Explanation of the Cover
"нОМОРбЕ."

45 Vladimir Favorsky, Cover design for Florensky's *Mnimosti v geometrii* [The Imaginaries of Geometry], Moscow, 1922
Florensky appended his succinct and scientific 'Explanation of the Cover' to his book Mnimosti v geometrii [The Imaginaries of Geometry] (Moscow, 1922; illus. 45), convinced it could extend the concept of 'imaginary numbers' to the field of geometry.1 As for the content of The Imaginaries of Geometry, Florensky regarded it not as an independent unit, but as an organic part of a theoretical tract that was to have been published under the auspices of GlavELEKTRO, the chief Soviet administration for electricity. Drawing upon the latest discoveries in physics and mathematics (illus. 46), especially in topology and electromagnetic theory, Florensky once again confronted the issue of space and spatiality and, as the subtitle indicates, saw the real subject of the book as 'An Extension of the Field of the Two-Dimensional Images of Geometry (An Attempt at a New Interpretation of the Imaginaries)'. After a rigorous scientific explanation, he reaches an unexpected philosophical conclusion: from the viewpoint of the theory of general relativity, the immobile earth within the rigid and solid universe can be assumed to be a system of reference, the Ptolemaic system, central to the cosmology of Dante's Divine Comedy. This is not as incongruous as it might seem because, in the context of the ultraspeed of light, the Ptolemaic and Copernican systems are of equal validity.2

Florensky invited the artist Vladimir Favorsky (illus. 47), his close friend and fellow teacher in the Department of Polygraphy at VKhuTEMAS (illus. 48), to design the cover of the book. A unique achievement, the cover won not only the high praise of the Department, but also a Silver Medal at the 'Exposition des Arts Decoratifs' in Paris in 1925, for which it was reproduced in the catalogue) In other words, the cover was a strategic link in the collaboration between Favorsky - artist, teacher, and theorist of composition - and Florensky - historian, philosopher and mathematician.

As a sign of appreciation and as further witness to this creative dialogue, Florensky included 'Explanation of the Cover' in the very book for which Favorsky designed the cover. The philosopher comments on the artist's imagery and 'explains' it as a summation of the kind of iconic, but highly
46 Vladimir Favorsky, Unpublished cover design for Florensky’s *Chislo kakforma* [Number as Form], 1923, woodcut. State Russian Museum, St Petersburg
47 Nina Simonovich-Efimova, Vladimir Favorsky, 1920, silhouette, paper on board. Efimov Archive, Moscow

48 Nina Simonovich-Efimova, Pavel Florensky at his Desk, 1926, silhouette, paper on board. Efimov Archive, Moscow
abstract, structure that the Department of Polygraphy was promoting in opposition to - or, rather, beyond - the more radical graphic designs of the Constructivists and Productivists such as El Lissitzky and Aleksandr Rodchenko.
The cover to the present book was engraved on wood by Vladimir Andreevich Favorsky. It is characteristic of the artist that even here his engraving does not simply decorate the book, but is an integral part of its spiritual makeup. Therefore, this work by Favorsky is an art steeped in mathematical thought, and is, perhaps, the first experiment of its kind in the art of engraving, which has undergone such a revival in our era. Incidentally, here is an artistic trend that promises a rich harvest in the culture of the future, with its general synthetic bent. Out of gratitude to the artist for his sensitive collaboration, but also to address the very essence of the cultural aspirations of our era, the author of this book thought it might be useful to provide some explanation of the cover in question, together with certain suggestions as to the possible meaning of the proposed theory of the imaginaries as applied to art, set forth [in this booklet].

