

# The Warburg/Arnheim effect: linking the cultural/social and perceptual psychology of art

Ladislav Kesner

## I

Aby Warburg and Rudolf Arnheim make for rather improbable bedfellows, at least in the light of historical evidence, which does not suggest any explicit link between the two of them.<sup>1</sup> In 1923, nineteen-year-old Rudolf Arnheim enrolled at Friedrich-Wilhelms Universität to study psychology, philosophy, art history and music history – in the same year that Aby Warburg presented his fellow patients at the sanatorium in Kreuzlingen with his famous talk on the snake dance of the Kachina Indians, which he had observed on a trip to New Mexico in 1896.<sup>2</sup> The 1920s were a difficult time in Germany, the Weimar Republic was in the grip of catastrophic inflation, a dire omen of its impending collapse and of the tragic events to follow. Years later, describing his first year at the university, Arnheim recalled accompanying his father (the owner of a piano factory) every Friday to the bank, carrying several suitcases filled with millions of Reichmarks, hurrying to pay the factory workers' wages, which had to be paid the same day to avoid further depreciation, and he remarked on how such experiences left him feeling insecure.<sup>3</sup> But this was also a time of extraordinary intellectual and cultural fermentation in Berlin and Hamburg, as is apparent from several events that occurred over the course of 1923.

It was in the notes for his Kreuzlingen talk in 1923 that Warburg first formulated the plan for what would become his most lasting legacy, the Kulturwissenschaftliche Bibliothek, which he later established in Hamburg: 'How did human and pictorial expression originate; what are the feelings or points of view, conscious or unconscious, under which they are stored in the archives of memory?'

<sup>1</sup> This is a much expanded version of a talk given at Stiftung Brandenburg Tor in Berlin in June 2013 during my tenure as Rudolf Arnheim Professor at Humboldt University in Berlin. I gratefully acknowledge the comments and questions of the audience, which propelled my thinking on this topic.

<sup>2</sup> Aby Warburg, *Bilder Aus dem Gebiet der Pueblo-Indianer in Nord-Amerika*, in *Aby Warburg- Werke in Einem Band*, Martin Treml, Sigrit Weigel and Perdita Ladwig, eds., Berlin 2010, 524-566 and *Images from the Region of the Pueblo Indians of North America*, translated and with an interpretive essay by Michael Steinberg, Ithaca and London 1995. For the larger context of Warburg's trip to New Mexico, see also Benedetta Cestelli Guidi and Nicholas Mann, eds., *Grenzerweiterungen. Aby Warburg in Amerika 1895-1896*, Hamburg-München 1999.

<sup>3</sup> Arnheim, 'In the company of the century', in *To the Rescue of Art*. Berkeley-Los Angeles 1986, 237-238.

Are there laws to govern their formation or re-emergence?'<sup>4</sup> In that same year, Arnheim's *doktorvater* Max Wertheimer published an article titled 'Untersuchungen zur Lehre von der Gestalt, II' in which he outlined some of the key principles of the Gestalt theory of the Berlin School, namely, that the correct method for studying perception was *von oben nach unten*, 'from top to bottom', by which he meant starting with whole properties and then proceeding to subsidiary wholes and parts.<sup>5</sup> And it was also in 1923 that Ernst Cassirer, greatly inspired by his exchanges with Warburg, published the first volume of his monumental *Philosophy of Symbolic Forms*.<sup>6</sup>

In the years that followed, while Aby Warburg was devoting the last intensely productive time of his life to his monumental *Bilder Atlas Mnemosyne*, Arnheim was enjoying the unique intellectual climate of Berlin and its university, in the company of Siegfried Kracauer, Walter Benjamin, Carl Einstein, and Max Raphael, as well as his mentors at the German weekly *Die Weltbühne* Kurt Tucholsky and Carl von Ossietzky.<sup>7</sup> He graduated on 19 December 1928, with a doctoral dissertation devoted to an experimental examination of physiognomic and graphological forms of expression and their underlying psychological processes.<sup>8</sup> At that very time, Aby Warburg was preparing for one of his last public lectures, 'Die römische Antike in der Werkstatt Ghirlandaios', which he gave at Hertziana in Rome on 19 January 1929. There is no evidence that the two of them ever met during the years prior to Warburg's fatal heart attack on 26 October 1929. Arnheim's scholarly career, which was taking off around the time of Warburg's death, lasted for almost eight decades, and produced a monumental edifice of several books of seminal importance and innumerable articles and essays. Nowhere in the corpus of Arnheim's work is Aby Warburg's name ever mentioned, nor are there any references to his publications. Indeed, if one traces their scholarly genealogies, there are no points of intersection, no overlaps. Ernst Gombrich, who dedicated great effort to presenting and interpreting Warburg's heritage and engaged in spirited intellectual arguments with Arnheim, may be the main – if indirect – link between the two scholars. After being neglected for a time, Warburg's work has attracted enormous attention and come under intense scrutiny since the 1970s, with a veritable cottage industry emerging around his fragmented oeuvre. In contrast, Arnheim's psychology of art prompted relatively little scholarly response during

<sup>4</sup> Gombrich, *Aby Warburg. An Intellectual Biography*. 2<sup>nd</sup> ed., London 1986, 222.

<sup>5</sup> Max Wertheimer, 'Untersuchungen zur Lehre von der Gestalt II', *Psychologische Forschung* 4, 301-350.

<sup>6</sup> *Philosophie der symbolischen Formen*, Band 1: *Die Sprache*, Berlin 1923.

<sup>7</sup> Michael Diers, 'Bande a part. Die Aussenseite(r) der Kunstgeschichte: Georg Simmel, Carl Einstein, Siegfried Kracauer, Max Raphael, Walter Benjamin und Rudolf Arnheim.' In *In der Mitte Berlins. 200 Jahre Kunstgeschichte an der Humboldt-Universität*, Horst Bredekamp and Adam Labuda, eds, Berlin 2010, 273-292; also Arnheim, 'In the company of the century', 236-243.

<sup>8</sup> *Experimentell-psychologische Untersuchungen zum Ausdrucksproblem*, Berlin 1928.

the last decades of his life and after his death,<sup>9</sup> and it is seldom quoted even in recent art history and theory, finding greater resonance in film studies and, especially, among artists and architects. Unlike Warburg, Arnheim is nowadays definitely an unfashionable author and not a subject of sustained reflection in contemporary humanities.<sup>10</sup> What then is the justification for contrasting and comparing their ideas and concepts?

One was an historian of art and culture who called himself a 'psychohistorian',<sup>11</sup> the other was a psychologist and critic with a profound understanding of and passion for art. Warburg and Arnheim embody two complementary ways of creating a productive interface between art history/cultural history on the one hand and psychology on the other, and, as this paper seeks to argue, such interfaces are of profound importance and inspiration for not just art history and theory, but also perhaps for the sciences of the mind and brain.

## II

The connection between art history and psychology was at once time viewed as natural, taken for granted, having been forged by the generation of great German-speaking critical historians of art.<sup>12</sup> Heinrich Wölfflin wrote in 1886, 'It is essential that systematic historical knowledge must be re-cast as a psychological interpretation of historical development.'<sup>13</sup> Much later he remarked that the humanities still lacked a foundation in exactness, which can only be looked for in psychology. One of the hallmarks of the Viennese School of art history was to see a strong link between the history of art and psychology – Ernst Gombrich later recounted that 'we all imbibed psychology with the milk of our Viennese *Alma*

<sup>9</sup> The only book-length study of Arnheim's work remains Ian Verstegen's *Arnheim, Gestalt and Art. A Psychological Theory*, New York 2001. Arnheim is only briefly mentioned – in relation to his film studies – in the otherwise exhaustive study by Mitchell Ash, *Gestalt Psychology in German Culture, 1890-1967*, Cambridge 1998.

<sup>10</sup> But if the citations index on Google Scholar can be taken as some measure of scholarly influence (Art and Perception 3870 citations, Visual Thinking 2843, as of 26 June 2014) they indicate that he remains a formidable presence in the collective scholarly consciousness.

<sup>11</sup> *Manchmal kommt es mir vor, als ob ich als Psychohistoriker die Schizophrenie des Abendlandes aus dem Bildhaften in selbstbiographischem Reflex abzuleiten versuche* (Tagebuch, 3 Februar 1929, in *Tagebuch der Kulturwissenschaftlichen Bibliothek Warburgs, Gesammelte Schriften VII*, ed. K. Michels and C. Schoell-Glass, Berlin 2001, 429.

