

CASAS **FERNANDO**
CASAS



LIMITS & PROXIMITIES

A survey of works spanning six decades

ENCOURAGING THOUGHTFUL PERCEPTION
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1961

O'ss

The Universe Lights Up in the Hands of God

Graphite on Paper

19" x 12", 1964





Self Portrait

Oil on Board

25" x 18", 1967

Self Portrait

Oil on Canvas

40" x 27", 1967

Fernando Rojas Silva Collection, Bolivia

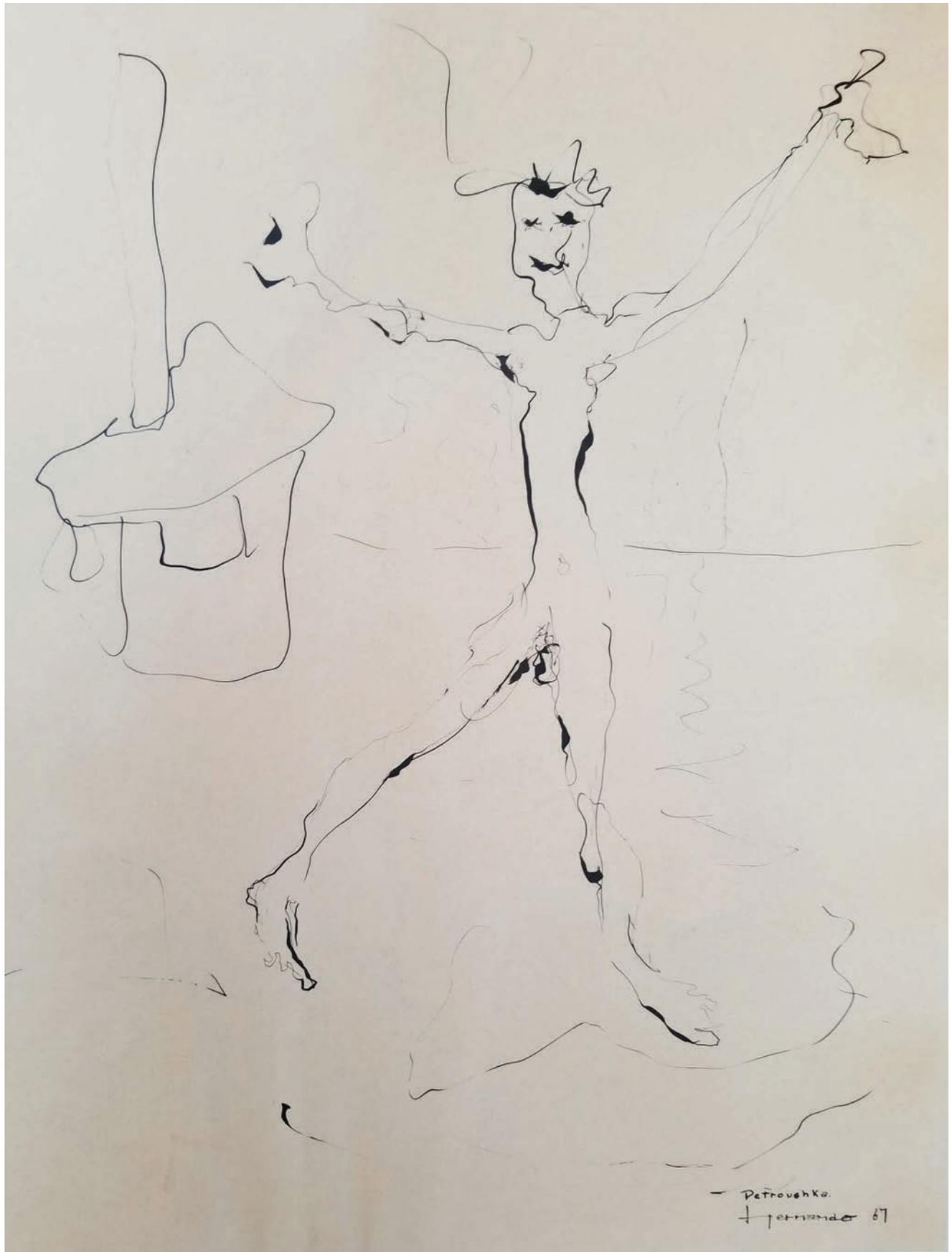


Mother and Child Playing

India Ink on Paper

25" x 18", 1967

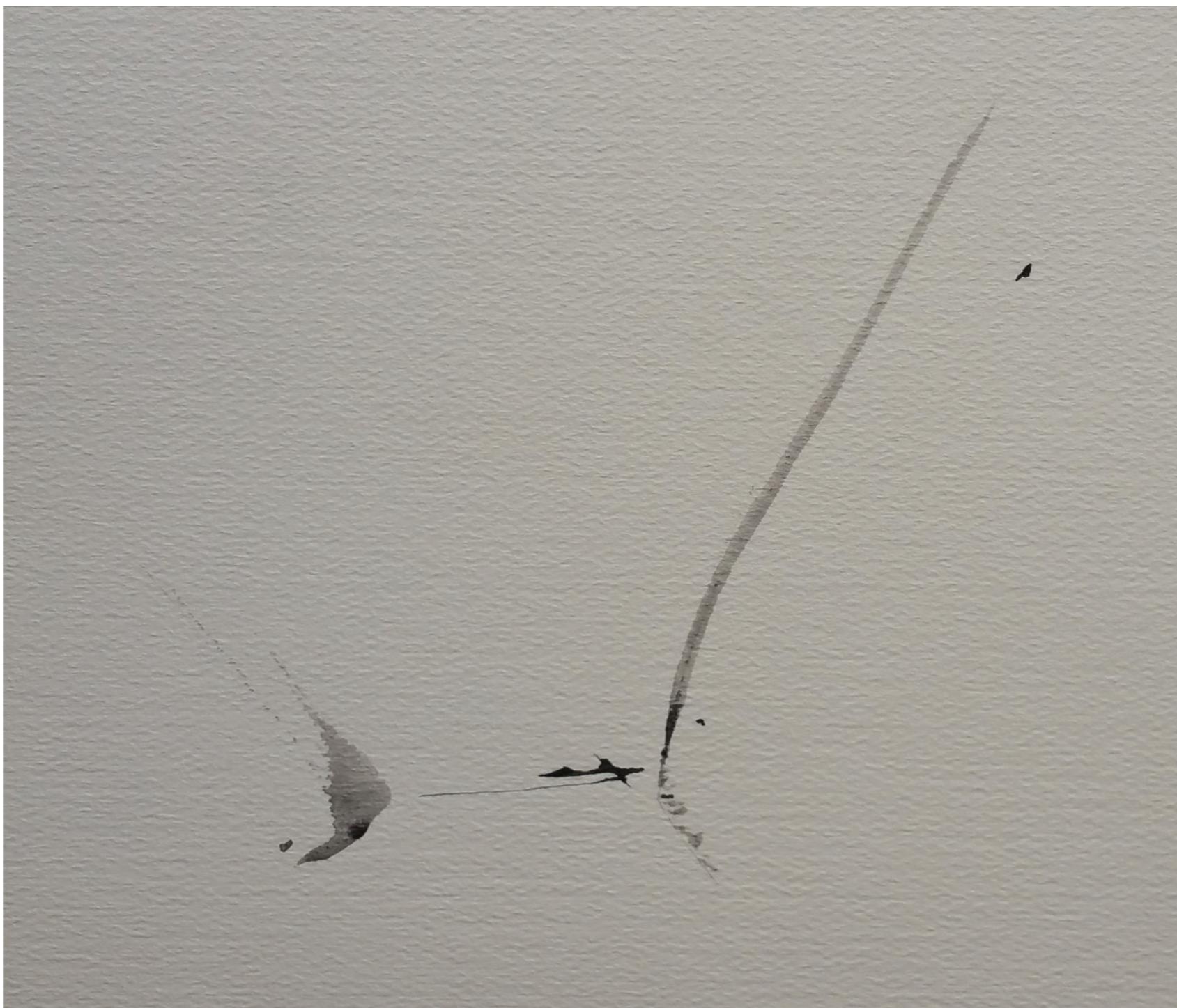




Petrushka

India Ink on Paper

25" x 17", 1967



Abstract Minimal

India Ink and Gouache on Paper

21.5" x 14", 1969

Leslie Field Collection, Houston

1970

O'ss

POLAR PERSPECTIVE: A GRAPHICAL SYSTEM FOR CREATING TWO-DIMENSIONAL IMAGES REPRESENTING A WORLD OF FOUR DIMENSIONS

Fernando R. Casas

Abstract - The author introduces a system of perspective called Polar Perspective. He explains in nontechnical terms the structure of polar perspective images and how to construct them. Using polar perspective, the artist can create perspective images that represent not only the three spatial dimensions, but also the dimension of time. Moreover, the artist can apply polar perspective to create perspective images that represent in a visually coherent and unambiguous fashion, a world of four spatial dimensions.

INTRODUCTION

How do the three spatial dimensions of the visual world project (or map) on a surface (or picture)? Imagine a structure of three wooden poles that intersect each other perpendicularly. Each pole represents one of the three spatial dimensions of the world. The person interested in perspective wants to find out what kind of image these three poles create on the visual field of a human observer.

Classical perspective (also called central convergence perspective), which was developed mainly during the Renaissance, gives one explanation. According to classical perspective, the visual image that an observer has in his visual field at a given moment is identical to the image that would be created on a flat window placed between the observer and the object observed. This setup, illustrated in Fig. 1a, is classical perspective's model of visual perception. This model likens the visual field of the observer to a flat surface called the picture plane. For the last 400 years, classical perspective has allowed the artist to create remarkably 'realistic' images of the world that, when placed in appropriate circumstances, were able to fool the eye. Examining Fig. 1a, we can see that the three spatial dimensions of the visual world (axes X, Y, Z) project onto the picture plane a perspective grid with one and only one vanishing point. This is point V, where the projected line of axes X, Y and Z intersect.

In Spite of its remarkable realism, classical perspective creates anomalous images. When we strictly follow the rules of image construction according to classical perspective, we end up creating images that do not accord with the way we actually see the world. This disparity is more evident in some images than others. The notorious column paradox is one example [1]. Such anomalies can be avoided by altering the model of visual perception offered by classical perspective. This can be accomplished by conceiving of the human visual field not as a flat surface, but as a concave surface [2].

We are completely surrounded by the visual world. We can turn our gaze in any direction and see a different portion of the visual world. This is illustrated in Fig. 1b as a spherical surface with an observer at its center. The spherical surface, which replaces the flat picture plane model of the visual field, carries on its surface the image of the entire surrounding visual world. Regardless how narrow our instantaneous visual field, our sphere of vision includes all the visual data of our

surroundings. This raises two questions. First, what kind of image do the three dimensions of the visual world project onto this spherical visual field? Second, imagine that we could see all around ourselves at once. How might we represent on a flat surface this visual experience? I have answered the first question with spherical perspective, and the second with flat-sphere perspective [3].

Figure 1b illustrates an observer surrounded by his spherical visual field. The three spatial dimensions are represented by axes X, Y, and Z. When these axes are mapped onto the spherical surface of the observer, they create a perspective grid, the group of lines that organize on the spherical surface the appearance of the three spatial dimensions presented to the observer. This grid has six fundamental points of convergence. Spherical perspective has two advantages over classical perspective. First, spherical perspective dissolves the anomalies that classical perspective gives rise to. Second, spherical perspective organizes in a single continuous image the whole surrounding visual world, rather than only a portion of it.

An artist interested in using spherical perspective might find one important shortcoming in the system; spherical perspective images can be created only on spherical surfaces. Consequently, just as we cannot see in one glance the entire visual space that surrounds us, we cannot see in a glance the entire spherical perspective image, whether the image is on the outside surface of a sphere or on the inside surface of a large spherical room. For instance, when faced with a spherical mirror or with a spherical perspective image painted on the surface of a balloon, we can see only one side of the balloon or the mirror at a time. We need to move around the balloon in order to see the rest of the image and around the spherical mirror to see visual space reflected on the other side of the mirror [5].

Flattening the spherical image results in a perspective image of the entire visual world that can be seen at one glance. This concept led to the flat-sphere perspective system of representing the surrounding visual world on a flat surface. I conceived the sphere of vision to be elastic like a balloon. I could pierce it at a point on its surface and then stretch it into a flat disk. The point at which the sphere is pierced becomes the perimeter of the disk. The disk contains the whole of the spherical image, and it can be seen at a glance.

The spherical perspective image undergoes various transformations during flattening. For instance, the straight lines of the spherical image become curved in the flattened image. Yet 'distortions' like this are actually the visual manifestation on a flat surface of the spherical nature of the visual image. The perspective of the spherical image transferred into the flat-sphere image the geometrical organization of its perspective grid-remains unaltered. There is, however, one graphical point in the spherical image, and one point only, where its perspective organization is altered by the flattening procedure. This is the point where this spherical image is pierced prior to being flattened. Efforts to overcome this limitation of flat-sphere perspective (which will be explained in more detail later) led me to polar perspective.

Polar perspective is a further development in the field of perspective representation. Polar perspective does not replace flat-sphere perspective. Rather, both flat-sphere perspective and

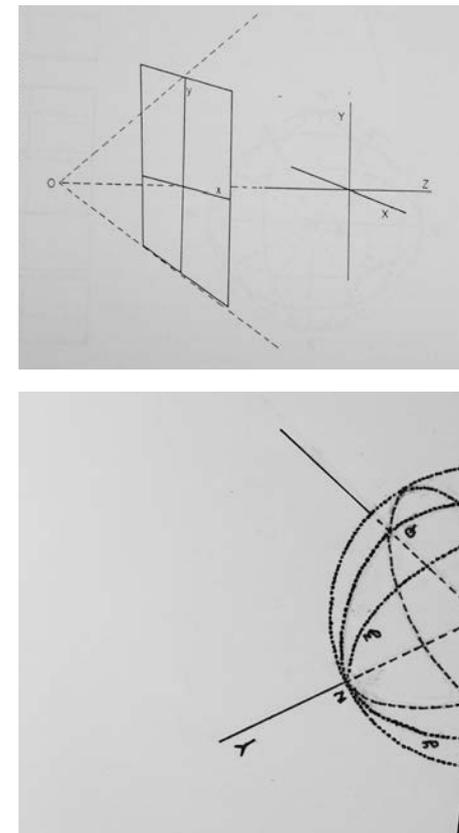


Figure 1.
 (a) Classical perspective's model of visual perception. The three axes of the visual world $-X, Y, Z$ - Map on the picture plane in front of observer O, creating a perspective grid with only one vanishing point, V.
 (b) Spherical perspective's model of visual perception. The observer O is at the center of his spherical visual field. The three axes of the visual world create a grid with six vanishing points N, S, P, Q, R, T.

classical perspective are special cases within the more general system of polar perspective. Using polar perspective, the artist can create images that represent not only the three spatial dimensions but also the dimension of time. The system also allows the artist to construct images that represent in a coherent and unambiguous manner four spatial dimensions.

Polar perspective is developed here as a purely graphical system, not as a mathematical system. The concepts of point, line and surface are understood to stand for graphical elements that we can see. A graphical point, far from being a zero-dimensional entity, is roughly a dot on a surface. A line is the sort of elongated trace that an instrument such as a pencil leaves on a surface. In accordance with the elastic surface mentioned above, the points and lines referred to here are graphical entities that can stretch in any direction along the surface in which they appear.

The following sections explain in simple terms the perspective structure of polar images and how to build them. Questions about how to translate this graphical system into a mathematical system and its relationship to theories in physics regarding the fourth dimension are not considered here.

CONCENTRIC POLAR IMAGES

An image created with polar perspective is produced when two or more flat-sphere images are connected to form a new, perfectly unified, coherent and continuous image. Figure 2 shows a painting created with polar perspective. Notice that there is a full flat-sphere image in the central portion of this image. This flat sphere is 'surrounded' by another flat-sphere image. (The outer periphery of the surrounding, flat-sphere image has been left out for aesthetic reasons. In principle, it could have been represented). This section will describe how to create a polar image like that of Fig. 2 and the logic behind it.

If a person's visual field were such that he could see all around himself at once, his visual field would exactly correspond to his sphere of vision. For this analysis, we will assume a hypothetical observer whose visual field exactly corresponds to his sphere of vision. Since objects in his sphere of vision may be in motion, our hypothetical observer may have a different image in his visual field at any given moment. Let us imagine this new spherical image placed next to the first image. We can continue adding to our collection of spherical images by making each new sphere represent an instantaneous image obtained on the sphere of vision of our hypothetical observer. The images may be different, but all of them have the same perspective structure.

Figure 3 illustrates a sequence of four such spheres. On the surface of each sphere, we have drawn their perspective structures, so that each sphere displays the same grid of spherical perspective structures, so that each sphere displays the same grid of spherical perspective. Notice that each sphere has the same six vanishing points – N, S, T, P, Q and R. Now notice a most important feature of this image: the spheres are not simply one next to another; they are connected in such manner that two contiguous spheres share the same graphical point. For instance, spheres 1 and 2 share point S; spheres 2 and 3 share point N; and spheres 3 and 4 share point S again, etc.

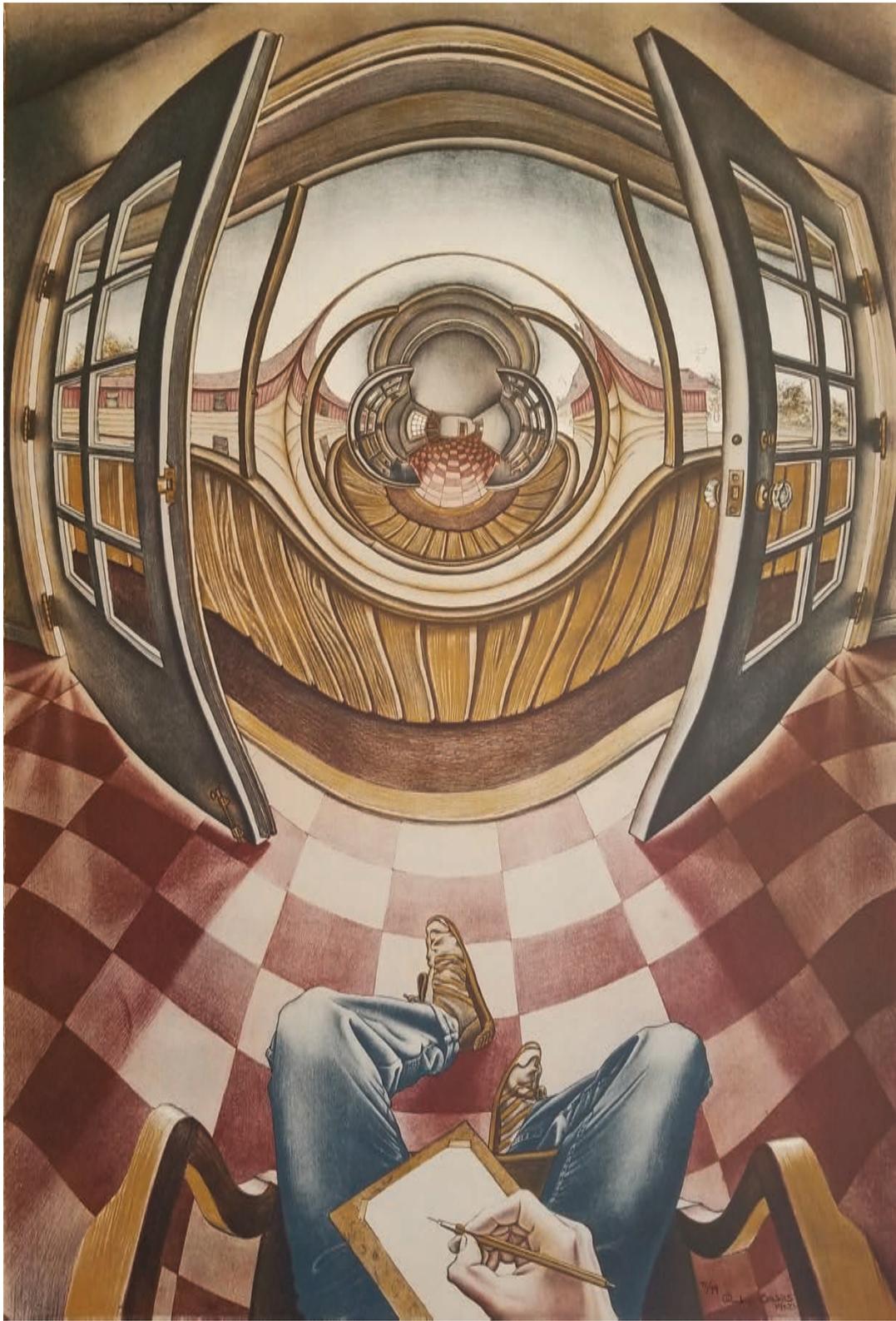


Figure 2.
The Polar Eye, Four-color
lithograph, 36 × 24 inches,
1980. This is an example of
a simple polar image that
contains two flat spheres.
Only the enclosed flat sphere
appears in its entirety.

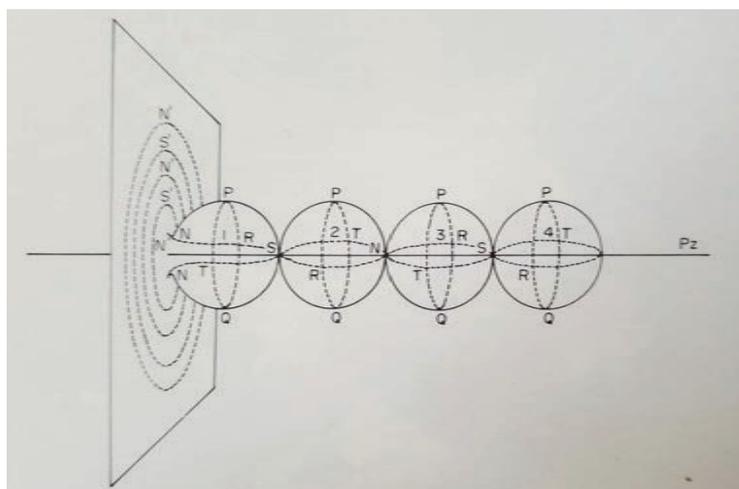


Figure 3.
A string of spherical visual fields displaying their identical perspective grids. The spheres are connected continuously because each sphere shares a graphical point with both its neighbors. Sphere 1 has already been pierced and is being flattened onto the representing plane.

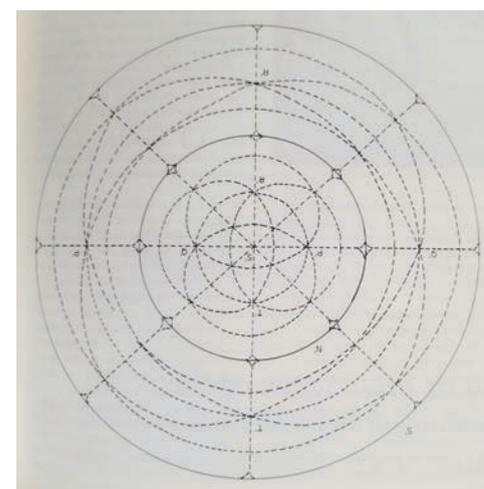


Figure 4.
Polar perspective grid of a polar image with two concentric flat spheres.

This string of spheres can be flattened onto a flat surface in a manner similar to the way a single spherical image is flattened in flat-sphere perspective. This is also illustrated in Fig. 3, where we can see sphere number 1 already pierced and in the process of expanding over the representational plane. After sphere 1 has been flattened, point S of spheres 1 and 2 is pierced and sphere 2 is flattened onto the plane, displacing outwardly the already flattened sphere number 1. Next, point N of spheres 2 and 3 is pierced and sphere number 3 is flattened. And so on. In this manner, we obtain on the representational plane a polar image that looks like a sequence of concentric rings. Figure 4 shows the perspective grid of polar perspective obtained in this manner. This figure contains only two flat spheres, but it is possible to continue the sequence by adding as many flat spheres to the grid as we wish.

The following features are basic to understanding the visual organization of polar image.

1. A polar image is a single and continuous image. It appears to be a ring and a disk: 'surrounding', ring-like, flat-sphere image with a second 'enclosed' disk-like image in its center. Actually, a polar image is one coherent whole that represents a single sphere of vision; it has no visual discontinuities.

Notice that the enclosed flat-sphere image is, in relation to the surrounding one, nothing but its middle graphical point. The surrounding flat sphere in Fig. 2 (or in the grid of Fig. 4), is not a flat sphere drawn onto a ring-like surface that has the enclosed flat sphere as some foreign material filling the hole inside the ring. The surrounding flat sphere is a disk, not a ring; it only happens to have its central vanishing point, N' enlarged as a result of being stretched in the mapping (or flattening) procedure. Within the enlarged, central vanishing point of the surrounding flat sphere, the enclosed flat sphere appears. This enclosed flat sphere is, in relation to the surrounding one, only its central vanishing point. What we have, then, is a representation of a

single sphere of vision with some of its points more or less stretched.

Let us use mirrors as an analogy to explain further the relation between two or more flat-sphere images which are part of a polar image. In a polar image the ('enclosed' flat sphere) occupies no visual space within the 'surrounding' flat sphere, and vice versa. However, this mirroring relationship is such that the mirror itself does not exist as part of the world it reflects.

A mirror ball in our physical world can reflect the entire visual world that surrounds it, but it cannot capture the world inside its own volume. In a polar image, however, the mirror itself (an 'enclosed' flat sphere) occupies no visual space within the world it mirrors, i.e. within the 'surrounding' flat sphere image. Any flat sphere which is part of a polar image is like a spherical mirror of zero dimensions. It is a spherical mirror that has no visual or physical presence in the world it reflects, for this spherical mirror does not hide from view any portion of the visual world it reflects- it does not belong to the world it mirrors.

The single polar image is also a visually continuous image. Point N' is the point of connection between the two flat spheres; both flat spheres share this point. Consequently, the eye can travel from one flat sphere into the other without interruption. The moment the eye arrives at point N' of one flat sphere, it also arrives at point N' of the contiguous flat sphere. In sum, point N' visually bridges both flat spheres into a single and continuous image.

2. The second important feature of polar images is represented in Fig. 4. Notice that the lines which go from point N' to S' to N' again, to S' again. Etc. do not look like straight lines because their widths vary in a pronounced way at certain places in the representation. The lines stretch their widths to encompass the whole of stretched graphical points N' and S' as the lines meet these points at the poles of each flat sphere. Any line that belongs to the perspective grid of the flat sphere images and that crosses the boundary between two flat spheres must necessarily stretch circularly in the manner illustrated. It is precisely this stretching of the grid lines that makes the circumference of any enclosed flat sphere function as a vanishing point relative to both the 'surrounding' and the 'enclosed' flat spheres. This feature of polar perspective is particularly relevant to polar images of four dimensions.

