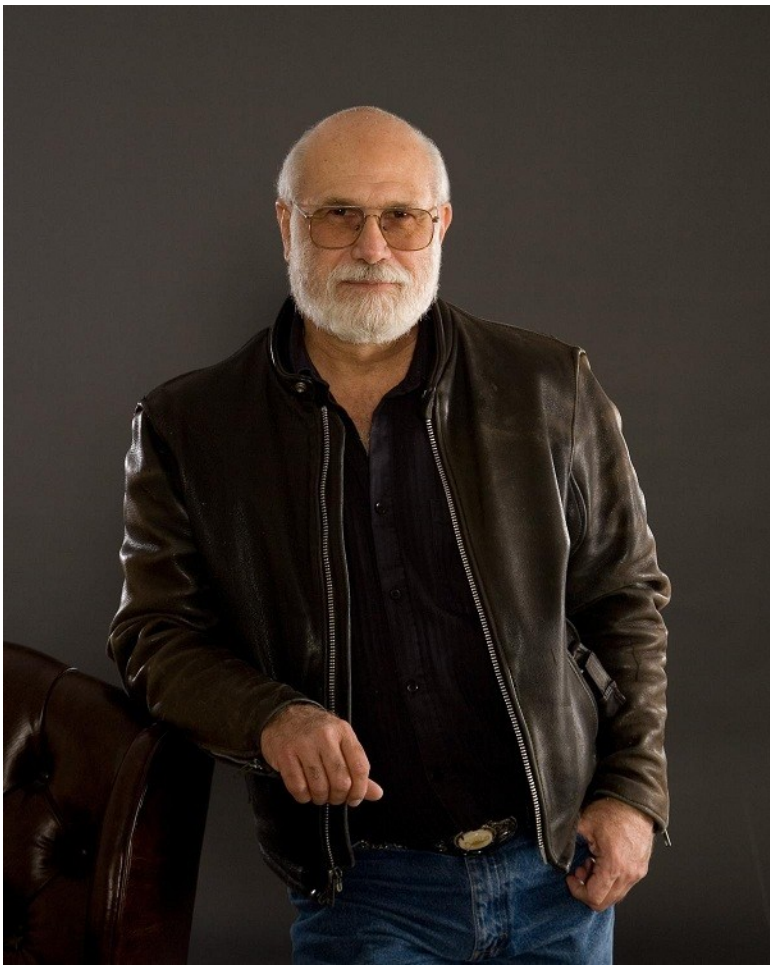
C.G. Masi



Artist Statement

I work at the interface between perception and reality.

Actually, all artists work at the interface between perception and reality. The difference, if any, is that I work *explicitly* at the interface between perception and reality. I don't try to kid you into thinking that what you are experiencing is reality in any way, shape or form. Neither is it any kind of more-or-less abstract representation of reality. I'm not creating reality, I'm creating perception.

The artist creates an object – whether it's a book, a painting, a sculpture, a mobile, or a serving of eggs Benedict – that exists in reality. When you experience that object, what you perceive is something entirely different, which exists only in your mind. It does not, and may never have, existed in reality.

That is subjective reality.

Objective reality isn't.

In subjective reality, your mind creates a perception guided by the vision of the artist. The work of art is successful insofar as the object the artist created leads you to the perception he or she intended.

Usually, what I intend is to guide you to a pleasant perceptual experience.

Have a pleasant perceptual experience!

Surrealist Landscape with White Thing
Acrylic on Gesso Board
19” x 22”

Biography

Artist, scientist, engineer, journalist, and author, C.G. Masi has advanced degrees in astrophysics and business administration, with hundreds of published articles in magazines as diverse as *American Iron* and *Review of Scientific Instruments*, six completed novels and artworks in two and three dimensions spanning media from carved wood to acrylic-on-canvas.

Largely self taught as an artist, Masi began sketching as soon as he could hold a pencil. He progressed from crayon to watercolors, oils, and acrylics. At the same time working with clay, carved wood and metal, plastics and twisted wire. His current work is heavily concentrated on airbrushing and experimenting with latex-based paints.

Masi’s paintings use *trompe d'loiel* techniques to render visual fantasies. His work can be thought of as an outgrowth of surrealism in that he uses realistic rendering to communicate ideas and concepts visually. Subjects are chosen for emotional impact and visual appeal. He considers anything that can be seen or imagined as fair game.

Exhibitions

Title	***Dates***	***Venue***	***Description (juried except as noted)***
Show of Shows	8/27-11/24 2012	Von Liebig Art Center Naples, Fla.	An exhibition of work in all media by NAA member artists. Non-juried
Small Works Show	10/20-11/24 2012	Von Liebig Art Center Naples, Fla	Members show in Members Gallery
National Art Encounter	12/8/2012 - 1/26/2013	Von Liebig Art Center Naples, Fla	Awards exhibition highlighting recent work
Wendy Series	2/19-5/9 2013	Sweet Art Gallery. Naples, Fla.	
Member Exhibits	5/6/2013 – present	ACSWF Co-Op Gallery, Estero, Fla.	
Scientific Surrealism	6/4-7/30 2013	Samaniego Art, Naples, Fla.	
Drumhead Series	8/1-9/5 2013	Samaniego Art, Naples, Fla.	
Psychedelia Series	9/5/2013 – present	Samaniego Art, Naples, Fla.	
Selected Works	9/10/2013 – present	The Art Place – Wynwood, Miami, Fla.	
Show of Shows	9/9-11/9 2013	Von Liebig Art Center Naples, Fla.	An exhibition of work in all media by NAA member artists. Non-juried
Art Basel - Miami	12/5-8/2013	Miami Beach Convention Center	Art Basel stages the world's premier Modern and contemporary art shows, held annually in Basel, Miami Beach, and Hong Kong.

EDUCATION

Master of Business Administration
Suffolk University, Boston, Massachusetts, 1988

Master of Science in Astrophysics
Rensselaer Polytechnic Institute, Troy, New York, 1976

Bachelor of Arts in Physics
UMass/Boston, Boston, Massachusetts, 1973

AWARDS

American Society of Business Press Editors, First Place Award For Editorial Excellence for a Technical Article in a Magazine with Over 80,000 Circulation, 1997.

Cahners Editorial Merit Award, Best Technical Article, 1996.

Outstanding Contribution to the IEEE VLSI Test Symposium, 1991.

Gold Standard Award for Excellence in Electronic Manufacturing Writing, Best Staff-Written Article, 1990.

Cahners Editorial Merit Award, Best Contributed Article, 1988.

Cahners Editorial Merit Award, Best Regular Department, 1988.

Cahners Editorial Medal of Excellence, Best How-To Article, 1987.