Let us review some of the phenomena of the psychology of vision. If you look at a space through an aperture that is not too wide, while standing to one side of it, especially if the wall with the aperture is not too brightly lit, then the plane of the wall will also fall within your field of vision. But the eye cannot adapt itself simultaneously both to the space seen through the wall and to the plane of the aperture. Therefore, by concentrating on the illuminated space, in relation to the actual aperture, the eye both sees and does not see it at the same time. It saw it when it peered through it into the space beyond, but once it had penetrated it the eye ceased to see it, yet the memory of what it had seen could not leave the consciousness. A vague, almost tactile impression of this wall ceaselessly conjures up in your consciousness what you had seen earlier. Your consciousness is inevitably split between a direct visual image and an indirect, passively indirect, visual image, conveyed by something akin to the sense of touch. Under these conditions of perception two elements, or two layers of elements, are available to the consciousness, homogeneous in content but essentially heterogeneous in their position in the consciousness, and in this sense uncoordinated and mutually exclusive.

The view through a pane of glass produces this same dichotomy even...
more cogently. Together with the actual landscape, we also have available in the consciousness the glass which we saw before the landscape, but which we no longer see, even though it has been perceived by our tactile vision or even simply by the sense of touch, for example when we brush our forehead against it. In the painterly and architectural problem of the modern-day, the glazed window, as a sort of pseudo aperture and pseudo wall. In buildings that have large glass coverings and even glass walls, this problem has become quite persistent.

When we examine a transparent body of considerable thickness, such as an aquarium full of water, a solid glass cube (an inkwell), and so on, the consciousness is split with an exceptional sense of unease between the perceptions of both facets of the transparent body, which occupy different positions in the consciousness, but are homogeneous in content (this last circumstance being the cause of the unease). The body fluctuates in the consciousness between a reading of it as something, a body, and as nothing, visually nothing insofar as it is transparent. This nothing to vision is something to the touch; but this something is transformed by visual memory into something that seems visual. The transparent is apparitional.

The lambent green of groves in spring stirs unease in the heart, not only because it appears "in early spring", but also for a simple optical reason - its transparency. By providing a stereoscopic spatial depth with the points of its leaves, tiny though by no means "viscous", this foliage suggests deep points in space and, since it is thickly distributed, it does so with appreciable psychological forcefulness. As a result, the entire space is substantiated and acquires the visual character of a glass-like thickness. Again: it both is and is not, truly - the Platonic τὸ ὑπάρχειν ὀνείρεσθαι is presented visibly. Here is one more example that is particularly vivid. I once happened to be standing in the Sergiev Posad Church of the Nativity, almost directly facing the closed royal doors. Through their carving the throne was clearly visible, while I could see the gates themselves through a fretwork brass grille on the pulpit. Three layers of space, but each of them could be clearly seen only by a special accommodation of vision, such that the two others would then acquire a special place in the consciousness, and in consequence would be considered half-existing by comparison with the one clearly visible.

So, in the visible representation of the world it is essential to distinguish, side by side with images that are actually visible, images that are abstractly-visual, yet that are insurmountably present in perception through peripheral vision, touch and other perceptions that are not available to pure visuality, yet
lead to it and allude to it. In other words, in visual perception there are both visual and also apparent visual, images. It is not difficult to recognise in this duality of visual perception the dualistic nature of a geometric plane, whereby the intrinsically visual images correspond to the real side of the plane, and the abstractly visual images to the imaginary. For the two-sidedness of a geometric plane is also a symbol of the bi-differentiated positions that visual images have in the consciousness, but only considered to the utmost limit, when the thickness of the separated layers of space is infinitely small, and the disunity of those and other images is great within limits. If we see the front side of the plane, then we only know about its reverse side abstractly.