<sup>12</sup> The concept of a 'critical historian' is here taken from Michael Podro, *Critical Historians of Art*, New Haven and London 1982.

<sup>13</sup> Heinrich Wölfflin, *Prolegomena zu einer Psychologie der Architektur*, Neuauflage mit einem Nachwort von Jasper Cepl, Berlin 1999 (1886); Wölfflin, *Kleine Schriften [1886-1933]*, Joseph Ganter., ed., Basel, 1946, 45. For an assessment of Wölfflin's approach, see Daniel Adler, 'The Formalist's Compromise: Wölfflin and Psychology', in *German Art History and Scientific Thought. Beyond Formalism*, Mitchell Frank and Daniel Adler, eds, Farnham 2012, 73-96.

*Mater'*.<sup>14</sup>In the following decades, however, at least three influential paradigms served to remove the human mind from the study of art and to expel psychology from art history.

First, much mainstream art history, methodologically based on tools of formal analysis, iconography and social history, has tended to view psychological approaches suspiciously as a 'soft' science, incompatible with the scientific rigor and aspirations of the discipline of art history. While the heritage of critical historians of art has been verbally adhered to, their complex approaches have been flattened, and most notably stripped of the commitment to situate art in relation to individual or collective psychological life. Georges Didi-Huberman has observed that the epistemological transformation of discipline of art history took place in Germany and Vienna in the first decades of the twentieth century, with Warburg, Wölfflin, Riegl, Dvořák, von Schlosser, Panofsky and others, but that it was later abandoned.<sup>15</sup>

The second, even more harmful, wave of de-psychologizing the study of art and denigration of mind in humanities arrived with critical theory and poststructuralism, which have had a decisive influence on humanities and in particular art theory and history since the 1980s. Within this milieu the human subject came to be seen above all – if not exclusively – as a nexus of social determinations. The mind itself and the psychic construction of subjectivity began to be considered in the terms of post-Freudian psychoanalytic theory, mostly through the prism of Lacan's dictum that the mind is structured like a language. Models of vision and perception advanced by scholars such as Laura Mulvey, Kaja Silverman, Martin Jay, Norman Bryson, Mieke Bal and others, drew inspiration from Lacan's concept of the gaze and feminist concepts of subjectivity. The tradition of scholarship on the perception of art that was embodied (for all their mutually dissenting views) by Rudolf Arnheim or Ernst Gombrich was summarily dismissed and its protagonists ridiculed and castigated as 'perceptual absolutists' or 'visual essentialists' who must be obliterated.<sup>16</sup>

<sup>14</sup> Meyer Schapiro wrote in his otherwise critical review of the New Viennese School that American art-historians 'lack ... their readiness to absorb the findings of contemporary scientific philosophy and psychology'; Schapiro, 'The New Viennese School', *Art Bulletin* 18, 1936, 260. Gombrich's remarks are from his 'Art History and Psychology in Vienna Fifty Years Ago', *Art Journal* 44, 1984, 162-164. Hans Sedlmayr's *Strukturforschung* and its links to Gestalt theory has been the subject of recent evaluation, see, in particular, Christopher Wood, 'Introduction', in *The Vienna School Reader. Politics and Art Historical Method in the 1930s*, Christopher Wood, ed., New York 2000, esp. 9-72 and Ian Verstegen, 'Materializing *Strukturforschung*', in *German Art History*, 141-160.

<sup>15</sup> Georges Didi-Huberman, 'History and Image: Has the "Epistemological Transformation" Taken Place?', in *The Art Historian: National Traditions and Institutional Practices*, ed. Michael Zimmermann, Williamstown 2003, 128-143, esp. 137-138.

<sup>16</sup> Thus according to Norman Bryson, 'Residual theories of spectatorship ... that analyzed viewing in terms of cognitive psychology (Arnheim, Gombrich), paled against the immediacy of Mulvey's model of gaze', 'Introduction: art and intersubjectivity', in Mieke

But the reason why Arnheim became persona non-grata among influential critical theorists and why he is so decidedly unfashionable these days lies deeper than in his diametrically opposed models of perception and stems from the deeply ingrained ethico-political aspects of his *Weltanschauung*. Arnheim was never an ivory-tower type of recluse, pondering the technical nitty-gritty of visual perception, but a scholar with a passionate view of art and its meanings and with strong views on society at large. He consistently and at times almost ferociously articulated and defended his view of the humanistic purpose and traditional values of art. His assertion that '[c]ultural salvation is the area to which my own work has aspired...', and his attacks on 'cynical defenders of relativism', 'fashionable skeptics', and the 'decay of standards of value' that pervade our civilization, fly in the face of postmodern critical theorizing and sound like ridiculous echoes of bygone era and a direct attack on its most cherished axioms.<sup>17</sup> Human nature, to which Arnheim's writing implicitly – and sometimes explicitly – appeals, became a ridiculous, if not politically incorrect, notion for poststructural relativists. Film theorist David Bordwell, who wrote perhaps the most poignant obituary of Rudolf Arnheim, summarized his life-long stance succinctly in the observation: 'For many scholars today, all that matters is what divides us. But for eighty-plus years Arnheim emphasized ways in which we share a common experience of the world and art.'<sup>18</sup>

On 12 September 1978 Arnheim noted in his diary: 'Like the behaviorists of old, some psychologists of our own generation are trying to eliminate the mind.'<sup>19</sup> At that time, however, the mind and consciousness were already coming back full swing as a serious subject of research and new paradigms of the mind were emerging to eclipse long-dominating psychoanalytical and behaviourist models.<sup>20</sup> It would seem that, with the advent of cognitive neuroscience in the 1980s, the scene was again set for meaningful dialogue between art and the science of the mind. But contrary to such expectations, the third and final debasement and trivialization of the mind and its separation from art has been taking place exactly in the newly

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Bal, *Looking In. The Art of Viewing*, Amsterdam 2001, 7. Although she never mentions a specific name, Mieke Bal's tirade against 'visual essentialists', who 'must be actively disappeared' seems to be targeted against Gombrich and Arnheim, see Mieke Bal, 'Visual essentialism and the object of visual culture', *Journal of Visual Culture* 2:1, 2003, 5-32.

<sup>17</sup> These views are increasingly voiced in his later writings; see, e.g., Arnheim, 'To the rescue of art', *Leonardo* 19:2, 1986, 95-97.

<sup>18</sup> David Bordwell, 'Simplicity, clarity, balance: A tribute to Rudolf Arnheim', [www.davidbordwell.net/blog](http://www.davidbordwell.net/blog).

<sup>19</sup> Arnheim, *Parables of Sun Light. Observations on Psychology, the Arts, and the Rest*, Berkeley-Los Angeles 1990,

<sup>20</sup> For the historical development of sciences of the mind, see, e.g., M. R. Bennett & P. M. S. Hacker, *History of Cognitive Neuroscience*, London 2012.

emerging field of the neuroscience of art (or neuroaesthetics), with its massive and conceptually mistaken reductionism.<sup>21</sup>

While one should not be surprised not to find Arnheim's name and work (or Gestalt theory) mentioned in poststructuralist theories of vision and perception, except in derogatory remarks, it is nothing short of astonishing that he is similarly ignored in major works on the neuroscience of art that have appeared in the last decade.<sup>22</sup> The explanation that he is being overlooked because the Gestalt theory of perception is obsolete or incompatible with the kind of experimental approaches and theoretical models of contemporary neuroscience does not hold water, since some aspects of Gestalt theory are actually imminently relevant to contemporary neuropsychology of aesthetic perception.<sup>23</sup> One suspects that the reason Arnheim's contributions have been ignored lies deeper and has to do precisely with the denigration of the mental in mainstream contemporary neuroscience and the manifold attempts of this field to reduce the mind to nothing more than the brain.<sup>24</sup> One reason why most work in the rapidly developing field of neuroaesthetics appears unconvincing and irrelevant for the history and theory of art is the simple fact that it fails to take works of art and the entire tradition of art-historical and critical writing seriously. The contrast with Arnheim could hardly have been

<sup>21</sup> On the different shades of critiques of neuroaesthetics, see, e.g., Ladislav Kesner, 'Neuroaesthetic: real promise or real delusion?', in *The Aesthetic Dimension of Visual Culture*, Ondřej Dadejdík and Jakub Stejskal, eds, Newcastle upon Tyne 2010, 17-32; John Hyman, 'Art and neuroscience', in *Beyond Mimesis and Convention. Boston Studies in the Philosophy of Science* 262, R. Frigg and M. C. Hunter, eds, 245-261; Raymond Tallis, *Aping Mankind: Neuromania, Darwinitis and the Misrepresentation of Humanity*, London 2011.