3. The concentric polar image can represent not only the three spatial dimensions of our visual world, but also the dimension of time. Given that each flat sphere within a polar image is the mapping of a distinct spherical image occurring sequentially in time, each flat sphere represents a different moment in this time sequence. Consequently, the polar image as a whole is a single, coherent representation of our visual world along a time span.

Like the rings of old trees that record and exhibit the passage of time, a concentric polar image can show- in a discontinuous fashion- the movement of perceived objects in a space and time. This is accomplished by making each flat sphere portray the object in a different location as the object changes its position in time. Flora (see color plate No 4) shows a work of art using

this device. The painting depicts Flora, the goddess of life, at two different instants in time. In the surrounding flat sphere Flora stands by a window with blooming trees. In the enclosed flat sphere, Flora walks into the adjacent room where a rocking chair awaits her.

A polar image can also show the observer's movement. The image of each flat sphere can represent the visual world from a different location, revealing that the observer has changed his point of view. In this case also, although the representation of time is an integral part of the polar image, the time sequence is represented in a discontinuous fashion. We jump from one moment in time to another, visually crossing the border between one flat sphere and the next.

ECCENTRIC POLAR IMAGES

The previous section explained how flattening a string of continuous spherical images produces a polar image with concentric flat spheres. For the same reasons that it is possible to create a flat sphere image inside the central vanishing point of another image, it is also possible to create a flat sphere image inside any of the vanishing points of another flat sphere image. Proceeding in this fashion, we create eccentric polar images. Figure 5 illustrates the perspective grid of a polar image with many concentric flat spheres and many eccentric flat spheres.

Now we are in a position to explain the shortcoming of flat sphere perspective that polar perspective remedies. When a single flat sphere is flattened, as in the enclosed flat sphere of Fig. 4, one of the vanishing points of the image, point N' of Fig. 4, undergoes a profound alteration. On the spherical surface, before the flattening process, point N' adequately represents a vanishing point because the grid lines converge on the point. But after the spherical image has been flattened, the lines of the perspective grid diverge on this point. Point N' is transformed from a point of convergence into a point of divergence. The graphical appearance of point N' has changed, making it different from the graphical appearance of the other five vanishing points, which remain as points of convergence.

When we build a polar perspective image, however, this disparity disappears. Notice, for example, in the polar perspective grid of Fig. 5, that in every case the divergent vanishing point of an enclosed flat sphere becomes a point of convergence relative to the surrounding flat sphere. Thus, in principle, in a polar image all vanishing points behave consistently in that they are points of convergence in one flat sphere and points of divergence in another [6]. The three-dimensional model of the grid in Fig. 5 consists of a stack of many (perhaps infinite) spherical images, each having neighboring spherical images on all six sides. A simplified model of this arrangement consists of six spherical images connected in the manner illustrated in Fig. 6.

POLAR IMAGES OF MORE THAN THREE DIMENSIONS

A simple polar image of the type so far discussed represents a three-dimensional space. Implicit in those images is a fourth spatial dimension (4-D). This dimension is clearly depicted in Fig. 3 as dimension Pz. Remember that each sphere of vision contains on its surface a perspective image of a three-dimensional world. In the construction of a polar image, these spheres of vision, along with their respective images, are connected along dimension Pz. Dimension Pz is different

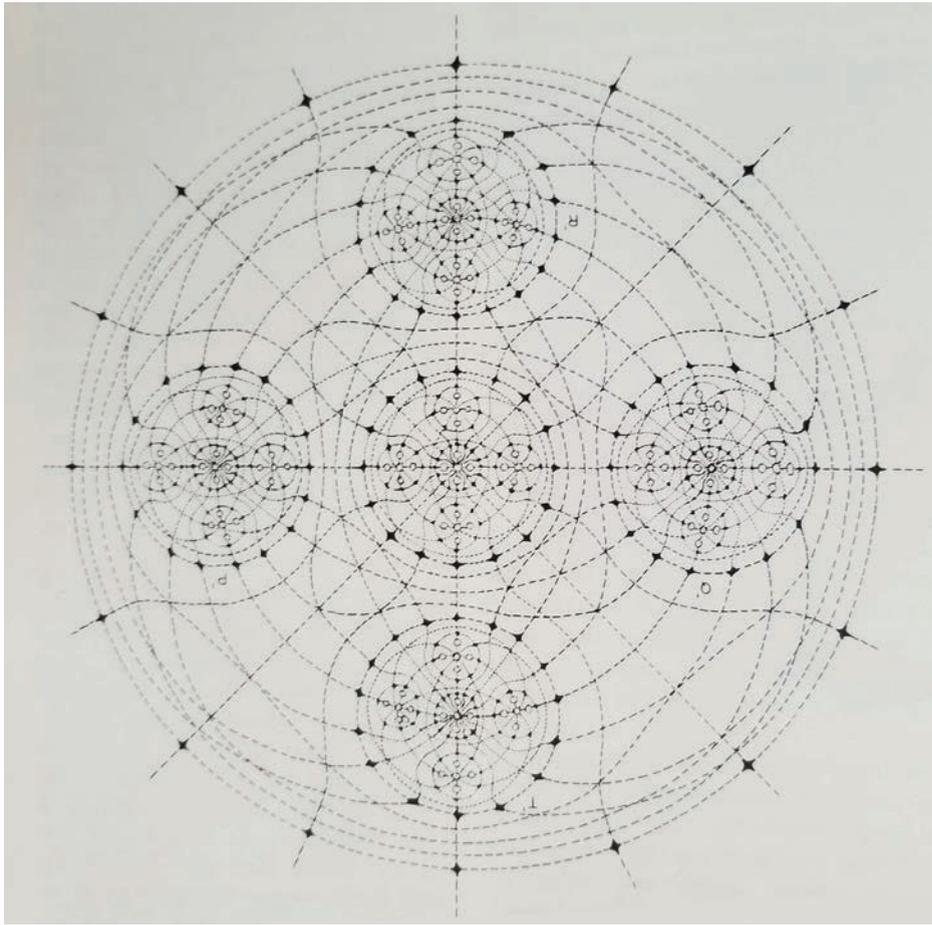


Figure 5.
Perspective grid of a polar
image with many concentric
and eccentric flat spheres.

from the three dimensions contained on the spherical images. Pz is also different from the two dimensions of the spherical surfaces themselves. Yet dimension Pz is a dimension that necessarily, if only implicitly, enters into the construction of a polar image. After all, a polar image is a construction that is able to connect two or more flat sphere images in a continuous and unified manner, precisely by connecting these flat spheres along a spatial dimension different from any of the spatial dimensions contained on the flat spheres.

To create a four-dimensional image, Pz must be drawn alongside the original three dimensions of the image in a coherent and non-ambiguous manner. In other words, if dimension Pz can function as a fourth dimension relative to the other three, then we should be able to draw dimension Pz in a polar image without confusing it with any of the other three dimensions or upsetting the initial three-dimensional world. Figures 7 and 8 demonstrate that these two conditions are met by the mapping of dimension Pz.

First, let us recall that the depth lines of each flat sphere (the lines that go from N' to S' to N', etc.) must stretch in a circular fashion at the borders between one flat sphere and the next. When we map dimension Pz onto a polar image, the obvious danger is of confusing the lines of dimen-

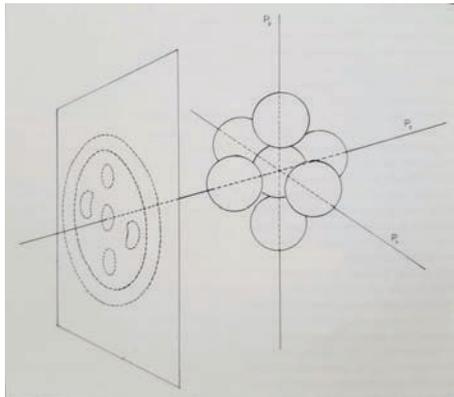


Figure 6.
Seven spheres of vision connected by shared points along dimensions Pz, Py, and Px.

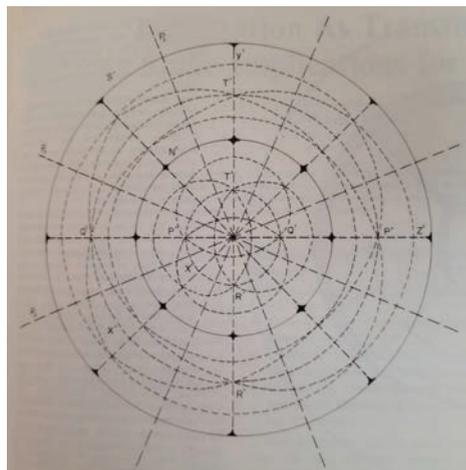


Figure 7.
The perspective grid of a four-dimensional image like the one shown in Fig. 8. This grid exhibits four distinct sets of lines. The fourth-dimensional lines are those that cross the boundaries between one flat sphere and another unaltered.

sion Pz with the depth lines. Notice in Fig. 7 how these two groups of lines are not confused with each other. This is because the 4-D lines do not have to stretch in the same manner as the $N' - S'$ lines. In fact, the 4-D lines are able to run unaltered from one flat sphere to the next. This is because the Pz axis (or any line parallel to it) does not have to cover the whole of graphical points N', S', N' , etc., in its path. It is this difference in appearance and behavior between the lines parallel to Pz and the depth line of each flat sphere that makes possible the construction of an unambiguous four-dimensional image.

Figure 8 is an example of a four-dimensional image. This painting shows two flat sphere images making up a polar image of a room. This room represents our familiar three-dimensional world. But over and above this three-dimensional world, we see a man and his dog, both in the room (in the three-dimensional world) and projected along a fourth representational dimension [7]. Notice that this dimension appears unambiguously as a fourth representational dimension of the perspective system. This new fourth dimension does not alter the original three-dimensional world; rather, this fourth dimension is integrated in the image.

Figure 7 illustrates the perspective grid of four-dimensional images such as that of Fig. 8. The grid displays four sets of lines: (1) the width lines, which extend across vanishing points P' and Q' while remaining within their respective flat spheres; (2) the height lines, which extend across vanishing points T' and R' while remaining within their respective flat spheres; (3) the depth lines, which extend across vanishing points N' and S' while remaining within their respective flat spheres, and (4) the four-dimensional lines, which extend across the whole of the polar image and do not have to remain contained within the individual flat spheres. They start at vanishing point S' at the center of the image and extend outward. (These lines will eventually vanish at another point N' not represented in this grid.) We have seen that dimension Pz works graphically as a fourth dimension relative to the other three. It can be mapped in a consistent and unambiguous manner together with the three original dimensions of the flat spheres. But what reason do we have to consider dimension Pz as a dimension perpendicular to the three dimensions contained within each flat sphere?

Dimension Pz is perpendicular to the spherical surfaces that represent the sphere of vision. These spherical surfaces create the illusion -for an observer- of a three-dimensional world. Thus, each spherical surface contains a three-dimensional, purely illusory world. We take, then, a dimension Pz, which is perpendicular to these spherical surfaces, as a dimension perpendicular to the three dimensions contained in each of those surfaces [8].

Figure 6 is the model of a polar image with concentric and eccentric flat spheres representing seven spheres of vision. Imagine that we map the six outer spheres of vision onto the surface of the central sphere of vision. We obtain one sphere of vision that contains six 'flat spheres' on its surface. This mapping introduces into the image of the central sphere the dimensions Pz, Py and Pz represented in Fig. 6. These three lines are actually four-dimensional lines relative to the three dimensions contained in the central sphere of vision. This is so because these three lines are perpendicular to the surface of the central sphere of vision, as is any other line that is the radius of the central sphere.

A hypercube (Fig. 9) further illustrates the construction of polar four-dimensional images. In it we can see a body made of eight cubes; one cube appearing in each of the two flat spheres, and six more cubes created by the faces of the first two cubes when these faces are consistently connected along a fourth dimension. In spite of its first appearance this image is not to be read as a cube inside a cube. The cube in the enclosed flat sphere is not inside the cube of the surrounding flat sphere. Rather, the perspective lines indicate that the first cube is further away from the observer than the second cube along a fourth dimension, as explained above.



Figure 8.
Stephen and Rufus, Oil on Panel, 70 x 48 inches, 1982. A man and his dog project along a fourth dimension representing their movement through time. To construct the figure, one of the two flat spheres is turned inside out, a necessary inversion for the flat spheres to connect in the manner represented.

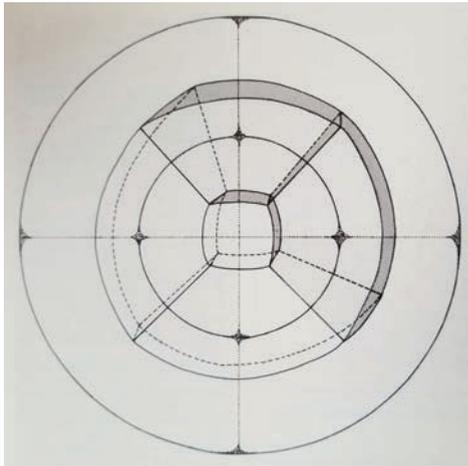


Figure 9.
The perspective grid of a four-dimensional image like the one shown in Fig. 8. This grid exhibits four distinct sets of lines. The fourth-dimensional lines are those that cross the boundaries between one flat sphere and another unaltered.

ACKNOWLEDGEMENTS

Some of the ideas presented in this paper developed from long discussions with my friend Bruce Leutwyler. In fact, it was he who first saw the potential of polar perspective for representing more than three spatial dimensions. His critical and substantive insights have been a constant guide to my work on perspective, and he is largely responsible for the existence of polar perspective. I am also grateful to Professor J.S. Fulton for his constructive observations and to Steve Adams for his constant support and help with the manuscript.

REFERENCES AND NOTES

1. For a thoughtful discussion of the column paradox, see E. H. Gombrich, *Art and Visual Illusion* (Princeton University Press, 1972) pp.254-256.
 2. R. Veru. *Understanding Perspective* (New York: Van Nostrand Reinhold, 1980).
 3. F. R. Casas, "Flat Sphere Perspective", *Leonardo* 16, 1-9 (1983).
 4. Artist Richard Termes of South Dakota has also worked out the six-point spherical perspective structure. Mr. Termes uses the system to paint images on the exterior surface of large spheres. K. R. Adams has described another method for depicting the entire sphere of vision ("Tetraconic Perspective for a Complete Sphere of Vision", *Leonardo* 9, 289-291, 1976). However, his tetraconic system creates a discontinuous image, an image broken up in discrete facets.
 5. M. C. Escher produced several images that indicate this limitation of visual field. Some of his prints show the convex image he saw reflected on one side of a mirror ball. He did not create any image that could depict the entire visual space around or reflected by the mirror ball. He did not create any image that could depict the entire visual space around or reflected by the mirror ball.
- In the field of perspective, Escher's most substantial contribution, to my knowledge, is the development of cylindrical perspective. Cylindrical perspective results from projecting the three spatial dimensions onto a portion of a cylindrical surface. This projection creates a grid with three vanishing points of convergence, as is clearly evident in his print *House of Stairs* and even more evident in the perspective grid he prepared for the construction of that print. This grid is reproduced in J. L. Locher, ed., *The World of M.C. Escher* (New York: Harry N. Abrams, Inc., 1971).
6. Any actual polar image we construct however, will be inconsistent in this regard because the

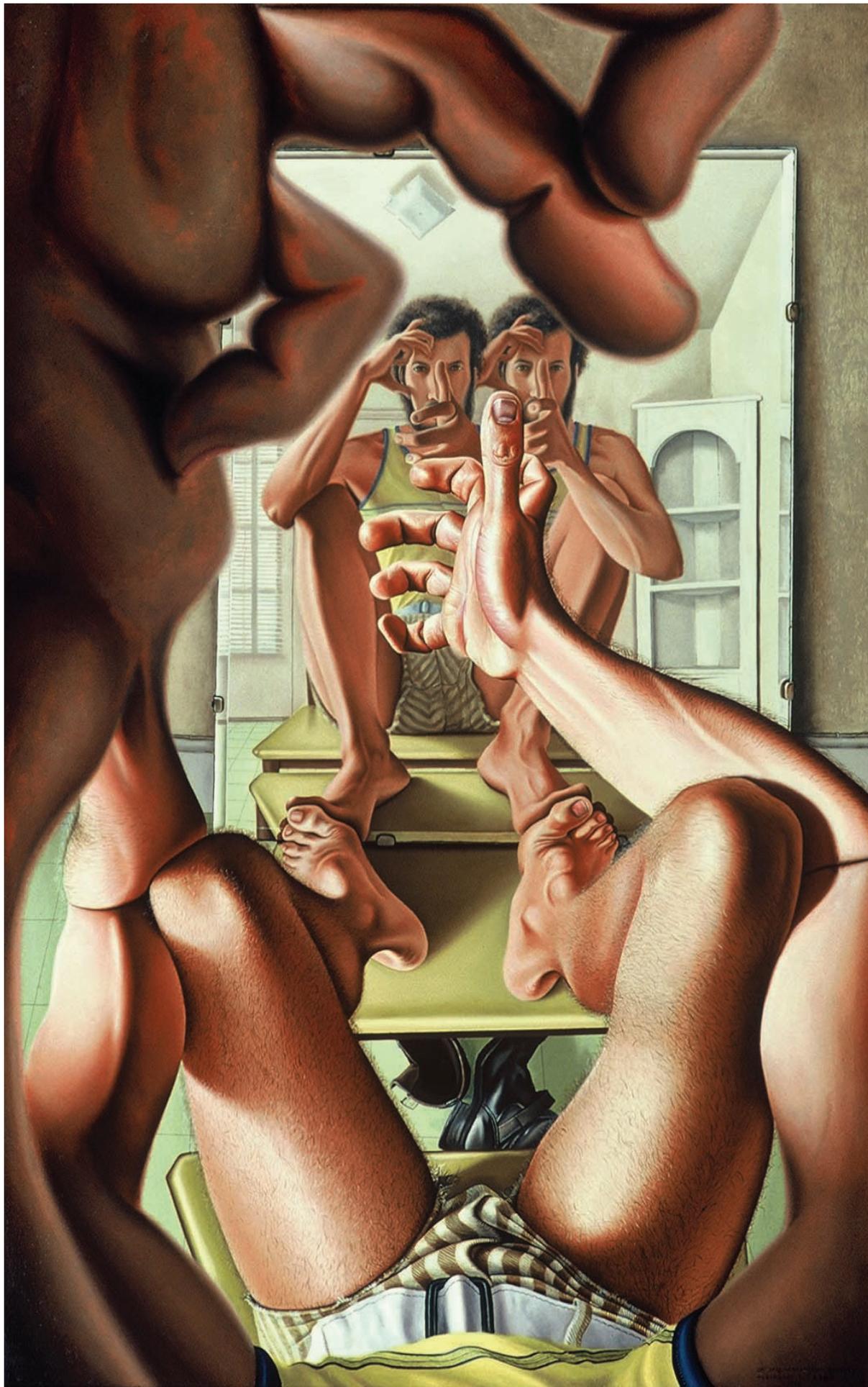
6. Any actual polar image we construct however, will be inconsistent in this regard because the polar image will have a finite number of flat spheres. Consequently, the flat sphere at one end of the finite sequence will have only a point of divergence and the flat sphere at the other end of the sequence, only a point of convergence.

7. The four-dimensional lines in Fig. 8 have been cut in many three-dimensional slices. This was done for aesthetic and historical reasons. The four-dimensional lines in polar perspective can be drawn with solid, unbroken lines.

8. It is possible to represent a fourth dimension only when the three dimensions on the image surface have an equal status and are independent of the dimensions of the image surface itself. If one or two of the dimensions of the image coincide with either of the two dimensions of the image surface, as is the case in classical perspective and cylindrical perspective, then a dimension perpendicular to the image surface would be ambiguous. It could not then represent a fourth dimension relative to the three dimensions of the image. In classical perspective, two dimensions of the image are not independent of the dimensions of the surface on which they appear. Therefore, a dimension perpendicular to the plane of representation is actually the third –the depth- dimension of the image. In cylindrical perspective, only one of the dimensions of the image is not independent of the dimensions of the representational plane. The other two dimensions are wholly illusory. Therefore, a dimension perpendicular to the cylindrical surface (or to the flat surface after the cylindrical image has been flattened) is a dimension different from the other three dimensions of the image, but not equally different. This dimension is actually perpendicular to the other two dimensions of the image in a purely illusory sense.

It may be important at this point to clarify the status of the fourth graphical dimension in relation to the other three. The first three dimensions are equally illusory dimensions relative to the image surface on which they appear. But polar dimension P_z is not an illusory dimension relative to this surface. It is actually a dimension perpendicular to the image surface. From a purely graphical point of view, this disparity between P_z and the other three dimensions is no more troubling than the disparity in classical perspective between the depth dimension which is purely illusionistic and the other two dimensions of the image which are or independent of the representational surface.

Fernando R. Casas, "Polar Perspective: A Graphical System for Creating Two-Dimensional Images Representing a World of Four Dimensions," *Leonardo*, 17:3 (1984), pp. 188-194, © 1984 by the International Society for the Arts, Sciences and Technology (ISAST), reprinted courtesy of the MIT Press.



Duality: The Labrinth of Self Destruction

Oil on Canvas

76" x 42", 1979



Essay on Self- Elimination

Colored Pencil on Paper

60" x 36", 1977

The French Doors

Oil on Canvas

66" x 54", 1979

Museo Nacional de Arte, La Paz Bolivia



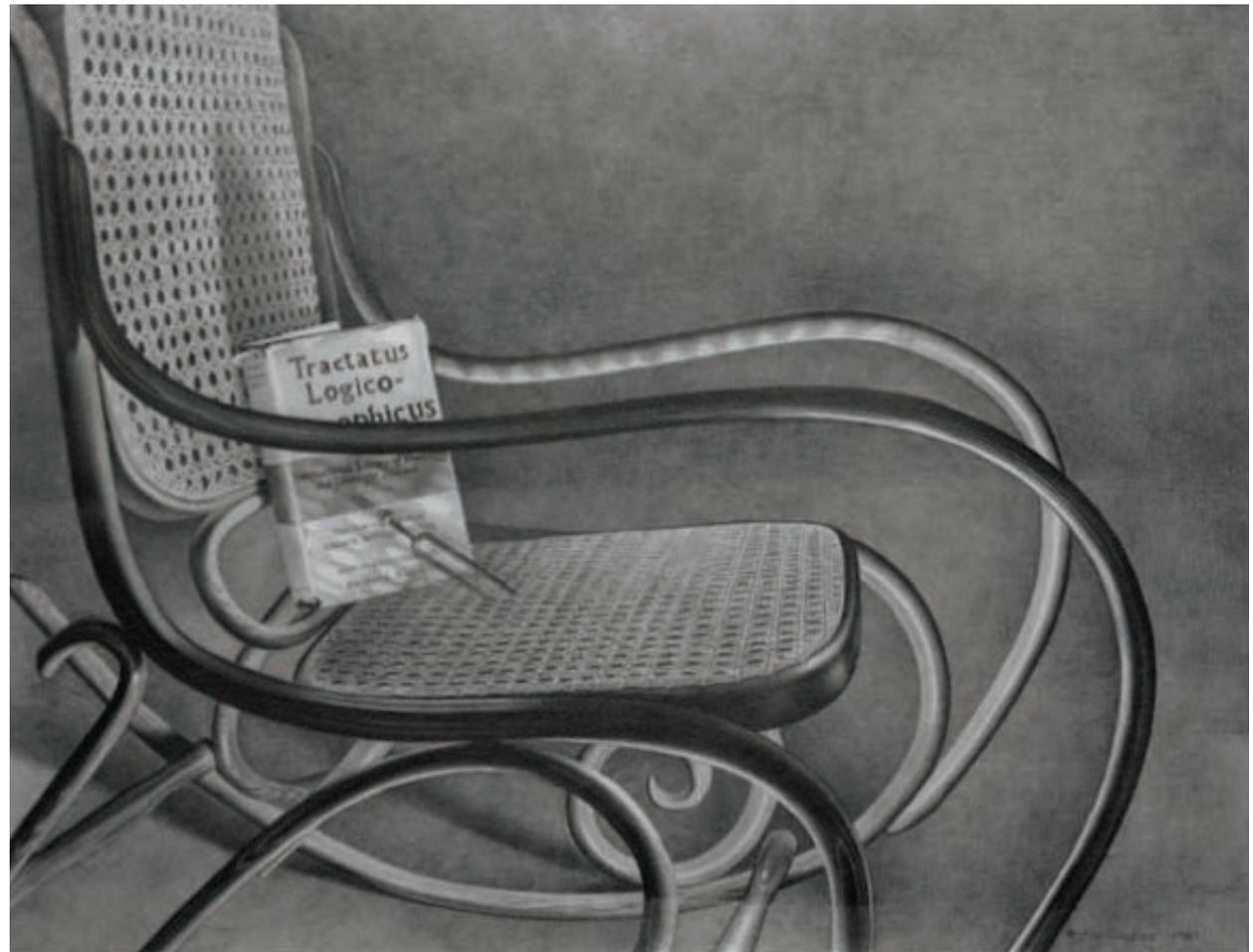
1981

O'ss

CASAS: DISCOVERING THE EDGE OF THE WORLD

People don't like their reality fucked with...
Jed McKenna

"Whereof one cannot speak, thereof one must be silent." - Wittgenstein in the famous last sentence of the Tractatus Logico-Philosophicus.



The Tractatus, Graphite on Paper, 16" x 21", 1980

But can the whereof one cannot speak be shown? Can the artist go where the philosopher and poet cannot? And thus, introduce another region of atopos into the art of the West? "Atopos" is the Greek word for the truly strange, the uncanny, the off-the-grid, the out-of-context, the outside the outside-the-box. I lay this exciting possibility of a new region of artistic atopos on the table in the beginning, because this text may be a lot to chew. So I dangle this juicy wiggling earthworm so the fish will bite [1].

Let me use a film to wiggle the hook. Recall if you can, the film "The Truman Show." Truman is raised from a baby in a reality TV studio, not unlike a Disney world. A dome ceiling upon which the sky is projected circumscribes his world. As he gets older, he suspects something is wrong with his world; multiple splinters sting his mind. This uneasiness about the nature of his reality drives him to sail his way across the sea of his circumscribed world to touch the wall that is the edge of that world. His epiphany comes when he touches that edge. He then knows that this reality is not at all like it appears or he understands it to be. He literally discovers the edge of his virtualized reality.

Casas also found the edge of the world. The border between reality and the whereof we cannot speak, but perhaps can show.

