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Hans Belting, *Florence and Baghdad: Renaissance Art and Arab Science*, trans. Deborah Lucas Schneider (Cambridge, MA: Harvard University Press, 2011), 303 pp.

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Book Review
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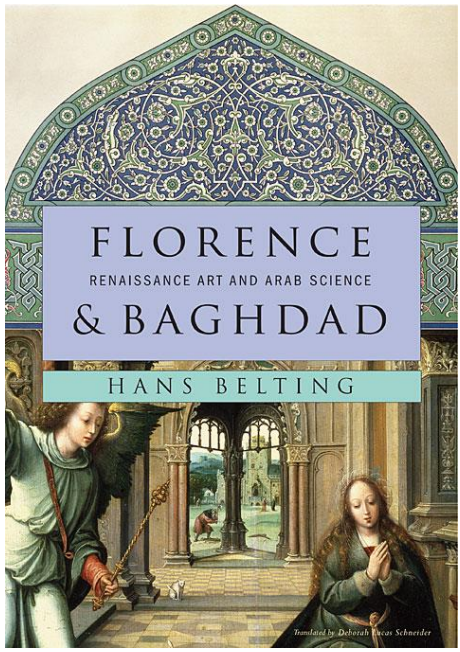
Written by German art historian Hans Belting, the book was first published in 2011. Florence in the title of the book, which consists of six chapters, represents the Renaissance. Because perspective, which is considered the most brilliant idea of Western culture in painting, was invented in Florence. Baghdad, on the other hand, symbolizes Arab/Islamic science, which left a deep mark on the Renaissance.



This review emphasizes that Arab culture left lasting traces in the West as a result of the West's historical encounter with Arab culture. The rationality that marked the golden age of Arabic science flourished in the West only in the new age, and the sciences of mathematics and astronomy were popular in the Arab

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world long before the West. The juxtaposition and even intertwining of the two cultures in al-Andalus led to the translation of many Arabic texts, such as Ibn al-Haytham's essay on optics. This text influenced Copernicus, Kepler and Descartes in the new age.

In this study, the author is not talking about the meeting of two cultures, but the evaluation of the perspective of two cultures. Instead of looking at the two cultures separately based solely on themselves, their characteristics are more clearly seen when they are viewed side by side. Indeed, the author quotes Levy Strauss as saying that "civilization is the juxtaposition of very different cultures, and it is this juxtaposition that sustains it".

Ibn al-Haytham's Light Measurement: Camera Obscura

Belting states that the theory of perspective in Western painting is not a new invention but is based on the theory of optics. It is often forgotten that optical theory is known as perspectiva, and that Perspektiva is the name of an optical book translated from Arabic into Latin. Ibn al-Haytham left his mark on Western science with his optical theory and deeply influenced Kepler and Galilei, who were based on him.

In his 1028 work Kitab al Menazir, or Optics, Ibn al-Haytham tried to bridge the gap between mathematics and empirical observation by attempting to create a synthesis of physics and mathematics. He put the ancient theory of vision on a new basis and resolved the contradictions in this theory. According to him, light has a physical existence and dominates our perception. The book deals with general characteristics of perception, special conditions, defects, reflection of light rays, refraction of light.

The cultural exchange between East and West reached its peak with Ibn al-Haytham. In addition to the fact that the science of the new age discovered him much later, the fact that the two cultures' understanding of visuality is very different from each other makes it difficult to make comparisons. The difference in understanding between the two cultures is also seen in the "dark room". It was only after the West started to use the dark room that

it began to be mentioned that light painted on the walls, whereas Ibn al-Haytham never mentions painting. Ibn al-Haytham here suggests that the "dark room" should be used to observe solar eclipses.

In objects that are light sources, light, like the sun, spreads linearly from every point in all directions of the object in front of it. Ibn al-Haytham applied his idea as follows: He sent the light of the sun or fire through a hole into a dark room and stretched a string along the direction of the light and showed that the light spread. What makes this experiment interesting is that it was repeated by Kepler in the 17th century.

A reconstruction of Ibn al-Haytham's dark room was made by an institute in Frankfurt. Ibn al-Haytham called this box, which is 1.30 meters high and has a hole on one surface, the dark room. Thanks to this arrangement, light rays could be seen to travel in a straight line between the hole and the opposite wall, even in dusty or smoky air. If the air and the light did not mix in the chamber, then they remained on their own course in the eye.