PATENTS AND PUBLICATIONS

NMR Magnet System for Well Logging, U.S. Patent #4,717,876, 5 January 1988

Silver Rivers, 2012

Through the Looking Glass, 2012

Down the Rabbit Hole, 2012

Red in Wonderland, 2012

Vengeance is Mine!, 2011

Red, 2010

Shakedown Blues, 2009

How to Set Up Your Motorcycle Workshop, 1996.

Over 200 articles published in technical, trade and consumer magazines – Selected publications list available online at www.cgmasi.com.

Ask Charlie, Online weekly blog sponsored by *Control Engineering* magazine, 6/2007 – 2/2009.

C.G. Masi Eye on Technology, Weekly online blog covering high-technology news, 3/2009 – 7/2009.

New Metropolis, Bi-weekly online blog sponsored by *Packaging Digest* magazine, 9/2012 – present.

The Work

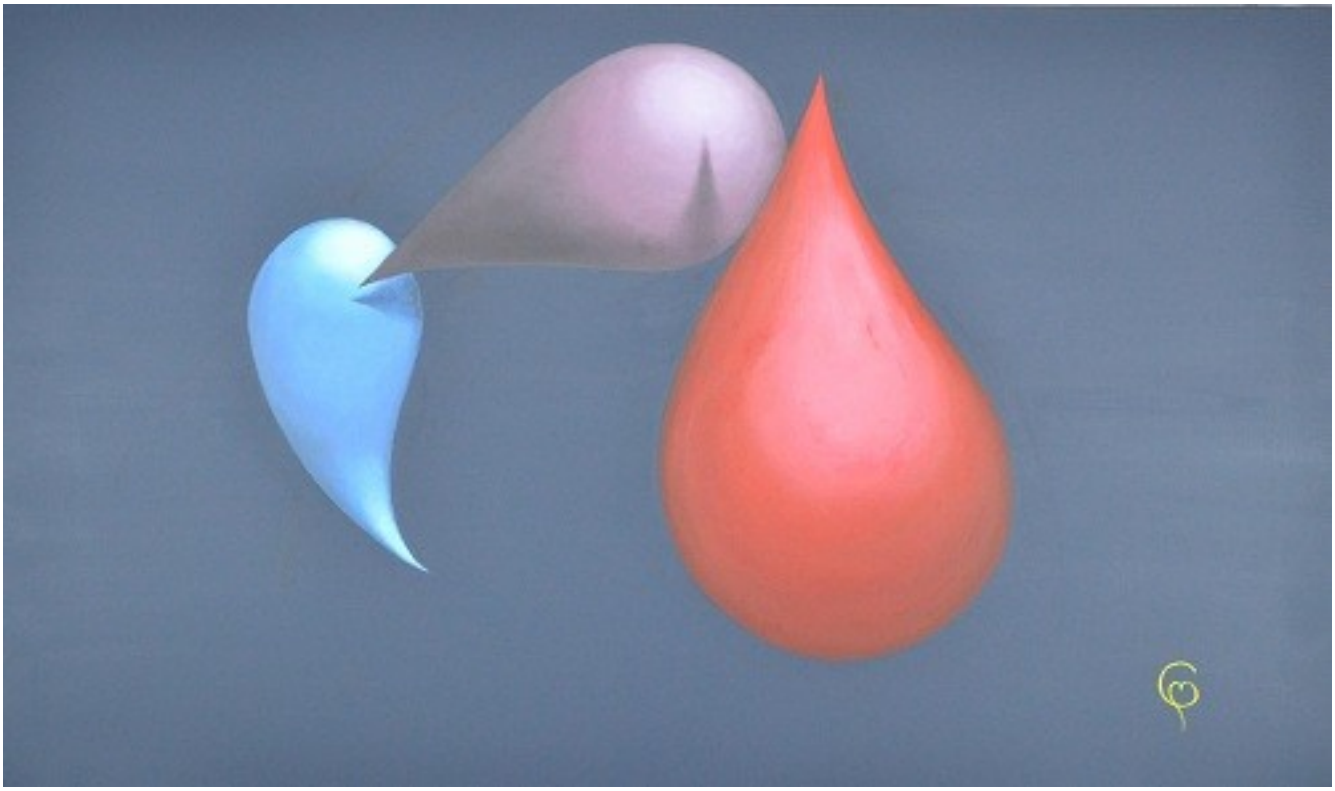
Scientific Surrealism

In the early 20th Century, Surrealist artists used realistic techniques to depict the content of their subconscious minds. They chose as their subjects visions from their dreams, and often nightmares, as well as images that arose unbidden and unfiltered by conscious thought. They used *trompe l'oeil* techniques to make these visions manifest as an alternate reality.

A century later – at the start of the 21st Century and a new millennium – people have a more sophisticated understanding of how the Universe works. The reality of sense perception is no longer the only reality. What counts is the reality of the mind. Ideas are more important than physical objects. No longer lost in a murky world of unconscious thought, or slave to the rigors of physical reality, the mind becomes free to imagine beyond the bounds of what used to be called "Objective Reality."

Objective Reality Isn't!

Informed by this more sophisticated view, Scientific Surrealism uses the same realistic rendering to make abstract concepts manifest in a new alternate reality – the reality of the mind. It is a mind inhabited by multidimensional images that often transcend space and time. Full of motion, form and color, a Scientific Surrealist artwork asks the viewer to participate in the creative process by imagining the ideas depicted. The artist is no longer throwing a static image out into the world, and saying: "Here it is!" The artist becomes a guide inviting the viewer to make a journey into the realm of imagination.