DISCOVERY OF FLAT SPHERE PERSPECTIVE, A TOTALIZING REPRESENTATIONAL SYSTEM

Before we can travel with Casas to the edge of reality itself, let us see what made this possible. Casas developed what he called "Flat Sphere Perspective". I won't go into the technical details of this discovery. He has written quite extensively on how it works. Suffice it to say here that he takes the visual world apparently surrounding him, and flattens it onto a flat surface. For those versed in recent developments in iPhone photography, recall a panoramic shot. A panoramic image lets you see all around you, in an image flattened before you. Of course, this image is not total, it is rather a strip of reality, a very wide one. What Casas developed with Flat Sphere Perspective is a totalized panorama of reality. The entire reality surrounding one can be portrayed. In a sense, Casas is the ultimate realist painter. Take the painting, *The Planet*. It is a panorama along all three dimensions.

This was a truly remarkable discovery, especially if we remember the (re)discovery of Classical Perspective, and the consequences it had for the art of the Renaissance and after. Only the future will tell if Flat Sphere Perspective finds a use for artists of the future.

There is however an aspect of Flat Sphere Perspective which does have consequences for us and for the entire future of mankind, regardless of how artists make use of it in the future. It is a totalizing representational system. Casas discovered a representational system that can show the whole of visual reality as perceivable to a human being. In other words, it is a complete representation of the visual world inhabited by a person.

The consequences are artistically, philosophically, and psychologically atopus, that is, outside the outside-the-box, although this is not to claim that this was realized in fullness at the time of its development or that the consequences have even now fully revealed themselves.

DISCOVERY OF THE VOID, SHOWING THE HOLE IN REALITY ITSELF.

Consider again the painting, *The Planet*. What is really most striking in this painting that uses Flat Sphere Perspective?

It is that which human eyes have never beheld before!

Clearly, it is the void at the center of the painting, where the head "should" be.

This void could only reveal itself within a totalizing representational system, as a deadlock in perspective formalization. Ever since Gödel, it has been known in logic that a sufficiently powerful formal system meant to express mathematical truths, if it were consistent, would be incomplete. This means that the formal system could not express certain mathematical truths. This was an earthshaking discovery for logic and philosophy. The logical contrapositive of this was that if the system were complete, it would be inconsistent. The same seems to be true of a sufficiently powerful visual representational system. Representing the entire visual world led to a visual deadlock in perspective formalization, an inconsistency or an incompleteness. The void at the center of "The Planet" is a visual deadlock; that is, a visual inconsistency or a visual incompleteness.

This is interesting, but not the most surprising thing. The surprising fact is that the void in the painting reveals the Void in the visual world itself [2]. There is a hole in the manifest reality itself!

WHAT DOES THE VOID TELL US ABOUT THE NATURE OF REALITY ITSELF?

Most people would contend that when they see a cup of coffee before them, when they drink from it, they are seeing the cup itself. They would contend that it is real. I do not want to dispute, as some philosophers might, their very ordinary language use of the term "reality" [3]. What *The Planet* forces us to confront is the uncanny nature of this reality.

We are very lucky at this time in history because technological developments in the field of computing have made possible devices giving us virtual realities and augmented realities. The technological term "virtual reality" is a great term and will be very useful here, because of the tension between "virtual" and "real".

The virtual realities coming down the tech pike will be more virtual than real (at least in the beginning). That is, the emphasis will be on the "seeming real" implied by the term. Virtual realities will seem real, but we will remember they aren't. Like dreams, those realities will not correspond to our normal reality. I introduce the term here because it will help articulate curious features in reality brought to the foreground by *The Planet*.

Given that Casas in many of his Flat Sphere Perspective images is a realist painter; that is, he is painting or representing the reality surrounding him, what does the strange case of the void imply about reality itself?

Reality, as shown in the *The Planet*, is either inconsistent or incomplete. Inconsistent, if we take the void in *The Planet* as part of the landscape itself. Incomplete, if we take the void to be a hole in reality itself.

Reality - inconsistent or incomplete! How can this be? It is because the reality we inhabit is also

virtual. This is why virtual reality technologies work. They replace one virtual reality with another. More on this later.

REALITY AS INCONSISTENT

If we take the void to be part of the landscape, then clearly there would be an inconsistency, for the void is of a different nature than the landscape. It would be a monstrous [4] intrusion into the landscape itself, impossible to integrate into the landscape as a part of the landscape. It is as if God says, "Screw it." and starts ripping reality apart. The tears in the fabric of reality would appear as strange objects floating before us. Those tears as objects would in their nature be inconsistent with all the other objects appearing in the world.

These are not the only monstrous phenomena Casas has contemplated within his paintings. His early path as a painter could be characterized as a path of phenomenological realism. His early training in philosophy was with a famous Heideggerian scholar, J. Glenn Gray [5]. And it was training in phenomenology.

To put it most simply, the practice of phenomenology says, "To the things themselves." meaning observe the things in reality, not as we "know" them to be, but as we experience them. Do not ignore the inconsistencies appearing in our reality.

Duality is a phenomenologically realistic painting in which Casas shows the results of binocular perception. The "objects", his two faces, his two index fingers, are monstrous intrusions into reality itself. Monstrous, because they are more virtual than real. In fact, they are sublime objects. "Sublime" here means precisely that they are more virtual than real, and thus reveal the virtuality within reality itself [6]. In other words, sublime objects are inconsistent with the realness of the other objects. Or perhaps, they are consistent, and the objects of reality are all virtual.

But the void in *The Planet* is even more monstrous than the sublime fingers of *Duality*. Even if all the objects of the world were seen to be virtual, the Void/void, taken as an object, would always be of a different nature than all the objects of the world, including the fingers and the two faces of Casas in the mirror.

The Void would not be consistent with the object-hood of the objects of the world, virtual or not. It would be an inconsistency, a rip, in reality itself. And it would be the most sublime object in reality itself.

REALITY AS INCOMPLETE!

But perhaps we should view the void in the painting, not as an inconsistency in reality, but as an incompleteness in reality, where reality itself ends, and the whereof we cannot speak begins. The Void viewed this way would be similar to the eye that cannot see itself. It would not be in the world, but rather a consequence of the incompleteness in reality itself, the hole in reality where the head "should" be.

It shows up in the painting *The Planet*, but not in reality itself. It must be there, but it isn't. This has consequences, best characterized as *atopos*, for philosophy and psychology, explored by the French psychologist and philosopher, Jacques Lacan, and more recently, Slavoj Žižek. They might say that reality itself was sutured, to hide the incompleteness from oneself. This suturing would be similar to what happens to the blind spot in the visual field due to the optical occlusion by the optic nerve in the eye. It is there always, but the tear in reality is sutured so that we are not aware of it, except under specific circumstances.

Why? Why is the hole in reality sutured? It may be that human beings do not want their reality to have a hole in it. A Void of such sublimity that it reveals the complete virtuality of reality itself. We don't want the real totally sucked out of reality.

It may also be that the suturing is actually done by filling the Void with the space of the imagination and thought. That is, crossing the Void is imagination and thought. That is, crossing the Void is somehow crossing from the real world to the virtual world of thought and imagination. The Void would then be filled with the clearly virtual, the contents of the mind arising in the Void itself. Thus when a meditation master says, "go inside", he would be saying "Enter the Void" and experience it as Void. This then would be a practice of unsuturing and rediscovery of the Void as Void.

PHILOSOPHICAL CONSEQUENCES OF SUTURING THE VOID

The primary philosophical consequence of suturing the hole is to preserve a certain realist ideological stance characteristic of our epoch. This ideology basically tries to suck the virtuality out of the manifest reality so that it can have the solidity and independence of what traditionally "reality" stood for. It is ideology because it functions to remove the sublime objects from our awareness and consideration. These ideological sunglasses remove the glare of virtuality from our reality. The philosophical importance of much of the artwork of Casas is to reveal reality with the sunglasses off.

But there is perhaps an even more *atopos* philosophical consequence of suturing the Void. We lose track of who we really are.

Now that's a philosophical thought that should make us very uncomfortable. We don't know who we really are!

This philosophical point has psychological consequences as well which are explored by Jacques Lacan.

PSYCHOLOGICAL CONSEQUENCES OF SUTURING THE VOID.

I don't pretend to be a Lacanian scholar, so forgive me if this rough outline obscures as well as reveals.

According to Lacan, in the mirror stage, the baby is trying to make sense of her reality, and to identify herself within it. The problem for the child is that she is like the eye that can't see itself, essentially the Void in reality itself. But the Void is not a normal object, not really in the world, so it is very hard to integrate into reality as a "me". It is more like space itself, hard to see. What happens is that the parents, also existing within a sutured reality, and misidentifying themselves within it, place the child before a mirror, and exclaim excitedly, "Jane... look... that's you."

Suturing the Void effaces the Void and replaces it with a face in the mirror!

Thus, another generation misidentifies itself with its image in the mirror, undergoes symbolic castration, essentially alienating itself from itself, and placing itself within what Lacan calls the "the big Other." One is now identified with one's position in the sociocultural field where one is constantly questioning the desire of the Other. What does the other want? For Lacan, this has the consequence that one loses track of one's own desire, it being replaced by the what the Other wants or expects.

Ultimately, losing oneself to the mirror has the existential consequence that one also misses who one ultimately is [7]. The Void, the that which points to the virtuality of reality itself, but is not part of that reality. The whereof one cannot speak.

Instead of discussing how screwed up this narcissistic ideology ultimately is, I would rather look at the atopos artistic consequences of Casas' discoveries.

ARTISTIC CONSEQUENCES OF SUTURING THE VOID BY REPLACING IT WITH A FACE IN THE MIRROR.

It is a fascinating fact that I only recently learned about, that the mirror as we know it, was invented in the early Renaissance by Venetian glassmakers [8]. Before then we have the ancient Greek warning of Narcissus to not fall in love with one's image in the pool. I interpret this as meaning do not identify with the image in the quiet pool. It probably wasn't much of a problem, since the image in water usually isn't that clear anyway. Any ripple deconstructs it immediately.

Prior to the Renaissance, it would have been very unlikely that human beings would have identified with their mirror self-image. More likely they would have identified with their bodies, not as seen, but as felt. Hence no self-portraits in the history of art before the Renaissance [9].

The self-portrait - The artistic trace of the epochal mirror phase of the West mistaking its image for itself. Every post-medieval artist painted his self-portrait, painted himself as other, as if he was painting himself like he would paint his twin.

Here we can even reflect on the beautiful Velazquez painting, *Las Meninas*, where the artist intentionally places himself on the same level as the royalty he is painting. In a portrayal of symbolic castration, he is trying to redefine the artist's place in the gaze of the Other, his misidentified

self. Essentially, and ironically, the painting is a self-portrait. A beautiful case where the subject of the painting is the infanta Margarita and retinue, but the object is the self-portrait of the artist himself [10].

Now consider the painting *Duality* again. Is it a self-portrait or an early and perhaps unintentional attempt to deconstruct the identification with the mirror image? Perhaps both. In *Duality*, the subject would be the artist in self-portrait, but the object would be the deconstruction and disidentification from the mirror image as self. A ripple in reality. It would in effect be saying, "Not me."

If what I suggest is correct, as much as the artistic discovery of classical perspective, the technological invention of the perfect mirror heralded our modern epoch, and distinguished it from the epochs that came before. Art with the mirror, the self-portrait, clearly supported the narcissistic misidentification. And the painting *Duality* deconstructs it.

CASAS - AN ATOPOS INTRUSION INTO ART

Socrates was called atopos. I call Casas atopos. Why? He may be the first phenomenological realist painter in western history to show the virtuality, the sublimity, of reality itself. He deconstructed the self-portrait as mirror image in works like *Duality*. He invented (discovered?) two totalizing perspective systems, Flat Sphere Perspective and Polar Perspective (an extension of Flat Sphere Perspective). Then he discovered and portrayed the sutured Void in reality itself in works like *The Planet*. And yet he remains quite out of the artistic context of the current art world – atopos.

Can an artist ever paint reality in the same way as before? And yet they do. Can we ever know ourselves in the same way? And yet we do. Can the artist ever paint a "self-portrait" again that is not in Flat-Sphere Perspective? And yet they will. Casas remains atopos for the foreseeable future.

Perhaps I will conclude with an observation. Post-modern thought concentrates its attention very much on the necessity of context in the interpretation of texts and artworks. It is very topos, not out of context. This is certainly true of most modern and contemporary art. A toilet bowl (exhibited in the gallery, not in the restroom) requires the entire museum to be a work of art. Even the ancient art of the Greeks is contextualized by an understanding of Greek "mythology". What is interesting about the work of Casas is that it actually may not require interpretation (this entire text apparently to the contrary). I believe any intelligent beings, even extraterrestrials or the Gods themselves, could find his work 2000 years in the future and realize its importance, given that they see more or less like we do. His artwork is a bit like mathematics and logic; it is universal in some important sense. And this is an interesting paradox. Casas is atopos to his time, but perhaps not so to those of the future, who still remain for us, atopos – strange and out of context.

Bruce Leutwyler, Crestone, Colorado, February, 2018

Endnotes.

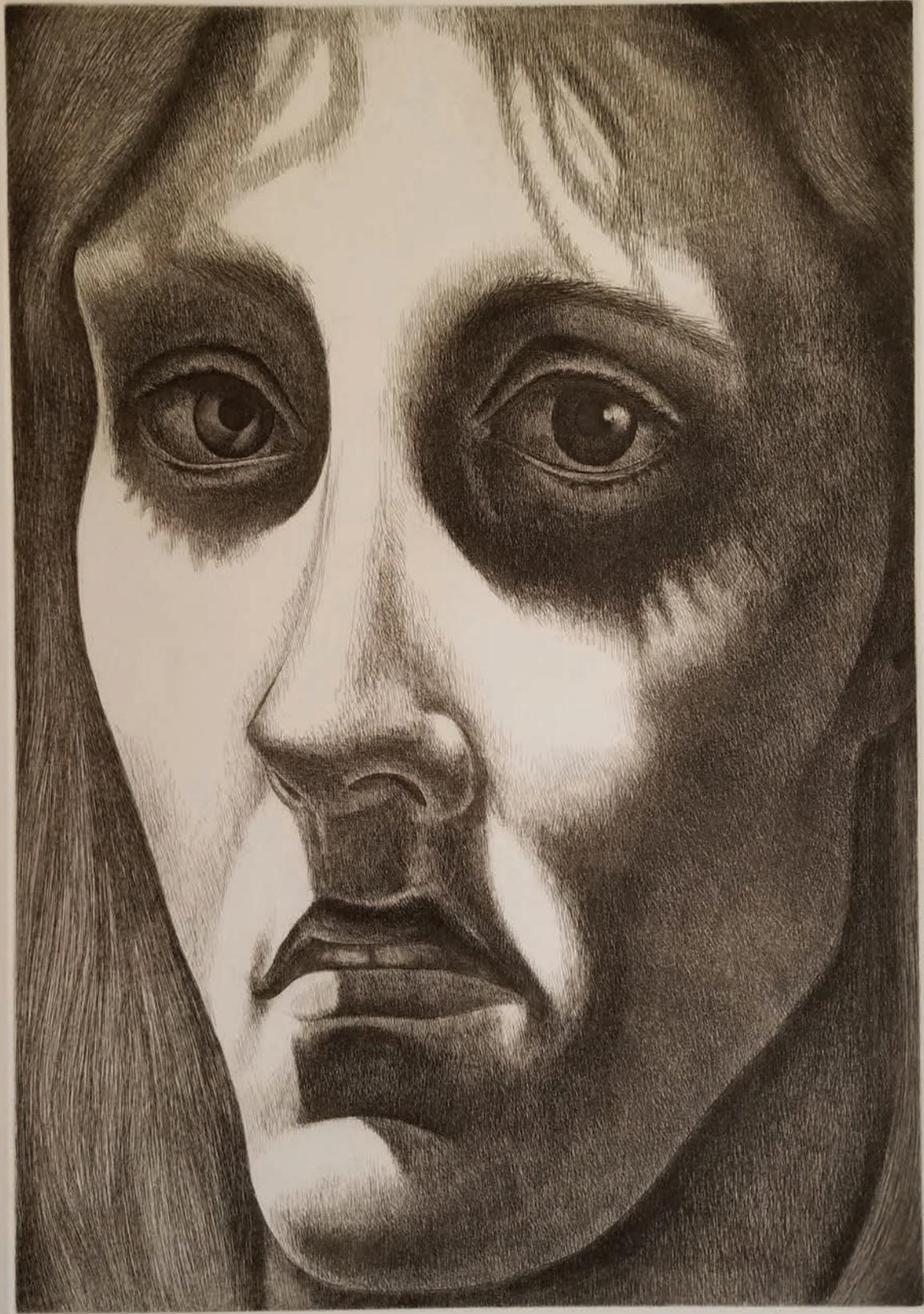
1. I actually conceive that I am writing this text more for future generations because they will generate the historical reality which will make real our present as past to the future. The real-time happening of our time is fading away. Don't worry. That thought is not important to the text here but I needed to include it.
2. I will use the lower case "v" in void to refer to the void or blank space in a Flat Sphere Perspective image. I will use the upper case "V" to refer to the Void in the manifest reality itself.
3. When it comes to notions of reality we live in very strange times. Here I am dealing with what is understood to be manifest reality, the phenomenal or virtual reality of Kant and Heidegger. This reality contrasts with the scientific reality in the naturalized view of philosophy. Scientific reality is a noumenal reality with a noumenal 11-dimensional space filled with quarks and strings, not directly accessible to human experience. "Noumenal" just means here not directly accessible to human experience. Noumenal reality is imagined, or assumed, to exist within science and philosophy to account for various features in the phenomenal reality that are more easily explained assuming its existence. The naturalized view of science, however, usually becomes an ideological obscuration to the true experience of the manifest reality and its virtual objects. Phenomenology represents one practice to break the ideological hold of the imaginatively projected noumenal reality over the experienced phenomenal reality. As I understand it, Lacanian psychology may be another practice that breaks this ideological hold. Critical Theory and deconstruction in philosophy also work to break the ideological hold. The same goes for Zen, Dzogchen, and other Buddhist meditation practices.
4. "Monstrous" is a Zizekian term, meant to highlight here a phenomenon that can't be incorporated into the ideology informing the manifest reality. Depending on its effect on the person's reality, it will function in a deconstructive way to call into question the ideology ruling the reality. More likely, it will be ignored, as it is when it is designated a "visual illusion". Or more seriously, it will be sutured out of experience, like the blind spot in the eye, or the Void where the head "should be".
5. J. Glenn Grey (1913-1977), Professor at Colorado College and translator of *What is Called Thinking*, by Martin Heidegger.
6. Normally the notion of "sublime" means "something quite perfect." Edmund Burke (1757) defines the sublime as "whatever is fitted in any sort to excite the ideas of pain and danger... Whatever is in any sort terrible, or is conversant about terrible objects, or operates in a manner analogous to terror." So we can see how the monstrous is tied to the notion of the sublime. In Zizek's usage, the sublime is what is part of reality, but disrupts it as it brings forward the virtuality of reality. The virtuality of manifest reality is a scary, perhaps terrible prospect, for many people. For more on sublime objects, and their relation to manifest reality and ideology, read *The Sublime Object of Ideology* by Slavoj Zizek.

7. “But with Lacan, we have quite another notion of the subject. To put it simply; if we make an abstraction, if we subtract... all the fullness of experience present in the way the individuals are ‘living’ their subject-positions, what remains is an empty place which was filled out with this richness; this original void, this lack of symbolic structure, is the subject... (Zizek, *The Sublime Object of Ideology*, p. 197.)

8. “But the interesting thing about self-portraiture is that it effectively doesn’t exist as an artistic convention in Europe before 1400. People painted landscapes and royalty and religious scenes and a thousand other subjects. But they didn’t paint themselves. The explosion of interest in self-portraiture was the direct result of yet another technological breakthrough in our ability to manipulate glass. Back in Murano [Venice], the glassmakers had figured out a way to combine their crystal-clear glass with a new innovation in metallurgy, coating the back of the glass with an amalgam of tin and mercury to create a shiny and highly reflective surface.” (How We Got to Now: Six Innovations that Made the Modern World, by Steven Johnson)

9. That the Lacanian mirror stage for humanity started in the Renaissance is pure speculation on my part based on the artistic record.

10. My use of the terms “subject” / “object” follows Zizek’s usage on page 179 of *The Sublime Object...* This usage preserves the possibility that, in this case, the content of the image, the landscape, may be designated by the term “subject”, while the form of the image, may also contain content of a sort. Zizek designates this content given by the form, the “object”, but we could just as easily talk about subjectcontent and subjectform.



1/50

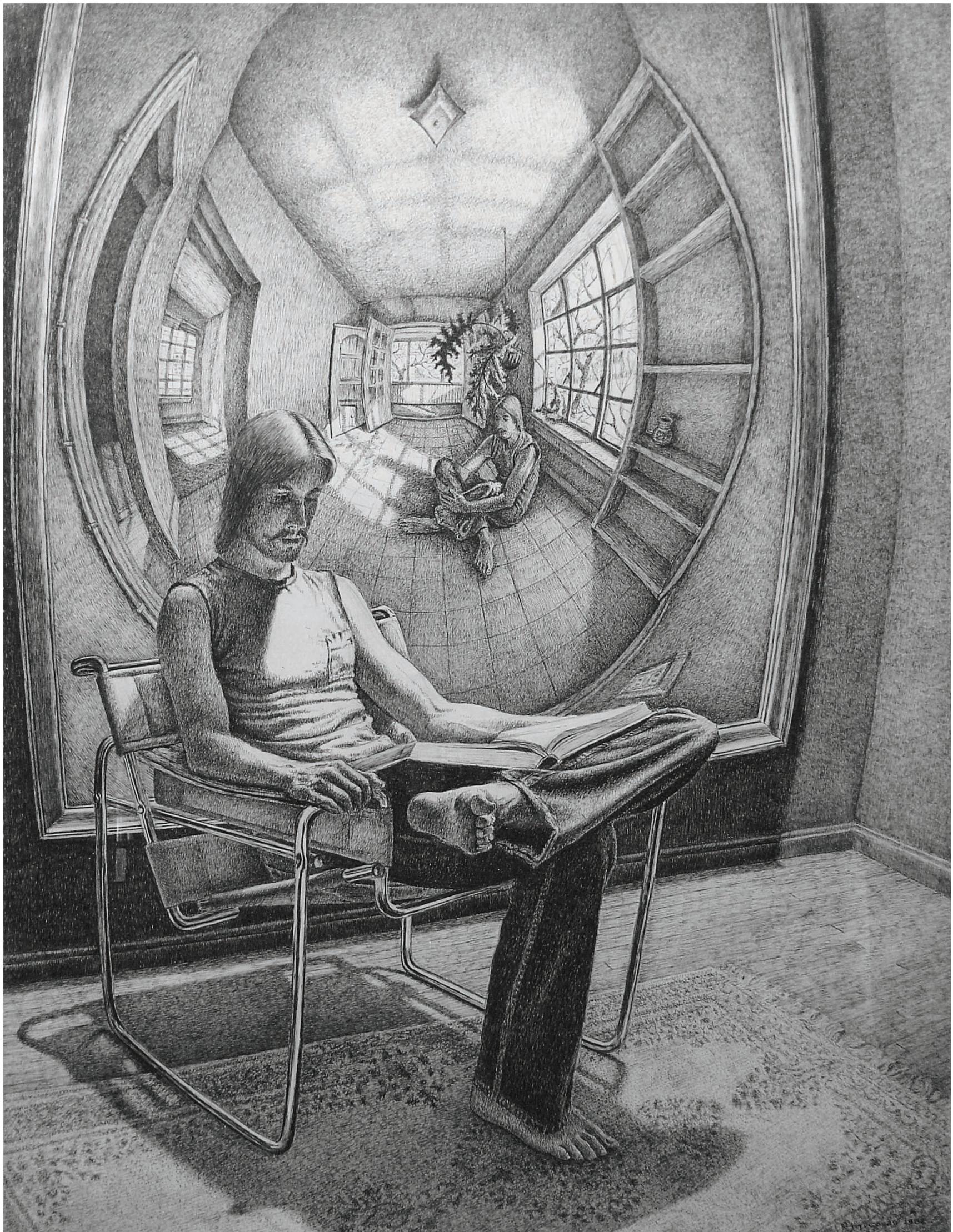
© J. COONS 1962

Minina

Etching, Printed by Penny Cerling

28" x 20", 1982

Museum of Texas Tech University Collection



Stephen Reading

India Ink on Paper

32" x 24", 1982



The Finnet, Early Morning
— 1980 —

The Planet, Early Morning

Oil on Canvas

66" x 66", 1980

Bruce Leutwyler Collection, Houston

The Sky, Noon

Oil on Canvas

66" x 66", 1980

Nadine Crochaine Collection, Houston





Approaching Storm

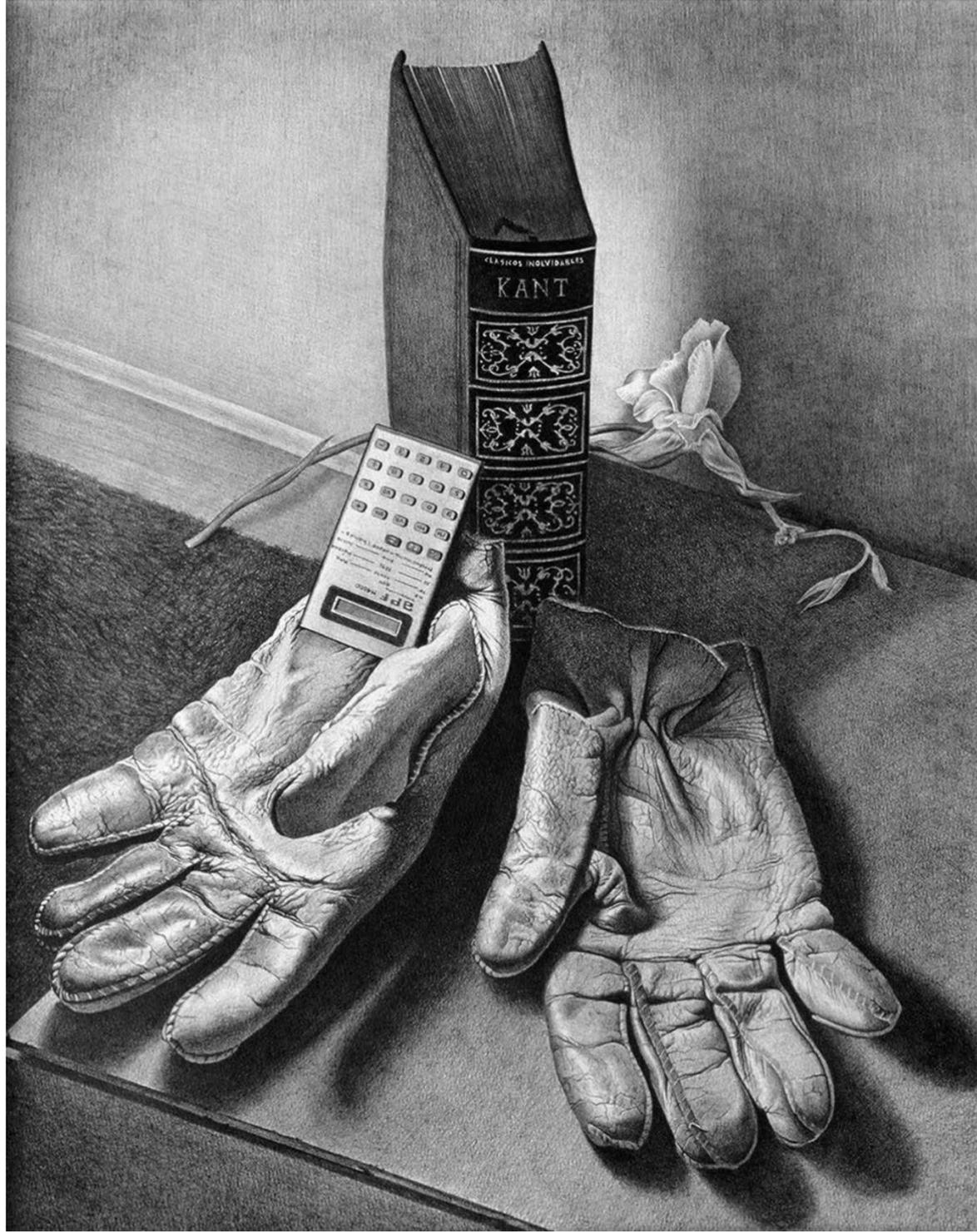
Oil on Canvas

78" x 78", 1983

Kritic

Graphite on Paper

21" x 17.75", 1980





Flora, Oil on Panel, 48" x 96", 1981, Kline-Casas Trust, Houston

ROUND AND ABOUT A PAINTING BY FERNANDO RODRÍGUEZ CASAS

“FLORA” AND DEATH

To live is to die, and death is also a life.
HOLDERLIN: In Liebliher Bläue.