But to know in the abstract about some visible image whose essence actually lies in its visibility means to perceive it by some other, non-visual method, adapted to visuality through an abstract concept or a mnemonic image. Reality, in this sense, is the embodiment of the abstract in the visible material whence the abstract was obtained, whereas the imaginary is the embodiment of that same abstract [concept], but in a visible, heterogeneous material. Reality, if you like, is the adequacy of the abstract and the concrete (tautology), while the imaginary is the symbolical (allegory). In this sense it is also necessary to speak of concepts of sensations as imaginary sensations or sensations of the imaginary. This is the imaginary taken to its limit. In fact, the only content of sensation is its own sensory presence. Conceivable sensation, however, is not simply nothing, but yet another sensation (because every concept is connected with some sensory substratum which is the point of its application), perceived as a heterogeneous concept. It is appropriate to recall Meinong's term Pseudoexistenz without however alluding to its particular significance for Meinong. These sensory elements and imaginary figures that have been in a specific way established in the consciousness fully conform to the imaginary geometric figures of a surface. Indeed, the presence of imaginary perceptions in every concrete experience prompts the art historian to consider the imaginary. Consequently, it behoves the theory of the fine arts to somehow say its piece on the proposed interpretation of the imaginaries in geometry. Let us now turn to Favorsky's attempt to utilise the distinction between two kinds of visual images, in order to express the theory of imaginaries in artistic terms.

The first task facing the engraver was to preserve and confirm the integrity of the fundamental plane, because without an intact plane it would have been impossible, not only to depict images on its sides, but also to distinguish the sides themselves. This first task was realised by inscriptions that
restrained the fundamental plane of the depiction on the surface of the page, as well as by designating the axial coordinate points by the letters X, 0, Y and a vertical passing through X. The actual letters X, 0, Y were weighty enough to serve the same purpose. The stability of the main vertical was further reinforced by the raising up, compared to the author’s first name, of his surname located above the vertical.

The page as such is not of course white, but colourless. It is an abstract potential for representations. It would be a mistake to see in this page a sheet of paper, a substance which in itself is neither a plane nor anything else geometric. The page must be understood as an infinitely thin representational space, like a transparent film laid on top of the sheet. In itself this film is not yet this or that side of the representational plane, but the entire plane, including both its sides and its entire thickness, even if in reality it is infinitely thin. This surface is created by the artist.

Now the artist must show visibly both sides of this film-like space and their qualitative tonality. Since it is immediately visible, the front side of the plane possesses the warmth of a sensory perception and projects forward, yet in no way is it closer to the viewer than the basic plane of the inscriptions. [It is] the large black-hatched rectangle [that] conveys the image of the front side of a plane, of something warm, because of the blackness of the hatching rendered horizontally. On the rectangle, projecting outwards, are shown a half-ellipse and a small solid black rectangle, as purely real images - the warmest and most prominent parts of the film-like space. The thin white edging demonstrates their thickness and in the process makes them project still further towards the viewer. All are strictly visual images. Contrasted to them is the side of the drawing to the right of the vertical, engraved almost entirely with white hatching. This is the imaginary side of the plane, the reverse of the film-like space, and not just any random place on it, but that very spot that lies beneath the hatched rectangle on the left portion. The principal line on the imaginary side is the arc of the straightened-out hyperbola - the imaginary appendage of the actual ellipse, which appendage must be imagined to be tangential to the ellipse at its top.