Perspective

The use of perspective in painting was with the architect, sculptor and engineer Brunelleschi (1377-1446). Leone Battista Alberti (1404-1472) developed perspective in painting and published *De Pictura* (1436) and set the rules for painting three-dimensional objects on a two-dimensional plane. Later Albrecht Dürer (1471-1528) and Leonardo (1452-1519) developed perspective in painting.

The word perspective means to look through, and as it can be understood from this, perspective creates transparency and depicts the world by looking through it. Perspective means that the viewer's look is at the center of the painting, not any important subject.

But perspective is not only a matter of art. The cultural significance of perspective can only be seen when we look at it as a mat-

ter of painting. What cultures do with painting and how they reflect the world in their paintings takes us to the center of their way of thinking.

The invention of perspective painting revolutionized the history of vision. When the look became the arbiter of art, in Heidegger's terms, the world became a painting. A viewer's look towards the world was depicted for the first time in perspective painting, and perspective turned the world into a view of the world.

The greatest characteristic of paintings is that they are both influenced by and affect the culture from which they emerge. Perspective is also a cultural technique, not just a matter of art. Because it has become a symbol of everyone's right to perceive the world through their own eyes. In this sense, perspective is the symbolic form that expresses the new age culture. In perspective, the picture plane is a metaphor for the presence of the viewer and the viewer is designed as a function of the painting.

Perspective gave the viewer a privileged place in front of the painting and placed them in a privileged place in the world. Thus, perspective became the expression of human-centered thinking that got rid of the religion-centered way of thinking of the Middle Ages. The Renaissance put the human being, whom it glorified as an individual, into the picture twice in one move: it both painted his portrait and made him look eye to eye with himself in the painting. Portraiture and perspective painting are independent of each other, but they were invented in the same period. Both bring the person in the painting into existence in a symbolic way. In portraiture, the human being appears with his face, and in perspective painting with his view of the world. Both perspective and portraiture are symbolic forms.

Belting says that it is a myth that geometric perspective was invented in the Renaissance. In reality, perspective was already known in Europe in the Middle Ages as an Arabic theory, translated into Latin as perspektiva. The mathematician Ibn al-Hay-

tham's (965-1040) masterpiece was called Perspectiva until its edition in 1572. After that date, it was published under the title Optics, a Greek term for the doctrines of perception, the study of light.

The concept of perspective went beyond its scientific meaning in the new age and became the keyword of a new painting practice. This relationship, which is often ignored, takes us directly to the history of culture. Cultures express themselves in theory and practice through their preferred models. The laws of light were a matter of Arab theory of vision, but an optical image in which look was measured could only be described by Western theory. This is why in the book we distinguish Arab science by the concept of the measurement of light and the Western art of the new age by the concept of the measurement of look.

The aniconism (prohibition of painting) in Islamic culture allowed Islamic science to concentrate on the geometry of light without images, completely avoiding the images of the ancient theories of vision. In contrast, in the Renaissance, science was conducted in an environment full of paintings. With perspective, the Renaissance was equipped with a new practice of painting that aimed to make the conditions of vision comprehensible to everyone and to illustrate them.

When we take seriously the ban on painting in the Islamic world and the motive for painting in the Western world, there are two cultures of seeing that differ from each other, especially in terms of painting. Although today this difference is pushed to the background by the globalization of the media, it continues to live on in the way both cultures think.

In the Islamic theory of vision, it is not pictures but visual rays that transmit a mosaic of tiny visual images point by point to the eye. The West, however, shifted attention from the passive look, which could be misled, to the active look, which could not mislead itself but could measure and control its perception. In the meantime, a new concept of space was invented, a measurable space that was tied to a viewer and his or her physical location. The world in the coordinates of such a space is a world that the viewer

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can see, navigate, and symbolically identify with his perception. It is clear here how differently visuality is conceived in the two cultures.

The alliance of paintings with the look led to a dangerous situation. Because the personal look was granted the right to be free from the official look and power of the state and the church. Perspective paintings are pictures of the look and teach the viewer to understand the world as a picture or to transform it into his own picture.

Islamic/Arabic scientists created the geometric system of light and visual rays based on mathematics and their experiments. This fits perfectly with the abstract spirituality of their culture. For them, vision was an open-ended, indefinite process, because it depended on the atmosphere and other conditions. For this reason, they were skeptical of paintings that concretized vision. According to Ibn al-Haytham, images were formed in the imagination, not in the human eye, and since the imagination was manifested through the internal senses, it could not be described by images that appealed to the external senses. Images were formed in the brain, and this was an area that no theory of vision could reach.