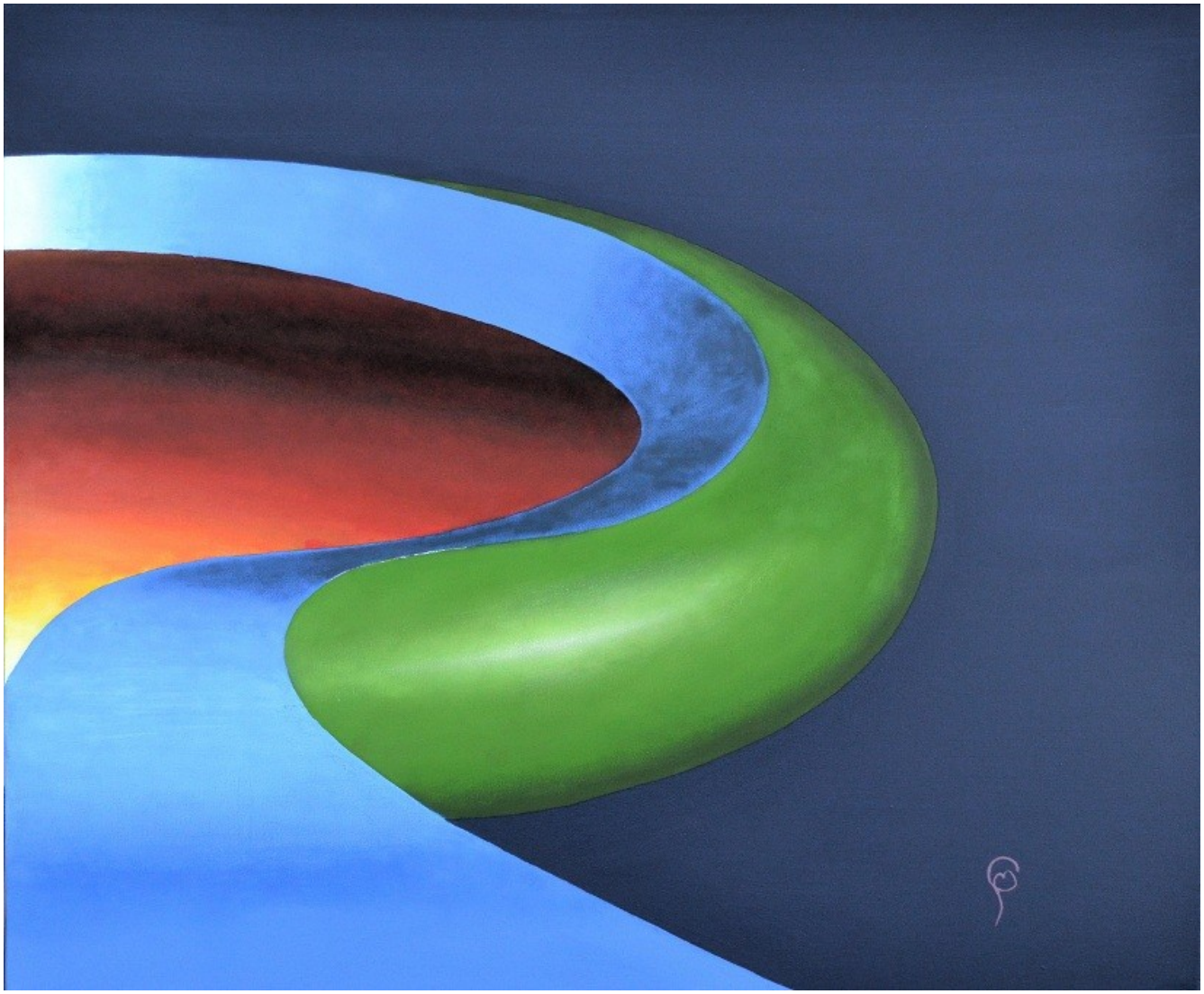


Cetacean Flight
Latex on canvas
36” x 60”

I generally think about any painting I do for a while before starting to work on it, carrying the image I wish to render around in my imagination, and modifying it until I'm satisfied that the vision in my head will produce the effect I intend. Then I figure out the steps required to actually produce the painting.

The idea for *Cetacean Flight* started out as a purely abstract drip painting that was to show silhouettes of two or three porpoises breaching. They were to be rendered in two dimensions with primary colors on a yellow background. As time went on, however I became more and more interested in depicting surrealist scenes with fully developed three-dimensional modeling. By the time I got around to actually painting this image, the porpoises had become abstracted to pollywog shapes that showed motion and direction, while simultaneously becoming “realistic” in their depiction. The background changed from an unrealistic yellow to the blue-black of a starless night.

The final image shows three moving shapes following each other through a complicated trajectory. The blue figure is rising up in the distance, with its tail tucked to curve its path over and downward. The purple (or is it mauve?) figure is at the top of its path, ready to move downward. The red figure is moving downward and has its tailed flipped upward to turn its motion back toward an upward-moving track.



Three Paradoxes
Latex on canvas
36” x 48”

This painting is nothing like I originally envisioned it. I thought about it for months as a curving wall lit from above and below by multicolored lights. When I started painting it, however, it looked horrible.

I rethought the whole project, keeping the basic composition but changing everything else. The result shows three visual paradoxes:

1. The hollow figure is wider on the inside than on the outside.
2. The figure’s center is short on the outside, but infinitely deep on the inside.
3. The figure’s blue rim is attached in the distance, but becomes a detached floating causeway in the foreground.

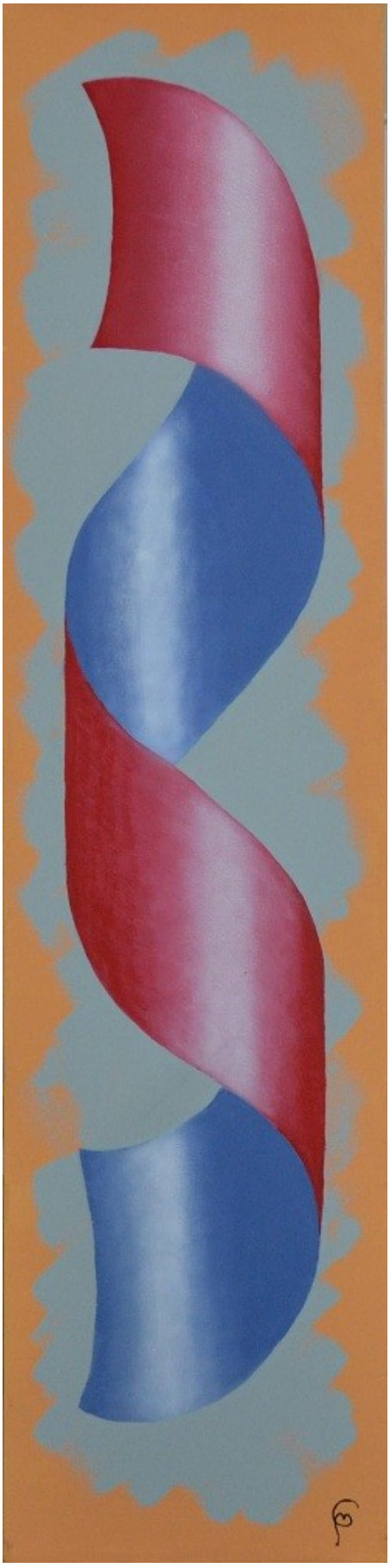
Arabesque
Acrylic on canvas
36” x 48”

An arabesque is a sinuous spiral-shaped figure used in many media. From ballet to architecture, arabesques take many forms, but they all exhibit the same graceful spiral.

This painting eschews all of the distinctive details, concentrating on the basic three-dimensional form.