To convey the chromatic value of this line, the engraver has squeezed it within a series of horizontal white strokes - and on the abstract colourlessness of the film-like space there appears a cold white line. Such a colour in contrast to the warm black of the front side of the plane represents the reverse. The white colour of this reverse side is successfully shown at top right, where the white lattice is placed.
One might ask why the reverse side is white. Of course, since it had to be some residual trace of the sensorially perceived - of the black - it was essential that it be white, as a complementary image or a residual trace. Moreover, visuality, as a substratum of the real images, is expressed through the presence of warm black. Consequently, the absence of visuality, i.e., some other perception formulated as visual, is necessarily to be imagined as a negative - both visually, by its form, and non-visually, by its content. The white hatching is called upon to express this. It is like a hatch stroke, a black one, but without its blackness, empty inside, at once a stroke and not a stroke. In this way this first part is depicted, not as if it were drawn, but as if it were pressed out, in relief, presented not to the sight as such, but to the touch. The impression of the reverse which this right side represents is compounded by the letter 0, drawn in mirror-image and also with white hatching, in its lower right corner. This is not some new letter, but that same black-hatched 0 visible in the lower left corner, only perceived through the plane. The interrelationship between the right and the left 0 can be explained as follows: let us imagine that an 0 that would stand out in relief on the other side of the sheet was written in pencil on the paper. This letter would consequently be both visual and tactile. Further, suppose this sheet is stationary. If someone was then invited to draw this sheet, looking at it from in front and touching it from the back with his hand, then the result would be a drawing similar to Favorsky's cover, and with the same layout. For after gauging the width of the sheet from 0 to X with his eye, the draftsman would continue his observations with his hand, and specifically from the point where his eye refused to function, i.e., he would move his hand from the point X to O. Consequently, the points of the plane, gradually moving away from the vertical which passes through X, would appear in the drawing also to be moving away from the vertical, but this time not to the left but to the right. The movement of the hand over the sheet would be recognised as an extension of the movement of the eye. Therefore the point 0, being tactile, would appear in the representation as furthest from the point O, being visual. The interrelationship of them both would be approximately in mirror-image-approximately, because the measure of tactile space is not identical to the measure of visual space.

The same should be said of the entire drawing, which on the right gives a visual mirror transposition of the tactile structure of the reverse side of the plane. In other words, one is obliged to think of the filmy space of the representation as if it were splintered into two sides, with a rotation from underneath the plane like the page of a book, at 180° near the vertical axis, passing through X.
And now begins the solution to the engraver's main difficulty - to show clearly that both sides of the drawing, right and left, are not simply abutted to each other, even if they are qualitatively different, one purely visual, the other visually tactile, but that they actually constitute the two sides of a single plane. It fell to the engraver to show visibly that the right side of the drawing is only a cognitive, and not a material splitting of the plane. This is achieved in the first place because each of the two separated sides contains an indication of the other - in the form of a small breach to the other side - and through these two breaches the mutual connection between the sides is once more restored. The breach through to the front side of the plane is produced in the place where it projects out the furthest, where it is most convincingly real. This is achieved visibly, through some sort of clairvoyant transference of the perceiving center of consciousness over to the other side of the plane. Then we perceive there this same negative-white colour of the reverse side, which has depicted on it in relief the mirror symbol of the imaginary i, similar to the mirrored 0. From that side this i would evidently be drawn right way round, but from here it is perceived in mirror-image. From here this is a visual representation of the i traced there, or from there the tactile trace in release of the i traced here. Rendered by a white stroke, this i is clearly another character than the letters X, O, Y on the front of the plane and, besides, it is whiter than the white reverse side of the plane, i.e., it is even more abstract. This breach to the front is a view, or a visually transposed relief, of the reverse side, that same side that is represented by the right half of the drawing. But this breach is not coordinated with the front of the plane and is at once closer than the black rectangle and further away from it. It is impossible to coordinate something homogeneous but which occupies an opposite position in the consciousness.