The world of Physics must offer, in a sense, continuity with the world of our perceptions, since it is this last one that provides us with the evidence of the laws of Physics.
RUSSEL: The Analysis of Matter

If at least I would leave myself enough time to finish my task, I would not neglect, first of all, describing men in it (even if this would depict them as monstrous beings) as occupying a more considerable area compared to that restrictive space afforded to them. This would be a prolonged place without end in time – given that there they touch each other simultaneously, like giants submerged in years, with distant epochs in the middle of which so many days have come to take their place.

PROUST: Les temps retrouvés

“Flora” (1982) by Fernando Rodríguez Casas is – in its immediate simplicity – a complex spatio-temporal universe. It dwells upon a most ancient shadow of humanity: the dialectic between life and death such as the myth of Flora – the Spring – manifests in its perennial ritual of death and resurrection.

The painting has two levels “of depth,” intertwined one with the other. Like the two siblings in love of their similarity by Octavio Paz (“Piedra del sol”) these two levels imply each other, but not only spatially but also – as we shall see – in time. In the first level, the one closest to the viewer stands out, next to a window, a figure almost hieratic – it is Flora – magnificently painted. She walks – takes a step – this step is the beginning of something; she goes somewhere. One of her hands holds a bouquet of flowers; the other, opened, it has the attitude of rendering a gift or a possible handshake. The window frames an outdoors event: a blooming tree. A large bookshelf covers the rest of this zone of the painting: books and bottles fill the shelves; words and colors, one would say, await still asleep. In front of this area, so to speak, a wall totally bare, except for the subtle and complex interplay of lights and colors. An open door allows one to see another room: a moribund light – of dusk one would say – briefly illuminates the room. There, a rocking chair rests on a carpet. (The carpet, by the way, mimics in its colors and design, the spring that blooms in the other window). Generally speaking, the floor appears as a pattern the lines converging towards the second level of the painting.

With admirable sobriety, here quietude and movement take turns to conjugate. Everything

seems to take place like a gesture carefully executed. Between the two embedded levels, there is a pictorial ellipsis: just as the first already mentioned rhetorical figure allows us to point out, the panting does not narrate anything - it omits - the walking of Flora towards the room where the rocking chairs awaits. That transit also is a metaphor of Spring: the flowers will yield their step to the fruits that which later – ripe – will fall to fertilize the earth. This cycle of life and death, that is one of the features of nature – and also of the human being as a natural creature - is clearly suggested in the myth of Flora in this beautiful - and quiet – canvas of Fernando Rodríguez Casas.

If the first room – let us call it the central room – gives us the being, the presence of Flora, the lateral room – the one of the rocking chair – would give us a sign, a hint, a metaphor of death. Given this knot, perhaps we can begin to articulate – only a little, of course – the intricate inter-textual play that, to my mind, is connoted by the canvas of Rodríguez Casas. And here we could detect how this weaving – a painting is fundamentally from its original surface, a weaving, a text that intertwines, directly or indirectly, with other texts. Because art is necessarily and perhaps essentially plural: a complex system of echoes, a continuous displacement, a permanent dialogue between those of us who are and those who were, a nomadic space – one would say with Deleuze and Guattari - a system of “ fragments of old forgotten songs” (Shakespeare).

I do not know if among the books that appear on the shelves of “Flora” is Jorge Luis Borges History of Eternity. We can assume that even potentially, it is there. In it, in the essay dedicated to “the metaphor”, we would read a census of some essential metaphors that from eternity have preoccupied humanity. One of these archetypical metaphors is that which relates dreaming – being asleep – with death, with dying. Below we have Borges’s enumeration that will lead us to the rocking chair that awaits Flora:

In the Old Testament one reads (Kings I 2:10): “And David slept with his parents and was buried in the city of David.” During shipwrecks, at the time the ship sinks, the sailors of the Danube prayed: “I fall asleep, then I begin to row once again.” In the Iliad, Homer talked of Sleep as the brother of death; according to Lessing diverse funeral monuments witness this brotherhood. Wilhelm Klemm called it Monkey of Death (Affe des Todes) and he also wrote: “Death is a first peaceful night”. Even before him, Heine wrote: “Death is a cool night: life, the tormented day”... I dream of earth said to death, Vigny; old hammock armchair (“old rocking chair”) they call death in the “blues”; it comes to be the last dream, the last siesta, of the African Americans.

The rocking chair – “old rocking chair”—therefore appears as one of so many metamorphosis of this archetypical metaphor imbricated, perhaps, with the most profound collective experience of humanity – wherein death is interpreted as respite, as repose, as sleep. It is towards it that Flora in the painting was taking a first step and it is with it that she comes face to face in the back room of the second level.

There is something else in the figure of Flora that suggests another inter-textual, literary and supplementary echo. And that echo suggests a strong metaphorical interweaving. One of the most famous versions of the equation to sleep equals to die is, of course, the monologue of the Prince in Hamlet. Borges recollects it at the end of his enumeration: "The reader would have remembered – he adds – the words in Hamlet: "to die, to sleep, perchance to dream" followed by his fear that the dreams of the sleep of death would turn out to be horrendous". But it is not the Prince that suggests to me this supplementary echo – although its meditation would establish the formal nexus between "Flora" and Hamlet – rather it is Ofelia at the moment of her death. In her own way, Ofelia dies like Spring, in her purity, her innocence, in her madness of love and mourning. It is in this manner that Ofelia's death interpolates itself in Hamlet (the Queen speaks):

There is a willow grows aslant a brook,
That shows his hoar leaves in the glassy stream;
There with fantastic garlands did she come
Of crow-flowers, nettles, daisies, and long purples
That liberal shepherds give a grosser name,
But our cold maids do dead men's fingers call them:
There, on the pendent boughs her coronet weeds
Clambering to hang, an envious sliver broke;
When down her weedy trophies and herself
Fell in the weeping brook. Her clothes spread wide;
And, mermaid-like, awhile they bore her up:
Which time she chanted snatches of old tunes;
As one incapable of her own distress,
Or like a creature native and indued
Unto that element: but long it could not be
Till that her garments, heavy with their drink,
Pull'd the poor wretch from her melodious lay
To muddy death. (IV, 6)

I don't know much about flowers, but perhaps Flora carries in this painting some orchids. And, always in some sort of ambiguous dialectic, the death of Ofelia is perhaps only a way of living in the element –water- that welcomes her and collects her.

As it is in the painting – in these inter-textual echoes mentioned – Ofelia dies interlaced with other texts, singing fragments of forgotten melodies, unaware of her grave predicament. Certainly, there is much of Flora in Ofelia. Most likely, amongst the books on the shelves we could also find Shakespeare.

On a more pictorial level, the figure of Flora is interwoven with another inter-text. This other level implies, fundamentally, the theoretical invention already mentioned of a perspective representation. Obviously the figure of Flora is homage to Botticelli. Why this homage to a Renaissance painter? Most likely there are personal reasons of appreciation and affinity that would explain

why Rodríguez Casas would model his Flora in these terms. But, here it dwells as well a theoretical knot peculiar of the body of work of this Bolivian artist. In what follows we will attempt to do some walking through the theoretical world implied in the last works of Rodríguez Casas.

The homage to Botticelli signals a moment in the history of art: the Renaissance. And Rodríguez Casas refers to it not only here - in "Flora" – but also in his essays on perspective. Among other things, the Renaissance shows the inescapable presence, to the following centuries, of flat perspective in pictorial representations. Against this tradition, the art of our century - generalizing, let us say "abstract art" – defined itself against that tradition. That type of figuration was abandoned because it was considered exhausted, incapable perhaps of capturing the most complex nuances of the reality discovered by our modernity.

Along side perspective was rejected because this kind of representation – one that creates the illusion of the third dimension – would limit pictorial art to mere specular - mimetic - function of reality. On the other hand, "Abstract art" sought artistic autonomy, an experimental freedom that would allow it to reach the "thing-itself" of the work, "beyond" mere reality. Under these criteria, and others, of course, contemporary pictorial art distanced itself from realist, perspective representation. Such a thing would amount to an anachronism, something useless to the pursuit of the most profound drives of contemporary art. In spite of it, and by making an homage to Botticelli, in this case, Rodríguez Casas, in open contrast to the modernist tradition, revisits the perspective treatment of pictorial representation.

Like all "returns", this one too, is nothing simple. On the one hand, yes, Rodríguez Casas returns to the "forgotten" and discarded tradition of modernism. He returns to realism; returns to perspective. But on the other hand, he must renew them from their very foundations. Let us take a look.

The flat perspective of the Renaissance thought of the possibility of representing the 3 dimensions of our everyday space on a flat surface. In a way, it accomplishes that; but there is behind it an epistemological condition - a vision - which assumes as its most elaborate model of the universe the physics of Newton. This one radically separates space from time at the same time that assumes Euclidean Geometry as the grounding of its representation – of its conceptualization. To a universe organized by the logic of plane geometry properly corresponds a linear representation in flat perspective. But since then, a great quantity of water flowed under the bridge of the theories of the universe. And, above all, the Einsteinian torrent crossed it.

Einstein's Theory of Relativity not only posits that space and time imply each other - they are defined relative to each other - but it also generalizes a model of the universe bend onto itself, like the surface of a gigantic sphere defined in 4, or more, dimensions. Naturally, it is extremely difficult to imagine this Einsteinian universe, the rigor of which is strictly conceptual; but we can avail ourselves here of their "scientific popularizations" and thus picture it like a network of energies that curve according to their relative interactions – allowing the redundancy. Sir James Jeans, who is quoted by Lincoln Barnett in his well-known *The Universe* and Dr. Einstein proposes the following image of such multidimensional universe:

“Perhaps the best representation, in simple, everyday terms of the new universe revealed by the Theory of Relativity, is a bubble of soap with lines on its surface. The universe is not the interior of the bubble of soap but its surface, and we have to keep in mind that while the surface of the bubble has two dimensions, the bubble of the universe has four: three dimensions of space and one of time. And the substance by means of which the bubble was inflated, the soap bubble, it is nothing but empty space filled with empty time.”

Under these conditions, the epistemological basis that would govern a perspectival representation of reality change. For Rodríguez Casas, the classical, plane perspective can no longer work under these conditions. It is necessary to formulate a new perspective in accordance with this other vision of the universe. Examined from one point of view, what Rodríguez Casas searched and found, is a conceptual model that was in accordance with the new discoveries of the nature of time and space of Physics. In the same manner that the Russell of *The Analysis of Matter* (quoted above), Rodríguez Casas looks for a conceptual framework – in this case one relative to perspective representation of reality. As I understand it, one of the factors that allowed this mediation is light. As energy, light played an essential role in the constitution of the Einsteinian vision of the universe and it is one of the fundamental “items” that must enter in every conceptualization and experimentation of this vision. At the same time, light is most certainly essential to our “seeing” the world. It is around these spaces that one can conceptualize what Rodríguez Casas currently theorizes, proposes and practices regarding perspective.

Then, how do we perceive the world that surrounds us? Even though, centuries of epistemological routine make us “see” a universe of images that is flat and projected towards one vanishing point deep in the horizon - as if our eyes had become accustomed to see the world with the hypothesis of the Renaissance - actually our point of view is as if we were surrounded by a perceptual sphere. We can see in every direction at the same time... and the model that explains best this fact is that of a sphere. The theory that Rodríguez Casas calls “Flat Sphere Perspective” goes to explain, with the aid of non-Euclidean geometries (among other conceptual schemes) this other way of conceiving our perceptual reality. Hence, “Flat-Sphere Perspective”. But why is it called “flat”? Because it does not only attempt to give us a theoretical model different and more up-to-date and more in accordance with the picture of the world given to us by science – above all Physics – but because it also attempts to translate all that on a flat piece of paper, on a canvas. In order to accomplish this the sphere of vision must be transformed into a flat surface. Helped by topology – that modern branch of geometry - Rodríguez Casas considers the sphere of vision as flexible, malleable and extensible so it can open itself at a given point and stretch itself on a surface. For example, in “Flora” we can clearly see the two levels of which we speak - one inside the other - and these become distorted as a consequence the flattening transformation. Moreover, if we examine the painting with some care we see that in both cases we can “re-construct” the two spaces as two spheres that encompass a totality of vision so that one can see simultaneously up and down, front and back, and from one side to the other.

We can also give some explanation of another step in the intellectual preoccupations of Rodrí-

guez Casas using the painting "Flora". The two levels that have been connected are not an arbitrary collage of two images, a simple stylistic "mise en abîme", a mere rhetorical effect. All this is from his theoretical motivation one more step. The relationship that exist between these two levels – the two flat spheres – derives from what our author entitles "Polar Perspective" which is a step that goes beyond "Flat-Sphere Perspective". Given the flat sphere, the vanishing points appear in all the directions of the visual field; in all directions except one: the point that "opens-up" in order to flatten the sphere. (In our painting: the extensible point through which we "see" the pictorial space). In the same way that this "point" opens-up towards us and the painting (the represented sphere) it also communicates thus with our sphere of vision; similarly, several flat spheres could communicate one with another them forming a relative chain. This chain of flat-spheres (a limitless chain to begin with) would allow us to represent different instants of a given reality. Thus, this chain of representations would depict not only space in its multiple dimensions, but also time! It is in this sense that one has spoken of a "Four-Dimensional Realism" referring to the recent work of Rodríguez Casas. In his paintings we see represented in a coherent manner and not spuriously the three dimensions of a curved visual space and the fourth temporal dimension. In his on fashion, like Proust, Rodríguez Casas has re-covered time...

Following this superficial description, "Flora" is then a work brought about according to this more developed theory of perspective; it is a work made with "Polar Perspective". The distortions that we referred to in the two levels of the painting are distortions that belong to the meeting – chain linking – of the vanishing points that converge, now, at polar points. If the process could be seen from outside, the representation of space with/in time would look like a successive series of spheres, one following another connected by one common point. The flattening process goes opening the spheres one after the other and this is the way we encounter them in the paintings. Obviously, in the case of the painting of "Flora" Rodríguez Casas could have represented all of the instants of the walking of Flora as she moves towards the room where the rocking chair awaits her. It is the result of a aesthetic choice – the ellipsis of which we spoke above - that shows us only two moments of this interaction between space and time: one - in the first level - shows us Flora in her immediate presence, and, another - in the second level - suggesting the beginning of the end of her presence.

The homages - the inter-texts - of "Flora" do not end there. In the second level – in the second "polar sphere," we would say now - there is a circular mirror on the back wall; a mirror that reflects, following its own rules of perspective the space that it "observes." This small mirror on the wall is a clear reference to Van Eyck's celebrated "The Arnolfini Marriage". In this painting of the Flemish master a similar mirror to the one that "Flora" reproduces, from a point of view inverted to that of ours, the scene that we, the viewers, see in front of us. The perspective play collected in the mirror of Van Eyck is somewhat analogous to that displayed by Rodríguez Casas. One would say that it almost, almost, captures a perspective of "half a flat-sphere" ... (our author, as we know, displays the whole sphere). Like all mirrors, this one is somewhat disquieting, as Borges is well aware (See for example, "Los espejos velados", El hacedor). At its most extreme limit, it suggests the possibility that even the viewer on the other extreme of the polar chain, could see himself/ herself imbricated in the painting. Nevertheless, without any need to break

the conventions that separate or articulate fiction and reality, the mirror on the front wall is, on the first level, part of the world from which we see, precisely, the painting. There is nothing arbitrary, I believe, in thinking that we, when we see a painting, in some way we reflect it as a mirror does. Sartre, has many suggestions about this, for he believed, let us say it rhapsodically, that images of "reality" simply pass by our consciousness.

Next to the pictorial homage to Van Eyck, there exists between the Flemish master and Rodríguez Casas an environmental affinity. On some occasion, Rodríguez Casas explained the attraction that he feels for the Flemish treatment of interior spaces. And, as "Flora" clearly illustrates, in the work of our painter the interior space - the room - plays an essential role, which in this case receives Flora. If we were to trace an illustrated history of the work of Rodríguez Casas, we could also see an intertextual continuity around this very room. There, therefore, a marked intimacy in the path of his work. This is something that may lead us to suspect that the myth of Flora that is brought into play here is part of the creative "tensions" that move the artist in his own interiority. Needless to say, we are not here attempting psychological hypothesis but rather only to point out something about the attitude with which Rodríguez Casas works on this panel: within an intimate and reduced space within which, nonetheless, a complex vision of the universe, art, life, and death come into play. The intensity that belongs properly to a painting is something difficult to generalize; nevertheless I would like to point it out quoting a relevant poem of Eduardo Mitre. In his *Mirabilia*, Mitre writes:

"A room is, no doubt, the place where is best to hear the rain falling.
The three revelations of a room: a ghost, a spider, woman.
Who without having said a thing to the table, tells it with tears to the
room.
Your room is more intimate than your past.
In the forest its nest and in the city your room. "

In "Flora" the multiple interplay between mirror images and the polar images, directly inverted, provides us, in a manner of speaking, with a global look that encompasses all the dimensions of the room, within which the passing of the imperturbable, Heraclitean river of time is also integrated.

In passing, I would also like to point out that there is nothing in "Flora" that leads one to suppose that time corrodes, wastes away or annihilates. This presentation of time which, in accordance with a vision of physics on which it is based, is not the lineal time of classical tradition; rather, it is a time that is almost cyclical, like the myth here collected marks it thematically. There is nothing here like the plot "of dust and time and dreams and agonies," in stead there is something akin to affirmation – sober and intimate – of the blooming and repose of the successive instants. At the very same time, everything is ready to end and to begin anew.

Now as we come to the end of this short stroll though the painting of Rodríguez Casas, we could bring to our attention some of its tensions. Therein reside the old and the new. A very old myth appears to incarnate in a most recent vision of a multidimensional universe. Present

are life and death; they appear intertwined, mutually implied, harmonized, one would say, a relationship with neither resentments nor violence. This understanding – of complex philosophical and ethical nuances entails, I hypothesize, an imbrication between the human existences in the universe on the one hand and, the being of nature such as the myth of Flora conceives it on the other. Here dwell quietness and movement. The choice of the instants portrayed – noon and sunset, one would say – suggests us at the same time some intermediate steps of a continuous series. In a pragmatic sense, we produce the movement with our own “reading” of the painting. There coexist the precise and precious technique of the artisan and the theoretical reflection. As it is easy to detect, everything in “Flora” is treated minutely, delicately, and attentively. The craftsmanship of Rodríguez Casas is, “artisanal” in the best sense of the word - etymologically a poet is a “craftsman” an artisan. Complementary and on the other hand, also exceptionally - this caring craftsmanship is accompanied by a rigorous and complex intellectual work. Here

forms are concepts and the concepts are form. And even though an enclosed space – a room and another adjacent one – form the interior context, the work is open to multiple intertextual echoes such as the ones we have attempted to suggest in these notes. There exist the direct pictorial references (Botticelli, Van Eyck, the Renaissance) and the possible poetic references (let us not forget the shelves with books!). Briefly, here, in the immediate simplicity and sobriety of the painting, a complex universe is deployed wherein all the elements at play “curve” over one another - if you allow me the analogical cliché.

The small step of Flora is, like any other step, a complex gesture that in his own way, affirms and encompasses that “keep on walking” (Mitre) that is the characteristic feature of our existence on this earth. A gram of impurity, in the end, does not corrupt the noblest substance.

Luis H. Antezana J. , Cochabamba, September 1983

Caminantes

Oil on Canvas

72" x 72", 1983

Maria Rodriguez de Montalva Collection

Santiago, Chile

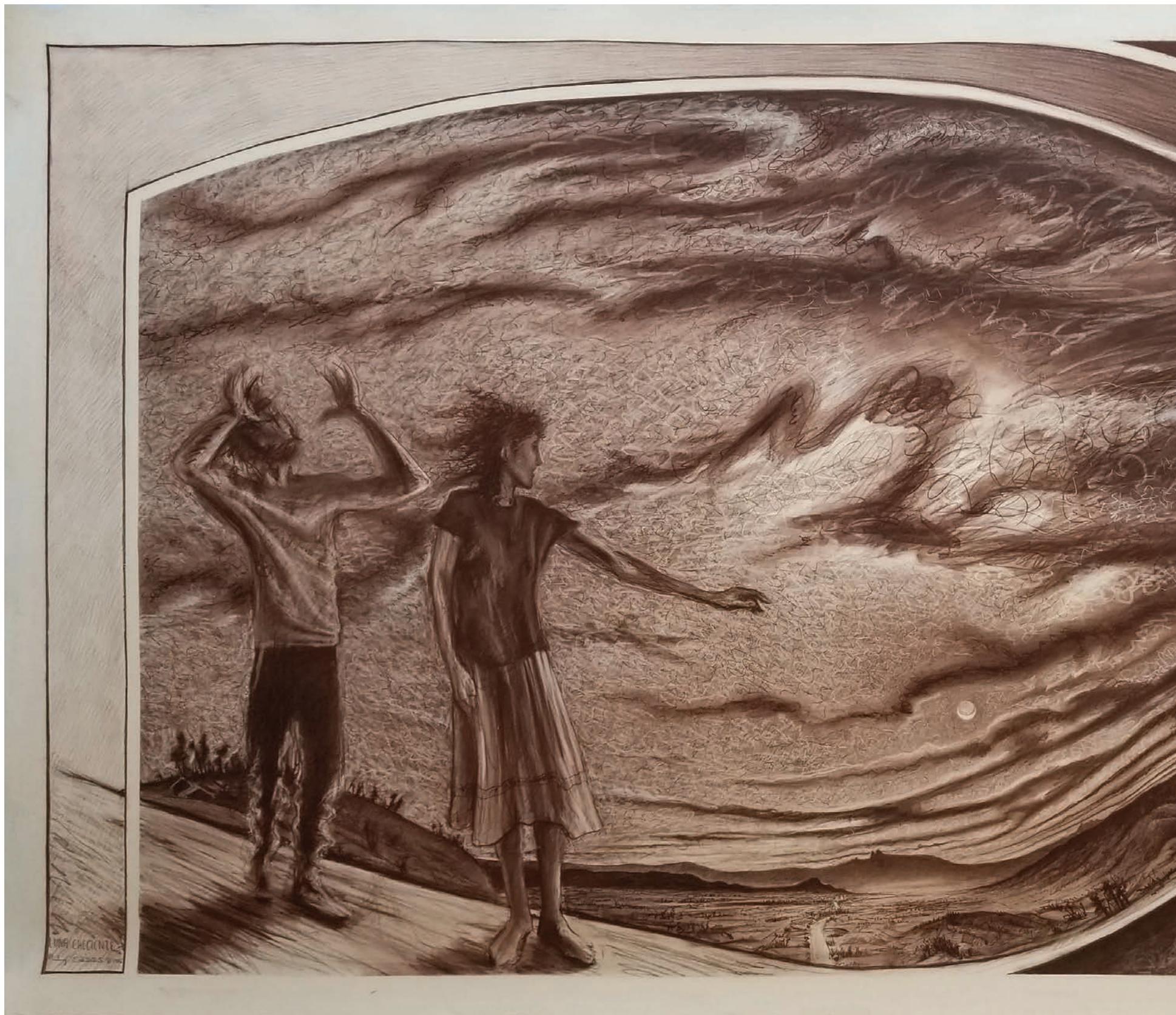




Portrait of My Father

Graphite on Paper

48" x 25", 1983





Luna Nasciente' (Rising Moon)

Sanguine on Paper

36" x 48", 1986

Don and Michelle Jackson Collection, Houston



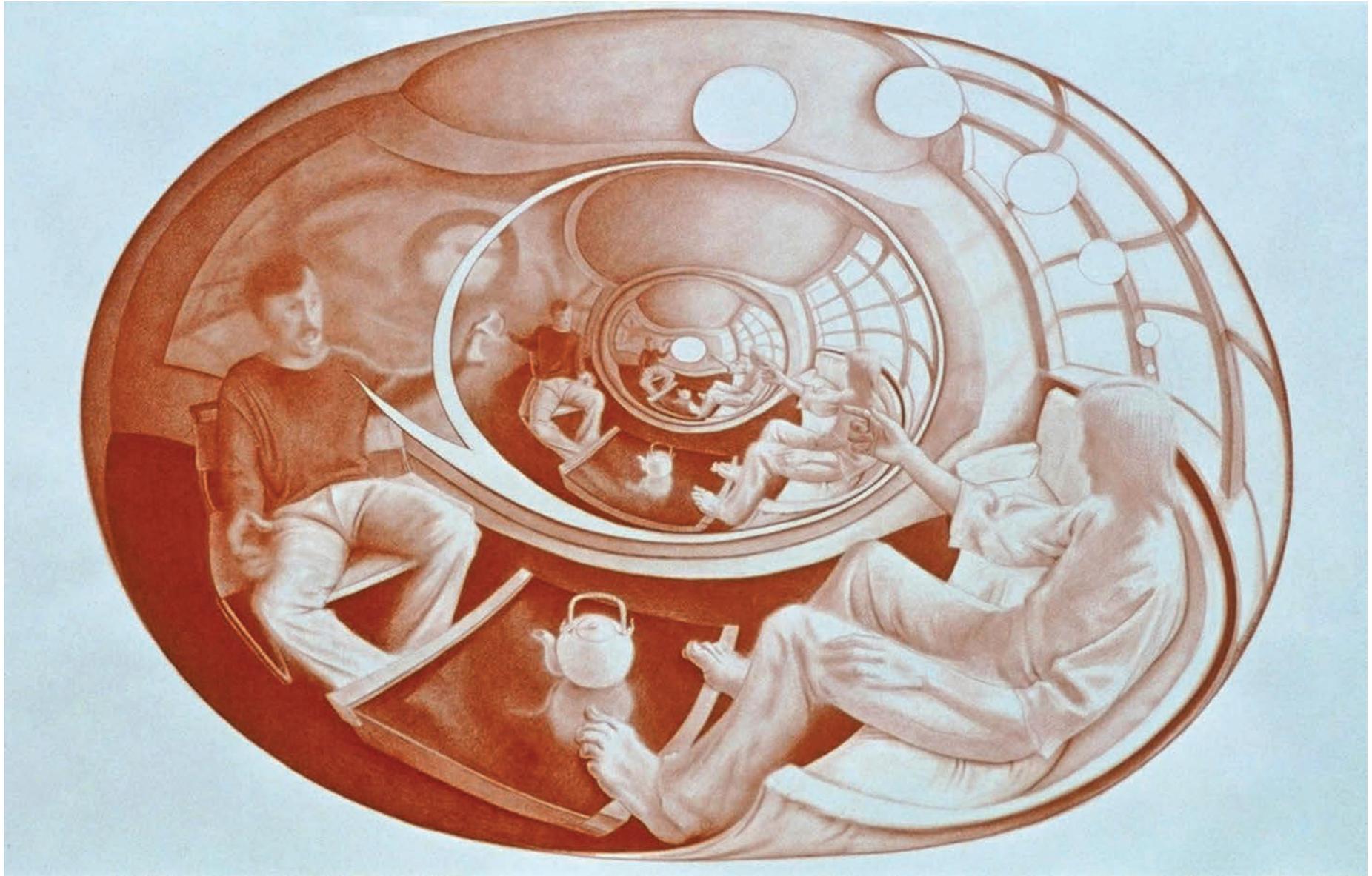
An Eye for Self-Development

Oil Pastel on Paper

48" x 84", 1986



Angel of Death
Sanguine on Paper
48" x 72", 1986



A Point of Metaphysical Disagreement

Sanguine on Paper

48" x 72", 1983

Mole End Trust (Donna Kline Collection)

THE PERPETUAL DUALITY OF FERNANDO CASAS

Fernando Casas does Philosophy in his painting, yet his paintings are not speculative, rather one hundred per cent sensorial.