Imagination is also considered very differently in the two cultures. In the West, imagination has always been related to the eye, but in Islamic culture it expresses a world in itself. A theory of painting always needs a subject, because the process of seeing begins with the subject's look. But in Islamic culture, light rules the world and the eye is a light-sensitive organ. Ibn al-Haytham therefore complements the optical proofs of the mathematics of perception with the psychology of the inner senses. Inner pictures are different kinds of pictures. In Western perception, they are not even pictures.

In Islamic culture, geometry became a symbolic form, like perspective painting in the early new age. There is a difference in the geometry of the two cultures. Geometry in Islamic culture is designed geometry. The motifs of this geometry are polygons and circles that meet, diverge and intertwine on the surfaces they

cover. Geometry is a universal principle in this concept and geometry is given priority on every plane where it is applied, whether in architecture or in handicrafts.

Geometry in Western culture is the geometry of design, the basis of paintings. Objects are determined not by their size, but by their size in the view. Their size can only be calculated when their position in the field of vision is measured geometrically by escape lines.

These two cultural techniques, pure geometry and the applied geometry of painting perspective, are symbolic forms that represent different ways of thinking. Therefore, what we perceive has a completely different status. In Islamic theory, the melting of objects point by point in the mosaic makes our perception variable and ambiguous. The distance at which we see them also creates another ambiguity. Whereas in the Western theory of painting, distance is a reliable measurement factor by which everything can be described. If we know how far away something is from our eyes, we can calculate its shape and size. We can only be sure of objects when they are in a place in space that can be calculated (this was seen as a victory over the fallible eye).

The Tamed Eye

In the debate on the ban on painting in Islam, some claim that it is a total ban, while others say that it is an empty myth. Both views are exaggerated. There was no general ban on painting in Islam, especially among Shiites, but there is no doubt that the human form and three-dimensional images were taboo in the religion. But in the court circles of books where text was accompanied by pictures, different rules applied from the 13th century onwards. But it was taboo to hang icons on the walls, which someone standing in front of them might mistake for living beings. It was considered a grave sin not only to paint them but even to look at them. It was feared that if the look was deceived, the painting could be mistaken for a living being.

The ban on images in Islam expresses the Islamic religion in

two ways. First, it was a constant reminder of Muhammad's purging of the pre-Islamic tribal temples in the Mecca region of images and idols, and his triumph over tribal culture through the persistent practice of monotheism. Those who reverted to pre-Revelation practices were therefore renouncing their religious identity. In 630, when he circumambulated the Kaaba and smashed the tribal idols lined up side by side, Muhammad laid the iconoclastic foundations of the religion.

The ban on images also played a key role in the conflict between Christianity and Islam. If Jesus was only a prophet, that is, a human being, then worshipping his image was idol worship, because it was inappropriate to depict him. If he was God, then in monotheism God could not be depicted because he could not be seen.

Among Islamic architecture, the Dome of the Rock in Jerusalem is one of Abdul Malik's most ambitious projects. The building was built in 692. This text-laden inscription is decorated with sumptuous ornamentation, and the interior, covered with marble slabs and gold mosaics, represents the art of figureless ornamentation in architecture. Although people were accustomed to such grandiose ornamentation in Christian churches, here one stepped into the space of an invisible God, whose presence was felt even more strongly without anthropomorphist images. The decorations purified the senses and directed thoughts to the unseen, to God.

In the Hadiths, plants and trees are not considered to be living beings and therefore depictions are not forbidden. Plant and tree decorations were the precursors of the formal abstraction that dominated later Islamic art. When you look at those enormous surfaces in the bright, light-filled interior, you see that the endlessly repeated ornamentation eliminates all boundaries.

In Islam, the alliance of books with imagery and text was intended to tame the eye. The viewer could not investigate the world on his own, he was always under the yoke of the text. When looking at the pictures in the book with a reader's eye, he knew in advance what he would see. Such pictures reflected collective

knowledge, not personal experience. Everything learned from the text was also seen in the painting, and the illustrators were even evaluated according to how well they understood the text. The depictions did not fall under the jurisdiction of the text, nor did they add anything new or foreign to it. The text was both a shackle and a guide for the painter. There is a practical reason for this. The bird's-eye view, which shows the world as a panorama, was neither the view of the viewer nor the nakkaş. The bird's eye view showed the world to everyone in the same way from a transcendental point. The Naqqāsh do not paint what they see, but what God sees.