<sup>22</sup> With the exception of Eric Kandel, *The Age of Insight. The Quest to Understand the Unconscious in Art, Mind, and Brain, From Vienna 1900 to the Present*, New York 2012, esp. 196-213, 263ff. Here, Kandell overstates the influence of Gestalt psychology on Gombrich and Kris.

<sup>23</sup> For a rapprochement between Gestalt theory and contemporary neuroscience, see especially Gerald Westheimer, 'Gestalt theory reconfigured: Max Wertheimer's anticipation of recent developments in visual neuroscience', *Perception* 28, 1999, 5-15; Walter Ehrenstein, Lothar Spillmann and Viktor Sarris, 'Gestalt issues in modern neuroscience', *Axiomathes* 13, 2003, 433-458. For a broad overview of current statues of Gestalt psychology and its links to neuroscience, see especially Johan Wagemans et al., 'A century of Gestalt psychology in visual perception: I. Perceptual grouping and Figure-ground organization', *Psychological Bulletin* 138, 2012, 1172-1217, and idem, 'A century of Gestalt psychology in visual perception: II. Conceptual and theoretical foundations', *Psychological Bulletin* 138: 6, 2012, 1218-1252.

<sup>24</sup> Much recent criticism has focused on tendencies within the neuroscientific community to reduce psychological phenomena to their neural basis, for a wide-ranging criticism and discussion of this phenomenon, see, e.g., Gregory Miller, 'Mistreating psychology in the decades of the brain', *Psychological Science* 5:6, 2010, 716-743; and in an even broader framework the stringent critique in Maxwell Bennett and Peter Hacker, *Philosophical Foundations of Neuroscience*, Oxford 2003.

greater. Granted, Arnheim would also on occasion write of paintings or sculptures as 'stimuli', but page after page of his texts reveal his personal passion for art, an awareness of the complexities involved in any encounter with a work of art, and respect for art-historical scholarship. In short, his psychology of art was rooted in and stemmed from a deep engagement with art works of different cultures and periods. Although he never said so explicitly, it is obvious that for him art is produced and shared between embodied human minds, not stand-alone brains. This seriousness about art and attention to what artists and art historians have to say about it, is completely missing from contemporary attempts to link neuroscience and art.

To summarize, in all three of these influential intellectual agendas that have shaped the practice of art history and theory – the conservative disciplinary practice, its poststructuralist rival and the booming field of neuroaesthetics, art thus continues to be distanced from the mind and the study of art from the study of the mind. Herein lies the reason why it may be useful now to confront and compare the ideas of Arnheim and Warburg. They are true representatives of two distinct agendas: the cultural/social psychology of art and the perceptual psychology of art. The crucial question then is whether and how these perspectives can be integrated. A good way to start would be by juxtaposing some elements of Warburg's and Arnheim's respective conceptions and spelling out the possible implications of a fictitious dialogue between them. This does not mean fusing or synthesizing their ideas by grafting Arnheim's thoughts onto Warburg's work or vice versa, but rather, and as a more modest approach, simply pointing how their respective ideas on occasion complement each other and can be productively used to address some issues of theoretical interest.

### III

Both Warburg and Arnheim approached the realm of culture and art and specifically the perception of art with a scientific rigor and with a faith in the possibility of discovering lawful structures. The early Warburg of the 1890s and the late Arnheim of the 1990s, with two lifetimes of work between them, on occasion use a similar language. Commenting on the now obscure book of H. von Stein, *Entstehung der neuen Ästhetik*, young Warburg enthusiastically predicted 'the discovery in aesthetics of "laws as powerful as the law of gravitation"'.<sup>25</sup> Later, in his thoughts on the social mediation of images, he wrote about '[d]ynamic energy preserved in engram, but obeying laws comparable to physics.'<sup>26</sup> Arnheim, for his

<sup>25</sup> Gombrich, *Aby Warburg*, 84.

<sup>26</sup> Karen Lang quotes from Warburg's unpublished essay 'Symbolismus aufgefasst als primäre Umfangsbestimmung': '... in what respect can the symbolic act – even according to the law of the smallest powers – be considered as lawful?' (Lang, *Chaos and Cosmos: On the Image in Aesthetics and Art History*, Ithaca 2006, 116).

part, remained firmly convinced that both the creation and the perception of a subject are motivated by universal laws of perception.<sup>27</sup> He thus repeatedly described gestalt formation as a lawful process: 'Every time a given target meets a given percipient, the resulting experience derives lawfully from the characteristics of the target in its interaction with the properties of the perceiving mind.'<sup>28</sup> In a similar vein, an expression is lawfully dependent on the stimuli recorded by the eyes.<sup>29</sup> But despite such affinities, the main thrust of their respective work pointed in different directions. Warburg's lifelong topic, as is well known, was the historical psychology of human expression, the social mediation of expressive human communication and the transformation of its language. As a cultural historian, he was largely concerned with the *long durée* approach.<sup>30</sup> He acknowledged, but largely left unspecified and untheorized, the psychological dimension of individual perception and expression. Arnheim's perspective was complementary to this and centred on the cognitive significance of art, and one of his main projects may be described as the application of Gestalt theory and Gestalt laws to the perception of art. While acknowledging the factor of time in the perceptual event,<sup>31</sup> his main focus was on the psychological aspects of perception, disconnected from the larger historical context. Whether his approach can in the strict sense be dubbed 'ahistorical' is debatable,<sup>32</sup> but it is correct to insist that in his key works the temporal dimension of perception, beyond the time scale of what Gestaltists call *Aktualgenese*, remained outside the scope of his interest. The two of them worked in disparate time scales.

The different temporal dimension is then linked to the difference in how they articulated the relationship between the mind of the artist or the beholder of art and cultures in which these subjects are situated. Warburg, in his writings, oscillates somewhat uneasily between individual minds – for example, when discussing the reinterpretation by Renaissance or later artists of the classic 'pathos formula' – and

<sup>27</sup> It has been noted that Arnheim's quest for laws and regularities is firmly rooted in an Enlightenment notion of science and rationality, see David Pariser, 'Arnheim as gadfly for the postmodern', in *Rudolf Arnheim. Revealing Vision*, Kent Kleinman and Leslie Van Duzer, eds, Ann Arbor 1997, 106.

<sup>28</sup> Arnheim, 'To the rescue of art', *Leonardo* 19:2, 1986, 95-97.

<sup>29</sup> Arnheim, *Art and Visual Perception. A Psychology of the Creative Eye. The New Version*, Berkeley-Los Angeles 1974, 202.

<sup>30</sup> Giorgio Agamben has argued that Warburg's hermeneutic circle moves through three levels: iconography and the history of art, the history of culture and ultimately what he labels the 'nameless science' – diagnosing Western man through a consideration of his phantasms; see Agamben, 'Aby Warburg and the nameless science', in *Potentialities. Collected Essays in Philosophy*, Stanford 1999, 89-103.

<sup>31</sup> *Art and Visual Perception*, 67; *Visual Thinking*, Berkeley 1971, esp. 29-31.

<sup>32</sup> This point is disputed by Verstegen, *Arnheim, Gestalt and Art*, 97ff. It would be fair to insist that in his writings Arnheim admitted, but never properly articulated, the historical dimension of perception.

collective entities such as 'educated Renaissance men', or 'citizens of Medicean Florence', or the 'psychic life of Indians'. But there is a blind spot in Warburg's project, one noticed already by Ernst Gombrich, who pointed out that by regarding images as expression one introduces an ambiguity as to who is doing the expressing – individuals, culture, or society. Gombrich rightly points out that Warburg ignored such ambiguities.<sup>33</sup> Lacking from Warburg's conception of social mediation of images was an attempt to systematically clarify the link between the individual perceiving mind and the culture at large.

