural mechanism of action perception, Decety and his collaborators contributed to a study of the neural basis of empathy. According to Decety, "[t]here is strong evidence that empathy has deep evolutionary, biochemical, and neurological underpinnings".¹⁰⁸

This confirms Vischer's, Warburg's, and Wind's intuitions about the role of evolution and neurophysiology in empathy. As Claudia Wedepohl points out, Warburg based his claims on theories of perception and evolution, which 'were particularly crucial to him as they offered a scientific explanation for the reappearance of expressive formulas throughout the history of visual culture'.¹⁰⁹

Decety and Grèzes argue that 'self-awareness and agency, mediated by the temporoparietal (TPJ) area and the prefrontal cortex, are critical aspects of the social mind'.¹¹⁰ These findings are in line with cognitive neuroscience studies that indicate a common neural mechanism for the generation, imagination, and observation of one's own behaviour and that of others.¹¹¹ Scholars call this phenomenon the 'shared representations account of social cognition', which explains the basic mechanism for social interaction.¹¹²

¹⁰⁴ Ibid.

¹⁰⁵ See Jean Decety, 'Is There Such a Thing as Functional Equivalence between Imagined, Observed, and Executed Action?', in *The Imitative Mind: Development, Evolution and Brain Bases*, ed. by Andrew N. Meltzoff and Wolfgang Prinz (Cambridge: Cambridge University Press, 2002), pp. 291-310.

¹⁰⁶ Ibid., p. 291

¹⁰⁷ Julie Grèzes and Decety, 'Functional Anatomy of Execution, Mental Simulation, Observation, and Verb Generation of Actions: A Meta-Analysis', in *Human Brain Mapping*, 12(1) (2001), 1-19 (1).

¹⁰⁸ Decety, 'The Neuroevolution of Empathy', in *Annals of the New York Academy of Sciences*, 1231(1) (2011), 35-45 (35). See also Decety, 'Dissecting the Neural Mechanisms Mediating Empathy', in *Emotion Review*, 3(1) (2011), 92-108; Decety, 'Promises and Challenges of the Neurobiological Approach to Empathy', in *Emotion Review*, 3(1) (2011), 115-116; Decety, 'Neuroscience of Empathic Responding', in *Moving Beyond Self-Interest: Perspectives from Evolutionary Biology, Neuroscience, and the Social Sciences*, ed. by Stephanie L. Brown, R. Michael Brown, and Louis A. Penner (New York and Oxford: Oxford University Press, 2011), pp. 109-132; and Decety (ed.), *Empathy: From Bench to Bedside* (Cambridge, MA, and London: MIT Press, 2011).

¹⁰⁹ Wedepohl, *Why Botticelli?*, pp. 184-185.

¹¹⁰ Decety and Grèzes, 'The Power of Simulation: Imagining One's Own and Other's Behavior', in *Brain Research*, 1079(1) (2006), 4-14 (4).

¹¹¹ Ibid.

¹¹² Ibid.

In another study, Decety and Andrew Meltzoff consider empirical evidence supporting the view that ‘empathy and imitation are intimately connected’.¹¹³ Moreover, they argue that ‘[i]mitation and empathy can be views as means to experience and understand mental and affective states of oneself and others, grounded on shared neural circuits’.¹¹⁴

Decety and Ariel Knafo-Noam define empathy as ‘a construct applied to various phenomena that cover a broad spectrum ranging from experiencing emotions that match another individual’s emotions, to feelings of concern for other people, to knowing what the other is thinking or feeling’.¹¹⁵ Furthermore, they stress that ‘[h]uman empathy has deep evolutionary, biochemical, and neurological underpinnings and is mediated and moderated by multiple physiological and brain systems that have evolved from the neurobehavioral systems associated with social attachment and parental care’.¹¹⁶ For example, ‘[s]ensitivity to signs of distress is processed by a network that partly overlaps with neural circuits involved in physical pain, including brain-stem regions, amygdala, anterior cingulate cortex, insula, and orbitofrontal cortex’.¹¹⁷

To conceptualise the sense of internal imitation of another person’s movement, gesture, or emotion, Antonio Damasio proposes the ‘as-if-body-loop’ theory, which refers to a mechanism that ‘involves an internal brain simulation that consists of a rapid modification of ongoing body maps. This is achieved when certain brain regions, such as the prefrontal/premotor cortices, directly signal the body-sensing brain regions’.¹¹⁸ This is how determinate neurons represent the observed movement or gesture performed by another subject in the viewer’s brain ‘and produce signals toward sensorimotor structures so that the corresponding movements are either “previewed”, in simulation mode, or actually executed’.¹¹⁹