The most contrasting paintings to these are the paintings of the Renaissance, that is, of the West, which look at us. For this to happen, the paintings must have figures looking at us, or appearing to look at us, depicted as if we were meeting them in real life. Artists seem to have tried to make us forget or deny that we are standing in front of paintings, not real people. Here the paintings cease to be objects and take the place of the subject.

The most appropriate subject for the encounter between perspective and Islamic geometry is the muqarnas. For the muqarnas attracted the attention of mathematicians as much as perspective did in the West. The muqarnas is a decoration resembling a honeycomb pattern or stalactites, with prism-like cells. The importance of the muqarnas stemmed from the fact that geometry opened a large parenthesis between decoration and space.

The Muqarnas is a unique architectural invention that takes geometry beyond the limits of the surface and into three-dimensional space. The importance of light for the Muqarnas is as great as the role of light in Ibn al-Haytham's theory of vision, and it is not related to our look, it goes its own way. The laws of geometry are also the laws of mathematics, not of the look.

Unlike western perspective painting, the drawings could be applied at any height, at any angle, since they were developed according to an order within themselves, not according to a viewer

who had to stand directly in front of them. The geometric calculation of the drawings was only relevant to themselves, that is, it was the opposite of the depiction of the world oriented towards a concrete look.

The muqarnas does not present an image in relation to the viewer. The surface patterns of the muqarnas do not contradict space, because there is another concept of space. The rays of vision of perspective are absent in the muqarnas because it catches rays of light that are subject to other laws. Since perspective is subject to the principle of the spatial look, it demands to ignore the surface and look beyond it. In Islamic culture, however, the surface is preserved. Just as perspective is the symbolic form in Western painting, geometry is the symbolic form in muqarnas.

Subject in the Picture

Perspective brings the subject's look into the painting and carries the subject into the painting. In order for the subject to be present in the painting, it is sufficient to depict a look that it sees as its own look. The looking subject appropriates the world as a painting with the position it takes in front of the painting.

In the Renaissance, an eye depicted alone is not an organ of sense, but a symbol that separates the look from the gazing body. It represents someone who looks and points to the action of the eye. The beholder is God, who sees everything and has no body. However, the fact that Alberti took the eye, which symbolizes God, and made it his emblem is an indication of a human-centered transformation in his worldview.

Just as God was thought to dominate the world, so the viewer, when in front of such a painting, might think that he dominated it. The eye of God was depicted in the paintings as an independent eye, an eye outside and above the world. Alberti's eye, on the other hand, directs the look towards a painting in which the look feels itself to be inside the world. As cautious as Alberti is, he touches a taboo here. The isolated eye is contrary to the nature of our two eyes, both in its uniqueness and in its separation from the body.

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This emblem was reserved for God, who never takes his look off the world.

This vision is even sharper in the Jan Provost painting in the Louvre. It is an academic allegory that summarizes the theological worldview of the period. The disembodied God's eye rests motionless on the earth, and in his equally disembodied hand is the globe. Jesus and his mother Mary declare that God is incarnate in man. The single eye at the bottom of the painting looks up in awe, spreading its hands as if in prayer. It is like a mirror of the divine eye made according to the image of God.

In the Baroque period, the triangle, the geometric symbol of the Trinity, was added to this abstract eye, and during the French Revolution, the eye symbol became the symbol of the new social order. The eye in Alberti's emblem has an eagle's wing on its upper lid, and the eye seems to want to fly away from the body; the flames around this eye mean that it sees everything very clearly. Alberti's winged eye is the emblem of the subject who wants to be independent in the look. According to the new maxim, one gains knowledge by seeing and observing. Alberti says that nothing is stronger, faster and more honorable than the eye, it is like God. Being a good Christian, he puts a limit to this divinity. The ancients likened God, who sees the whole universe in every detail, to the eye. This leads us to bow down in awe before God's presence, he says.

The Subject as the New Narcissus

In the text where Alberti develops his theory of perspective, we encounter a new interpretation of Narcissus. If we want to grasp perspective as a symbolic form and cultural technique with all its cultural and philosophical aspects, we need to look at this new interpretation of the Narcissus myth. Alberti says that Narcissus invented the art of painting. However, as Alberti knew, Narcissus was not a painter, he was always a spectator.

But according to Alberti's interpretation, there is a Narcissus who does not lose himself in his reflected image in the water, but

finds himself through art. The meaning of this interpretation, which reverses the mythos, can be understood in the context of the subject who rediscovers his own look in the new perspective painting. The look plays a similar role in Alberti's eye symbol and in the Narcissus interpretation. In both cases the subject, as the new Narcissus, appropriates the world through his look. The new art of painting developed a technique for this and for the first time put the subject's look into the painting.