Both sides of the plane are linked together on the right side of the drawing, too, by a reversed breach from the imaginary to the real. But the nature of the breach here is no longer visual, but abstract, not an exact clairvoyance, but a vague memory of an abandoned visual space, surfacing in the first moments of its entry into a tactile space. As just such a memory the section of the narrow black-hatched ellipse is represented against the black-hatched background, but one that is diagonally hatched. Such is the scrap of the real side, although it is also on the border with the imaginary side. Though it is situated amidst an imaginary space it is not coordinated with it. This scrap, combined with the white-hatched filling-in of the ellipse on the white-hatched ground, conveys the fluctuation of the geometric figure in its fall through the plane, when it has not yet been defined, being both imaginary and real at the same time.
Let us return to the breach on the left side of the drawing. The sharp contrast between the grounds, black and white, makes this the visual centre of the entire page, irresistibly focusing the gaze upon it, as a result of which the whole left side of the drawing is contemplated through direct vision and therefore stands on the page and in its plane with extreme stability. But then the right side of the representation, especially its edge, is inevitably seen very vaguely, with the peripheral vision that is extended by the breach on the left. The entire right side, which is essentially abstract, by the way the wood is cut, finally loses its concreteness and stability. The hazy plane of the right side of the representation, separated from the plane of the page, sways as it rotates around the main vertical, and comes up against the viewer, like a book slammed in his face with its left cover stationary. This impression that the right side is mobile is extraordinarily enhanced, in the first place by the three levels of its plane (the lattice, above it, closer to the viewer, the horizontal hatching, and higher the second lattice inside a square), and secondly by an apparently perspectival merging of the parallels of both grids with the horizontal hatching beneath to the left, which again raises the idea that the entire right section is leaning, as if the sheet of the cover were bent back along the vertical and had begun to open all by itself. Thirdly, this same compositional, and at the same time functional, idea is assisted by a certain broadening of the whole right side of the engraving, as if by dint of bringing its right edge closer to the eye.

Finally, a few more words remain to be said about the inscriptions. We began by pointing out that it is they that establish the actual plane of the representation. But they could not have established the plane if they had been only on its front side, for then the space of the page, excised from the front side, i.e., bounded from the front, would recede limitlessly into the page and there could be no mention of the reverse side of the plane. Consequently, the inscriptions ought to establish not only the front boundary of the plane, its front side, but also the lower boundary, its reverse side, gathering into itself the whole flat space, as if squeezing it between two sheets of glass. It is the inscriptions that must define the whole thickness of the plane. Favorsky achieves this by assigning the letters or their elements to different sides of the plane, so that MH, for example, is clearly located on the front side, as is also shown by the horizontal hatching that unites the space of these letters to the left rectangle of the composition. M, T and I in the word 'geometria' (geometry) are related to the reverse side, since they are drawn with white strokes, while I, T and l in the word 'mnimosti' (imaginary) fluctuate, partly turned to the front, partly turned
inside out, as if they were sewing or quilting together the thickness of the plane. The last letter of the word 'mnimosti' is especially expressive in conveying this function.

But the cover would not have entirely attained its prescribed purpose if the inscriptions only served the purpose of graphics, while their actual graphics were foreign to their meaning. Obviously, the graphic peculiarities of the inscriptions should not only hold the plane, but also convey the sound space of the voice's intonations and express the sound coordination of the words. One example of how Favorsky approaches this goal is the placement of the author's surname above his christian name, to convey a corresponding international emphasis. Furthermore, in the word ‘mnimost’ its first, stressed part is emphasised, while the stressed part in ‘v geometrii’, which has an elucidatory meaning and is pronounced in an undertone, falls in the cover on the imaginary, the semi-visual part of the plane.

Such, in its basic outlines, is the interpretation of Favorsky's geometric composition.

29 August (11 September) 1922
and Georg Loeschcke, *Mykenische Vasen: Vorhellenische Thongefässe aus dem Gebiete des Mittelmeeres* (Berlin, 1886), plate xxvi. 20); 2) Vase from Shaft Grave I, the upper reproduced from Schliemann, the lower from Furtwangler and Loschke, *Mykenische Thongefasse* (1879), plate iii. 12a (reduced); 3) Stone specimen from Mycenae (Heinrich Schliemann, *Mikenae Bericht über meine Forschungen und Entdeckungen in Mikenae und Tiryns* (Leipzig, 1878), p. 121 fig. 164; 4). For depiction of a nautilus for purposes of comparison see Lorenz Oken, *Allgemeine Naturgeschichte für alle Stände. Atlas*, vol. 5 (Stuttgart, 1833-41), plate xiii. 7 (reduced); 5); ditto, from Alfred Brehm, *Tierleben* (Leipzig, 1876), vol. 6, p. 770, 1 (reduced); 6) Vase from the Island of Rhodes (Furtwangler and Loschke, *Mykenische Vasen*, VOLl, p. 80, flg. 38; 7) Egyptian vase (American Journal of Archaeology, VI (1890), plate 22; 8) Mug from Mycenae, now in Marseilles, after a sketch by Furtwangler; 9) Glass from Mycenae, from Ἑρμής Αρχαιών, 1887, no vol. number, p. 13, flg. 2.