Interestingly, in his early years, as his as yet unpublished *Grundlegende Bruchstücke zur Psychologie der Kunst* in particular shows, Warburg seems to have been keenly aware of the importance of grounding cultural/social psychology in the psychology of perception. For instance, in *Vier Thesen*, drafted in 1890, he explicitly refers to the moment of individual perception:

'In autonomous and monumental art the artistic manipulation of additional dynamizing forms evokes from dynamic images of individual situations which were originally seen in reality.'<sup>34</sup>

When he elsewhere writes of the 'automatic reflex of the artistic imagination' or that 'Dürer has rendered the Saturnian demon innocuously through the active work of reason ...',<sup>35</sup> he is clearly alluding to the processes that necessarily happen in the individual perceiving minds of artists and viewers in psychological time.<sup>36</sup> In his later work, and especially when he was focusing on the formation of social memory, which preoccupied him increasingly during the last decade of his life, this dimension was largely eclipsed. He would claim that the symbol in the collective mind was the counterpart to the engram in the individual mind – but he certainly never attempted to develop this link into any kind of sustainable theory. In his writings, Arnheim was somewhat more explicit on this point. He repeatedly noted the role of perceptual learning in the process of understanding the image and agreed that while percepts are objective facts, different people see different things.<sup>37</sup>

<sup>33</sup> See Ernst Gombrich, 'Aby Warburg: His aims and methods: An anniversary lecture', *Journal of the Warburg and Courtauld Institutes* 62, 1999, 268-282; see also Gombrich, *Aby Warburg*, 308.

<sup>34</sup> *Vier Thesen*, in Aby Warburg, *Werke in Einem band*, Martin Treml, Sigrid Weigel, Perdita Ladwig, eds, Frankfurt-Berlin 2010, 108-09.

<sup>35</sup> Aby Warburg, *Die Erneuerung der heidnischen Antike. Gesammelte Schriften* 1.2, Horst Bredekamp and Michael Diers, eds, Berlin 1998, 530.

<sup>36</sup> Cf. also Giorgio Agamben, *Nymphae*, Berlin 2005, 30 who writes that 'Pathosformeln are received in a state of "unpolarized latent ambivalence" and only in this way – in an encounter with a living individual - can they obtain polarity and life.'

<sup>37</sup> Arnheim, 'Objective percepts, objective values', in *New Essays On the Psychology of Art*, Berkeley-Los Angeles 1986, 297-326, 'To account for the outcome of any such meeting between work and viewer, one needs to know, first of all, which psychological, social and

On another occasion he wrote: 'It is the interaction between the images of the outer objects imposed upon our senses and the formative principles governing the processes in the receptor areas of the brain, together with all the personal and cultural idiosyncracies, that account for our perceptual experiences.'<sup>38</sup> In a late interview, when asked about Gombrich's conception of vision and whether there is an objectivity of perception, Arnheim admitted: 'I don't argue against the idea that there is a historicity of perception and that cultural determinations play a role in vision.'<sup>39</sup> Characteristically, such views appear in his late works, particularly in several interviews from the last decade of his life. In *Art and Perception* and his other key books, Arnheim allowed little space for spelling out how cultural and historical factors impinge on vision and visual expression. With his central concern for formulating the lawful aspects of perception, he was bound to de-emphasize the cultural and historical dimension of vision and expression.

What emerges out of this juxtaposition is the complementarity of their respective positions. Warburg's thoughts on the social mediation of images and the psychology of expression could not have been fully developed without him also including the bio-psychological aspects or dimensions of the individual perceiving mind. On the other hand, Arnheim's examination of the Gestalt laws of art perception and expression is again incomplete without the historical and cultural dimension of the problem, that is to say, without an explicit theory of how contingent cultural factors modify universal mechanisms of perception rooted in human nature. In other words, neither Warburg's nor Arnheim's main project form a complete and sustainable theory] without taking into account the perspective and focus that preoccupied the other. The challenge, therefore, is to attempt to bridge the gap between the kind of visual cultural and social psychology pursued by Warburg and the perceptual psychology that concerned Arnheim, or, more exactly, between the individual mind and its cultural context and between the different time scales in which perception and expression occurs. How can this be done?

#### IV

The first step logically is to construct a conceptual framework in which these two approaches can be meaningfully integrated and that would permit the key questions to be addressed: how does the vision and specifically the perception of art become open to cognitive and cultural factors? How can the biologically grounded

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philosophical factors determine the viewer's way of looking and what previous experiences are called up by the present one ...' (313-314).

<sup>38</sup> 'Reply to David Carrier', *Leonardo* 19:3, 1986, 254; see also Uta Grundmann, 'The intelligence of vision: An interview with Rudolf Arnheim', <http://cabinet-magazine.org/issues>.

<sup>39</sup> Uta Grundmann, 'The intelligence of vision.'

vision be translated into the realm of cultural processes? Much depends on how vision is decomposed into stages or phases, spanning the individual-social continuum. In art history and visual studies a distinction is routinely made between *visuality* and *vision*, a duality that is supposed to mirror the distinction between sex (as a biological act) and sexuality (as a cultural construction).<sup>40</sup> This polarity appears useful not least for the fact that it sharply demarcates the boundaries of professional competence: the humanist's realm is that of *visuality*, ignoring *vision* as a biological substrate and leaving it to the exact sciences. Indeed, influential voices in contemporary visual studies, which heavily emphasize the social and discursive aspects of vision, have succeeded in isolating *visuality* from the biological aspects of seeing.

But demarcating vision in this way leaves much to be desired and the polarity of vision/*visuality* needs to be replaced by a model that seeks more precisely to capture the process of vision in its biological and social complexity.<sup>41</sup> The alternative framework consists of four levels. Moving in a top-down fashion, there are the levels of:

1. Concepts, attitudes, values and motives (and their discursive articulation) relating to images, vision and representation – approximately that which is covered by the term *visuality*; elements at this level] develop and persist on a time scale of years to centuries.
2. The level of cognitive factors, strongly shaped by the environment and culture, which roughly corresponds to Baxandall's notion of the 'period eye': semantic categories, patterns of inference experience and training in the range of representational conventions etc.,<sup>42</sup> that is, factors whose operation stretches from

<sup>40</sup> Robert Nelson, ed., *Visuality Before and Beyond the Renaissance. Seeing as Others Saw*, Cambridge 1996. The distinction between vision and *visuality* is preserved, albeit in a completely new and very complex framework, in Whitney Davis's *A General Theory of Visual Culture*, Princeton and Oxford 2011. Indeed Davis's main focus in the book is a theoretical model of how vision succeeds to *visuality*. As he states it: 'When we speak of *visuality*, rather than simply vision or visual perception, we address the difference introduced into human seeing by traditional cultural meaning consolidated and reconfigured in images.' (p. 230) The scheme discussed below assumes a somewhat different embeddedness of culture in vision; however, a full discussion of this point is beyond the scope of this article.

<sup>41</sup> Ladislav Kesner, 'Gombrich and the problem of relativity of vision', *Human Affairs, A Postdisciplinary Journal of Humanities & Social Sciences* 19, 2009, 266-273.

<sup>42</sup> Michael Baxandall, *Painting and Experience in Fifteenth-Century Italy. A Primer in the Social History of Pictorial Style*, Oxford 1972. Although his 'period eye' stands as a highly influential paradigm, he left unspecified its link in either direction within our scheme – that is, to more basic psycho-biological perceptual-cognitive processes and to the large realm of culture. In a passage listing those 'variable and indeed culturally relative' aspects of perceiving mind and how they work together, he merely notes '... the process is indescribably complex and still obscure in its physiological detail' (p. 32). About the latter, Jeremy Tanner has recently noted that Baxandall did not give much explicit consideration to spelling out, in any systematic way, the sociological implications of his approach and 'never develops a very adequate

the minutes of psychological time in individual perception to the historical time of years.

3. Perceptual-cognitive strategies and processes—such as mechanisms of recognition, object identification and classification, patterns of saccadic eye movements and of selective visual attention, processes of embodied emotional and emphatic response, motor reaction activated by perception etc. These are processes that operate on both the conscious and the unconscious level and span a time frame of hundreds of milliseconds to minutes.

4. Mechanisms for detecting the essential aspects of a scene, such as lines and edges, movement, colour, binocular disparity and related aspects of low-level vision – that is, biologically hard-wired unconscious events occurring in a time scale of up to c. 250 milliseconds.