Golden BB
Latex on canvas
48” x 48”

This image was an experiment to see how far I could push the attributes of hue and value to depict three-dimensional depth without the help of lighting and shadows. I think it was highly successful. The viewer has the sensation of following a golden sphere as it falls into a vast tunnel whose circular mouth arises from empty space.



Ribbon
Latex on canvas
12” x 48”

Almost exactly opposite in intent from *Golden BB*, this is a pleasant little exercise in shadow and light. Originally, it looked kind of dull, so I went back to punch up the highlights. The result is a strong three-dimensional figure floating in a two dimensional field. Does the ribbon lie behind the orange edge, or in front of the canvas?

Sail
Acrylic on canvas
24” x 30”

What does a sail really need? It needs a wind (shown by the pennant fluttering at its peak), which is movement of air in a thick atmosphere (shown in the cloudy yellowish background), over a horizontal surface (shown by the reflection below). It needs nothing else.

Past
Present
Future
Latex on canvas
24” x 30”

Time is a difficult concept in physics. Newtonian mechanics cannot discriminate between time moving forward or backward. Einsteinian relativity theory treats time as just another dimension on a par with the three spatial dimensions.

To deal with the fact that time only moves forward, physicists posit a concept called “The Arrow of Time,” which artificially points forward.

Only in the field of thermodynamics does the arrow of time rear its ugly head, insisting that entropy (the total amount of disorder in the Universe) always increases as time moves forward.

Philosophically, time is best understood via the following haiku:
The future's but a probability field.
The past is footsteps in the snow
The present moment is all we have.

This painting depicts this philosophical view of time. Colors at the bottom represent all the possibilities for future events converging to the present. At the present, one of these events explodes into actuality, while all the others are annihilated. The one remaining event shoots like a beam of memory - now devoid of color - upward into the past, but it slowly fades away as it grows older.

Rushing
30” x 24”
Latex on canvas

This image combines elements from two other canvases, *Cetacean Flight* and *Three Paradoxes*, to depict the concept of frenetic movement toward a goal. A single polliwog shape from *Cetacean Flight* speeds along a suspended roadway like the one from *Three Paradoxes*. It’s moving so fast that it leaves a vapor trail tracing its path.

Drumhead Series

Drumhead Series paintings are inspired by movements of a drum head: a thin, flexible, circular membrane under carefully controlled even tension. Striking such a membrane excites standing waves that wash across the surface. Only certain resonant modes are allowed, however. Each resonant mode forms a pattern that fits perfectly on the circular surface, causing the membrane to move up and down (toward the viewer and away, respectively) at a frequency determined by both the tension in the head and its areal mass density (mass per unit area).

The allowed vibration modes are identified by the lowercase letter *u* followed by two quantum numbers. The first quantum number designates the azimuthal symmetry, identifying the number of nodes counted around the circumference (divided by 2). The second designates the radial symmetry, identifying the number of nodes (minus 1) counted out from the center. Thus, the $u_{1,1}$ mode has two radial nodes (one at the center, and one at the edge), and two azimuthal modes (one at each end of a diametrical neutral stripe.)

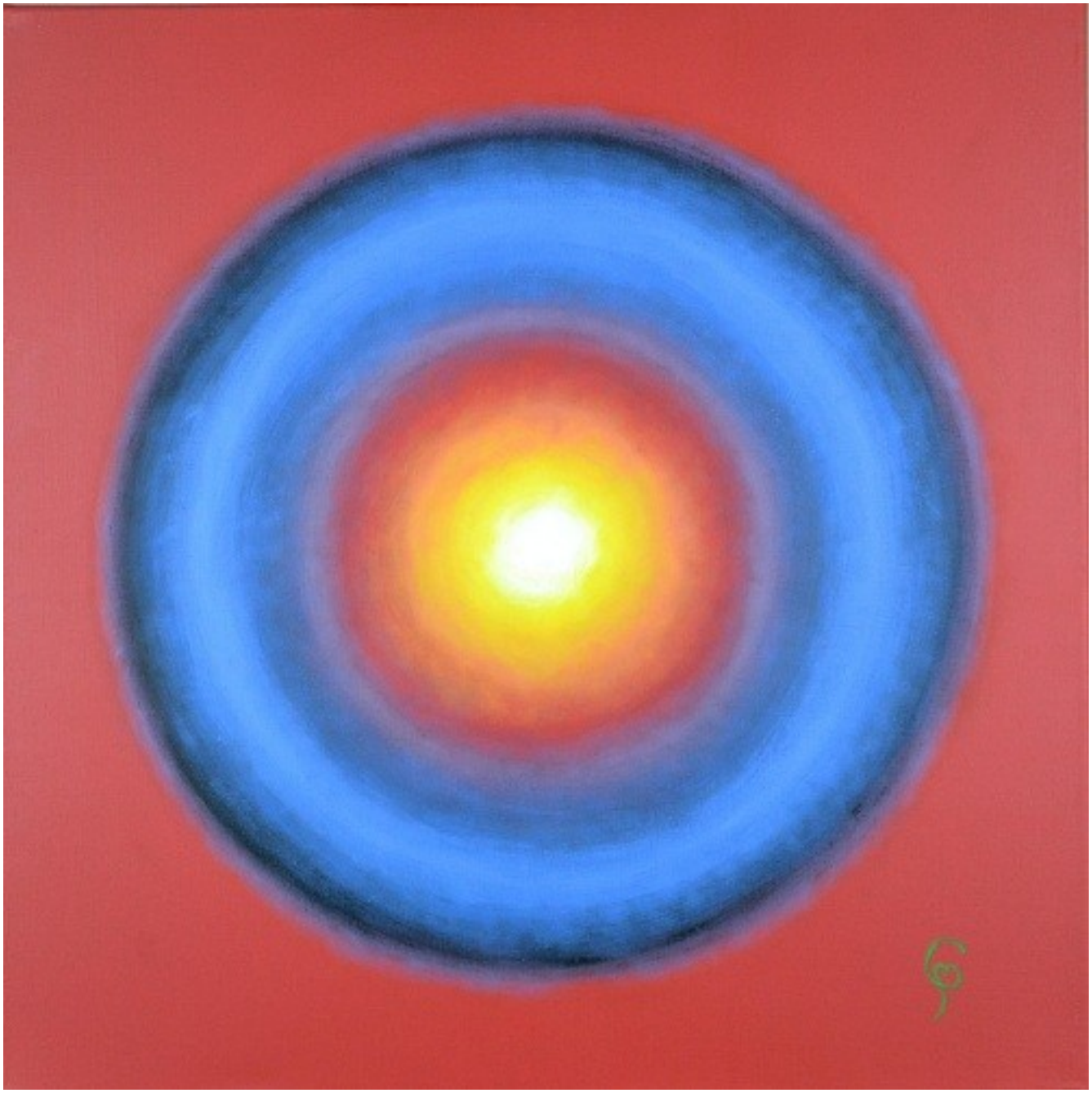
These paintings depict a shapshot of a membrane disturbed by one of these vibration modes. A background color signifies the neutral plane of the undisturbed membrane. Relatively warmer colors identify areas where the membrane has moved above the neutral plane, while cooler colors signify movement below that plane.