At this point, Vischer’s, Warburg’s, and Wind’s claims about the importance of empathy in making art and in art perception, as well as the biological underpinnings of the transmission of certain formulas from classical antiquity to later civilisations, assume a new

¹¹³ Decety and Andrew N. Meltzoff, ‘Empathy, Imitation, and the Social Brain’, in *Empathy: Philosophical and Psychological Perspectives*, ed. by Amy Coplan and Peter Goldie (New York: Oxford University Press, 2011), pp. 58-81 (58).

¹¹⁴ Ibid.

¹¹⁵ Decety and Ariel Knafo-Noam, ‘Empathy’, in *Brain Mapping: An Encyclopedic Reference*, 3 (2015), 191-194 (191).

¹¹⁶ Ibid.

¹¹⁷ Ibid. See also Decety and Kalina J. Michalska, ‘A Developmental Neuroscience Perspective on Empathy’, in *Neural Circuit and Cognitive Development*, ed. by John Rubenstein et al. (Amsterdam: Academic Press, 2020), pp. 485-503.

¹¹⁸ Antonio Damasio, *Looking for Spinoza: Joy, Sorrow, and the Feeling Brain* (London: Vintage Books, 2003), p. 115. Damasio referred to the ‘as-if-body-loop’ mechanism first in Damasio, *Descartes’ Error: Emotion, Reason, and the Human Brain* (London: Vintage Books, 2006); and then in Damasio, *The Feeling of What Happens: Body, Emotion, and the Making of Consciousness* (London: Vintage Books, 2000).

¹¹⁹ Damasio, *Looking for Spinoza*, p. 115.

and deeper meaning. For example, in his thesis on Botticelli titled ‘Sandro Botticelli’s *Birth of Venus* and *Spring*: An Examination of Concepts of Antiquity in the Italian Early Renaissance’ (1893), Warburg investigates the origin of movement represented in Renaissance painting. He states:

It is possible to trace, step by step, how the artists and their advisers recognised ‘the antique’ as a model that demanded an intensification of outward movement, and how they turned to antique sources whenever accessory forms – those of garments and of hair – were to be represented in motion.¹²⁰

Warburg investigates this phenomenon by focusing on empathy:

It may be added that this evidence has its value for psychological aesthetics in that it enables us to observe, within a milieu of working artists, an emerging sense of the aesthetic act of ‘empathy’ as a determinant of style.¹²¹

The results of his research suggest that:

A succession of works related by content – Botticelli’s painting, Poliziano’s poem, Francesco Colonna’s archeological romance, the drawing from Botticelli’s circle, and Filarete’s ecphrasis – has revealed the tendency, shaped by what was then known of antiquity, to turn to the arts of the ancient world whenever life was to be embodied in outward motion.¹²²

The universal aspect of the representation of motion that Warburg refers to in these statements can be explained only in relation to the biology of movement, which reveals the role of the brain-body system in the execution, observation (and therefore simulation), and imagination of movements, as explained by the neuroscientists working on action understanding, emotions, and empathy.

In fact, in his semi-official statement on the purpose of his private library and research institute, Warburg states: ‘Primarily, I still lacked some sort of gauge to evaluate how the dynamic elements reflected in the artwork functioned as essential and internal human processes’.¹²³ Significantly, as Gombrich also pointed out, Rainer Maria Rilke expresses the same idea in *Letters to a Young Poet* regarding the biological roots of gesture and memory:

¹²⁰ Warburg, ‘Sandro Botticelli’s *Birth of Venus* and *Spring*: An Examination of Concepts of Antiquity in the Italian Early Renaissance’, in id., *The Renewal of Pagan Antiquity*, pp. 89-156 (89).

¹²¹ Ibid.

¹²² Ibid., p. 108.

¹²³ Warburg, Christopher D. Johnson, and Wedepohl, ‘From the Arsenal to the Laboratory’, in *West 86th*, 19(1) (2012), 106-124 (115).