99* Ibid., col. 1898, fig. 497 et al.

100* Ibid., col. 1184, fig. 332.

On Realism

INTRODUCTION

The translation is of Pavel Florensky's 'O realizme', intended originally for Makovets, 3 (announced in Makovets, 2, p. 32), but published only in Sochinenia, II, pp. 527-31. Florensky dictated the original text to Sofiia Ogneva. The fair copy, dated 28 March 1923, is in the archives of the Florensky Foundation.

Letter from Vladimir Favorsky to Nikolai Chernyshev, dated 4 December 1964, quoted in Lapshin, 'Iz istorii zhizni khudozhestvennoi Moskvy 1920-kh godov', p:374.

For other commentary see 'Pavel Florensky as Art Historian'. For a selection of Favorsky's statements in English see Molok, Vladimir Favorsky.

Explanation of the Cover

INTRODUCTION

The translation is of Poiasnenie k oblozhke', in Pavel Florensky, Mnimosti v geometrii (Moscow: Pomor'e, 1922), pp. 58-65 (reprinted in Struve (1985), pp. 369-79 and in 1991 with introduction by Leonid Antipenko [Moscow]). According to the date at the end of the typescript, Florensky completed the text on 11 August 1922. An earlier English translation exists, Kirill Sokolov, intro. and Avril Pyman,


ESSAY

Referring to the 'specificity of structure', in his father's texts, Bely also talks about 'art steeped in mathematical thought (if, in this case, we may use Florensky's words regarding the work of Favorsky.). See Bely, Nachalo veka, p. 249. Florensky was especially interested in these phenomena. He devoted his 'Laws of Illusion' to the psychology of vision, a text which he then refashioned for his Analiz prostranstva. See "Zakon illuzii [Otryvok iz raboty 'Analiz prostranstvennosti v izobrazitel'no-khudozhestvennykh proizvedeniakh sostavlenny po kursu lektii vo VKhUTEMASe v 1921-1924 gg.'], in Trudy po znakovym sistemam, vj284 (Tartu, 1971), pp. 513-21, and Andronik (2000), pp.259-71.

That Florensky equated transparency with the imaginary (as illusory) and that this concept was for him both optical and aesthetic is clear from the late commentary that he made in a letter to his family (dated 21-25 March 1936) on Bely's novel Petersburg: 'Well, the essence of Petersburg lies in its transmission of the sensation of the transparency, the illusoriness of Petersburg.' See Ivanova and Il'iunina, eds, 'Iz naslediia P. A. Florenskogo', p. 98.

In The Imaginaries of Geometry Florensky differentiates between even-sided and odd-sided surfaces, a distinction which he also explained in his course on the Encyclopedia of Mathematics at the Institute for Popular Education at Sergiev Posad in 1919-20. See The Imaginaries of Geometry, p. 38.

Discussing the meaning of the 'Point' in his 'Symbolarium', Florensky proposes an antimony parallel to the one described here, even in its more metaphysical essence: '[The point] is conceived as being on the border of existence and non-existence ... two worlds unite, the one of actuality and the other of the imaginary.' See Nekrasova, 'Neosushchestvlennyi zamysel 1920-kh godov', p. 111.

Alexius Meinong (1853-1920) was an Austrian philosopher and professor at Graz University. Founder of 'Neo-Realist philosophy', Meinong developed a theory of objects (Gegenstandstheorie), according to which the object was to be understood not as material object, but as the influence of the object on the emotions; in other words, the object acquired its reality only via the act of knowledge.
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