This is a surprising turning point because in antiquity the look was in many ways taboo. Narcissus' encounter with his own look ended in death. It was nothing but a metaphor for the encounter with oneself in the mirror. Alberti's positive interpretation of the mythos by not seeing Narcissus as the victim of a forbidden look creates a new Narcissus who trusts his own look. The pictorial look, which we can call the iconic look, does not lead to death, but to a painting.

Horizon and Window

Two metaphors summarize the new painting culture of perspective very well: The *window* and the *horizon.* The real window, or the window in a painting, symbolizes the subject looking out of the window at the world. The horizon, on the other hand, symbolizes the limits of the look.

The association of the horizon with the human look, not with an extraterrestrial eye as in the Middle Ages, is an important turning point in the history of culture. Because it requires a viewer and exists only through the viewer's look. In framed painting, the horizon is part of the field of vision and at the same time symbolizes the visibility of the world.

The window is a completely different phenomenon from the horizon. Perspective is used to describe perspective from the very beginning of the revolution. What is seen in a real window is behind the window. A window also has a frame. The window frame fulfills the requirement of mathematical precision and defines the limits of the look.

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A painting shows a look directed at the world, but it also shows where the viewer stands. A window allows the viewer to be here with his/her body, but also to go only where the look can reach.

For a long time, windows in houses were not much bigger than picture panels; the painting evoked the real window. In both cases, the viewer was in a closed interior space and the world remained outside. In Western culture, this experience of interior space also determined one's self-experience. In Islamic culture, however, the window has a completely different meaning. However, the author concludes by saying that the matter should be left to the experts and touches on a different related issue.

In the Islamic world, a cage was placed on the window sill. This window lattice became the object of artistic energy. The lattice is permeable not to the look but to light, and light reversed the relationship between inside and outside. There have always been windows for light to enter interior spaces, but the issue here is different. Because in Arab living spaces, we see that light is put on stage with its own symbolism, a mise-en-scene of light is created. The mise-en-scene staged with the angle of light's fall and the geometry of the window lattice are the accents of light.

The fact that the window is usually latticed means the separation of private and public space. The pattern created by the light filtering through the window as if through a dense filter and hitting the interior through the window lattice changes with the daylight and gradually wanders around the room. The geometric lattice, as Ibn al-Haytham discovered, puts the light, which travels in the world only with its rays, into a geometric order, and this geometric order makes light measurable and draws the look to it. If we talk about perspective here, we can say that perspective in Arabic optics is the perspective of light. As light breaks through the window barrier and enters the interior, it is organized by the geometry of the window decor. Light can be seen as the symbolic form in Islam. This symbolic form is not produced by the human

look, but by the decor that filters and regulates the light. The geometry of the window allows light to be staged as a symbolic form.

The Egyptian architect Hasan Fathi, one of the representatives of modern Islamic architecture, states that the meshrebiya combines light with shadow, preventing the eyes from being dazzled by the sun, and almost eliminates the walls of the interior with its patterns that move with the daylight. It would be accurate to say that the window directs the look inward rather than outward. Meşrebiye is not the window of the look, but the window of light. The presence that the window gives to the light with its cage can only be materialized inside the house. In other words, an interior space, a dark background is needed for this. Light manifests as a cosmic force in the interior as it moves along its course with the rhythm of the hours of the day.

For Architect Fethi, every culture is a unique human response to the environment in which they live. This reaction is a proof that we always try to find new answers to our physical needs and spiritual desires.

Thus, Belting states that the purpose of shifting our look from the Western perspective to the mashrebiyya is not to emphasize the differences between the two cultures, but to understand their characteristics. Distinguishing is a means to interpret. But the condition for this is not to see Western culture as the universal culture and not to reduce all other cultures to a local status. From this perspective, the Western window is also a local phenomenon. The painting of the Renaissance is suitable for interpreting the meaning of the window because the new age painting found its symbol in the window and made the window look its key theme. The curious look seeks images in the world. On the other hand, it tames the look and purifies it from all sensory images of the outside world with the sharp geometry of light in the interior.

The relationship between inside and outside in the two cultures is as different as the relationship between look and light. It is clear that this difference stems from different worldviews that assign completely different roles to the subject. In one culture, the

subject is activated in the look, while in the other culture it experiences light, a superhuman force, as a cosmic spectacle. The metaphor of the window, as well as perspective, is a symbolic form of Western culture. The meşrebiye, which thematizes the appearance of light, is the symbolic form of Arab culture.

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