And yet they are in us, these people long since passed away, as a disposition, as a load weighing on our destinies, as a murmur in the blood and as a gesture that rises up out of the depths of time.¹²⁴ (23 December 1903)

This is what Warburg refers to in his work on the ‘history of the survival of past images in the European mind’.¹²⁵ For this reason, Warburg states in a note that empirical aesthetics would naturally have to follow speculative aesthetics.¹²⁶ A series of studies initiated by Jean-Pierre Changeux and Semir Zeki go precisely in this direction.¹²⁷ However, it is in the work carried out by David Freedberg and Vittorio Gallese that Warburg’s ideas on the relationship between motion and emotion in the visual arts, on the one hand, the role of

¹²⁴ Rainer Maria Rilke, *Letters to a Young Poet*, trans. by Lewis Hyde (London: Penguin, 2011), p. 29. See also Gombrich, *Aby Warburg*, p. 240.

¹²⁵ Wind, *Warburg’s Concept of Kulturwissenschaft and its Meaning for Aesthetics*, p. 29.

¹²⁶ See Wedepohl, *Why Botticelli?*, p. 193 and ft. 48.

¹²⁷ See Jean-Pierre Changeux, ‘Art and Neuroscience’, in *Leonardo*, 27(3) (1994), 189-201; and Semir Zeki, *Inner Vision: An Exploration of Art and the Brain* (Oxford: Oxford University Press, 1999).

empathy in aesthetic response, on the other, and the overall biological implications find novel consideration.¹²⁸

Along these lines, cognitive neuroscience and empirical aesthetics are now able to offer a scientific explanation of Vischer's theory of empathy, which includes an analysis of the importance that imagination plays in empathic response:

A kinaesthetic stimulus does not always and necessarily lead to actual movement but always to the idea of it. Imagination is an act by which we mentally simulate something that previously existed as a vague content of our sensation as sensuous, concrete form. If we then apply the same word to abstract thoughts, we thereby imply that these too are

