

PAINTING AS A MODEL OF SEEING AND THINKING

INTERRELATIONS BETWEEN PAINTING AND OPTICAL SCIENCE 1300-1600

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The profound change in the conception of painting that took place at the transition from the late Middle Ages to the Early Modern period, both north and south of the Alps, was decisively influenced by the science of optics, the so called *perspectiva*, which gained great significance in Western thinking from the thirteenth century onwards. In an effort to achieve a new sense of reality and meticulous empirical imitation of nature, artists took up the new optical knowledge in various ways in order to make the human visual impression and thus the eye of the viewer the orientation factor of their representations. It is well known that this new theory of vision culminated in the development and establishment of linear perspective in Italian Quattrocento painting. Especially in recent years, this discovery, linked to the names of Filippo Brunelleschi and Leon Battista Alberti, has been more strongly embedded in the history of optics in publications on the historiography of perspective (Raynaud 1998 and 2014). At the same time, however, research has drawn attention to the fact that the term *perspectiva*, which had denoted the science of optics in general in the Late Middle Ages and Early Modern period, underwent a significant narrowing in art historical scholarship of the twentieth century – which was not without consequences for the study of the interrelations between optical science and artistic practice (Dupré 2011 and 2019).

The discipline of *perspectiva*, which was established in the Latin West in the thirteenth century due to an intense reception of Greco-Arabic science, was by no means limited to the mathematical-geometrical subfield of optics, but dedicated to the study of all aspects of vision. In a novel synthesis, it encompassed the physics and metaphysics of light, the anatomical-physiological description of the eye and the visual process, and the explanation of the psychological processes of visual perception. The interest of the new discipline was, in short, the entire spectrum of the study of light, visual perception as well as knowledge acquisition. Because it linked different epistemic fields and discussed not only the external processes of seeing, but also the interplay between the various cognitive faculties such as sensory perception, imagination, judgement, and intellect, it was closely integrated into the late medieval philosophical-theological discourse, which increasingly focused on the question of the relationship between sensory perception and cognition. Theories on visual perception, i.e., on the external and internal processes of seeing and questioning the value, reliability and significance of optically acquired information, henceforth emphatically determined the discourse on epistemology (Tachau 1983). The success of *perspectiva*, as Mark Smith already emphasized in 2014, was essentially based on the fact that it understood itself as a ‘science not only of vision but also of perceptual rectification’ and was thus able to present itself as a ‘scientifically justified world view’.

The conference intends to investigate the interplay between optical science and artistic practice in the sense of this original understanding and thus aims to take a look at painting as an *ars perspectiva*, a model of seeing and thinking. With regard to the investigation of the connection between optics and painting, a significant imbalance can be observed in several respects which will be taken into account in the context of the conference. While linear perspective has always been the subject of intense scholarly interest, other artistic aspects that belong, as it were, to the realm of *perspectiva*, such as light and color as *visibilia per se* of the sense of sight or the play with optical illusion, have received incomparably less

attention. This imbalance in content is accompanied by a geographical imbalance, since Italian art has been studied much more broadly in the context of optical theory than Northern painting which is often not rigorously mathematical in construction, but demonstrates a pronounced interest in the effects of light and color on various surfaces instead. The fact that Northern painting also must have been intensely concerned with optical teachings can be clearly seen in the interest in light reflections, mirroring, refraction, shimmering phenomena, etc., which predominated in the North and could only be realized in the medium of oil painting. Furthermore, it manifests itself in a pronounced awareness of the error-proneness of human vision. When Northern artists in particular played with perspective and *trompe-l'oeil* effects, with illusion and disillusion, in order to demonstrate “the painterly and perceptive preconditions of evidential experiences themselves” (Böhme 2007) in the picture, this may also be understood as an exploration of questions of the optical and epistemological discourse of the time.

But even when scholarship deals with non-mathematical/geometric, but rather perception-related aspects, such as light-dark contrasts, aerial perspective, etc., it must be stated that the discussion in connection with optical theory is preferably conducted with regard to Italian artists, such as Giotto or Leonardo, while the Northern tradition is often neglected. This disproportion is undoubtedly due to the fact that for Italian art a greater proximity to or even direct knowledge of optical treatises can be proven, while the question of literary knowledge north of the Alps is much more difficult to answer. The fact that there is no written art theory before Albrecht Dürer, however, does not mean that artists could not have been equally versed in optical theory. By exploring the connection between *perspectiva* and artistic practice, not only with a focus on Italian but also Northern painting, and by looking at, reading, and questioning the artworks themselves as sources, the conference will address the question of a widespread “optical literacy” (Smith 2014) that manifests itself in various and manifold ways. From the detailed analysis of the artistic practice – which, in addition to the conceptual design in the mind, here explicitly also means the technical-material execution – conclusions can be drawn about a theoretical setting that was influential and exemplary in many respects, but which conversely could also have been influenced and further developed by the art of painting.

We seek contributions that investigate the interrelations between optical science and painting in the sense of the original understanding of *perspectiva* in the period from 1300 to 1600. The call for papers is addressed to scholars of art history as well as researchers from other disciplines such as the history of knowledge, philosophy or theology. Assuming a reciprocal relationship between philosophical reflection and art theory/practice (see Bocken/Borsche 2010), the conference not only wants to focus on how painting increasingly reacted to and seized upon the (natural) philosophical discourses of the time. It also would like to ask how art actively participated in and influenced these discourses, for example, as a reference point for a new epistemology that was to underpin the image-generating power of the human mind.