By Oscar E. Jordán Arandia

Twenty years ago, in a coffee shop called Carajillo, Fernando Rodríguez Casas told me about his work, about his labors, about his pranks and his ponderings. He is a very peculiar man. He is a philosopher and a painter, and his work as an artist is intimately connected with his philosophical work. He does Philosophy in his painting, and this does not mean that his works of art are philosophical; not at all, they are visual, and they are connected to sensations, not to speculation.

Unfortunately I haven't seen him again. He lives in Houston, in the United States for the last 40 years and he has a Masters and a Doctorate in Philosophy graduating with honors of Magna cum Laude. His philosophical writings have been selected for publication in four occasions. As an artist he has presented more than 30 solo and 35 group exhibitions around the world and, his work has been discussed in 11 books.

There he is known as Fernando Casas.

That evening in the coffee shop Carajillo, Casas revealed to me two things: the first was that the split of oneself with the world is a constant of our existential stance; the second, that over and above his being a painter and a philosopher, Fernando has the soul of a poet.

In 2014 in an interview done by the art critic Virginia Billeaud Anderson (Nueva Cronica, No 149) Casas declares himself "above all a visual artist", but "if we examine carefully the history of art, we find out that it is, fundamentally, a philosophical enterprise: for it is a visual, auditory, etc., articulation of how we understand ourselves, of where we are and why we are. Therefore, I do not find much difference between Art and Philosophy, they are intermingled."

I think that Casas does Philosophy while he paints, but not because he happens to be a doctor in Philosophy, nor because the themes he paints are philosophical, no, rather because he himself is a philosopher and as such he comes to face the act of painting with an existential stance. Thus the end result is a work of art that is a sensual challenge rather than an intellectual one. The principal impulse in his works is a need to resolve a philosophical dilemma: the duality and split at the heart of all existence.

The approach used to face the dilemma, the means and the confusions of this process come to be expressed in his works and throughout his artistic trajectory, including his later periods wherein he experiments with cubism, installations, and mixed media (for example, oils on wood, with mirrors, collage and other inserted objects.)

THE ORIGEN DUALITY

In 1976 Casas brings to the world Perpetual Dilemma, a drawing in which one can observe the silhouette of a seated man from below the waist with his left foot on a chair and the right supporting his hand, that holds a pencil. Next to him there is a picture that happens to be the very same that we are looking.

This drawing is notable not only because of the quality of its craftsmanship, but also for the introduction of two different perspectives in one single space, which correspond to the two – separate and distinct – perceptions of the right and left eye.

We are used to live with two different visual perspectives since the world presents to us simultaneously from two different angles and we look at it in two different ways. The human being is, therefore, fragmented; it is part of his nature and it will always remain so. This is the dilemma. Moreover it is perpetual. There are two in one because the one is not one but two. This created conflicts for Casas.

Incorporating two perspectives in Perceptual Dilemma renders a sensation of duality, but this work also conveys to the viewer a specific comportment facing this double vision. The hand holding a pencil – as well as the presence of the same picture, in the midst of being crafted – is explicitly indicating that the attitude adopted confronting this dilemma is to paint it. And what is that is being painted? It is, evidently, the lived experience of the dilemma, when he found himself seated and formalizing, with pencil and paper, an instant of life.

Casas painted a lived experience and at the same time, perhaps being unaware of it, he revealed to himself the way to bring together the fragmented and dual consciousness. The pencil is, in this case, the only instrument of salvation. In the very act of painting that very moment an experience is materialized and it is transformed in a testimony of the task of the artist.

THE PERPETUAL DILEMMA

In spite of the fact that in his latter production Casas exhibits a total negation of the classical forms of expression, he has remained intimately connected with the intense experience of sensuality and, in all his works is reflected that first dilemma.

For example in *The Planet* (1980) and *The Storm* (1983), that is characterized by the absence of one self; or in *Genesis, Revelation and Resurrection* (1991), that portray the skin opening in two; or *Extinctions* (1995), *Diptych with Spring and Bone* (1993), *Quipus Keeping* (1993) and *Rope and Chair* (1995), that are done in mixed media with diverse inserted objects such as wood, rope, springs, bones, nuts and bolts and even an authentic bow and arrow.

These are, almost always, works split in two, three and even four parts; they are fragmented from left to right or from top to bottom, or else, they are split by wounds, fissures and cracks. The diptychs and the triptychs are common in his production. Duality is always there, lurking.

Even in his installations that were assembled under the title *The Limit of the Visual World* (1995-2014) or *The Perfection of Time* (2012-13) where he introduces mirrors in a species of chambers of light and darkness, the experience of the split is evident, now not only for the artist but for the viewer as well, who becomes part of the work itself when he sees himself reflected on the mirrors.

The Dilemma is still there, purring at his feet like a flirtatious cat. It would seem that the desperate torment redeems itself again and again, in each work, collage or installation that he does. Any observer will become aware that his vision of the world is thoroughly poetic, with his canvas as his shield and the brushes as swords.

However, the most profound duality in this artist's work appears in images that show a split between a vacuum whence we observe the world and the surrounding visual world. In his Essay *The Limit of the Visual World*, Casas explains this vacuum as an inevitable blind spot in the fabric

of the visual world. The fact that we cannot see (directly) our own heads is not a meaningless triviality given that the absence of oneself as a visual object implies that the visual world is necessarily incomplete. Each of us dwells within or, rather, is this very vacuum. Aesthetically we can find the metaphor of this blind-spot in several of his works as an empty circular area absent of color in the canvas. Casas does not avail himself of words in order to philosophize; rather he does it with shapes.

Casas also developed "Polar Perspective" - a perspective system that allows him to construct realistic images of space and time. He exploits this system in his new 'sequel' of time-portraits - an epic entrepreneurship. Here we find much of what came before and after, and also the possible. But the most important thing is that this new exhibition allows us to recognize one of the few contemporary artists that is capable of reconfigure himself again and again, rising from his own tracks each time better and better. Long life and health to this great artist.