¹²⁸ See, for example, Gallese and Alessandro Gattara, 'Simulazione incarnata, estetica e architettura: un approccio estetico sperimentale', in *La mente in architettura*, ed. by Sarah Robinson and Juhani Pallasmaa (Florence: Florence University Press, 2021), pp. 160-175; Gallese, 'A Bodily Take on Aesthetics: Performativity and Embodied Simulation', in *The Extended Theory of Cognitive Creativity. Interdisciplinary Approaches to Performativity*, ed. by Antonino Pennisi and Alessandra Falzone, Springer, 23 (2020), pp. 135-149; Gallese, 'Brain, Body, Habit and the Performative Quality of Aesthetics', in *Habits: Pragmatist Approaches from Cognitive Neuroscience to Social Science*, ed. by Italo Testa and Fausto Caruana (Cambridge: Cambridge University Press, 2020), pp. 376-394; Gallese, 'The Aesthetic World in the Digital Era: A Call to Arms for Experimental Aesthetics', in *Reti, saperi, linguaggi: Italian Journal of Cognitive Sciences*, 7(1) (2020), 55-84; Gallese, 'Embodied Simulation. Its Bearing on Aesthetic Experience and the Dialogue between Neuroscience and the Humanities', in *Gestalt Theory*, 41(2) (2019), 113-128; Gallese, 'Naturalizing Aesthetic Experience: The Role of (Liberated) Embodied Simulation', in *Projections: The Journal for Movies and Mind*, 12(2) (2018), 50-59; Gallese, 'The Problem of Images: A View from the Brain-Body', in *Phenomenology and Mind*, 14 (2018), 70-79; Gallese, 'Visions of the Body. Embodied Simulation and Aesthetic Experience', in *Aisthesis: Pratiche, linguaggi e saperi dell'estetico*, 10(1) (2017), 41-50; Gallese, 'Arte, corpo, cervello: per un'estetica sperimentale', in *Micro Mega*, 2 (2014), 49-67; Freedberg, 'Feelings on Faces. From Physiognomics to Neuroscience', in *Rethinking Emotion. Interiority and Exteriority in Premodern, Modern, and Contemporary Thought*, ed. by Rüdiger Campe and Julia Weber (Berlin: De Gruyter, 2014), pp. 289-324; Freedberg, 'Dürer's Limbs', in *The Young Dürer: Drawing the Figure*, ed. by Stephanie Buck and Stephanie Porras (London: Courtauld Gallery and Paul Holberton, 2013), pp. 37-56; Freedberg, 'Memory in Art: History and the Neuroscience of Response', in *The Memory Process: Neuroscientific and Humanistic Perspectives*, ed. by Suzanne Nalbantian et al. (Cambridge, MA: MIT Press, 2011), pp. 337-358; Freedberg, 'Choirs of Praise: Some Aspects of Action Understanding in Fifteenth Century Painting and Sculpture', in *Medieval Renaissance Baroque: A Cat's Cradle for Marilyn Aronberg*, ed. by David Levine and Jack Freiberg (New York: Italica Press, 2010), pp. 65-81; Freedberg, 'Movement, Embodiment, Emotion', in *Cannibalismes Disciplinares. Quand l'histoire de l'art et l'anthropologie se rencontrent*, ed. by Thierry Dufrêne and Anne-Christine Taylor (Paris: Musée du quai Branly, 2010), pp. 37-61; Freedberg, 'Empathy, Motion and Emotion', in *Wie sich Gefühle Ausdruck verschaffen: Emotionen in Nabsicht*, ed. by Klaus Herding and Antje Krause-Wahl (Berlin: Driesen, 2008), pp. 17-51; Freedberg, 'Immagini e risposta emotiva: la prospettiva neuroscientifica', in *Prospettiva Zerì*, ed. by Anna Ottani Cavina (Turin: Umberto Allemandi, 2008), pp. 85-105; Freedberg and Gallese, 'Motion, Emotion and Empathy in Aesthetic Experience', in *Trends in Cognitive Sciences*, 11(5) (2007), 197-203; Gallese and Freedberg, 'Mirror and Canonical Neurons are Crucial Elements in Esthetic Response', in *Trends in Cognitive Sciences*, 11(10) (2007), 411. See also Weigel, 'Embodiment in Simulation Theory and Cultural Science, with Remarks on the Coding-Problem of Neuroscience', in *A Neuro-Psychoanalytical Dialogue for Bridging Freud and the Neurosciences*, ed. by Sigrid Weigel and Gerhard Scharbert (Cham: Springer, 2016), pp. 47-71; Tononi, 'The Aesthetics of Freud: Movement, Embodiment and Imagination', in *Reti, saperi, linguaggi: Italian Journal of Cognitive Sciences*, 8(1) (2021), 125-154; Tononi, 'Aesthetic Response to the Unfinished: Empathy, Imagination and Imitation Learning', in *Aisthesis: Pratiche, linguaggi e saperi dell'estetico*, 13(1) (2020), 135-153; Tononi, 'Intermediality and Immersion in Gaudenzio Ferrari's Adoration of the Magi in Chapel V of the Sacred Mountain of Varallo', in *PsicoArt: Rivista di Arte e Psicologia*, 10 (2020), 1-18; and Tononi, *Andrea Mantegna and the Iconography of Mourners*.

accompanied by mental images. Our concern henceforth is thus with mental activity. That this activity also essentially involves the central nervous system is evident from the unity of body and mind. The brain itself functions on many levels.¹²⁹

Prinz's common coding theory, Damasio's as-if-body-loop theory, and Gallese's embodied simulation theory all go in this same direction. Furthermore, Vischer correctly points to the outcome of simulation, that is, the mental creation of a new image: 'the imagination reveals itself as a power of visualisation, which in turn has the unique advantage of being able to construct a self-generated, relatively new image'.¹³⁰ In this sense, the image that is reconstructed in the brain is the result of both (external) reality and (internal) imagination.¹³¹ In other words, the image is not seen as it is but as it appears to the brain-body system (triggering an empathic reaction), in the imagination (imagining the movement of a motionless figure), and in memory (connecting what is being seen with what was previously seen).

This is confirmed by other passages where Vischer deals with feeling and emotion: 'We thus have the wonderful ability to project and incorporate our own physical form into an objective form'.¹³² He continues:

Thus I project my own life into the lifeless form, just as I quite justifiably do with another living person. Only ostensibly do I keep my own identity although the object remain distinct. I seem merely to adapt and attach myself to it as one hand clasps another, and yet I am mysteriously transplanted and magically transformed into this Other.¹³³

From these assumptions, Vischer stresses the importance of the relationship between external appearance and immediate response: 'we disregard all objective content and grasp the image purely through its *external* appearance'.¹³⁴

6. The Concept of Immediacy

What emerges from Vischer's theory of empathy (also adopted by Warburg) and neuroscientific research on motion, emotion, and empathy is the role of immediacy in sensation. The brain-body system response is immediate in the sense that it is not mediated by cognition. In this sense, it is worth mentioning another passage from Vischer's thesis 'On the Optical Sense of Form':

¹²⁹ Vischer, *On the Optical Sense of Form*, p. 99.