Naturally, such a scheme is just an analytical tool and it implies neither a strict hierarchy and hard boundaries between these stages, nor their mutual encapsulation. To the contrary, there is an ongoing, reciprocal relationship and feedback through which biologically implemented mechanisms mutually interact with higher levels of vision modifiable by culture. The first two levels—that of visuality and cognitive categories—are in a strong sense culturally relative. But importantly, there is an increasing body of evidence suggesting that, also at the crucial level of (III) perceptual strategies and processes, both culture and individual perceptual history in some measure penetrate perception. This is not entirely new, as the cultural factors influencing perception have been studied since the late nineteenth century by cultural anthropologists and social psychologists who demonstrated that some aspects of sensory perception are indeed influenced by the natural and cultural environment. The model of the human mind which originates and develops from the intersection of the brain and an external source of activation resonates in contemporary research on how human experience is cultural modelled. An increasing number of experimental studies measuring neural activity in subjects from different cultural groups engaged in some cognitive task suggest that a person's cultural background can influence the neural substrate of not only high-level social cognition, but also low-level perceptual processes.<sup>43</sup>

Using neuroimaging techniques, researchers have demonstrated the cross-cultural differences in a number of perceptual and cognitive functions: in patterns of

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theoretical or methodological formulation of the implicitly sociological principles which inform his studies' (Tanner, 'Karl Mannheim and Alois Riegl: From art history to the sociology of culture', *Art History* 32:4, 2009, 776).

<sup>43</sup> For a recent overview of cultural neuroscience, see Shihui Han and Georg Northoff, 'Culture-sensitive neural substrates of human cognition: a transcultural neuroimaging approach', *Nature Reviews Neuroscience* 9:8, 2008, 646-54; S. Kitayama and AK Uskul, 'Culture, mind and the brain: Current evidence and future directions', *Annual Review of Psychology* 62, 2011, 419-449; Nicholas Rule, Jonathan Freeman and Nalini Ambady, 'Culture in social neuroscience: A review', *Social Neuroscience* 8:1-3, 2013, 3-10.

saccadic eye movements and the processing of visual scenes;<sup>44</sup> in the strategies used to extract visual information from the human face;<sup>45</sup> in attentional control;<sup>46</sup> in certain aspects of how visual objects are processed;<sup>47</sup> in neural processing in response to fearful expressions.<sup>48</sup> Some aspects of perception may even be modified by religious belief, as suggested in a study in which an otherwise identical group of Dutch Calvinists differed from their atheist compatriots in terms of how they attended to and processed global and local features of complex stimuli.<sup>49</sup> Generally, culture may influence cognitive processes by providing the priming stimuli that constrain a person's responses, but also by providing the larger context in which such responses occur.<sup>50</sup> Another body of research has offered additional evidence that past experience can have an effect on the perceived organization of visual stimuli, including the very early stages of shape assignment and figure-ground processing.<sup>51</sup>

The hierarchy of vision outlined above can be redescribed as a succession of temporalities spanning several dimensions. Leaving aside evolutionary time for the moment, there exist historical time (of Aby Warburg), psychological or mental time (of Rudolf Arnheim) and neuronal time. Both the perception of and expression in art are spread over all these dimensions of time (or over the biological, personal and social dimension), with events in micro- and macro- temporal scale mutually

<sup>44</sup> H. Chua et al., 'Cultural variation in eye movements during scene perception', *Proceeding Natl Acad Sci USA* 102, 30 August 2005, 12629–12633; Lucas Jenkins et al., 'Cultural differences in the lateral occipital complex while viewing incongruent scenes', *Social Cognitive and Affective Neuroscience* 5:2-3, 2010, 236-241.

<sup>45</sup> C. Blais et al., 'Culture shapes how we look at faces', *PloS ONE* 3, 20 August 2008, e3022.

<sup>46</sup> T. Hedden et al., 'Cultural influences on neural substrates of attentional control', *Psychological Science* 19:1, 2008, 12-17.

<sup>47</sup> Angela Gutchess et al., 'Cultural differences in neural function associated with object processing', *Cognitive, Affective, and Behavioral Neuroscience* 6:2, 2006, 102-09; JO Goh et al., 'Culture differences in neural processing of faces and houses in the ventral visual cortex', *Social Cognitive and Affective Neuroscience* 5, 2010, 227-235.

<sup>48</sup> Joan Chiao et al., 'Cultural Specificity in Amygdala Response to Fear Faces', *Journal of Cognitive Neuroscience* 20:12, 2008, 2167-2174; Reginald Adams et al., 'Culture, gaze and the neural processing of fear expressions', *Social Cognitive and Affective Neuroscience* 5.2-3, 2010, 340-348.

<sup>49</sup> LS Colzato et al., 'Losing the big picture: how religion may control visual attention', *PloS ONE* 3, 12 November 2008, e 3679.

<sup>50</sup> Hazel Rose Markus and Shinobu Kitayama, 'Cultures and selves: A cycle of mutual constitution', *Perspectives on Psychological Science* 5, 2010, 427.

<sup>51</sup> Ruth Kimchi and Bat-Sheva Hadad, 'Influence of past experience on perceptual grouping', *Psychological Science* 13, 2002, 41-47; Logan Trujillo et al., 'Neurophysiological evidence for the influence of past experience on figure-ground perception', *Journal of Vision* 10:5, 2010, 1-21.

linked.<sup>52</sup> Warburg's charting of the history of representation from the magico-associative to the logico-dissociative, as well as his investigation into the dynamics of pictorial and human expression were directed at the level of historical macrotemporality and society. But the theoretically desirable extension of his project, that is empirically better grounded accounts of developments at this level, would ultimately need to account for how they are linked to the microtemporality of psychological and neuronal events of perception – to the microtemporality of the formation and disintegration of Gestalts and perceptual events in individual minds, which Arnheim was concerned with. The challenge then is how to account for the transition from the neuronal to psychological time, as well as the transition from psychological to historical time. Isolated attempts by art historians to make such links have so far fallen short of providing persuasive results,<sup>53</sup> while at the same time it is becoming increasingly obvious that the atomistic tendencies of modern neurophysiology are ill-suited to address the issues of cultural, let alone social meaning in art perception and expression.<sup>54</sup> The four-tiered scheme of vision presented here is but the first step towards articulating such a framework, which would ultimately have to accommodate different conceptual structures and ontologies of art/cultural history on the one hand and vision and cognitive science and neuroscience on the other – a vast project which is beyond the scope of the present article.

<sup>52</sup> A further challenge would be to relate this framework to the temporal dynamics of consciousness – for example, the model of succession of prereflective and reflective consciousness; see Micah Allen and Gary Williams, 'Consciousness, plasticity, and connectomics: the role of intersubjectivity in human cognition', *Frontiers in Psychology* 2, 2011: 20.

<sup>53</sup> A telling example is John Onians' attempt to derive the specificity of local artistic styles in quattrocento Italy from the different environmental conditions of various cities (see John Onians, 'Alberti and the neuropsychology of style', in *Leon Battista Alberti E Il Quattrocento. Studi in onore di Cecil Grayson e Ernst Gombrich*, Luca Chiavoni, Gianfranco Ferlisi, Maria Vittoria Grassi, eds, Mantua 2001, 239–50). More recently, he formulated a general principle claiming that 'the more often we look at something the more connections will form between neurons involved, so strengthening our preference for looking at that thing' applying it to the problem of origins of representational art (Onians, 'Neuroarchaeology and the origins of representation in the Grotte Chauvet', in *Image and Imagination. A Global Prehistory of Figurative Representation*, Colin Renfrew and Iain Morley, eds, Cambridge 2007, 307–320). Such assumptions appear to be based on grossly simplified and misunderstood notions of neuronal plasticity and representation.

<sup>54</sup> On the other hand, it has been remarked that Gestalt psychology is peculiarly well adapted to describing visual artworks (David Carrier, 'A response to Rudolf Arnheim's To the Rescue of Art', *Leonardo* 19:3, 1986, 251. He further asserts that Arnheim's work is of limited relevance to much art today (p.254).