The Magnolia Circle

Oil on Canvas

75" x 96", 1988

Bruce Leutwyler Collection, Houston

Ship of Fools

Oil on Canvas

78" x 78", 1989

Andy Vickery Collection, Houston



1991

O'ss

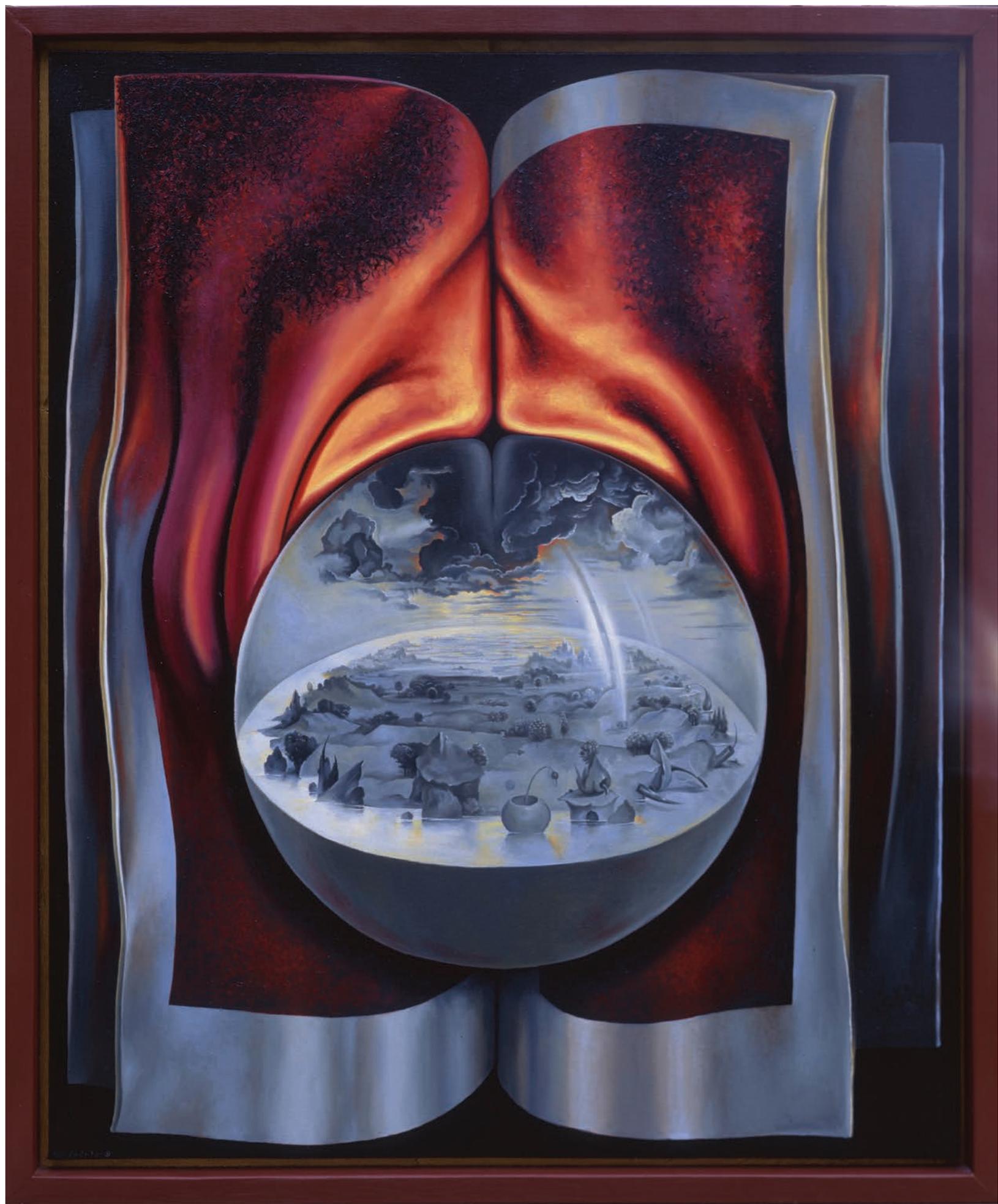
A Flight to Cochabamba

Pastel and Colored Pencil on Paper

42" x 55", 1990

Andy Vickery Collection, Houston







Genesis, Revelation, Resurrection

Oil on Canvas

52" x 45" ea., 1991

Andy Vickery Collection, Houston





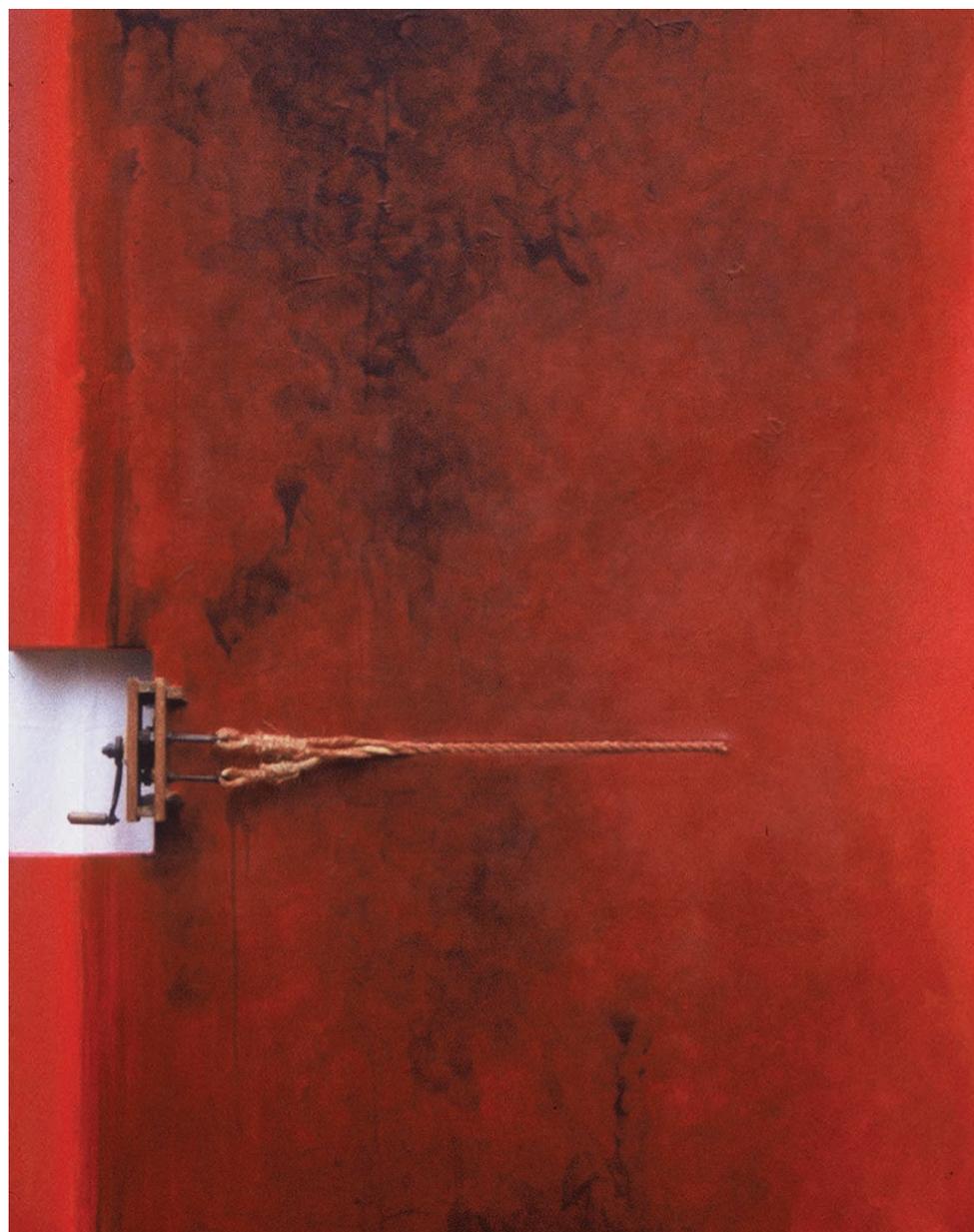
Kipus Keeping

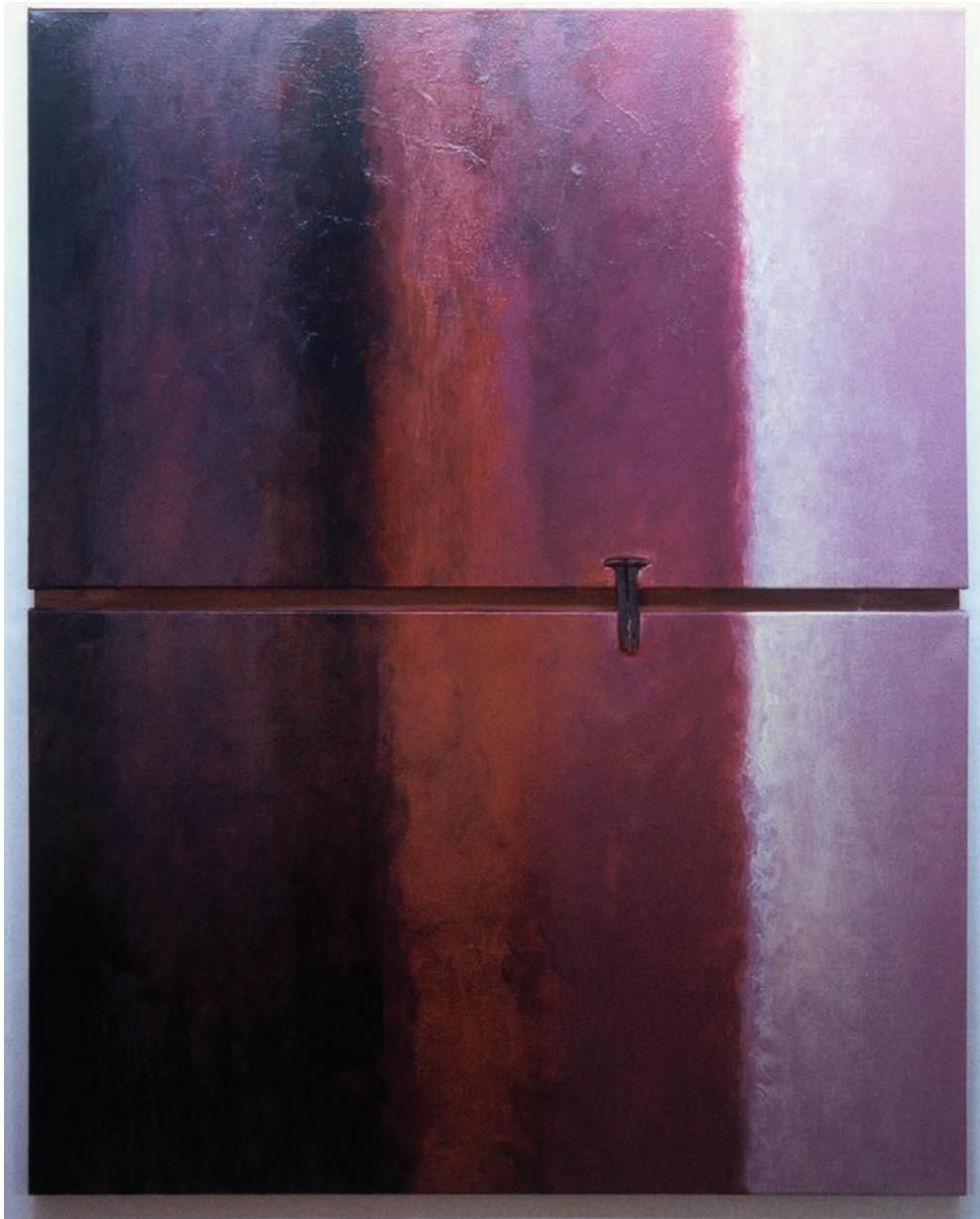
Mixed Media on Canvas

72" x 96", 1994

Roberto Laserna and Myrtha Fernandez Collection, Bolivia

Rope Maker
Acrylic on Canvas with Rope Maker Machine
91" x 72", 1995





Diptych with Nail

Acrylic on Canvas with Spikes

86" x 62", 1995

Private Collection, Bolivia





Extinctions II

Mixed Media on Canvas

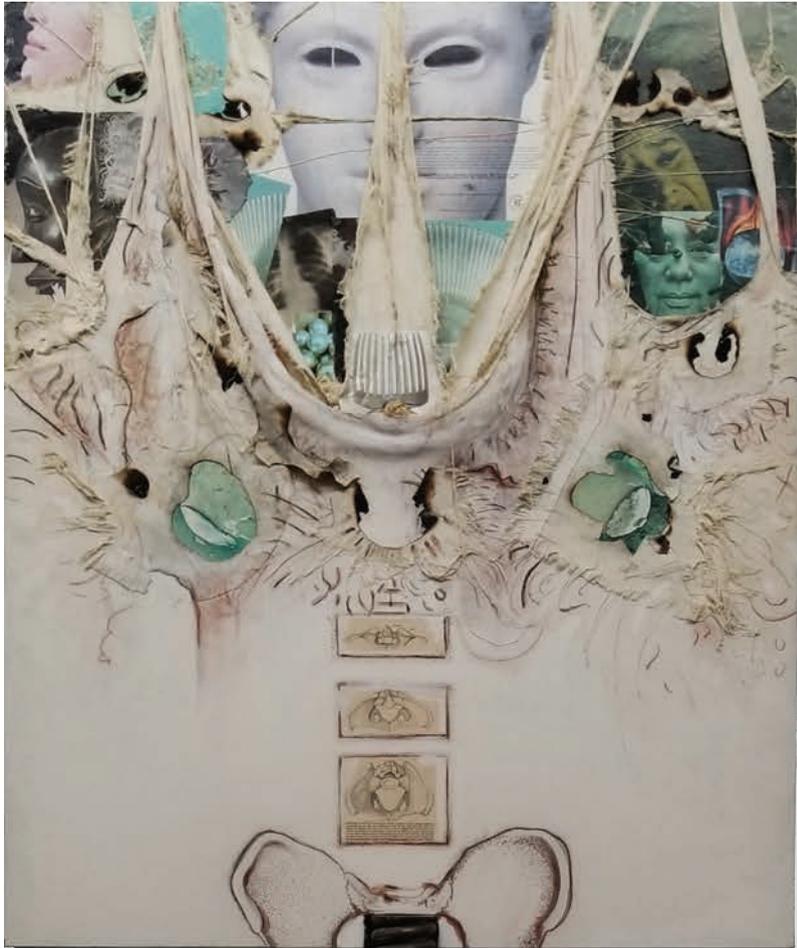
37" x 106", 1993

Darrell and Peggy Delahoussaye Collection, Houston

Spring God

Mixed Media on Panel

96" x 39.5", 1993





Illuminations

Etching, Flat Bed Press

28" x 35", 1991

Ralli Museum Collections



Illuminations C-R-1

Mixed Media on Paper

32" x 43", 1996

Bob and Sandra Lloyd Collection, Houston

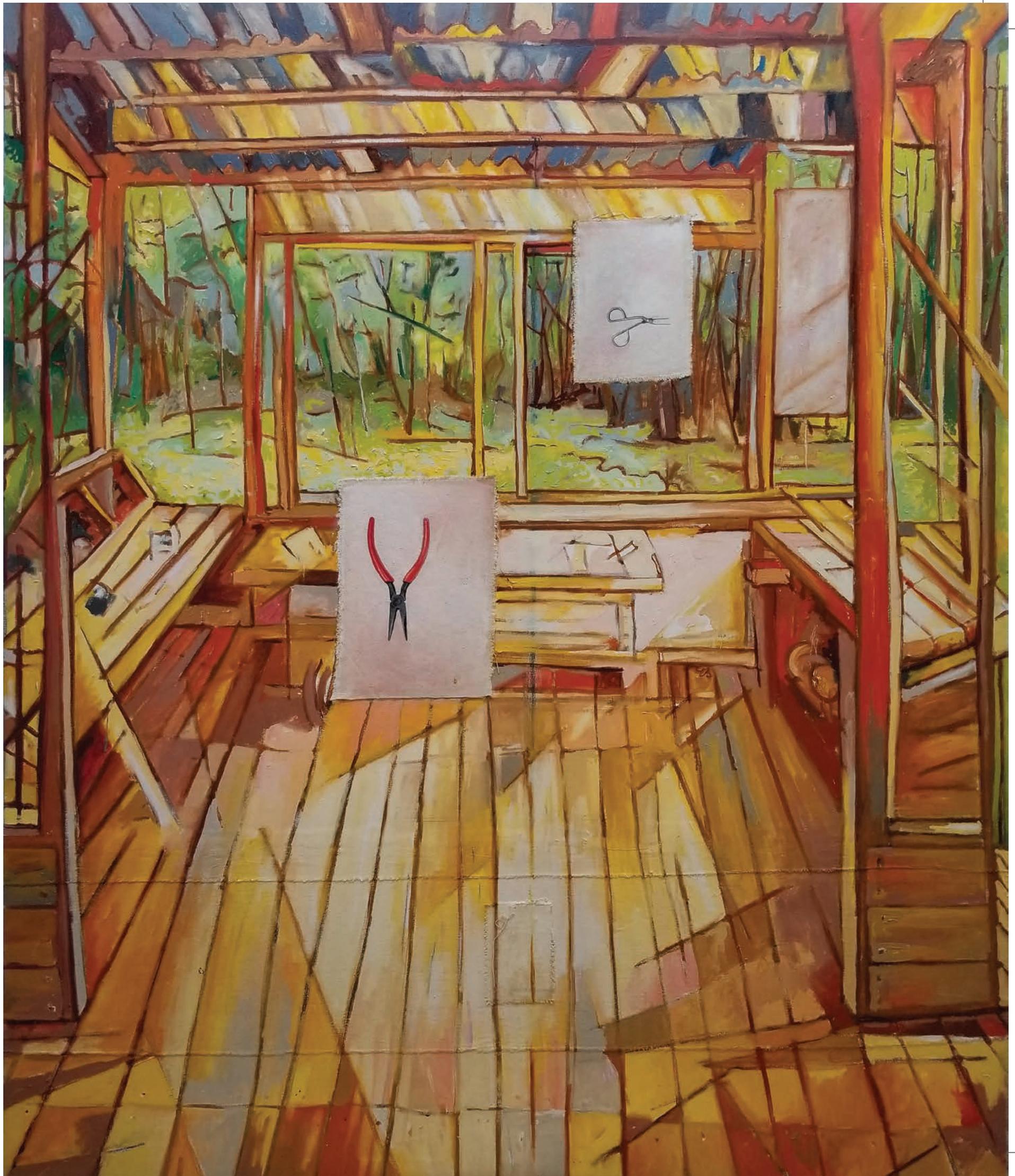
2000

O'ss

Tool Shop

Oil on Canvas

60" x 65", 2002





Interior with Large Crouching Figure

Oil on Canvas and Paper

74" x 65.5", 2004







Ship of State

Mixed Media on Canvas

53" x 264", 2005

Ware, Jackson, Lee & Chambers, L. L. P. Collection, Houston

Pod

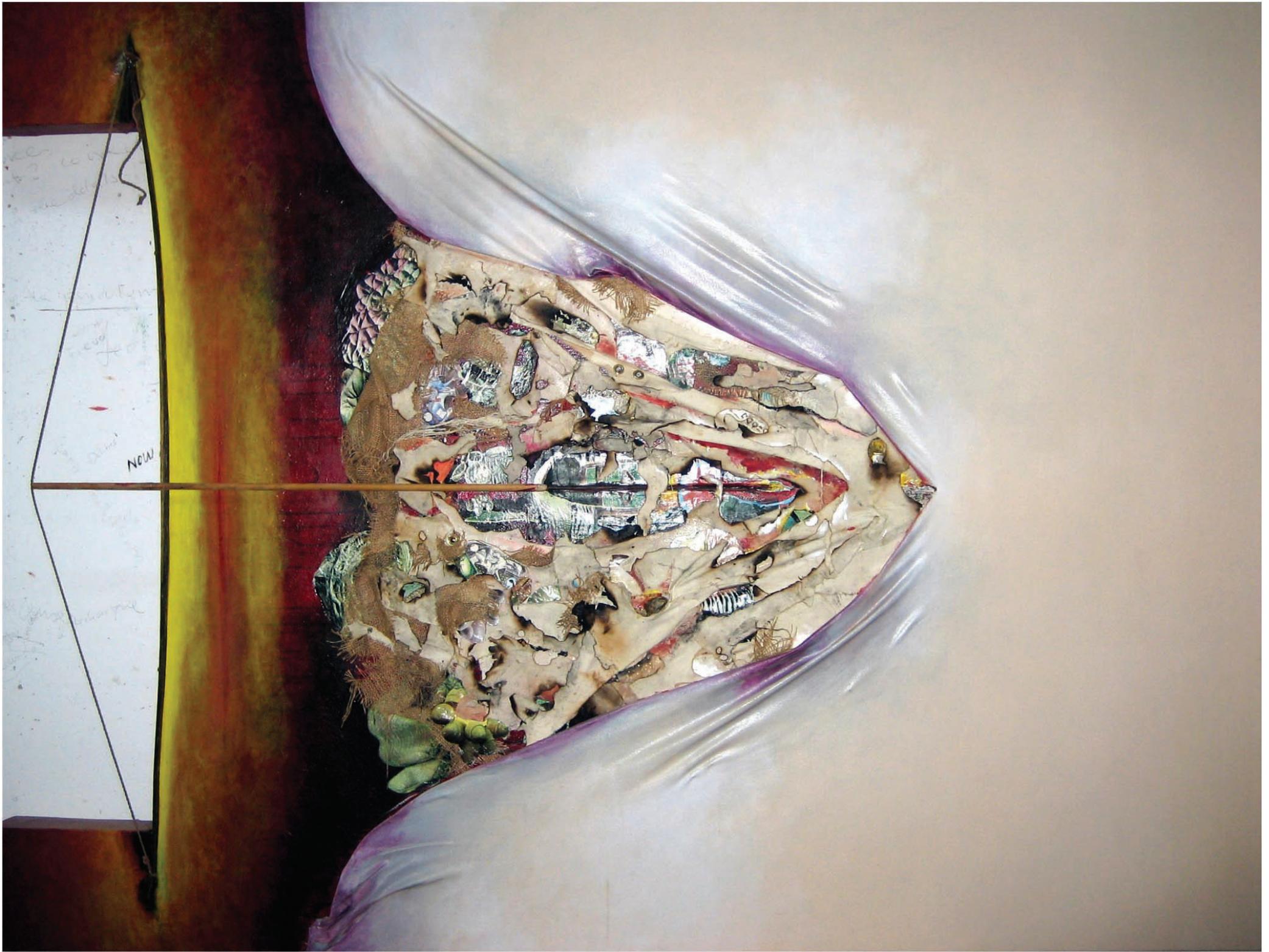
Mixed Media on Canvas

96" x 122", 2002

Bow, Arrow and Wound - After Heraclitus

Mixed Media on Canvas

72" x 96", 2007



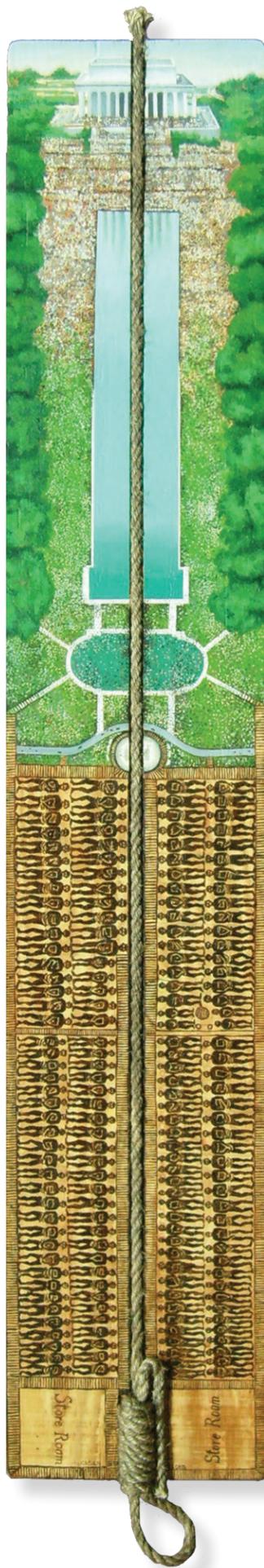


Em-bark-body-ment Cargo

Mixed Media on Canvas

48" x 97", 2007





Store Room

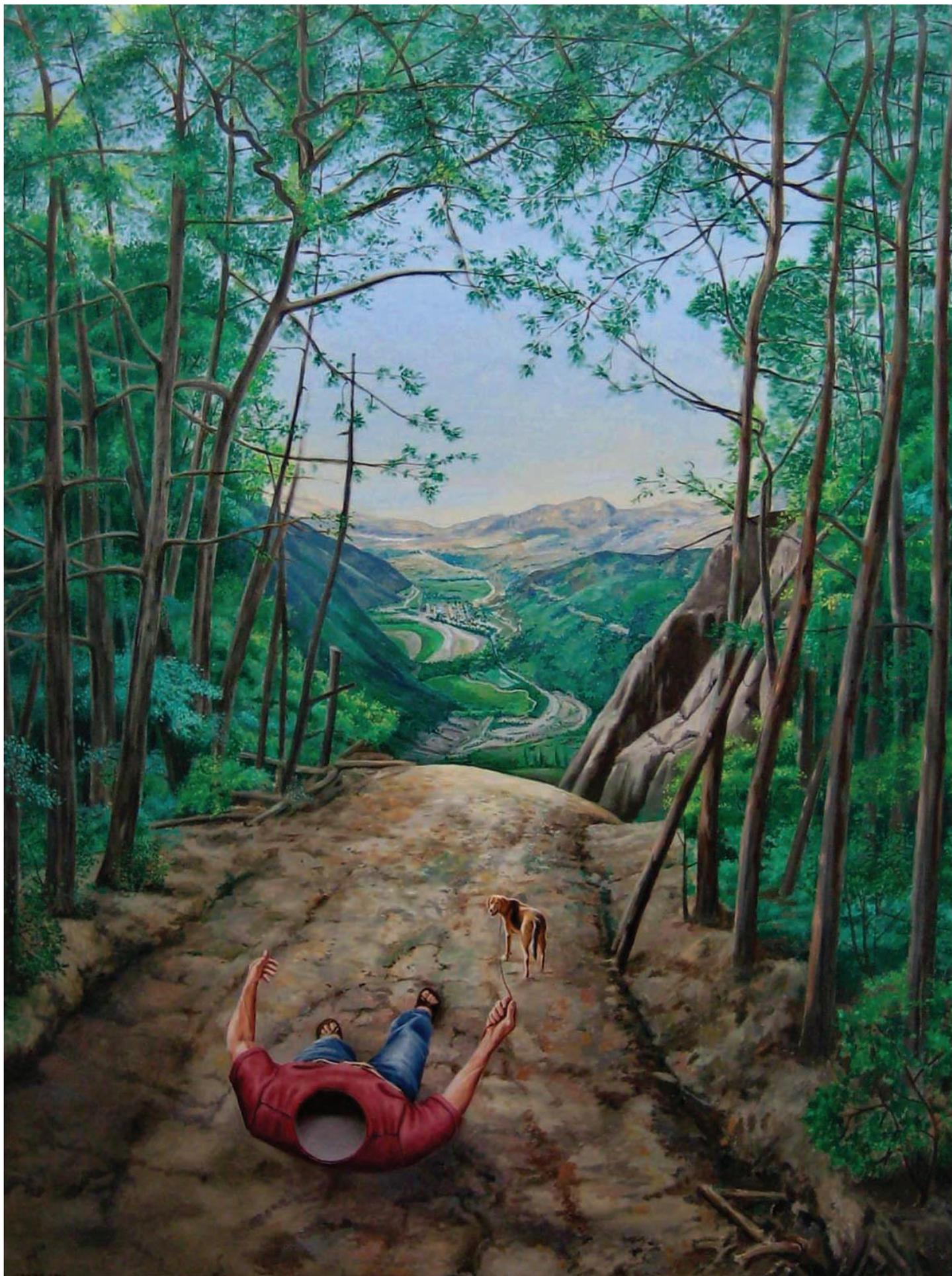
Oil and Rope on Wood

72" x 12", 2008

Hannah Mallon Collection, Brenham, TX

2010

O'ss



Switch-Back

Oil on Canvas

66" x 48", 2011

Colossus

Mixed Media on Canvas

84" x 66", 2009







Wood Pile

Oil on Canvas

44" x 68", 2010

Dinosaurs' Tracks
Mixed Media on Canvas
64" x 112", 2009







Laocoön

Mixed Media on Canvas and Panel

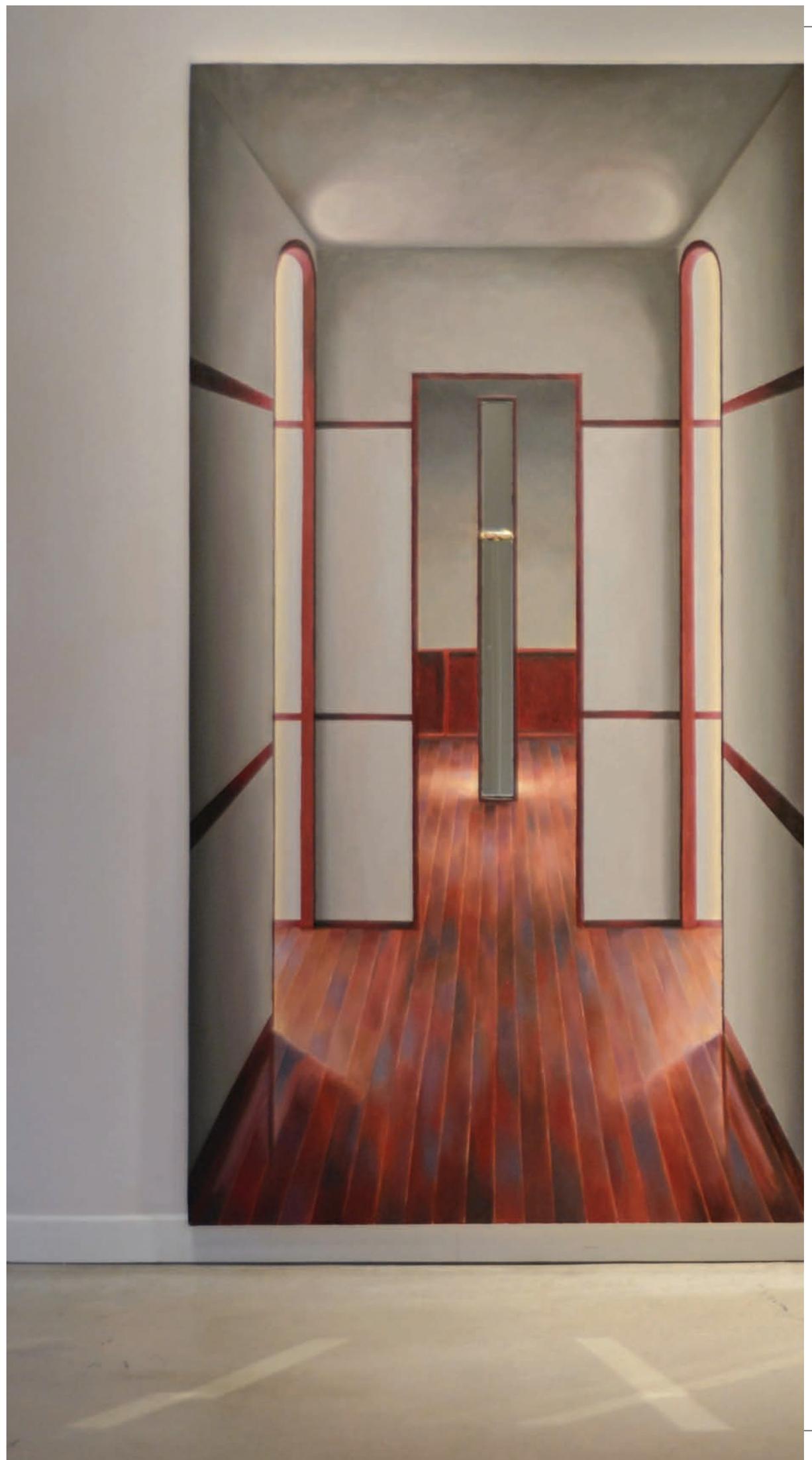
91" x 85", 2011





The Perfection of Time, Triptych, Oil on Panels, Hinges and Rope, 30" x 148", 2012

The Intimacy of Time
Oil on Canvas, Mirrors and Rope
84" x 148", 2012



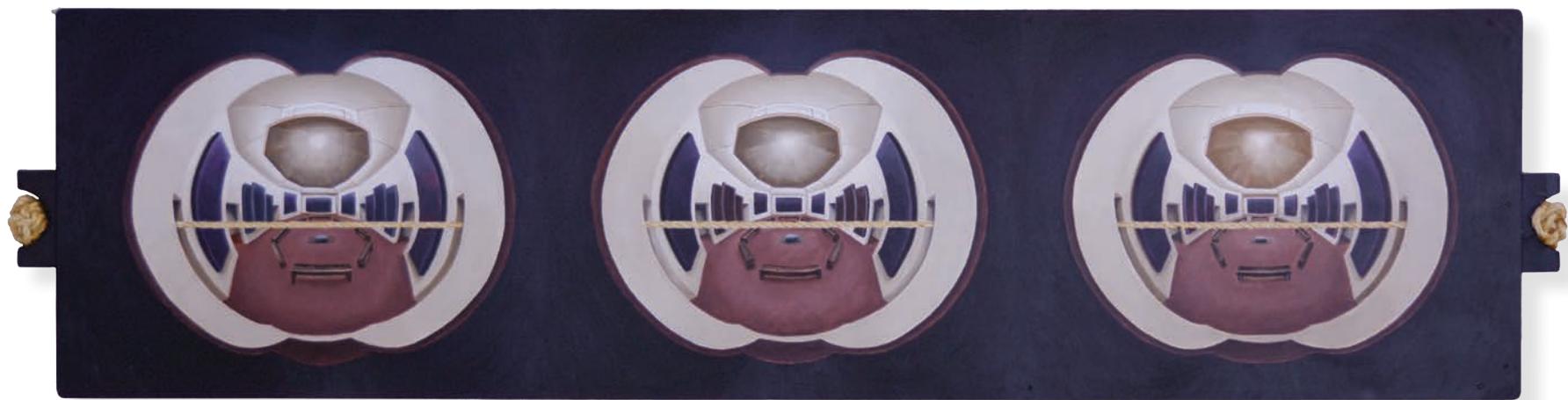


Holding Time: The Rothko Chapel, Triptych,

Oil on Wood and Rope,

24" x 196", 2012,

Don and Michelle Jackson Collection, Houston



Te doy la palabra (It is Your Turn to Speak)

India Ink on Paper

16" x 21", 2016



LIMITS AND PROXIMITIES

“To see a World in a Grain of Sand
And a Heaven in a Wild Flower”

William Blake’s famous quote is not far from describing what artist Fernando Casas new exhibition of paintings offers the viewer.

Some 40 years ago, Casas designed and built his own house/studio in the thick woods of Magnolia. It is not a large studio. It is luminous and has a complex arrangement of windows and French doors that provide a panoramic view of the surrounding woods. The studio serves him not only as a place of work, but also as the subject of depiction for all his works. The studio is Casas’ universe: at once an intimate human indoor space and an expansive view of natural world outdoors.

From this space that Casas depicts, like Blake’s words, a vision of infinity and an intimate look of human beings. Hence the title of this exhibition: Limits and Proximities.

The infinity comes to us from two novel perspective systems that he developed. With the first he is able to capture in a single image the complete, spherical visual space that surrounds us. The second system connects these spherical images – like a string of pearls - along the time dimension. The images that we encounter in most of these new drawings and canvases are coherent perspective images of the whole of visual reality displaced along a potentially infinite time dimension.

The end result creates a startling double to-and-fro visual effect: the eye of the beholder flows from the indoors to the outdoors as well as from time to time...

The curved spatial geometry used in these images is something that could easily render them into cold, mathematical constructions. Far from it, the works in this exhibition depict psychologically charged human beings (clothed and nude) who are perfectly at home in this curvilinear space, among other things, by virtue of Casas’ subtle distortions of their bodies. These portraits are not simple realistic depictions of the face and body of the sitters.

The most novel and provocative of Casas' interplays between and outside and inside is reserved for the largest and most important work of the exhibit: Interior with Disappearing Mirror - after Velázquez. Casas finds that our familiar surrounding visual world is actually incomplete i.e., it

Thanks to the novel perspectives, they are time-portraits that articulate a personal history of the individuals portrayed and their proximity to the artist. The viewer is rocked to-and-fro once again from the intimate space of mind and body of an individual in an artist's studio to an expansive vision of our humanity housed within an unbounded space-time universe.

The most novel and provocative of Casas' interplays between, outside and inside is reserved for the largest and most important work of the exhibit: Interior with Disappearing Mirror - after Velázquez. Casas finds that our familiar surrounding visual world is actually incomplete i.e., it comes to an end - to a blind-spot - at the exact location where the observation takes place, roughly speaking the place where our eyes are located.

Casas displays the existence of this blind-spot as a void in his painting. Facing it, in the midst of this all-encompassing painting, the viewer confronts a profound sense of inside/outside.

He uses this idea (philosophical and visual) to dialogue with Velázquez's Las Meninas. Following the old master, Casas depicts himself, a group of people and two dogs in his studio. But the depiction of himself is double: On the one hand he appears painting in the studio together with the other people and dogs, just as Velázquez painted himself in his canvas. In both cases - Velázquez and Casas - the self-portraits were taken from a reflection on a mirror and, in both cases the mirror itself is not depicted.

Unlike Velázquez, Casas depicts himself a second time, again in the studio in the very same moment of painting not as he appears in a mirror, but directly, that is, looking directly at all the characters and things around him and at his own body. It is in this direct depiction of his own self that the visual void inevitable appears – the inside void from within which he (and by extension all of us) experience all reality.

Confronted with these paintings, the observant viewer, like William Blake, will have the disquieting experience of existing within a mysterious void, outside of a surrounding natural world and infinitely displaced from time to time...



Male Nude on a Rocking Chair

Oil on Oval Canvas

72" Height, 2016

EDUARDO MITRE

FLORA AND TIME

To Becky Soria

Entonces, con ojos fascinados
por tanto garbo,
la retraté caminando despacio
al lado de ventanales
que ondulaban como su talle
y su rubia cabellera
rizando el aire.

Y la llamé Flora.

Años más tarde,
marcada por la edad
y los desengaños,
mas siempre llena de coraje
y de amor filial,
aceptó posar
vestida toda de blanco.

Y ahora que ella, mi hermana
modelo, pintora como yo,
se halla expuesta al dolor
que asola sus huesos,
siento como una llaga
los versos que en el colegio
con desgano memorizaba:

“Dichoso el árbol, que es apenas sensitivo...”

Sin embargo, es ella misma
quien, dándome a ver
de su propio pincel,
me infunde ánimo;
pues pintar con su mano
es encender una llama
frente al tiempo y la muerte
y, como su Artemis,
convertir arco y flecha en una rama
y devenir árbol.

EDUARDO MITRE

FLORA AND TIME

To Becky Soria

So, with eyes fascinated
by such grace,
I painted her walking slowly
by picture windows
that swayed along with her waist
and her blonde hair
rippling the air.

And I called her Flora.

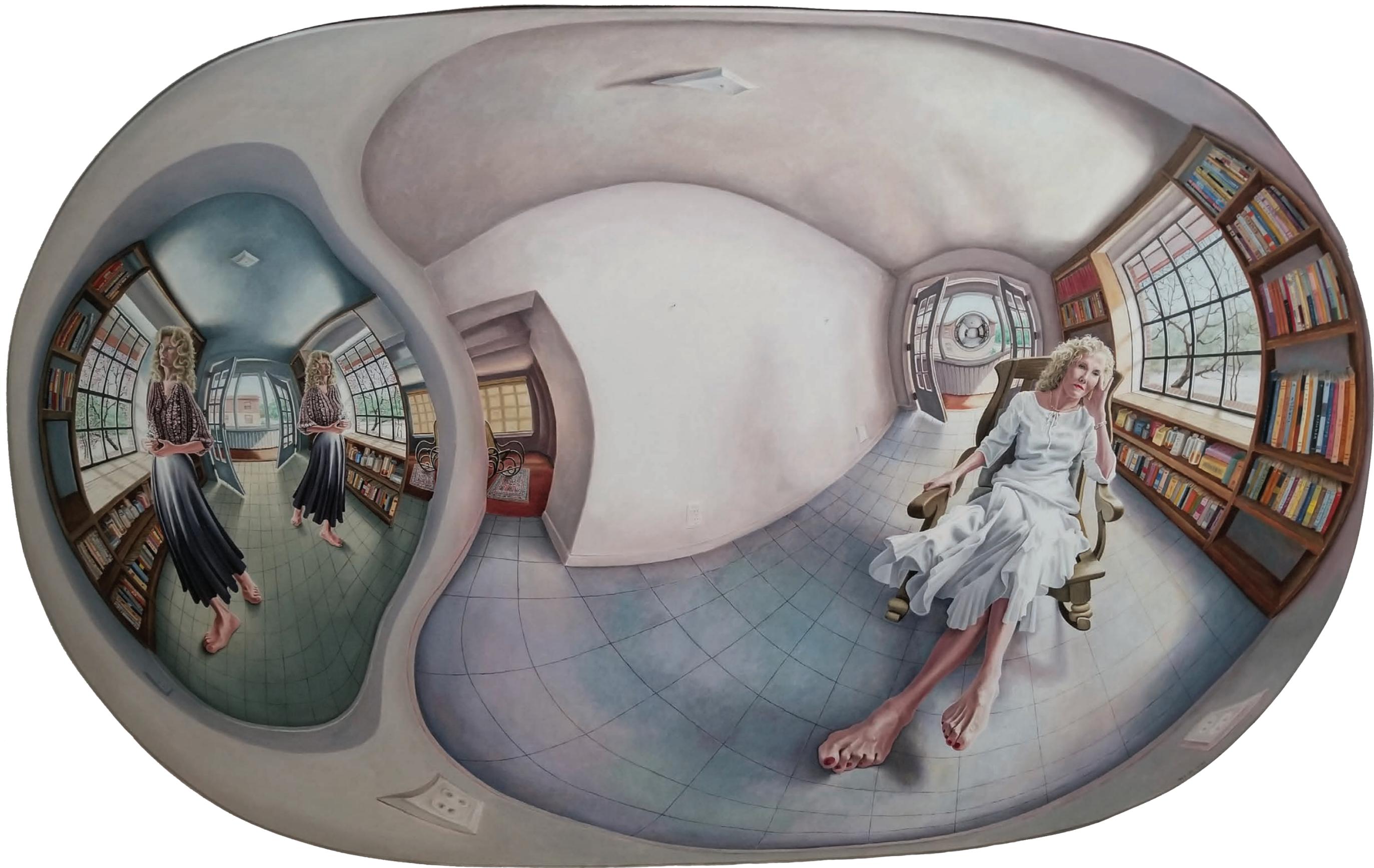
Long after,
marked by the years
and the disappointments,
but still full of courage
and filial love,
she agreed to pose
dressed all in white.

And now that she, my sister
a (role) model, a painter like me,
lies exposed to the pain
that ravages her bones,
those verses that I lazily
memorized in school
feel like a sore:

“Blessed is the tree, for it can hardly feel...”

Yet, it is she
who, guiding me
from her own brush,
lifts my spirits;
as to paint by her hand
is to light a flame
before time and death
and, like her Artemis,
to turn bow and arrow into a branch
and become a tree.

Translated by Gabriel Mitre



Winter

Oil on Oval Canvas

78" width, 2016

Artist on a Rocking Chair

Oil on Round Canvas

72" Diameter, 2017





Woman on a Rocking Chair Crossing Legs

Oil on Round Canvas

72" Diameter, 2017

Nude Female on a Rocking Chair

Oil on Round Canvas

72" Diameter, 2017





Pensive Man on Two Studios

Oil on Oval Canvas

72" Width, 2017

FERNANDO CASAS, BEFORE ONESELF

This collection of paintings by Fernando Casas closely resembles a set of portraits. But if that were all they were, they would have to be the kind of portrait that hides behind the representation of an individual person, insights that go beyond resemblance. Most of these paintings are executed in a pictorial syntax Casas calls “polar perspective.” Decades ago, Casas took on the challenge of representing space in time, and/or, time in space. Having already found in spherical perspective a way to maximally represent the visual world —i.e., paint it on the flattened interior surface of a sphere— he then envisioned a series of spheres connected at one point, like a row of billiard balls touching on their inner surfaces. Using the visual syntax of polar perspective Casas painted *The French Doors* (1979), *The Polar Eye* (1981), and *Flora* (1981). Trying to explain—not the works, but the system of representation in which they were executed— Casas published three scholarly papers in “Leonardo”, an international publication of art and science.