¹³⁰ *Ibid.*, p. 102.

¹³¹ On the role of imagination in perception, see Bence Nanay, 'Imagination and Perception', in *Routledge Handbook of Philosophy of Imagination*, ed. by Amy Kind (London: Routledge, 2016), pp. 124-134.

¹³² Vischer, *On the Optical Sense of Form*, p. 104.

¹³³ *Ibid.*, p. 104.

¹³⁴ *Ibid.*, p. 118.

But what of the immediate and responsive sensation? To all appearances, these are condemned to a formal externality and must therefore be described as purely sensory functions. There is in imagination a prompt stimulation and pulsation (immediate sensation) and a successive enveloping, embracing, and caressing of the object (responsive sensation), whereby we project ourselves all the more intensively into the interior of the phenomenon, that is to say, there is an immediate sensation and a responsive sensation for the purpose of generating an empathetic sensation or empathy. We propose to call this attentive feeling [*Anföhlung*].¹³⁵

In several letters from *On the Aesthetic Education of Man* (1794), Friedrich Schiller also defines the concept of immediacy in perception. For example, in Letter XI, he states: ‘We shift from rest to activity, from affect to indifference, from agreement to contradiction; but *we* are always the same, and whatever follows directly from *us* remains’.¹³⁶ Schiller’s notion of immediacy returns in Letter XV: ‘Expressed as a general concept, the object of the material impulse is called *life*, in its widest meaning: a concept signifying all material being, everything directly present to the senses’.¹³⁷ Schiller stresses the importance of the direct response to what is immediately present to the senses. In Letter XXII, Schiller points to the bodily reactions of this level of response: ‘the plastic arts must, in their highest perfection, become music and move us by their directly sensuous presence’.¹³⁸ The fact that immediate sensation *moves* the observer is confirmed by Gallese’s research on mirror neurons and embodied simulation: ‘Cognitive neuroscience provides new insights on cognition and intersubjectivity by emphasizing the crucial role of the body, the constitutive source of the pre-reflective consciousness of the self and of the other’.¹³⁹ It is interesting to compare this passage to another by Schiller in Letter XXIV: ‘Either he hurls himself upon things to devour them greedily, or things threaten to destroy him and he bats them away in horror. In both cases his relation to the sensuous world is one of the immediate *contact*’.¹⁴⁰

Therefore, the response to external perceptions, and more specifically to motion and emotion, has an *immediate* effect on the brain-body system, which is of great importance for the concept of empathy, as argued by Vischer (and confirmed by cognitive neuroscience), and for the formation of style, as argued by Warburg.

¹³⁵ Ibid., p. 106.

¹³⁶ Friedrich Schiller, *On the Aesthetic Education of Man*, in id., *On the Aesthetic Education of Man and Letters to Prince Frederick Christian von Augustenburg*, trans. by Keith Tribe (New York: Penguin Classics, 2016), pp. 1-112 (38).

¹³⁷ Ibid., p. 53.

¹³⁸ Ibid., p. 81.

¹³⁹ Gallese, *Embodied Simulation and Its Role in Cognition*, p. 31.

¹⁴⁰ Schiller, *On the Aesthetic Education of Man*, p. 90.

Conclusion: The Future of *Kulturwissenschaft*

According to Warburg, and as recognised by Wind, the study of the human brain is of crucial importance for understanding the (biological) mechanism of empathy. This theory finds confirmation in contemporary cognitive neuroscience. The scientific study of empathy, in turn, sheds new light on the history of aesthetic response to images in general and *Pathosformeln* in particular.¹⁴¹ Keeping this line of research current, according to the evolving nature of cognitive neuroscience, will improve understanding of the formation of style during the European Renaissance and of ‘the question of the continuing life of classical antiquity’, as Warburg and Wind wished.¹⁴² In this sense, cognitive neuroscientific research on the nature of motion and emotion reveals the integral relationship between the brain-body system and creative expression.

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¹⁴¹ Wind, *On a Recent Biography of Warburg*, p. 108.

¹⁴² Wind, *Warburg's Concept of Kulturwissenschaft and its Meaning for Aesthetics*, p. 26.

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