Drumhead $u_{1,1}$
Latex on canvas
30" X 30"

The $u_{1,1}$ mode exhibits biaxial symmetry. It has a neutral line along one diameter along which the membrane stays stationary. This is an unconstrained node, where the standing waves always cancel out as they wash past each other across the drumhead. They, however, do not cancel anywhere else. The drumhead moves up (toward the viewer) on one side, and down on the other. The rim at the outer edge is, of course, mechanically constrained, making it another node – a constrained node.

Drumhead $u_{0,2}$
Latex on canvas
30" X 30"

The $u_{0,2}$ mode has radial symmetry, designated by the quantum number 0. That is, it is invariant under rotation by any angle. The quantum number 2 designates that it has two radial nodes (one at the rim, and one between the center and edge), dividing the membrane into two circular regions, which move opposite each other. This image depicts the phase where the center moves down, and the outer annulus moves up.



Drumhead $u_{0,2}$ *+ 180°*
Latex on canvas
30" X 30"

The $u_{0,2}$ mode has radial symmetry, designated by the quantum number 0. That is, it is invariant under rotation by any angle. The quantum number 2 designates that it has two radial nodes (one at the rim, and one between the center and edge), dividing the membrane into two circular regions, which move opposite each other. This image depicts the phase opposite that of *Drumhead* $u_{0,2}$, where the center moves up, and the outer annulus moves down.

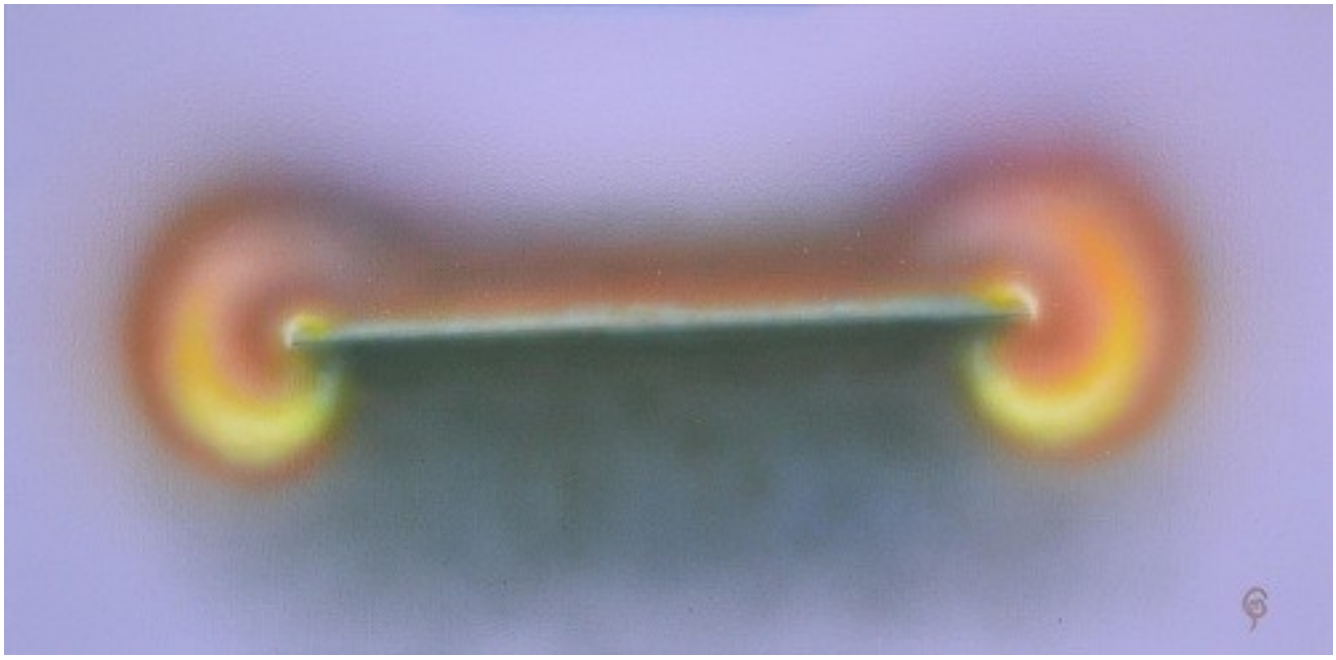
Vorticity Series

Vorticity is, perhaps, the most ubiquitous concept in fluid dynamics. An ideal fluid is, by definition, a material unable to support shear stresses. That is, elements of fluid volume are able to slide past each other without friction. Real fluids, of course, cannot do this. The degree to which they depart from ideal fluidity is measured by their viscosity, which varies from very high for fluids that appear to be solid (such as glass) to very low for liquids (such as water) and gasses (such as air).

A vortex is a pattern of fluid motion where elements orbit around a central axis in such a way that the tangential component of their velocity is inversely proportional to their radial distance from the center. Since angular momentum is always conserved, the pattern persists *ad nauseum* in an ideal fluid.

To also conserve linear momentum of the whole pattern, it must include a central force (centripetal force) to turn the fluid elements' paths (streamlines) into closed orbits – trapping them into the pattern. This is generally provided by variations of pressure with the hydrostatic pressure lowest at the center and higher farther out.

Thus, the whole pattern moves at constant linear velocity in accordance with Newton's First Law (conservation of linear momentum), while individual elements move within the pattern in accordance to conservation of angular momentum. In this way, vortices are generally the most persistent of possible patterns of fluid motion.



Wing Tip 2
36” x 18”
Acrylic on canvas

Aircraft wings create lift by pressing air downward underneath, and pulling air flowing over the wing downward to meet it, creating a pattern of high pressure under the wing and low pressure over it. At the wing tip, however, the physical barrier (the wing, itself) between these low and high pressure regions disappears. High-pressure air from under the wing rushes up to the low-pressure area above, creating a vortex pattern attached to the wing tip.

The wing, however, moves rapidly forward, out of the vortex pattern and into the more-or-less stationary air ahead. The situation repeats as the the wing forces more undisturbed air downward, creating new regions of high and low pressure, and extending the vortex pattern.