In the early eighties Casas hosted a philosophy reading group that started at his Bartlett studio in the Museum district, and then moved to the country house/studio in Magnolia County that he and artist Steve Adams designed and built with their own hands. The original group included Casas, Bruce and me, and later added other members (Donna Kline and Leslie Marenchin), but Casas and Bruce Leutwyler have been the constants. I turned into an absent member while I was living in Peru, and then, raising my son. During my absence Casas depicted the group in the beautiful painting *The Magnolia Circle: Homage to Karl Popper* (1988). When I finally came back into the group the Magnolia Circle had evolved into the Montrose Circle as Leslie Marenchin hosted it in his apartment in that district. Tragically, Marenchin died as he fell down the stairway in 2008 precisely on a day we were supposed to meet for a reading of “Being and Time.” For the last decade, the group, now consisting solely of Casas, Bruce and I, has been meeting at my Knollwood Village house. While we all have philosophical training, Casas is the only one among us who has continued to teach philosophy at a college level. The discussions and interests of our thirty-six year old philosophy group are not irrelevant to some of the ideas that imbue Casas’ oeuvre.

The books the group read and discussed —Danto’s *The Transfiguration of the Commonplace*, Kuhn’s *The Structure of Scientific Revolutions*, Popper’s *Objective Knowledge*, Cartwright’s *How the Laws of Physics Lie*, Hofstadter’s *Gödel, Escher, Bach*, Nagel’s *The View from Nowhere* and *Mind and Cosmos*, Heidegger’s *Being and Time*, Nietzsche’s *Twilight of the Idols*, Putnam’s *Representation and Reality*, et al— have had a lasting impact on us; not because we all agree with their philosophical tenets, but because of the different insights each one has gained from discussing them. In philosophy truth is usually unveiled in dialogue. Some of these books I would have never chosen to read on my own. Having read them allowed me to know the reasons why. In Casas’ painting like *The Magnolia Circle: Homage to Karl Popper* (1980) one can make out that the book the subjects are holding is *Objective Knowledge*. Another one of Casas’ works, *A View from Nowhere* (1996), adopted its title from Thomas Nagel’s book. Having read them allowed me to know the reasons why. In Casas’ painting like *The Magnolia Circle: Homage to Karl Popper* (1980) one can make out that the book the subjects are holding is *Objective Knowledge*. Another one of Casas’ works, *A View from Nowhere* (1996), adopted



Will We...?, Oil on Oval Canvas, 72" width, 2018

its title from Thomas Nagel's book.

That is the historical background for some of the works in the current exhibition. The time represented in them is also the time we have practiced philosophy. Nevertheless, *Will the planet...?* (2016), the central piece in this exhibit, was not prompted by philosophical issues central in our readings, but by concerns in current events we have discussed philosophically in our meetings. In that work a Fernando Casas sits, by himself, before an image of the largest hydrogen bomb explosion ever caught on camera. It is the 1955 Soviet RDS-37 atomic test. How do we know it? Well, how do we know it is Fernando Casas? Well, they are not; they are eidola. But we are not about to recreate the *C'est n'est pas un pipe* mumbo-jumbo before the urgency of the image Casas is putting before us. The painting visually resembles the objects it represents. In the painting the explosion is happening outside his Magnolia studio; i.e., here. It is the end. Thereafter, nothing will matter anymore. Nonetheless, in the painting Casas seems to be relaxed and engaged in earnest dialogue, like Socrates serenely facing the dilemma of death or exile with his disciples.

More than any other person I know, Fernando Casas exemplifies the philosopher who lives heeding Socrates' exhortation "an unexamined life is not worth living." However, the greatest difference between Socrates (Plato) and Casas is that the latter delights in creating images, whereas the former denigrates them. Socrates believed in the attainment of wisdom through questioning, logical argument, examination, dialogue, scrutiny, and thinking. Indeed, these are the tools of philosophy, to which Casas adds art. He stated, "More controversial I think is my view that art is, like philosophy and science, an endeavor to understand who we are. I hold the view that the great works of art of human history show us, every time anew, who we are, where we are, etc. For this and other reasons I do not make a sharp separation between philosophy and art."

The other pivotal image in this exhibit is *The Sixth Extinction*, a title borrowed from Elizabeth Kolbert's book that describes the previous five mass extinctions and argues that we are in the process of a human-made, sixth extinction. While the first painting is uncharacteristically explicit for Casas, the last one is demure but just as apocalyptic. Its vantage point is the wall, or the mirror on the wall that frames the whole scene: the architecture of the studio, the furniture, the tools of painting, a plastic bag, a laptop, a water bottle, a cell phone, the cleared forest, etc. They are the items in our lives contributing to the sixth and final extinction.

The rest of Casas' paintings in this exhibit are premeditated memoirs. Each one of the paintings has a subject carrying its beginning or beginnings in one sphere, and his/her current state, in another. In *Polar Time Steve* (2016), Steve Adams, artist and Casas' former partner, is depicted in three spheres of time, from Bartlett youth to Bartlett man, to Magnolia mature, barefoot and sullen, Steve sits on the rocking chair, his large hands ready to make, and to turn the page of an art book albeit at a younger age. *Polar Time Becky* (2016) is perhaps the most complex painting of the set. It is about Casas' sister, Becky Soria, an artist in her own right. She has been featured in many Casas' paintings. *Flora* (1981) is quoted in it, or one might say, "misquoted" because Becky appears twice. The current Becky is now sitting on the ubiquitous rocking chair, wearing

a white dress, ageless in spite of life's winter, and left behind, the spring in which Flora walked towards the observer/painter.

There are two nudes in the set. One of them, *Male Nude on a Rocking Chair* (2016) is of Lee Brachter, Casas' former partner, who I always thought of as a kind of Andrea Salai, Leonardo da Vinci's alleged young lover, a model for some of his paintings and a painter himself. What makes these depictions of Lee particularly interesting is that they are painted in two very different styles, corresponding to two of his personas. The smaller one, painted in a very expressionistic, almost cartoonish style, depicts a rash Lee when Casas and he had just become acquainted. The larger depiction, one of the most precise and realistic depictions in this set, shows a more reflective, albeit nude Lee. It is a painting that speaks of the fruitfulness of a relationship. The other nude, *Nude Female on a Rocking Chair* (2017), is of Donna Kline, brilliant philosopher and attorney-at-law. Donna used to be part of the Magnolia Circle. Indeed she is one of the subjects of *The Magnolia Circle: Homage to Karl Popper* (1988). In this 2017 painting her past polar sphere appears as an empty rocking chair; an image suggestive of a person not being where she ought to be. She is one of the few subjects who chose to be depicted in the nude, a gesture that shows how comfortable she feels in the Casas circle.

Infinite Metaphysical Tree (2016) is the most bewildering of all the paintings in this exhibition. Bruce Leutwyler is a committed Buddhist who makes a living as a computer expert with a marked interest in artificial intelligence. Bruce has been part of our philosophy group since its inception, and he often voices his belief that reality is an illusion, or a simulation. However, during a recent reading of David Deutsch's *The Fabric of Reality*, he stated, "I would be willing to consider the possibility of a noumenal multiverse." Although he has often been the subject of Fernando's depictions, when I have tried to photograph him, he has refused. Why did Casas choose to depict him with five arms? Casas says that when Bruce was posing for the painting he suddenly did a sort of fluid dance with his arms and body that surprised him because he had always appeared to be so stiff. At first I thought he resembled a Hindu god with many arms. When I looked up "Hindu gods with many arms," I found there were too numerous, so I gave up that line of interpretation that would have perhaps driven the reader into thinking that philosophy is some kind of New Age esoteric endeavor. An enigmatic passage from Wittgenstein's *Philosophical Investigations* (PI 621) provided me a different take on Casas' work: "...when 'I raise my arm', my arm goes up. And the problem arises: what is left over if I subtract the fact that my arm goes up from the fact that I raise my arm?" In his behaviorist moment Wittgenstein cannot allow himself the answer that comes to mind: namely, intention. But why five arms? The five spheres on the upper portion of the painting are unlike the other time spheres. He raises his arms and five universes appear? Is the multiverse a intentional product of one mind or many?

Philosopher and Thread of Light (2017) is Casas' first depiction of me, if one does not count that I sought his collaboration in the photograph that is quoted at the beginning of it. That collaboration was part of a series of photographs I did around 1987 inspired by Bjorn Mili. The idea was to photograph drawings done in the dark with a penlight that also included what could be seen when the lights went on. In that "self-portrait" I was "catching the light." I did a similar portrait of Fernando Casas in which he drew himself with a penlight in the dark: an astounding feat of



Infinite Metaphysical Tree, Oil on Oval Canvas, 80" width, 2015

visualization. The end part of Polar Time Castro is a depiction of me some thirty years later. In it the light drawing I started in 1987 has followed me to the present and lassoed me, even as I sip on a glass of red wine (in vino veritas). My hair has receded and turned completely white, my lips have diminished, my eyelids overlap, and my skin has began to melt as if it were made of wax. I did not choose to sit on the rocking chair, but on a gyrating one. None of the subjects of these paintings are immune to the ravages of time and gravity, and that is one of the obvious revelations of these eidola.

In the last few decades we have come across many conceptual casualties. In 1967 Roland Barthes staged *La mort de l'auteur*, rendering literary texts free of the author's life and intentions, while smuggling inside its coffin, the extreme relativism that has become part of common discourse. In 1988 Francis Fukuyama broadcasted the triumph of Western liberal democracies as they scored the final touchdown at the end of history. In 1983, Arthur Danto came to the realization that art had ended after it and reality became perceptually indiscernible. "All there is at the end," Danto wrote, "is theory, art having finally become vaporized in a dazzle of pure thought about itself, and remaining, as it were, solely as the object of its own theoretical consciousness." Most importantly, in 1991 the Cold War ended when the Union of Soviet Socialist Republics dissolved, and the myths of nationalities resurrected across Europe, delivering genocides and ethnic cleansing in the Balkan states.

From Sils Maria a gentler Friedrich Nietzsche would have understood that such feelings of finitude and stench of death in the *Zeitgeist* had to have had a real cause that life-deniers refuse to see. *Will the planet...?* and *The Sixth Extinction* point to actual not just conceptual death. The Great Barrier Reef, the largest living thing on Earth, is dying. Every day dozens of species become extinct. Kolbert estimates that 20 to 50% of all species will be extinct by the end of the 21st century. The Mediterranean is turning into a cemetery with over 3,000 people drowning in it yearly while attempting to cross it. A record 65 million people are living in refugee camps around the world. Ever larger hypoxic "Dead Zones" in the northern Gulf of Mexico (and other parts of the world) caused by eutrophication occur for several weeks every summer.

According to the World Health Organization, "From 1970-2007 at least 1420 new pathogens—disease-causing microbes—have been discovered, 177 of them identified in the past decade. 70% of these originated from animals, which humans are having increasing contact with due to modern farming, livestock practices, and deforestation." Many scientists now believe that the radioactive contamination caused by the Fukushima meltdown is of such magnitude that the days of eating fish from the Pacific Ocean are over. Finally, there are about 15,000 nuclear weapons in the world today; enough to destroy the planet several times over. Any of these can be the time bomb Casas is alluding-to with *Will the planet...?*

Fernando Castro R., Houston, Texas



Philosopher and Thread of Light, Oil on Oval Canvas, 72" width, 2018

* Essay first published in *Literal – Latin American Voices*, August 2018

ENDNOTES

1. I named the group "The Magnolia Circle," alluding in jest, to the Vienna Circle. Nevertheless, the philosophical praxis of the group was always very serious.
2. Socrates sculpted images of the Graces for the Athenians, which are currently before the entrance to the Acropolis. Socrates was known to have destroyed his own work as he progressed deeper into his life of philosophy due to his iconoclastic attitude towards art and the like.
3. Virginia Billeaud Anderson. Interview: Studio Visit: Fernando Casas. January 28, 2014. <http://www.thegreatgodpanisdead.com/2014/01/studio-visit-fernando-casas.html>
4. Gian Giacomo Caprotti da Oreno, better known as Salai ("The Devil", literally "The little unclean one"), was an Italian artist, model and pupil of Leonardo de Vinci from 1490 to 1518. He is thought by some scholars to have been the model for Leonardo's paintings St. John the Baptist, and Bacchus.
5. I only managed to photograph Bruce Leutwyler in the eighties, when doing so did not appear to have any ontological effects on him.
6. The answer may have different levels. In Ettore Scola's film *C'eravamo tanto amati* (1974), Nicola Palumbo, one of the main characters, is a film critic who was to answer a question about Vittorio de Sica's film *Bicycle Thief* on a TV competition. He is asked, "Why is the little boy crying in that film?" Palumbo answers, "Because de Sica surreptitiously put some candy in his pocket and then accused him of having taken it." Palumbo was such a connoisseur of Italian cinema that he knew the "real" reason the child actor was crying. But what the questioner wanted to hear was the reason why the child character was crying; namely, because his father was being arrested for stealing a bicycle.
7. One of the five spheres quotes an earlier work by Casas titled *A point of metaphysical disagreement* (1983) in which Steve Adams is depicted conversing with Bruce Leutwyler.
8. Other writers have since announced other endings and deaths. Mario Montalbetti has claimed the end of photography. Philip Howard has written about the death of common sense. Tom Nichols has argued for the death of expertise. Ted Nordhaus and Michael Shellenberger have co-authored *Breakthrough: From the Death of Environmentalism to the Politics of Possibility*. Dan Jurgens has narrated the death of Superman.

The Sixth Extinction

Oil on Round Canvas

72" Diameter, 2018





Interior with Disappearing Mirror,

After Velazquez

Oil on Oval Canvas

68" x 87", 2018



Interior with Disappearing Mirror,

After Velazquez

Graphite on Paper

68" x 87", 2018



Femme en noir dans un fauteuil à bascule

Oil on Round Canvas

72" Diameter, 2018



THE INCOMPLETENESS OF THE VISUAL WORLD THE SELF: A VOID IN THE VISUAL WORLD

By F. Casas PhD

Introduction

David Hume argued famously that when we survey our multitude of experiences we never find among them an impression of our own selves. The idea of a self, he concluded is simply a "fiction". Immanuel Kant agreed with Hume that the self is not found in experience, but he did not conclude from this that the self is a fiction; instead, he advanced a transcendental argument for the existence of a meta-physical self. Although we do not have an experience of our own selves, the self, he argued, is a necessary condition for the possibility of any experience. This self - what Kant called the "transcendental apperception" - is the necessary logical subject of any thought, perception or feeling.

Along the same lines, Ludwig Wittgenstein holds that there is no such thing as a subject that thinks and contains ideas. However he adds:

- "5.632 The subject does not belong to the world; rather it is the limit of the world.
5.633 Where in the world is the metaphysical subject to be found? You will say that this is exactly like the case of the eye and the visual field. But really you do not see the eye. And nothing in the visual field allows you to infer that it is seen by an eye.
5.6331 For the form of the visual field is surely not like this"



Following the phenomenological tradition Jean Paul Sartre claimed to have discovered that "consciousness implies in its being a non-conscious and transphenomenal being".

Against these views and specifically against the view shared by Hume, Kant and Wittgenstein that the self, (or metaphysical subject) cannot be found in experience, I shall argue - in effect I shall literally show - that we can detect the presence of our own selves in experience. My claim sounds outlandishly self-contradictory: if the self is indeed meta-physical it would seem to follow by definition that it cannot be found in experience, while if it is found in experience it seems obvious that it is not metaphysical. Yet a careful and comprehensive analysis of our visual world will reveal that we are both present in, and absent from, our visual world. We shall find that a phenomenological examination of our all-encompassing human visual field discloses the presence of a meta-physical self in that visual space. The above apparent contradiction is avoided because the metaphysical self is present not as an object among other visual objects but rather as a localized absence; what an observer perceptually detects in her visual world is her own presence as a localized and irremovable blind spot whence she perceives the world. In other words, with the aid of a phenomenology of vision, we shall find visual evidence for Wittgenstein's claim that the metaphysical subject is the limit of the visual world. We shall see that the presence of

this irremovable blind spot in the fabric of visual space renders it – the visual world - necessarily incomplete, signaling the presence of a meta-visual, meta-physical self. What I recognize as here - the location from which I perceive the world - is a location that I can find inside and, paradoxically, altogether outside the visual world.

The evidence marshaled in this paper for the conclusion that the visual world is incomplete rests on two independent grounds, one phenomenological the other pictorial. 1) We shall see that a phenomenological examination of our visual space – particularly aided by two experiments – reveals the presence of an absence - an irremovable blind spot – in the fabric of any visual world. Further, it shows that visual space is necessarily incomplete and discontinuous. This evidence is purely phenomenological and hence independent from any visual illustration of the situation one may choose to offer for it and, in particular, independent from the visual illustrations offered in this paper. 2) The second source of evidence for the presence of the meta-physical self in visual space is pictorial and it comes from those efforts made to create a complete and faithful map of surrounding visual space of an observer. These efforts made clear that a complete depiction of the surrounding visual world is impossible in principle and that this impossibility is due to the presence in visual space of an inescapable absence – a blind spot created in the very location that the observer occupies within the fabric of that visual space. The representational system used is the well known system of Linear Perspective. After becoming aware of some of its limitation however, I transformed the system in order to make it coherent and to greatly expand its representational capacity so as to allow the observer who wants to create a representation of his visual world to depict not just a portion but his entire surrounding visual world. This expanded system is Spherical Perspective. Hence I would like to pause in my argument for a moment to address both, Linear Perspective and Spherical Perspective.

1. Linear Perspective. I do not see the need any longer to argue for the validity of linear convergent perspective. That it is the most faithful system of spatial representation and not just one among several possible, “conventional”, systems – as it was once claimed by scholars such as Nelson Goodman – is something that has finally been established by Anthony A. Derksen in his paper Linear Perspective as a Realist Constraint. In it he argues that linear perspective is “an objective, realist device to organize three-dimensional pictorial space...” Linear perspective, he shows, is more “faithful” to the depicted world than other conventional systems. By ‘faithful’ he means a depiction of pictorial space that we experience as closely resembling the depicted world. Henceforth I shall use the term in this same sense.

2. Spherical Perspective. Unlike linear perspective, the validity of Spherical Perspective needs to be demonstrated. In section III I shall argue first that the visual world is a surrounding reality and not just a window-like scene. Next I shall argue that this surrounding visual reality – the visual world – can be captured fully and faithfully by extending the window-like linear perspective into a full spherical system: a six-point, non-Euclidean perspective system called Spherical Perspective. Aided with this system of visual mapping I shall be able to show that the visual world is necessarily incomplete, i.e., it exhibits as a necessary feature of the depiction an absence in the position occupied by the seeing subject.

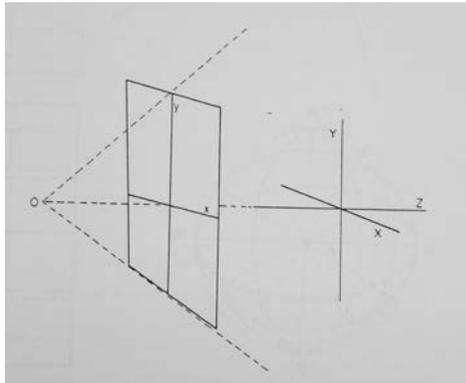


Figure 1.

I. KANT, EUCLIDEAN GEOMETRY, AND LINEAR PERSPECTIVE.

Kant thought that the space we encounter in our experience was an ‘infinite given magnitude’ with Euclidean properties. There is little doubt that he held this view in part because the only kind of geometry developed until the end of the 17th Century was Euclidean. It is also likely that Kant’s belief was reinforced by the developments of Linear Perspective during the Renaissance. This system conceived the human visual field as a flat, Euclidean window (Figure 1) onto which the image of the visual world was projected.

More relevant to the aims of this paper than the chronology and possible causal connection between the development of Euclidean geometry, the development of linear perspective, and Kant’s claim that phenomenal space is Euclidean is the underlying and undeniable fact that the visual world that we ordinarily encounter seems to be Euclidean. It seems to be a space in which parallel lines seem not to curve and never to meet. I shall argue that, in fact, this only seems to be the case, that on careful scrutiny we can discover that the geometrical structure of the visual world is non-Euclidian. It only seems to be Euclidean because 1) we do not usually pay attention to those situations where the curvature becomes most apparent - when we are forced to see objects very close to the eyes, and 2) because our span of vision is too reduced to notice the curvature of our visual world without some effort. I shall examine the first of these in this section and the second in the next section.

That perceived parallel lines seem never to meet is evident enough. When we draw two parallel vertical lines on a piece of paper or contemplate the two vertical sides of a skyscraper, for example, we grasp them as lines that if extended indefinitely would never meet. We experience two horizontal parallel lines in a similar way, as lines that do not meet and, moreover, as lines that, however much they may extend, we would never see converging. Our experience is, *prima facie*, strikingly different in the case of parallel lines that are neither vertical nor horizontal, but rather depth parallel lines that run in front of us like the lines of train tracks. In this case, we see the parallel lines converging at a point. (Point v in figure 1)

But this discrepancy in appearance between the vertical and horizontal on the one hand and the depth parallel lines on the other is only superficial and fundamentally non-existent. If we attend to our visual experience fully and carefully we shall notice that all three spatial dimensions have the same structure, that is, all three are curvilinear and convergent. Vertical, horizontal and depth parallel lines (X, Y and Z lines in figure 1) – the three sets of lines that articulate the three spatial dimensions – actually appear in our visual perception as curved and converging at vanishing points. Thus, although the vast majority of human beings are not aware of it, our visual world appears to our eyes as a non-Euclidean reality in which all straight parallel lines (not just the depth lines) appear as if they were the curved ‘Great Circles’ of a sphere that surrounds us.

The reader can confirm this by performing a simple experiment. Hold a string taut between your two hands in front of your eyes and quite close to them. Now, paying attention to the string but focusing somewhere beyond it, move the string up and down in front of your eyes. You should clearly see that the taut string curves upwards and downwards as you move it up and down in

front of your eyes. This taut string is the straightest possible line in perceptual space, and yet in its different positions it appears curved to the observer. Moreover the set of lines that correspond to the different positions of the string appear to curve and converge, aiming at two vanishing points at your left hand side and your right hand side. (You actually do not see these vanishing points; you only see the lines aiming at them.) These lines, in fact, appear to be portions of Great Circles of a sphere. The experiment can be repeated for the vertical dimension. In this case you can see the vertical lines of the string converging and aiming at two vanishing points opposite each other above and below you. Further, you will observe that the pronounced curvature of the string when close to your eyes rapidly decreases when you move the taut string away from your eyes. Its curvature becomes less and less noticeable as it is moved away from the eyes. This shows that the curvature of the lines is not just a peculiarity of the proximity of the lines to the eyes. The proximity to the eye simply dramatizes their curvature.

Why is it then that to Kant and to most people the visual world seems to be Euclidean? Only a partial answer can be given at this point. The visual world appears Euclidean because we tend to pay attention only to the area in our visual field that we have in focus. We neglect to notice the surrounding areas, moreover, because we normally focus only on objects that are at a certain distance from our eyes resisting for example looking at objects that are very close to the eyes because they are out of focus. When we attend to our visual field more fully and more carefully, the curved appearance of all 'straight' lines in the world becomes obvious.

II. THE PRESENCE OF THE SURROUNDING VISUAL WORLD

1. The Spherical Visual Field.

The perceptual visual field, as defined in the *Psychology of Vision*, is the 2-D span that we experience in front of us when we open our eyes; this span roughly oval in shape, covers about 150 degrees of visual angle vertically and 180 degrees of visual angle horizontally. This momentary, window-like expanse corresponds to the visual field that Linear Perspective conceived as a flat window. It is within the boundaries of this visual field that we perceive the 3-D visual world. We shall see next that this window-like conception of the visual field is artificially narrow and ill conceived. By attending carefully to our visual experience we shall see that our visual field is, in fact, not like an oval window but rather boundless like the surface of a sphere.

Although I have a window-like visual field in front of me at this moment, I am also aware that I can turn my gaze to my right, my left, up, down and behind me and find more of the visual world. It does not matter in what direction I turn or how far I turn my gaze I always find the visual world without ever encountering a boundary to it. I am also aware that after a complete turn of my gaze I return to the same place in visual space I had just left from the opposite direction. In sum, I easily attest that a visual world surrounds me completely. I may not be able to see it all at once; but I can see all of it by turning my gaze so as to capture successively the totality of it. It is evident that any more or less instantaneous experience permits me to see, in a window-like fashion, only a portion of the surrounding visual world. The momentary, window-like visual field

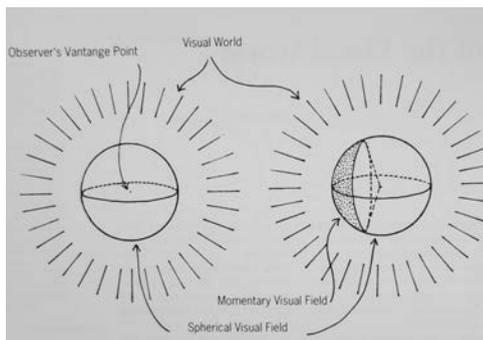


Figure 2.

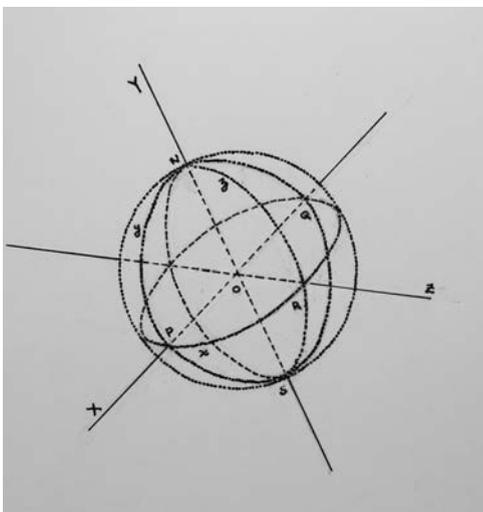


Figure 3.

is then a portion of a larger spherical visual field that surrounds me and consequently, it should be conceived as a non-Euclidean, concave expanse.