## V

The major concern of both Warburg and Arnheim was the problem of expression and the question of how the image reveals the mind and these can be taken as another point of mutual intersection. Warburg's life-long effort in the historical psychology of human expression, as is well known, never assumed the form of a coherent theory. But despite the vagueness and terminological difficulties, his thoughts on the dynamics of human expression continue to be a source of much inspiration. Arnheim, for his part, claimed that his preoccupation with film originated in his interest in the expressive capabilities of the visual and that 'expression can be described as the primary content of perception'.<sup>55</sup> Unlike Warburg, he made an attempt to formulate an empirical model of the expressiveness of visual form, outlined in his *Gestalt Theory of Expression* of 1949, in which he highlights a fundamental question: What is expression, and what enables the observer to experience it?<sup>56</sup>

He states that the Gestalt theory of expression has to address not just the problem of how psychical processes can be inferred from bodily behaviour. In conformity with Gestalt theorists, he then crucially postulates that it is through isomorphism that meaning is revealed from expression, that is the isomorphic structures in the observed person (or work of art) and the viewer: '... it is the *direct expressiveness* of all perceptual qualities that allows the artist to convey the effects of the most universal and abstract psycho-physical forces through the presentation of individual, concrete objects and happenings'. The projection of a visual stimulus on the brain creates 'a configuration of electrochemical forces in the cerebral field'.<sup>57</sup> This theory did not garner much attention and did not withstand the test of time, largely because the model of psychoneural isomorphism of Wolfgang Köhler and Wolfgang Metzger on which it is based is not supported by contemporary knowledge on brain function.<sup>58</sup> Nevertheless, it seems worthwhile to compare

<sup>55</sup> Arnheim, 'The Gestalt theory of expression', in *Towards a Psychology of Art*, London 1967, 63. Elsewhere he adds that Expressive qualities are authentic and objective properties of all percepts, *Art and Visual Perception*, 205.

<sup>56</sup> 'The Gestalt theory of expression', 51-73.

<sup>57</sup> 'The Gestalt theory of expression', 61-70. Although Arnheim himself does not provide this link, his theory of expression stems from Gestalt phenomenology, which insisted that the meaning of expressive (physiognomic) qualities is often given directly and immediately in the perceptual experience; cf. Wolfgang Köhler, *Gestalt Psychology*, New York 1929, esp. 144 ; Wolfgang Metzger, *Psychologie. Die Entwicklung ihrer Grundannahmen seit der Einführung des Experiments*, Dresden 1941, 61.

<sup>58</sup> The concept of isomorphism as propounded by Köhler states that every perceptual state is linked to structurally identical, or isomorphic, neural process occurring in the brain (Wolfgang Köhler, *Die physischen Gestalten in Ruhe und im stationären Zustand. Eine naturphilosophische Untersuchung*, Braunschweig 1920, 193). The model of psychoneural isomorphism was already dealt a mortal blow in the 1950s in neurophysiological

Arnheim's theory of expression with key tenets of Warburg's mimetic notion of expressivity.<sup>59</sup> Warburg's thought (much indebted to Darwin's notion of expression and Vischer's theory of empathy) similarly insists on the immediacy of expressiveness, on the fact that in a real (or represented) bodily posture and gesture an affect is immediately expressed.<sup>60</sup>

Crucially, for both thinkers, bodily postures and gestures captured in images express the human mind or mental states.<sup>61</sup> Arnheim thus asserts that 'all motor acts are expressive, even though in different degrees, and that they all carry the experience of corresponding higher mental processes, if ever so faintly ...' The perceived character may correspond to a similar physical state; secondarily it may refer to a correlated state of mind.<sup>62</sup> This correlation does not apply just to the human body, but also to representations; thus art, according to Arnheim, deals with the 'external expression of mental states'.<sup>63</sup> Without in any way acknowledging Warburg (and possibly even unaware of his life-long work on human expressivity), Arnheim is treading on the same ground as that of Warburg's thinking and in particular his key notion of the pathos formula. In Warburg's treatment, pathos formulae, those 'extremes of physiognomic expression in the moment of the highest excitement (pathos) or of profoundest contemplation (ethos)'<sup>64</sup> or 'engrams of experience of affective (suffering) experience ...',<sup>65</sup> assume a dual role – serving as

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experiments that ruled out the idea that Gestalt perceptual patterns are underlied by electric cortical fields, cf. K. S. Lashley, K. L. Chow and J. Semmes, 'An examination of the electrical field theory of cerebral integration', *Psychological Review* 58, 1951, 123-36. For an assessment of the doctrine of isomorphism see also Ash, *Gestalt Psychology in German Culture*, 176-182.

<sup>59</sup> Philipp Ekardt has recently argued that Warburg conceived of expression in terms of mimetic processes, that Warburg's theory models psychological processes as mimetic - 'Sensing-Feeling-Imitating. Psycho-Mimeses in Aby Warburg', *Ilinx, Berliner Beiträge zur Kulturwissenschaft* 2, 2011, 101-121.

<sup>60</sup> These ideas significantly overlap with the ideas of the psychiatrically-oriented tradition of German *Ausdruckpsychologie*, as most notably pursued by Karl Jaspers in his monumental *Allgemeine Psychopathologie* (first edition 1913). Neither Warburg nor Arnheim acknowledged Jaspers' notion of expression as the interaction of voluntary and involuntary body movements, his suggestion therefore that the mind always possesses an element of volitional self-presentation.

<sup>61</sup> The concept of the mental state lacks any precise consensual definition in contemporary neuroscience and philosophy of mind; this conceptual confusion is briefly discussed in Ladislav Kesner, 'Showing *Images of the Mind* in Dresden and Brno', *Interdisciplinary Science Reviews* 38:3, 2013, esp. 241-42. Arnheim, in contrast, points out that every mental state has a cognitive, affective and motivational dimension ('Emotion and feeling in psychology and art', in *Towards a Psychology of Art*, 309-11).

<sup>62</sup> 'The Gestalt theory of expression', 69

<sup>63</sup> 'Emotion and feeling in psychology and art', 312

<sup>64</sup> Aby Warburg, *Festwessen*, 79, as quoted in Gombrich, *Aby Warburg* 178.

<sup>65</sup> Aby Warburg, *Der Bilderatlas Mnemosyne*, Martin Warnke and Claudia Brinke, eds., 2nd ed., *Gesammelte Schriften* I.2, Berlin 2008, 4-5.

an index of the mind (literally as the expressive values of the dynamics of the human soul (*Ausdruckswerte seelischer Dynamik*)<sup>66</sup> and as a stylistic device. This ambiguity is already firmly planted in his 1905 essay on Dürer: 'Die typische pathetische Gebärdensprache der antiken Kunst, wie sie Griechenland für dieselbe tragische Szene ausgeprägt hatte, greift mithin hier unmittelbar stilbildend ein.'<sup>67</sup> Gertrude Bing captured it succinctly, remarking that Warburg thought of pathos formulae as conventions, almost like a language, yet what is made visible in them is an emotional state.<sup>68</sup> A pathos formula has been variously interpreted as an image, symbol, symptom, or metaphor,<sup>69</sup> but importantly for our topic, as constituting an emotional and stylistic whole, it corresponds to the notion of Gestalt as formulated by the early Gestalt theorists - that is, an integrated, structural whole whose properties do not derive from its individual parts or the simple sum of them, and within which the constituent parts exist in dynamic relation to each other.<sup>70</sup>

The emotional charge in a typical pathos formula is based on the intertwining of posture and gesture and often also facial expression. While the constituent parts - faces, hands and bodies – can be considered specific Gestalt percepts in their own right, the pathos formula is a super-Gestalt, which provides an overall context for its constituent

<sup>66</sup> 'Urworte leidenschaftlicher Gebärdensprache', in *Bilderreihen und Ausstellungen, Gesammelte Schriften* II.1, Uwe Fleckner and Isabela Woldt, eds, Berlin 2012, 77.

<sup>67</sup> 'Dürer und die italienische Antike', in *Gesammelte Schriften* I:2, 446. ('Classical art's typical pathos-laden language of gestures, as Greece had stamped it for the same tragic scene, intervenes here in a way that is directly, stylistically formative.')

<sup>68</sup> Gertrude Bing, 'A.M. Warburg', *Journal of the Warburg and Courtauld Institute* 28, 1965, 308-309. In a similar vein, Giorgio Agamben notes, 'The concept of pathos formula designates an indissoluble intertwining of an emotional charge and an iconographic formula in which it is impossible to distinguish between form and content', (Agamben, *Nameless Science*, 90).

<sup>69</sup> For a discussion of the concept of a pathos formula, see especially, Didi-Huberman, *Das Nachleben der Bilder. Kunstgeschichte und Phantomzeit nach Aby Warburg*, Berlin 2010, esp. 212-224; Salvatore Settis, 'Pathos und Ethos, Morphologie und Funktion', in *Vorträge aus dem Warburg-Haus*, Wolfgang Kemp et al., eds, Berlin 1997, 33-54; Moshe Barasch, *Imago Hominis: Studies in the Language of Art*, New York 1991, 119-127; John Michael Krois, 'Die Universalität der Pathosformeln. Der Leib Als Symbolmedium', in Krois, *Körperbilder und Bildschemata*, Horst Bredekamp and Marion Lauschke, eds, Berlin 2011, 76-91; Christopher Johnson, *Memory, Metaphor and Aby Warburg's Atlas of Images*, Ithaca-New York 2012, esp. 60-64, 116.