In the end, the whole pattern of disturbed air has sheets moving downward across the entire wing’s width, with long vortices corkscrewing off the wing tips and trailing behind. From a vantage point ahead of the wing, the viewer sees a broad downwash across the wing, with rams-horn-shaped vortices corkscrewing from the wing tips.

As time goes on, viscosity of the air spreads angular momentum from the wing-tip vortices away from the center, dissipating it through the atmosphere.

Maelstrom 2
Acrylic on canvas
19” x 37”

A maelstrom is the simplest vortex pattern, consisting of one isolated vortex spinning around a vertical axis. Seen in phenomena from the scale of a cup of coffee to a hurricane, maelstroms are ubiquitous in human environments. They are most visible at the interfaces between two fluids, such as air over the ocean.

Psychedelia Series

A couple of generations ago, folks imagined that taking psychedelic drugs somehow gave them perceptions of a “higher reality” unavailable to normal mortals. Better understanding of how human perceptual systems work has shown that to be bogus. The human brain is a complex, carefully tuned mechanism. Mucking with the system by flooding it with weird chemicals can only interfere with the brain’s best performance. Specifically, psychedelic drugs interfere with its ability to edit out normal illusions created by mistakes in the sensory systems.

These visual and auditory illusions, however, can really be quite beautiful, and the psychological illusions can be quite enjoyable. Psychedelia series paintings celebrate the beauty inherent in them.

Psychedelia 1
13” x 13”
Acrylic on canvas

Psychedelia 2
Acrylic on canvas
12" X 12"

A bagel illusion, such as the partial one seen here, may arise from pressure within the eye. It is very common among migraine sufferers. As Salvador Dali famously pointed out, you can create a bagel illusion simply by applying slight pressure to the eyeball through closed eyelids.

Bagel illusions vary enormously in color and brightness. They vary from partial arcs, such as the one seen here, to nearly or complete circles.

Psychedelia 3
13” x 13”
Acrylic on canvas

It is not clear how phosphenes originate in our visual systems. Perhaps the best current theory points out that our eyes and brains are living things, and thus always active. This activity generates “noise.” Stuff going on no matter what. In the absence of external stimulation, spontaneous illusions become obvious, and appear to us in the form of visual illusions, or hallucinations. They appear as moving and flickering lights, and even broad areas of color. They do not appear random, like the “snow” that used to appear on analog TV channels when nothing was being broadcast, but more “chaotic.” Perhaps it is our brains attempting to make sense out of non-sense.

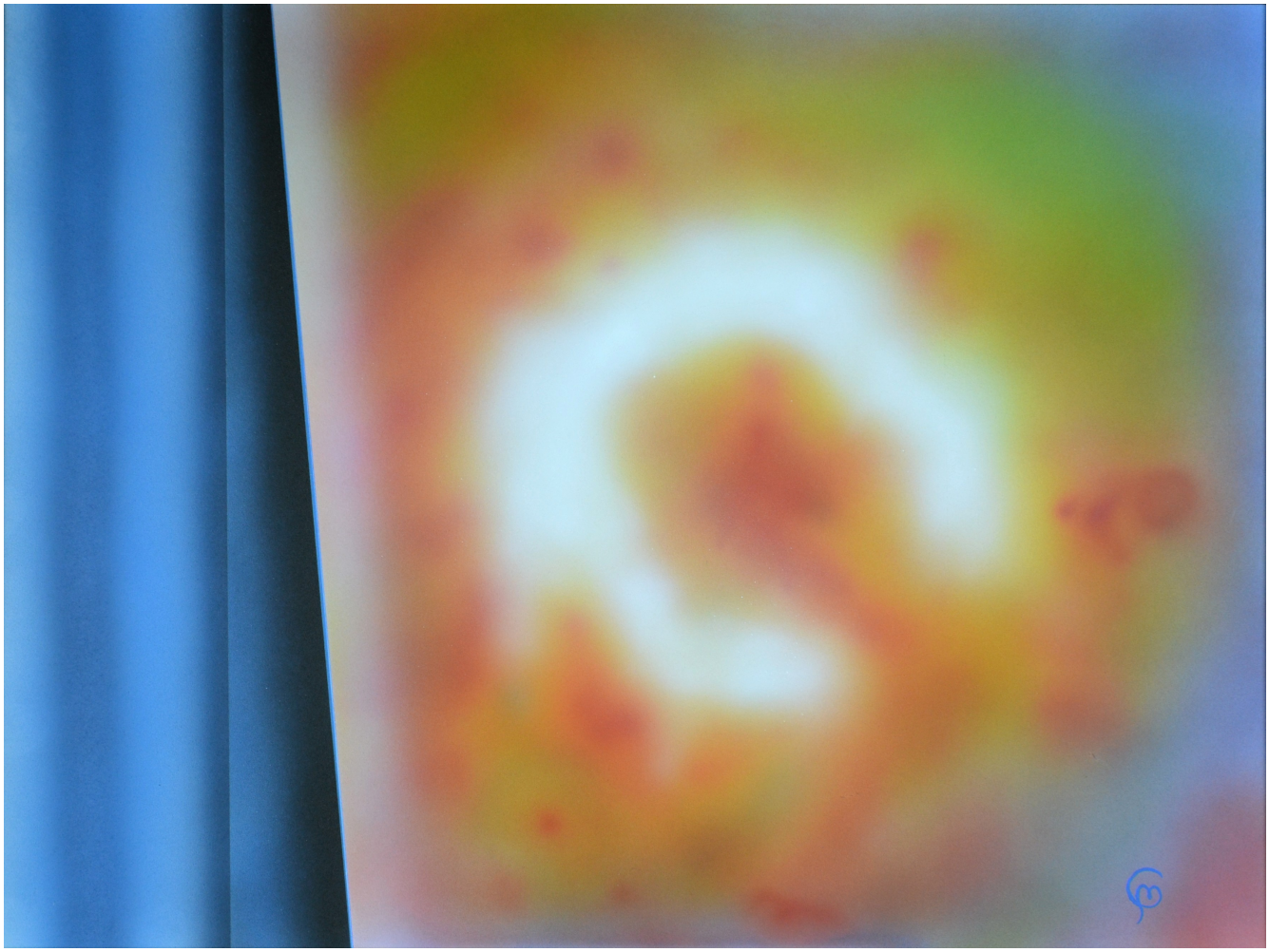
Psychologists studying psychedelic experiences identify five “levels” of experience, which vary from what people call a “mild buzz” to total loss of visual connection with reality. At about level three, phosphenes begin to appear three dimensional. In Psychedelia 3 the visual field is dominated by a warm-colored linear phosphene that appears to float over a blue background. Greenish fog patches appear to float at an intermediate level.