The surrounding visual world is not given to me at an instant, rather it comes to me in the temporal sequence of successive concave portions - the collection of all of these constitute the complete spherical field. Visual space is a surrounding presence that is given to me in a manifold of successive appearances and consequently the experience that I have is that of seeing the visual world as from the center of a sphere. Furthermore, any single instantaneous visual perception we care to consider is never a discrete, self contained whole. It only gives us the impression of being discrete because we artificially frame a window-like portion of the surrounding visual world with our limited visual organs. The perceived 3-D space that appears framed in our momentary visual field does not come to an end at 'the frame', so to speak, of our momentary visual field. We are in fact aware that visual reality continues beyond the frame. When looking at some objects in front of us we are invariably aware, even if only implicitly, that those objects are visually/ spatially connected to other objects, at the moment not perceived, in other parts of our larger surrounding spatial world. We always know that by just turning our gaze away from a given direction we will find other parts of the visual world that we automatically identify as to the left, or right, or in front of the original direction. Thus, although we may not be explicitly aware of it, the entire surrounding visual space is present in any instantaneous visual experience - it is present as the 'horizon' (in the phenomenological sense of the term) within which the window-like visual perception takes place. This horizon is boundless, finite and articulated by the three special coordinates. The visual world is, then, a three-dimensional space that presents itself as surrounding me - as a spherical surface would surround me. The three sets of 'parallel' lines belonging to the three dimensions of the visual world appear on the spherical visual field as three sets of lines converging at six equidistant vanishing points; this is the structure of spherical perspective illustrated in Figure 3.

Now we are able to understand more fully why the vast majority of human beings are not aware of the non-Euclidean nature of their visual world. It is because most people are not explicitly aware of the surrounding presence of their visual world and, some who are 'intellectually aware' of it still fail to take explicit notice of its visual manifestation. Most people simply think of the visual world as the reality that they have just in front of their eyes at a given moment and since the curvature of the visual world in this momentary, window-like reduced visual field is not very noticeable then, most people simply assume all perceived straight lines to be Euclidean. In fact our momentary span of vision is so reduced that it allows us to perceive at once only one vanishing point. We cannot even see at once the vanishing points to our left and right sides, let alone, up, down and back. If our field of vision were just a little wider - beyond 180 degrees - we would be able to see not only the depth rails of a train track converge in front of us but also all horizontal lines converge into two vanishing points at our left and right. The experience of being completely surrounded by a visual world is, fundamentally, the experience of seeing the world from a privileged position, as if from the very center of a sphere. My experience is the experience of myself as being here, at the very center of an enclosing, surrounding visual reality.

The wish to compare our sphere of vision to the spherical image reflected on a spherical mirror

- for example the image on a floating soap bubble - is understandable. The similarity between these is strong at one level but the comparison can be extremely misleading and inappropriate. Both, the sphere of vision and the reflection on a soap bubble articulate an image of a 3-dimensional visual world on a spherical surface in such a way that the three dimensions in the image are arranged in a perspective system with six vanishing points. The reflected spherical image is, in this respect, a good model of visual perception. But it is dangerously misleading if the analogy is carried any further for it can lead us to think erroneously of the perceptual space of an observer as if it were a physical object among others objects in a public space which, like the bubble, can be contemplated from outside. The claim advanced in this paper that our visual field is spherical does not imply that we are surrounded by an actual membrane-like spherical surface on which the images of the surrounding visual world fall as onto a concave screen; nor does it imply that in some sense what we 'really' and 'directly' perceive are these images (visual sense data) in stead of the objects themselves. The notion of a spherical visual field developed here - as against a Euclidean one - is simply meant to indicate two things: 1) the non-Euclidean geometrical organization of the perceived three-dimensions in our visual field and, 2) the fact that this field surrounds us.

2. Visual Space is Perspectival.

The Planet, Early Morning and The Magnolia Circle show two paintings made with the aid of spherical perspective. In both paintings an observer has depicted his surrounding visual world including the appearance of his own body in it.

The Planet, Early Morning shows the perceptual image of the entire visual world surrounding an observer who appears sitting out-of-doors on an open field at the center of the image. It is of the utmost importance to realize that the image of the painting represents what this observer in the picture sees from his point of view.

The perceptual spherical image of this observer, however, has been topologically altered, it has been flattened by an imaginary process consisting first of piercing it at a certain point, and then, flattening (and stretching) the sphere of vision conceived as an elastic surface. The point at which the sphere of vision is pierced and then stretched becomes the perimeter of the whole painting. By virtue of this transformation we, the observers of the painting, can see the entire image of his sphere of vision at once. The Magnolia Circle is the result of exactly the same kind of topological transformation. In this case the observer, at the lower left corner of the painting, is indoors engaged in conversation with three other human beings. The artist, however, has taken some liberties during the flattening process: here and there some cutting and folding of the spherical visual field has been introduced for artistic purposes, but the overall flattening process and result is exactly the same as the one used to create the painting of The Planet, Early Morning.

The Planet, Early Morning is an accurate representation of this observer's visual experience. Accurate here means that the neighborhood relations of any and all (visually identifiable) points in the percept (the depicted world) have been translated onto the picture (or pictorial space.) Hence, the percept and the painting are isomorphic maps. (There is however one and only one

point that is not mapped; this is the point at which the spherical pierced in order to be flattened.)

It is immediately apparent that the observers depicted in these images each obtain a location within his observed visual world. This makes it obvious that visual perception is necessarily perspectival. Perspectival here means that visual space is seen from a specific location within that visual world. The perspectival nature of visual perception is a fundamental part of any visual experience. Visual perception is always the experience of the world from a given spatial location that the observer can identify as here. Heidegger refers to this feature as a "local sense of place", an awareness of always being somewhere. To see the world involves an awareness, if only implicit, that the world is seen from, here, from the position that the observer obtains vis-à-vis the other objects in the world that he sees. This visual awareness of 'seeing from here' is experienced by the observer at least by virtue of two features of visual phenomena. First, because all the objects appearing in a given visual field exhibit precisely the face or look that is obtained only from the given point of view of that observer - from among the infinitely many faces or looks that each object can exhibit to other points of view. Second, because all these objects have a perceived relative position and distance vis-à-vis the location of the observer. Hence, I can visually recognize that I am closer to some items and further from others. This awareness of my own self as 'being here' is part of every visual experience that I have.

In the previous section I noticed that I, the observer, am in a privileged position vis-à-vis the visual world, for I constitute the center of its surrounding presence. Now, quite differently, I discover that I have, like the observers in *The Planet*, *Early Morning* and *The Magnolia Circle*, a location within my visual space that has no privileged status at all: I obtain a position in that space no more remarkable than the position of any other object within it. I can find myself, for example, like the observer in *The Planet*, *Early Morning* sitting at the certain spot on the ground relative some trees. This location is spatially no more privileged than the spot next to it or any other position on the universe. I shall return to this contrast between the privileged and perspectival positions in section III.

To see the world is, then, to see it from a particular location within it sharing a common space with the objects of vision. A visual world is obviously something not perceivable from without, it is something necessarily articulated from within. Wittgenstein's drawing showing an eye and its visual field is meant (among other things) to illustrate this absurdity – the absurdity of seeing an eye and its visual field from somewhere outside them. Part of the absurdity is that the eyeball and its visual field are visual objects in two very different senses. An eyeball is a physical object that can be seen alongside other visual objects like hands, brains and trees. A visual field is not such an object, although in a sense, its image may contain physical objects. One could never find a visual field - the visual experience of a conscious being - as an object alongside trees, hands, or eyeballs. But the absurdity that concerns us here is the suggestion that a visual field by itself could be seen from outside it as if it were an object having a certain shape defined by boundaries. A visual field has no such external boundaries or shapes for the simple reason that it is something that it is seen from within itself and also because it is spherical and the surface of a sphere, although finite, has no boundaries. (The rectangular boundaries of *The Planet*, *Early*

Morning and The Magnolia Circle are the artificial result of the topological transformation, the piercing and flattening of the spherical image.)

3. Visual Space is Incomplete and Discontinuous.

Whence exactly is the vantage point from which the observer of either The Planet, Early Morning or The Magnolia Circle sees the world? It is obvious that it is not in any part of his body that appears in the image. His knees, hands, arms, legs, etc. are seen objects; they are not doing the seeing. Where in the image is the observer, or at least, whence is the location from which he is articulating his perceptual image of the surrounding visual world? The obvious answer seems to be where his head and his eyes – his visual organs – are.

The most remarkable feature of The Planet, Early Morning and The Magnolia Circle is that the location where the heads of these observers is supposed to be has been left blank; it appears as a void in the fabric of the painting. A human being cannot see his own head, but why leave a blank in this place? Would it not have been more accurate to suture this void, eliminating it from the picture? The answer is no. The elimination of this void that keeps the shoulders, chest and back apart would contradict the neighborhood relations that hold true in the experience of the visual world. I do not see my two shoulders touching each other in my visual field. They are separated and, disquietingly, I do not see what keeps them apart. At this location, between the shoulders, there is something that I cannot see as the observers in The Planet, Early Morning and The Magnolia Circle cannot see. Hence leaving a blank space in that area of the image is correct, it is accurate, for it represents the presence of a perceptual blind spot. This is the pictorial argument for the presence of the self as an absence, as a blind spot mentioned earlier. And it is this absence that renders the visual world incomplete.

But it may be thought that this blind spot is only a peculiar shortcoming affecting human observers and hence not a feature of any significance to vision per se. It might be argued that indeed the observers in The Planet, Early Morning and The Magnolia Circle see all around them but fail to see in the area between their shoulders simply because something obstructs their view, namely their necks. This, of course, is an all-too-human condition, for even though we can turn our gaze in any direction we wish all around us, our necks inevitably and at all times stand in our way creating a permanent blind spot. The blind spots of The Planet, Early Morning and The Magnolia Circle then may seem to be merely the result of our anatomy and, therefore reparable in principle: it seems that we could render a complete image of the visual world simply by mapping the visual field of an observer unencumbered by anything like a neck. The question then arises: Does the visual perception of an observer who could, seamlessly and all at once, capture the entire surrounding visual world have such a blind spot? Availing ourselves of the floating soap bubble analogy, we can pose the question thus: is there a blind spot on the image reflected on a soap bubble? Appearances to the contrary, the answer is yes.

I will show next that if this imaginary observer - neck-less, all-around and all-at-once perceiver - were to examine his surrounding visual field, he nonetheless would become visually aware of the presence and location of a blind spot, one created by his own presence in his visual world.

This is so because with careful scrutiny he would inevitably become aware that the perspectival location whence he is observing the world is missing from his all-around visual field. Given that the observer is visually aware of his relative location in the visual world that he experiences (as explained above) he may, then, take visual notice that his location – here - is missing in the visual world he experiences. We shall see next, with the aid of two thought experiments, how this observer can visually detect the presence of this blind spot in his vision. These thought experiments also constitute arguments for the incompleteness and discontinuity of the visual world independent from the pictorial arguments above.

Thought-experiment I. Incompleteness. Let two objects approach the all-around-observer in a straight line from opposite directions. Their trajectory would lead them to meet each other exactly at the point whence the observer is seeing them, but these two objects will never come to visually meet. The two objects can come to meet each other only by changing direction and moving around and in front of the observer or behind him. Between the left side of the observer and his right side there is a gap that cannot be bridged visually. Similarly, there is a visually un-bridgeable gap between the closest points in front and back and, up and down. This is so because this point, the point in visual space where these two objects are coming to meet – the vantage point of the observer - simply does not exist in that visual space. Thus, the blind spot can be visually located and its shape determined: the blind spot is the sphere drawn by all the objects that are visually the closest to the observer in front, back, up, down, left and right of him.

It may be thought that this incompleteness can be eliminated by reducing the size of the phenomenal bubble to a point without extension. Thus, a truly perfect observer would see the whole world without creating a blind spot with her own presence. But such an observer is impossible, for a point without extension can never be a visual field. A field of vision is, by definition, a visually extended space, therefore, if the spherical field becomes a zero dimensional point, it becomes extension-less and on a point that lacks extension an image cannot appear.

Thought-experiment II. Discontinuity. Let us imagine a moving object approaching an all-around and all-at-once observer from her left side and in a straight path. This observer could never have the visual experience of such an object first approaching her from her left side and then continuously or seamlessly see the object continue its trajectory as it moves away from her by her right hand side. Even if we imagine the observer as nothing but an extension-less point (something we argued above to be impossible) the observer would witness necessarily a radical discontinuity, a perceptual flip taking place. The incoming object would undergo three transformations. 1) The object flips its direction of motion relative the observer. First the observer sees the object approaching her, and then receding from her. 2) The object flips its appearance as if it had rotated 180 degrees. First the observer sees the approaching object's face, so to speak, and then as it recedes she sees its back side. 3) The whole scene undergoes a perspective flip. First the approaching object is seen cut against the perspectival background view of the left and then it is suddenly seen receding against the background view of the right. Therefore, the visual world of even an all-around-observer and all-at-once observer has that peculiar blind spot and it is necessarily an incomplete and discontinuous visual world.

The Planet, Early Morning and The Magnolia Circle, manage to capture these features, but with some important limitations. The blind spots in the paintings, in stead of being areas devoid of visual content, appear as white surfaces with clearly drawn borderlines. A white surface is conventionally used to represent a blank area, and a blank area is used in the painting to represent an area void of visual content, a blind spot. So the presentations of the perceptual blind spot in these paintings - white surfaces with drawn borderlines - are highly conventional and to this extent not faithful but they are nonetheless accurate. The criterion of faithfulness, which is a criterion of visual resemblance, is simply inapplicable because what it is at issue here is capturing the presence of something that literally cannot be seen, a blind spot. But the absence, the blind spot, is nonetheless something that can be detected and located and hence the mapping criterion of accuracy is appropriate.

Wittgenstein was not correct when he said: "And nothing in the visual field allows you to infer that it is seen by an eye". Actually the presence of this blind spot in the all-encompassing visual field indicates the presence, not of an eye necessarily, of course, but of an observer. The observer can discover his own presence in his visual world not as an object but as a void: it "shows up" as a blind spot wherein he perceives no thing. A visual field is essentially something that has a limit, more precisely, something that comes to an end at a certain location; and this location can be made visually evident and it can be mapped. Furthermore, the observer recognizes this location as here, as his location.

Allow me to return to the pictorial argument. The fundamental blind spot we have just discovered becomes most detectable when one attempts to create a complete map of one's own spherical visual field. For in order to notice the incompleteness of the visual world it is necessary not only to think of the visual field in its entirety (as Wittgenstein did when he drew his diagram) but also attempt to accurately map its overall visual perspectival structure. Only when such a mapping system exists, the incompleteness becomes apparent and unavoidable. The absence of an all-encompassing system of visual representation before the twentieth century is the most likely reason why this blind spot was not (visually) identified before. In fact, it was during the years that I develop spherical perspective in the 1970's that I stumbled with this blind spot, which I considered initially simply as an obstacle in the pursuit of the ideal of creating a truly complete map of the whole of the visual world. I attempted by Wittgenstein was not correct when he said: "And nothing in the visual field allows you to infer that it is seen by an eye". Actually the presence of this blind spot in the all-encompassing visual field indicates the presence, not of an eye necessarily, of course, but of an observer. The observer can discover his own presence in his visual world not as an object but as a void: it "shows up" as a blind spot wherein he perceives no thing. A visual field is essentially something that has a limit, more precisely, something that comes to an end at a certain location; and this location can be made visually evident and it can be mapped. Furthermore, the observer recognizes this location as here, as his location.

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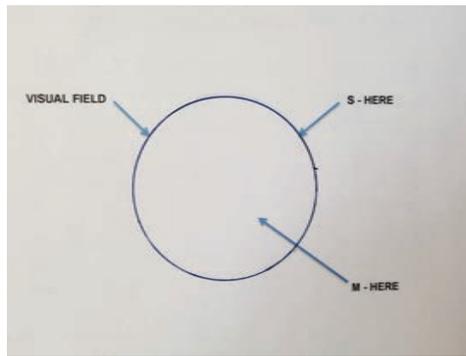


Figure 6.

also attempt to accurately map its overall visual perspectival structure. Only when such a mapping system exists, the incompleteness becomes apparent and unavoidable. The absence of an all-encompassing system of visual representation before the twentieth century is the most likely reason why this blind spot was not (visually) identified before. In fact, it was during the years that I develop spherical perspective in the 1970's that I stumbled with this blind spot, which I considered initially simply as an obstacle in the pursuit of the ideal of creating a truly complete map of the whole of the visual world. I attempted by many means to eliminate it. What I had to acknowledge ultimately is that the elimination of this void is, in principle, impossible and inaccurate and that its presence reveals the fundamental incompleteness of the visual world.

III. PHENOMENOLOGY OF AN ONTOLOGICAL BOUNDARY

What exactly is the relation between a visual observer and her visual world? How do I stand vis-à-vis my visual world? As mentioned above, the indexical 'here' often refers to that position in the three-dimensional world that I occupy relative all the visual objects that surround me and with which I happen to share a spatial world. I am aware, however roughly, of the varying distances and positions that objects have relative to me, here. I shall use s-here (spatial-here) to indicate this spatial, perspectival position that I obtain relative the visual objects in the world. But on the other hand, I also notice that I do not and cannot see the exact place from where I am seeing, for the parts of my body that I can see are not doing the seeing and, most importantly, here - the location whence I see the world - shows up as a blind spot. So, where is this here? The experience was described above as seeing the world from the center of and inside a sphere of vision. This here is a privileged "position" - a position that is clearly different from the above spatial s-here; it is the center of apprehension and it does not belong to visual space. It is a meta-visual, meta-physical here and to distinguish it from the other I shall call it m-here. Figure 6 illustrates these two different "locations" of s-here and m-here.

I must now make explicit the paradox inherent in the above description: on the one hand I recognize that my visual experience appears organized as a spherical image - the phenomenal sphere - which, as explained above, cannot be reduced to a zero dimensional point. Further, a sphere, by definition, contains a volume. All these factors seem to point to the conclusion that the sphere of vision is really a sphere, and as such we would be entitled to ask for the magnitude of its volume, the area of its surface and distance between the center of the sphere, where presumably the observer resides and the surface of the sphere. These conclusions are, however, incorrect and profoundly absurd. All those factors notwithstanding, "inside my sphere of vision" I see nothing; inside my sphere of vision I experience no visual objects, no space, no distances, not even an inside. The sphere of vision has no interior space. I perceive none of these visual realities precisely because the sphere marks the limit where visual space comes to an end. Hence, quite paradoxically, our experience is, indeed spherical - I am surrounded by visual space - but it is a sphere that does not surround any interior volume of space. The notion of a sphere that has

no interior space is a strange notion. We can make more sense of the situation, however, if we remember that the phenomenal sphere constitutes an ontological boundary and as such it, must have disparate properties appertaining to the two ontological 'sides' which it delimits. It must also be non-spatial, non-visual if it is to be the limit where visual space comes to an end, i.e. if it establishes the presence of the absence of visual space beyond a certain border. The reality of a boundary cannot be captured by its description from only one of its sides: we are forced to describe the boundary in contradictory terms.

Let us think of this situation in terms of a floating bubble which is presumed to be a complete image of the visual world (keeping in mind, however, the very important reservations and dangers involved in this comparison noted above). When we ask, 'where in the image on the surface of the bubble is the bubble itself?' we become perplexed. Since we know that the bubble is just one object among others in the world that it reflects then, we would expect to find an image of the bubble alongside the other objects of this visual world. Why then is it that its image does not appear in this visual world? We then would be inclined to say that the bubble is, in fact, in the reflected image: it is the whole spherical image after all! In a sense this answer is quite correct and also quite revealing for it shows with striking clarity the privileged status of the bubble itself vis-à-vis the objects it reflects. The contrast makes clear that the bubble (the spherical surface), is the necessary condition for the existence of the image displayed on its surface and also that it can never appear as another object in this image. Moreover the space inside the bubble is a space that does not belong and in principle cannot belong to the space of the image on the surface of the bubble. This is a limitation that affects the optical model.

The contrast is even more striking when we leave the optical model and consider the situation purely phenomenologically. In this case a conscious observer can visually detect the pertinent blind spot, realize that this void signals his very own presence and, thus, become aware of the fundamental incompleteness of the visual world and of his paradoxical stance as a being at once in the world and also altogether 'outside' it. The Planet, Early Morning and The Magnolia Circle show that in a very important sense m-here and s-here are at the same location. m-here and s-here are both a localized void in the fabric of the spherical visual field and this void is surrounded by the visual field. The visual field surrounds and defines the void; it defines me (at least partially). On the other hand, if I just close my eyes this visual world disappears. This visual world is necessarily incomplete because it depends for its very existence on the presence of an observer (human or otherwise), who does not belong to the visual world. This is who I am: a conscious observer firmly located inside the visual/spatial world that I experience, s-here, and also altogether outside this world, m-here. This is not a new thesis; Kant and Sartre among others seem to have held views not too different from this one. What is novel here are two things, first, the visual grounds offered as evidence for this view, and second, the recognition of the visual world as necessarily incomplete.

F. Casas PhD

ENDNOTES

1. A Treatise of Human Nature (London and Toronto: J.M. Dent & Sons Ltd & E.P. Dutton 1926) Vol. I, p. 241
2. Critique of Pure Reason, Trans. Norman Kemp Smith (New York: St Martin's Press, 1965). p. 136
3. Tractatus Logico Philosophicus, trans. D. F. Pears & B. F. McGuinness (London: Routledge & Kegan Paul, 1966), p. 117.
4. "Jean Paul Sartre: Basis Writings," in Stephen Priest, ed., (New York: Routledge, 2001) p. 87.
5. The notion of a subject, understood as part of the well known subject / object polarity, belongs to a particular modern metaphysics and epistemology. This is neither assumed nor implied by this text.
6. Languages of Art: An Approach to a Theory of Symbols (Indianapolis: Hackett, 1976), p. 37.
7. "Linear Perspective as a Realist Constrain," The Journal of Philosophy, Inc., X, (2005): 235-58.
8. Fernando Casas, "Flat-Sphere Perspective", Leonardo, Vol 16, NO.1 (1983) 1-9.
9. Critique of Pure Reason, Trans. Norman Kemp Smith (New York: St Martin's Press, 1965). p. 69.
10. We should also guard ourselves from thinking that the perceptual visual field is an object, something like a spherical retina. A retina, or the image on the retina of an observer, is not the

same thing as the visual experience of the observer. The optical, anatomical and physiological arrangements that give rise to the experience of visual space are not at issue here. The object of our investigation is perceptual space, i.e. the experience of visual space. It seems clear that a variety of anatomical, optical and physiological factors give rise to this visual experience of a surrounding three-dimensional visual space. Some mammals, for example, seem to have a much larger panorama of vision than human beings by virtue of the location of their two eyes on opposite sides of their heads. In general organisms seem to articulate a single visual experience from a variety of sensory sources: multiple eyes, compound eyes, etc. It is their eyes, plus their optic nerves, plus their brains that allow many animals to have the experience of visual space. An organism with a spherical retina is conceivable; but even in this case, the spherical retina should not be confused with the experience of the surrounding phenomenal visual world that this retina may give rise to.

11. I use the term 'perspectival' here to refer not to th specific perspective system used in this representation, nor in its phenomenological sense but, rather, I use the term in the fundamental sense, implied by any perspective system, that the perceived space is perceived from a specific visual space. An organism with a spherical retina is conceivable; but even in this case, the spherical retina should not be confused with the experience of the surrounding phenomenal visual world that this retina may give rise to.

11. I use the term 'perspectival' here to refer not to th specific perspective system used in this representation, nor in its phenomenological sense but, rather, I use the term in the fundamental sense, implied by any perspective system, that the perceived space is perceived from a specific location within that same visual space - as against something like a view from nowhere, or from some point outside the visual space, or from several points of view at the same time, etc.

12. *The History of the Concept of Time* , trans. Thewodore Kisiel (Indiana University Press, 1985), pp. 158-159.



Fernando Casas - Biographical Note

Artist/philosopher Fernando Casas was born in Bolivia in 1946, where he studied with Bolivia's master painter Raúl Prada. In 1964 and 1968 he won the First National Awards in Painting and Drawing respectively.

In 1968 he left for the USA with a LASPAU scholarship where in 1970 he received his BA in Philosophy from Colorado College graduating Magna cum Laude, Phi Beta Kappa and receiving the Hastings Prize for a paper in Philosophy. He continued his studies at Rice University receiving his MA in 1972 and his PhD in Philosophy in 1978.

Casas has exhibited his works of art in numerous group and solo exhibitions in commercial galleries and museums in cities such as Houston, New York City, Los Angeles, Tokyo, Florence, Lima (Peru), La Paz (Bolivia) and Santiago (Chile). In 2003 was awarded The Premio alla Carriera at the Florence Biennale.

Since the 1880s, Casas has taught and lectured at several universities in South and North America, however his longest association is with Rice University where he has taught the Humanities and Philosophy as Distinguished Lecturer for about 20 years. He also lectures regularly at the Women's Institute of Houston. Among his publications are *The Limit of The Visual World* (1990), *Polar Perspective: A Graphical System for Creating Two-dimensional Images Representing a World of Four Dimensions* (1984) *Flat-Sphere Perspective* (1983)

For further information: Website: www.fernandocasas.com



Poet Eduardo Mitre was born in Bolivia. He earned his Ph.D. in Latin American Literature at the University of Pittsburgh, USA. He is currently an Associate Professor at Saint John's University in New York. Among his works of poetry are *Morada* (1975), *Ferviente humo* (1976), *Líneas de otoño* (1993), *Camino de cualquier parte*(1998), *El paraguas de Manhattan* (2004), *Vitrales de la memoria* (2007), and *Al paso del instante*(2009). As a scholar, he has published *Huidobro: hambre de espacio y sed de cielo* (1981) and four anthologies of Bolivian poets. (Page 150).

Luis Antezana Juarez is a celebrated Bolivian author, a graduate of the Paris Sorbonne University, and an internationally recognized Jorge Luis Borges scholar. He is the author of numerous books and essays. His *Algebra y fuego: lectura de Borges* (1978) has seen 14 editions. Other widely held works with multiple editions are *Teorías de la lectura* (1983), *Ensayos y lecturas* (1986), *Cerco de penumbras* (2000) and among many others. (Page 65).

Oscar Eduardo Jordán Arandia was born in Cochabamba, Bolivia. Although he is a poet by trade, his university studies and degree are in Philosophy. He works as a journalist and director of a literary and philosophical writing group. His publications can be accessed in his website: <https://sites.google.com/view/oscaroxizo/inicio> (Page 84).

Bruce Leutwyler has studied Western and Eastern philosophy for 35 years. In the 1980's, he studied philosophy at the graduate level with Dr. Richard Grandy and others at Rice University. He has participated for over 30 years in the Magnolia Circle Philosophy reading group, a reading circle of which Fernando Casas is a founding member. He has been a close friend of Fernando Casas for over 40 years. He has practiced meditation and other mindfulness practices for over 30 years. His primary teachers were Korean Son Master Myo Bong S'nim for Zen, Saint Guru Dev Singh Khalsa for Sat Nam Rasayan Meditational Healing and Kundalini Yoga, and Tenzin Wangyal Rinpoche for Bon Dzogchen Dream, Clear Light, and Dark Retreat practices. He is President and Lead Consultant for DSpace Computer Consulting, LLC. in Houston, Texas. (Page 42).