<sup>70</sup> Max Wertheimer, 'Untersuchungen zur Lehre von der Gestalt II'. Theorists of gesture similarly stress that gestures themselves are both global and synthetic, that is, they are Gestalt, whose meaning is derived from its total form as a whole, see David McNeil, *Hand and Mind.: What Gestures Reveal about Thought*, Chicago 1992. Observing on isomorphism between gestures and images, Hostetter and Alibali write that images, like gestures, convey meaning globally, such that the entire image's meaning influences the interpretation of each part (Autumn Hostetter and Martha Alibali, 'Visible embodiment: Gestures as simulated action', *Psychonomic Bulletin and Review* 15: 3, 2008, 501.)

parts.<sup>71</sup> The Gestalt unity that lies in the perception of a pathos formula, however, may be obliterated or thwarted by the individual observer's pattern of observation (as exemplified, for example, by famous texts on the Laocoön statue written by Sadoletto and Winckelmann). It can likewise be disrupted in those works of art where there is a visible discrepancy between individual parts – for example, where the facial expression conveys signal that conflicts with those conveyed by the bodily expression.<sup>72</sup>

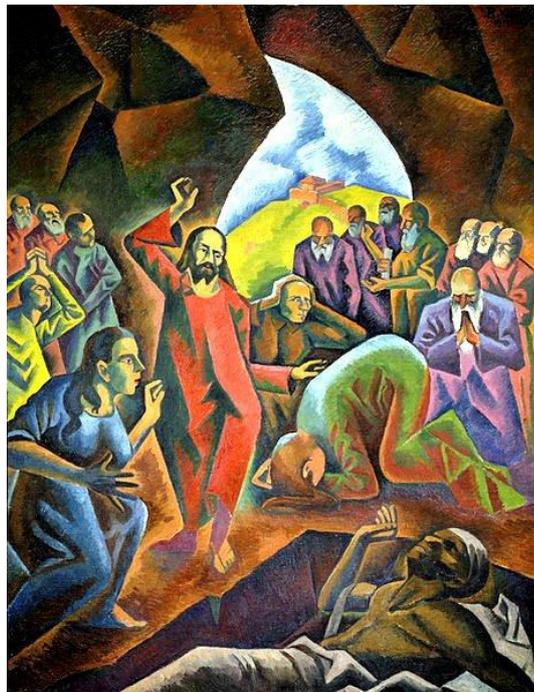


Figure 1 Bohumil Kubišta, *The Raising of Lazarus*, 1911-12. Copyright: West Bohemian Gallery Plzeň.

<sup>71</sup> As Jan Konderink observes, figural elements in works of art only make sense as a structural part of the Gestalt. A figural element might well be a Gestalt in its own right Jan Koenderink, 'Gestalts and pictorial worlds', *Gestalt Theory* 33: 3-4, 2011, 289-324, esp. 312-17. This, of course, begs the larger question to what extent faces or hands in visual representation can be considered emotional pictorial primitives. The debate about Gestalt qualities and true Gestalts as ontological entities and about the interrelationship between wholes and parts in phenomenal experience has never been settled; on this point see also Jonas Kubilius, Johan Wagemans and Hans Op de Beeck, 'Emergence of perceptual Gestalts in the human visual cortex: The case of the configural–superiority effect', *Psychological Science* 22:10, 2011, 1296-1303.

<sup>72</sup> The congruency/incongruency between emotional facial and bodily expressions has been the subject of recent studies in cognitive neuropsychology, albeit in reference to naturalistic photographic images; see Marius Peelen et al., 'Emotional modulation of body-selective visual areas', *Social, Cognitive and Affective Neuroscience* 2, 2007, 274-283; Catherine Mondloch, 'Sad or fearful? The influence of body posture on adults' and children's perception of facial displays of emotion', *Journal of Experimental Child Psychology* 111, 2012, 180-196.

But how is the affect transmitted in a figural work of art, and through a pathos formula specifically? What is the mechanism by which a pathos formula embodies emotion? While neither Warburg nor Arnheim (in his theory of expression) provides an adequate answer, there is again some striking complementarity in their thinking. At the core of Arnheim's theory of expression is the notion of 'directed tensions', first formulated in the early 1950s in the first edition of *Art and Perception*.<sup>73</sup> Directed tensions are supposed to be an essential property of a visual object – much like size, shape, or colour: 'The nervous system of the observer generates it at the same time that it produces the experience of size, shape, and color from the stimulus input.'<sup>74</sup> Thus, the character of a perceptual object itself is 'expressed' through the directed tensions within it. 'These tensions are inherent components of the perceptual stimulus ... they endow the object or event with a perceivable form of behavior...'<sup>75</sup>

The notion of directed tensions and of the 'dynamic qualities inherent in the percept'<sup>76</sup> articulated in Arnheim's lucid, scientific prose resonates with Warburg's idiosyncratic conceptual vocabulary, with his (nowhere precisely defined) concepts of: *hochstgespannter energetischer Ausdruckswerte* (highest-tension, energetic expressive values) or *Energetisches Spannungserlebnis* (experience of energy tensions).<sup>77</sup> Tensions are related to movement, thus Warburg writes: 'The introduction of forward-moving figures compels the viewer to exchange comparative for anthropomorphic viewing. The question is no longer: 'What does this expression mean?' But rather 'Where is this directed at?' The eye performs an imitative movements in relation to figures, to maintain the illusion the object is moving.'<sup>78</sup> Elsewhere, he speaks of the 'full force' (*volle Wuchte*) of affective –phobic.<sup>79</sup> Are these notions of the two scholars mere sediments of thought which should today be of historiographic interest but nothing more? I think not, suggesting that Arnheim's and Warburg's notions of directed and energy tensions can be subsumed under the concept of affective affordance in the image. Affective affordances, which take the form of objects (heads, bodies), or components thereof, but likewise operate on the level of constitutive aspects of the image, such as line, or colour, have the capacity to activate the affective response of the viewer.

The notions of direct, unmediated response to expressive form are obviously linked to accounts of empathy and empathic vision. Aby Warburg's work on pathos formulae and his notions of bodily expressivity, as many scholars have observed, were much indebted to Vischer's theory of empathy and the aesthetics of empathy emerging in

<sup>73</sup> *Art and Perception*, esp. 416-443.

<sup>74</sup> *Art and Perception*, 423.

<sup>75</sup> 'The Gestalt theory of expression', 53ff.

<sup>76</sup> 'Art and Perception', 438.

<sup>77</sup> Tagebuch, entry 5.4.1929, *Tagebuch der Kulturwissenschaftlichen Bibliothek Warburgs, Gesammelte Schriften VII*, 431.

<sup>78</sup> *Bruchstücke* 29 September 1900

<sup>79</sup> *Gessamelte Schriften II.1:3*.

the late nineteenth century.<sup>80</sup> Arnheim, for his part, acknowledged that Theodore Lipps's concept of empathy anticipated the Gestalt theory of isomorphism. And while he situated his own Gestalt theory of expression outside this tradition, his ideas about the consequences of perceptual stimulation, leading to an inference about the expresser's state of mind, induction of the corresponding state of mind in observer and the possible triggering of a corresponding kinesthetic experience in the viewer (he explicitly writes about 'resonance based on isomorphism')<sup>81</sup> foreshadowed ideas about empathic reaction based on mirror neuron mechanisms, in particular the embodied simulation hypothesis, that are currently prominent in cognitive neuroscience.