Psychedelia 4
13” x 10”
Acrylic on gesso board

Psychedelia 4 shows a phosphene-rich background behind the edge of an orange cylindrically shaped object. It also features a reverse-color aura, such as appears next to every sharp contrast edge a person sees.

Unlike phosphenes, which arise spontaneously within the visual system, auras come from photobleaching of rhodopsin within the rod and cone cells in the retina. Photosensitivity of retinal cells occurs when rhodopsin molecules respond to photons by switching between a light-sensitive conformation and a light-insensitive conformation, releasing energy in the process. Affected cells have reduced sensitivity until they “pump” their rhodopsin molecules back up to their light-sensitive conformation.

The auras appear when eye movements shift the image on the retina slightly. In this case, the gaze has shifted slightly upward and to the left, uncovering part of the retina that was previously protected from photobleaching by the dark edge of the orange cylinder. The cells in that area are, therefore, overly sensitive compared to cells that have been looking at the brighter background, and the scene looks lighter there.



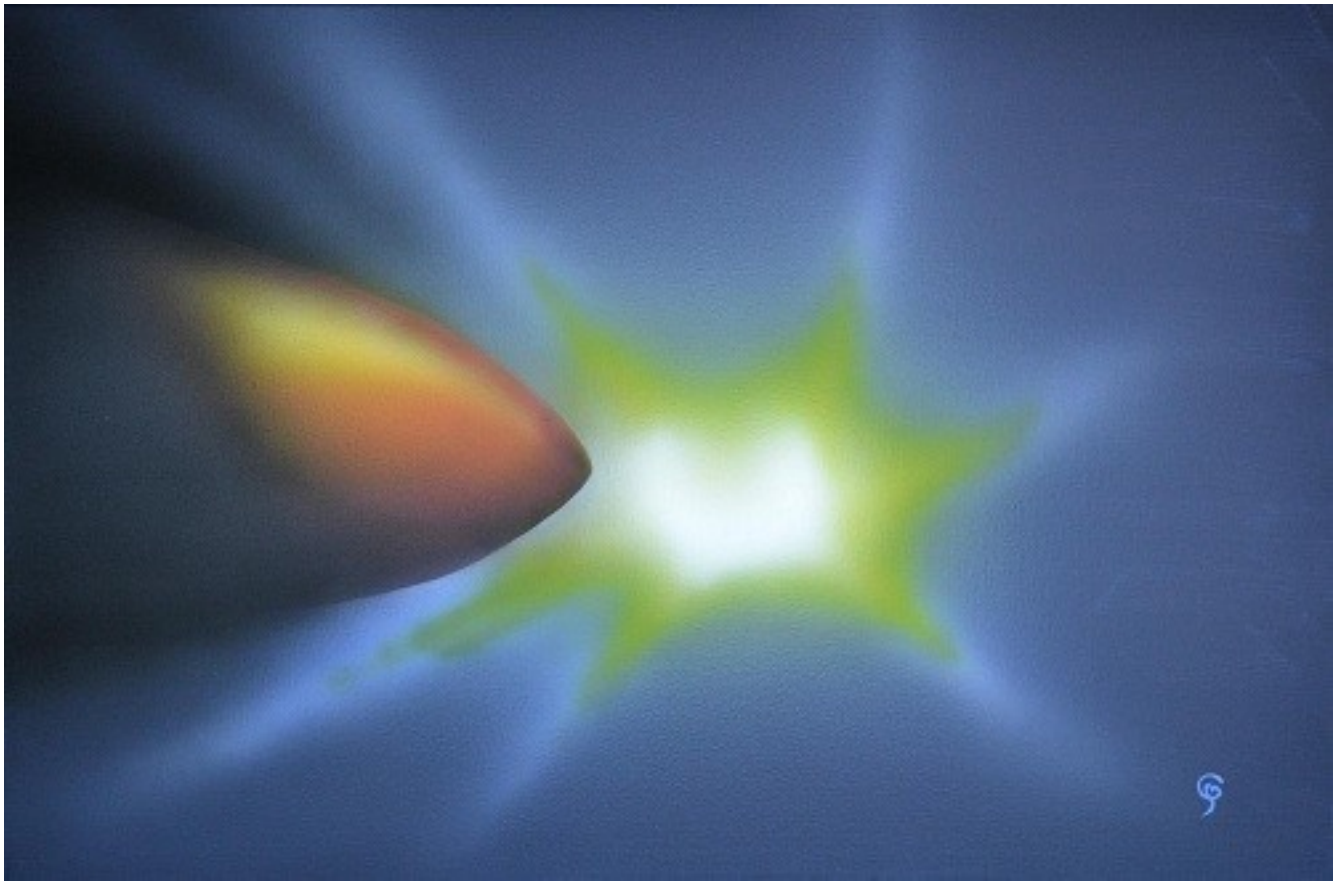
Psychedelia 5
Acrylic on canvas
18" X 24"

Psychedelia 5 shows a phosphene-rich background beside a blue drapery, with a bright, nearly fully formed bagel illusion. It also features a reverse-color aura, such as appears next to every sharp edge a person sees.

Unlike phosphenes, which arise spontaneously within the visual system, auras come from photobleaching of rhodopsin within the rod and cone cells in the retina. Photosensitivity of retinal cells occurs when rhodopsin molecules respond to photons by switching between a light-sensitive conformation and a light-*insensitive* conformation, releasing energy in the process. Those cells have reduced sensitivity until they "pump" their rhodopsin molecules back up to their light-sensitive conformation.

The auras appear when eye movements shift the image on the retina slightly. In this case, the gaze has shifted slightly to the right, uncovering part of the retina that was previously protected from photobleaching by the dark-colored drapery. The cells in that area are, therefore, overly sensitive compared to cells that have been looking at the brighter background, and the scene looks lighter there.

Psychedelia 6
13” x 10”
Acrylic on gesso board



Psychedelia 7
36” x 24”
Acrylic on canvas

Because the bullet shaped physical object coming in from the left is deeply shadowed against a dark background, there is little aura visible. Instead, the background is dominated by the bright blue-green phosphene, which includes a bright bagel illusion. The bagel illusion, although very bright, casts no light on the bullet shape because it exists only in the perceptual system. It does not actually lie behind the bullet shape. Instead, the visible light reflecting from the bullet shape washes out that part of the phosphene overlying it.

In the “real” world, such a phosphene would still be visible overlying the bullet shape, since it exists only in the viewers perceptual system.