In a rather curious twist, the basic tenet of Arnheim's isomorphism-based theory of expression - the notion of a direct bodily response to a depicted form - anticipated the current theory of empathetic responses to works of art formulated by David Freedberg and Vittorio Gallese. Their model postulates the primacy of direct automatic somatic response to expressive form mediated by mirror neuron mechanisms, but it overlooks the difference between the response to actual and represented bodily expressions and ignores the contextual and cultural factors of empathic understanding.<sup>82</sup> They allege: 'The effectiveness of gestures depends on the human ability to understand them intuitively and motorically, through our motor system, even before such intuitive understanding- it would actually be better to say such intuitive grasp - is or is not modulated by cultural knowledge.'<sup>83</sup> The reason why this theory appears problematic and ultimately untenable

<sup>80</sup> Warburg's indebtedness to Vischer's conception of empathy has been extensively discussed; see in particular Edgar Wind, 'Warburg's concept of Kulturwissenschaft and its meaning for aesthetics', in Wind, *The Eloquence of Symbols. Studies in Humanist Art*, Oxford 1983, 26-30; and, more recently, Andrea Pinotti, 'Symbolic form and symbolic formula: Cassirer and Warburg on morphology (between Goethe and Vischer)', *Cassirer Studies* 1, 2008, 119-135; and Barnhard Buschendorf, 'Zur Begründung der Kulturwissenschaft: Der Symbolbegriff bei Friedrich Theodor Vischer, Aby Warburg und Edgar Wind', in Edgar Wind, *Kunsthistoriker und Philosoph*, ed. Horst Bredekamp et al. Berlin 1998, 227-248; Matthew Rampley, 'From symbol to allegory: Aby Warburg's Theory of Art', *Art Bulletin* 79:1, 1997, 41-55. In his scathing review of Gombrich's biography, Wind is right to point out Gombrich's muddled and imprecise summary that 'Warburg based his conception of human mind on an outmoded mechanistic associationist psychology' ('A Recent Biography of Warburg', in: Wind, *The Eloquence of Symbols*, op.cit. 108-109).

<sup>81</sup> 'The Gestalt theory of expression', 65-66.

<sup>82</sup> David Freedberg and Vittorio Gallese, 'Motion, emotion and empathy in esthetic experience', *Trends in Cognitive Sciences* 11:5, 2007, 197-203; V. Gallese and C. Di Dio, 'Neuroaesthetics: The body in esthetic experience', in *Encyclopedia of Human Behavior*, 2<sup>nd</sup>.ed, 2012, vol. 2, 687-693.

<sup>83</sup> David Freedberg, 'Movement, embodiment, emotion', in *L'Anthropologue, L'Historien De L'Art*, Thierry Dufrene and Anne-Christine Taylor, eds., Paris, 2009, 37-57. For a critique of the Freedberg-Gallese model, see Ladislav Kesner, 'Neuroaesthetics: Real promise or real delusion?', in *The Aesthetic Dimension of Visual Culture*, Ondřej Dadejdič and Jakub Stejskal, eds., Newcastle upon Tyne, 17-32; and Shaun Gallagher, 'Aesthetics and kinaesthetics', in *Sehen und Handeln*, Horst Bredekamp and John Krois, eds., Berlin 2011, 99-113. For a rigorous

has to do with the neglect or downplaying of manifold effects that modulate the supposedly direct automatic response.

In contrast, both Arnheim and Warburg, although each in his own way is indebted to the theory of empathy, take a far less deterministic view of the response to visual (figurative) form. Arnheim stresses the role of spatial and temporal factors affecting the perception of expression, emphasizing that the perceptual experience of expression can be influenced by the kind of training practiced in artistic and musical instruction.<sup>84</sup> Warburg, already in *Bruchstücke* claims that a response to visual expressive form can take the form of either a reflexive unmediated surrender to emotion or a sublimated response and calm contemplation. Unreflective association - linked to empathy and typical of the primitive mind - is inferior to the act of reason, the ability to rationally reconstruct or sublimate primeval phobic, affective reaction. As he famously wrote in the introduction to *Mnemosyne*: 'The conscious creation of distance between the self and the external world may be called the founding act of human civilization.'<sup>85</sup> Both thinkers then offer an important perspective on contemporary theorizing on affective responses to works of art - driven by mirror-neuron research, or what has been aptly called 'an impoverished Darwinian model of emotional expression'.<sup>86</sup>

If one discounts Warburg's primary association of the affectivity of the image with a phobic reaction, his dialectics or oscillation between affect and reason is imminently attractive, particularly when the temporal perspective is shifted from the time scale of macrohistorical development to the microscale of psychological and neuronal time in which each individual act of perception unfolds. Contemporary mind and brain sciences have undermined the opposition of affect and reason (cognition in contemporary scientific parlance) with different models that demonstrate the interconnectedness of emotion and cognition both at the level of the brain, neuronal mechanisms and the architecture of the human mind.<sup>87</sup> Each act of perception contains both an affective and a cognitive component. Different works of art (and the same works of art for different viewers under different viewing situations) thus offer the potential for a multidimensional experience that, while it always contains both affective and cognitive

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critique of interpretation of mirror neurons research for understanding of affect, see Ruth Leys, "'Both of us disgusted in *my insula*': Mirror neuron theory and emotional empathy', *Nonsite* no. 5, 2012, <http://nonsite.org/article/%E2%80%9Cboth-of-us-disgusted-in-my-insula%E2%80%9D-mirror-neuron-theory-and-emotional-empathy>.

<sup>84</sup> 'The Gestalt theory of expression', 67.

<sup>85</sup> Warburg, *Der Bilderatlas Mnemosyne*, 3.

<sup>86</sup> Daniel Gross, 'Defending the humanities with Charles Darwin's *The Expression of the Emotions in Man and Animals* (1872)', *Critical Inquiry* 37, 2010, 44.

<sup>87</sup> See in particular, Georg Northoff, 'From emotions to consciousness - a neuro-phenomenal and neuro-relational approach', *Frontiers in Psychology* 3, 2012: 303; Kristen Lindquist et al, 'The brain basis of emotion: A meta-analytic review', *Behavioral and Brain Sciences* 35, 2012, 121-202; William Cunningham et al., 'Emotional states from affective dynamics', *Emotion Review*, 5:4, 2013, 344-355; Anil Seth, 'Interoceptive inference, emotion, and the embodied self', *Trends in Cognitive Sciences* 17:11, 2013, 565-573.

aspects, occurs somewhere between Warburg's extremes of affective-phobic reaction and sublimated distance, depending on the beholder's mindset and momentary psychophysical state. Warburg charted developments on a historical time scale – the affective charge may be sublimated and spiritualized by artistic intention, or the affective energies of an image may be repolarised in a new historical context. But such trajectories can also be mapped into the timeframe of each individual response to a pathos formula, which as a perceptual Gestalt affords each viewer a range of reactions, from an intensely affective, bodily response, to those instances in which the affective response is attenuated or altogether obliterated by top-down factors and cognitive reappraisal, or by the perceptual effects of paying attention to a visual medium, so that the image becomes a kind of Warburgian 'disconnected dynamogram' whose affective impact has been tamed or lost altogether.<sup>88</sup>

Warburg and Arnheim both spent a major portion of their scholarly life traversing the 'no man's land' that separates psychology from humanities<sup>89</sup> along separate paths that seemingly never cross. But there are implicit links between the two formidable edifices of their scholarship waiting to be activated. Far from being merely a matter of historiographic interest, these links, as demonstrated above, involve some key issues and concepts of art theory and its relationship to modern-day sciences of the mind and brain. In other words, exploring this connection is of vital importance if art historians and theorists are to continue the project to which both Warburg and Arnheim devoted lifetime of work, namely, the alignment of art and cultural history with psychology, art with the human mind.

**Ladislav Kesner** is associate professor at Department of Art History, Masaryk University Brno and a free-lance curator. In 2013 he was Rudolf Arnheim professor at the Humboldt University Berlin. His most recent major exhibition, stemming from his current research focus on art and cognition, was *Images of Mind* in Deutsche Hygiene Museum Dresden and Moravian Gallery in Brno (2011-12). Author or editor of number of books and catalogues, he was awarded Arthur Kingsley Porter Prize by College Art Association of America in 1995.

kesner@mail.muni.cz

<sup>88</sup> As also observed by John Krois, affective meaning in pictures is a kind of gestalt effect: a whole that is more than the sum of its parts ('Experiencing emotion in depictions. Being moved without motion?', in *Habitus in Habitat I: Emotion and Motion*, Sabine Flach, Daniel Marguiles and Jan Soffner, eds, Bern, New York 2010, 247). For a concept of perception as inherently involving an emotional aspect, see Lisa Barrett and Moshe Bar, 'See it with feeling: affective predictions during object perception,' *Phil Trans R Society London B Biological Series* 364, 2012, 1325-1334.

<sup>89</sup> Shimon Edelman, 'Six challenges to theoretical and philosophical psychology', *Frontiers in Psychology* 3, July 2012: 219.