Wendy Series

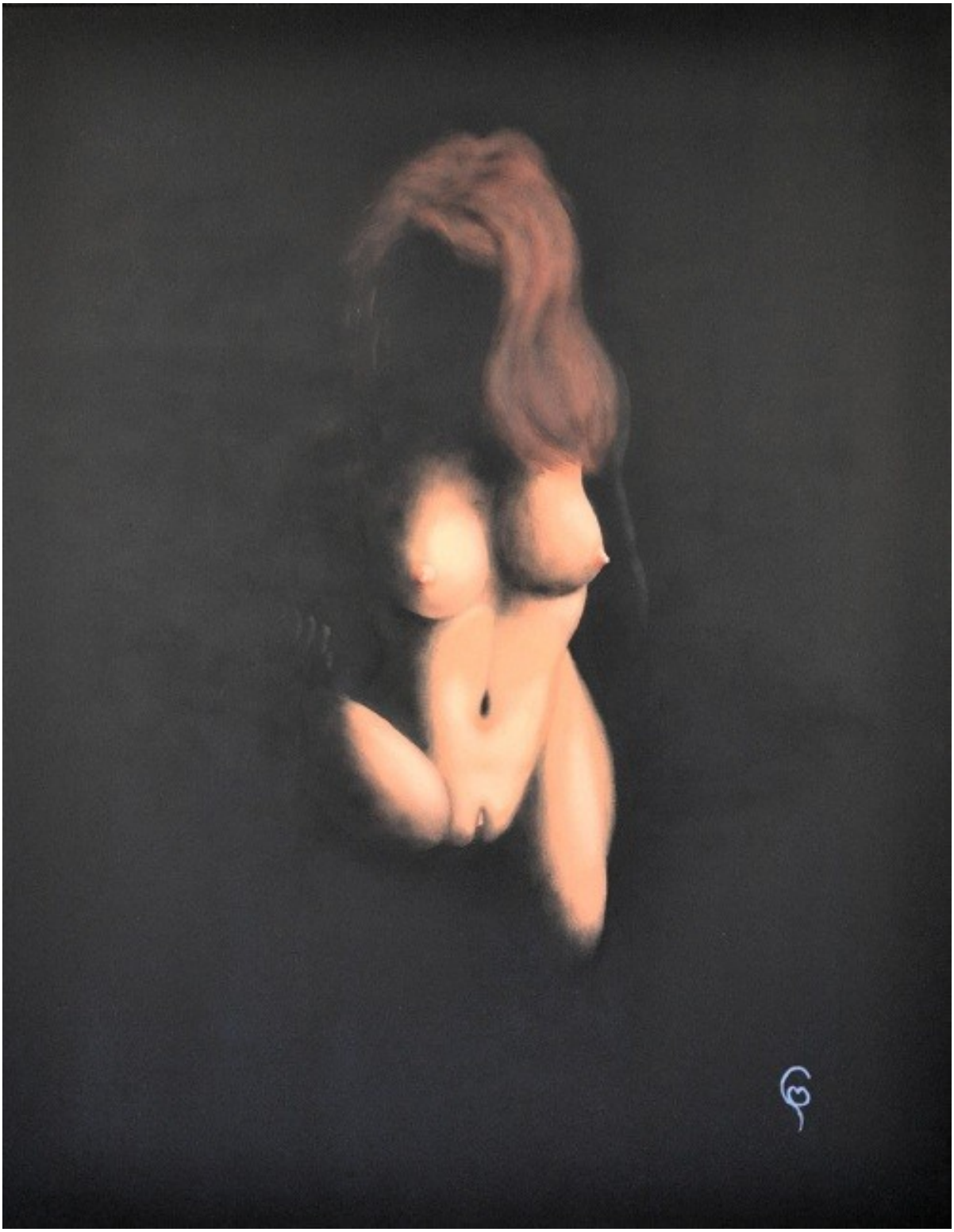
Wendy is a pretty lady who agreed to pose for a series I envisioned of women riding motorcycles. The plan was to do a photo shoot with her posing with a custom motorcycle built by Dave Nocera at Collier County Choppers, in Naples, Fla., then render one or more of the images in acrylic on canvas. Finally, I would reproduce the image in a series of posters.

During the photo shoot, after I had all the poses I'd anticipated, we tried a bunch of just-for-fun poses. Among these were a very erotic pose with her leaning against the motorcycle. Another had her lying on her side on a pool table facing the camera, dramatically lit by the pool-table overhead light.

I rendered these two poses with chiaroscuro lighting. Dede Sweet at Sweet Art Gallery was so taken by the pool-table image that she suggested I paint a similar pose, but with Wendy facing away from the camera. I called Wendy back for a second photo shoot, and conceived of similar images with her standing.

In the end, I completed six paintings: the original pose on the motorcycle, the chiaroscuro image of her leaning against it, the two images of her lying on the pool table, and the two standing poses. Those six images appear here as the Wendy Series.

Wendy's Bike
Acrylic on canvas
24" x 36"



Wendy
Latex on canvas
36" X 28"

Wendy's Hip
Latex on canvas
12" X 48"

Wendy's Waist
Latex on canvas
12" X 48"

Wendy's Front
Latex on canvas
12" X 48"

Wendy's Rear
Latex on canvas
48" X 12"

Kinetic Art

It turns out that I tend to think in four dimensions. That is, I visualize in the three dimensions of conventional space, but generally find those images moving in time, as well. So, I'm a lot more comfortable dreaming up ideas for mobiles than statues. Not that I've never made a static scupture, but I always find that there's something missing: movement. Mobiles, if they're properly constructed, exhibit that movement, more importantly, a chaotic movement powered and governed by the random movements of air. Just like things in real life, they move about driven by the chaos that fills the Universe.

I've decided to call my current crop of mobiles Imagination Required. The title fits because I'm designing them without modeling them after something else. It's quite enough to create a bunch of interesting shapes, and pile them up in such a way that they balance, and move about in interesting ways. The result is something that typically reminds the viewer of something, but what it reminds them of depends on what's going on in their minds, not mine. Hence, to properly understand these pieces requires you to imagine what they look like to you, not me, or the person standing next to you. They likely will remind you of something different tomorrow than they do today, and that's good! That's the way it's supposed to be.

Imagination Required 1
FRP on foam core
22" X 12"

In the late 1950s my father began experimenting with applying fiber reinforced plastic (FRP) in yacht construction. Over the course of several years helping him, I became familiar with the technique, then continued using it for my own boats. I've found applying a glass-fiber reinforced epoxy coating over a polystyrene-foam core to be an excellent and inexpensive means of free-form sculpture construction. I then apply an acrylic paint finish.

My Imagination Required series uses this construction method to produce mobiles inspired by works by Georgia O'Keeffe, Salvador Dali, and, of course, Alexander Calder. Their shapes do not represent real objects, so their interpretation is entirely up to the viewer.