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How I Came to Paint the Crab Nebula: The Development of Cosmic Themes in My Oil Paintings

Berta R. Golahny

My background includes many years of drawing and painting the life model and people wherever I saw them: in parks, subways, cafeterias, county fairs, and so on. Often I placed these figures into metaphysical rather than literal environments. I feel no conflict between figurative and abstract forms; this may account for my being receptive to the cosmic phenomena that have 'invaded' my work and transformed its imagery and technique.

THE CREATION THEME

I trace the origin of my fascination with cosmic matters to a 1975 trip through the Sinai desert. The crystalline desert light, the dramatic rock formations, a black sky that mysteriously illuminated the mountains at night—these features gave me the impression that Sinai was a part of the world still in the process of creation. The primeval past seemed ever-present. When I returned home to the studio, the penetrating feelings I'd had on that trip, enhanced by drawings and paintings of the desert, led me to the Bible. I decided to explore the Biblical conception of creation by painting a canvas for each of the seven days of creation as portrayed in Genesis.

The painting for the fourth day, when the sun, the moon and the planets were created, required much study, during which I read books on astronomy. When I paint I need both to acquire objective knowledge of the subject and to experience that knowledge subjectively. Painting directly from the life model, or from drawings made from nature, brings these elements together. The objective knowledge is before me and I experience it in form and color while working. The subjective experience follows naturally. The painting that results unites the essence of these mental processes with oil and linen. When my Genesis series reached the fourth day, I realized that I lacked certain necessary objective scientific information, without which my subjective feelings for the topic also would remain vague. I thus left the studio and read for months at the MIT Science Museum and local libraries. When I had reached some understanding of the cosmos, I painted the Biblical fourth day of creation as an expression of the forces shaping the heavenly bodies rather than as a depiction of the sun, moon and planets as in the Biblical narrative.

THE DEVELOPMENT OF SPACE IMAGERY

I read scientific works for ideas, concepts and theories; I ignored equations and charts since I am not versed in mathematics. Even with this limitation, however, I was so

much enthralled with what I was learning that I set aside my plan to complete the Genesis series, and I continued reading. The photographs of nebulae in Donald H. Menzel's book on astronomy were so beautiful that I was inspired to paint them [1]. Upon close examination, however, the pictures did not reveal enough structural information. In my search for greater understanding of cosmic structures, I went to the Harvard College Observatory to see whether its photographs would be improvements over the book illustrations. They were, and they changed my vocabulary of painterly forms.

An astronomer showed me black-and-white photographs of gaseous nebulae, printed negatively, with white sky. This manner of printing emphasized the clarity of these high-resolution glossy pictures. The copious details of forms endlessly peeling away from each other made my drawing from these pictures difficult, as the forms seemed to move in all directions at once. I was looking at processes rather than substances, and I got lost in this complex maze and could hardly complete the pen drawing. But this frustrating experience gave me insights that fundamentally altered my ideas of the kinds of forms in existence. These gases contracting and expanding in vast space captured my imagination. I wanted to further explore this realm and to suggest it in my paintings. The works that I painted after I visited the observatory were far more elaborate and fluid in form than my previous canvases had been.

My first nebula paintings bore resemblances to specific nebulae. But soon my interest and excitement centered on the designs that these gases, existing on so vast a scale, would make when condensed onto a small canvas. Encompassing the configuration of entire nebulae as recorded in photographs seemed less important. I thought that I would paint just a section of a nebula; I thought of how a nebula might look if observed from space rather than from the earth, or even from within the vortex of its own swirling gases. When I painted, the very process of painting prevented the work

ABSTRACT

The author's paintings of the cosmos are not merely painterly translations of astronomical photographs; rather they have structures revealing metaphors that relate cosmic realities to humankind. Cosmic themes and the techniques that articulate them reach their culmination in her painting *Crab Nebula*, which is discussed in detail.

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from becoming a literal transcription of a photograph. As my brush defined and articulated groups of forms, inevitably they differed from those forms in the photographs that have soft edges and vague structures.

THEMES IN *CRAB NEBULA*

The vitality and breadth of thinking in astronomy kept me reading in this field. The theories and research described in books became my raw material and my sources of inspiration. I began to think that my relationship to the written word was now similar to my former relationship to the life model in earlier paintings. When I learned that astronomers had received radio emissions thought to be echoes of the Big Bang, I felt an

incredible awe in comprehending that we, today, could have contact with the early universe.

The supernova that made the Crab Nebula was observed in 1054 by Chinese and Arabian astronomers, and they amply recorded their impressions. This fact gave the nebula a human dimension in my mind. Themes in my *Crab Nebula* painting (Fig. 1) concern the passage of time since the inferno of the Big Bang and the continuum of existence, inasmuch as we are all made of star stuff.

PAINTING THE *CRAB NEBULA*

I felt an inner necessity to paint what this nebula symbolized. I conceived and blocked out the design all at once. The

reddish clawlike forms (from which the name Crab Nebula derives) quickly spread to the edges of the canvas. This design gave me the idea of painting in such a way that there would be no top or bottom, as in space, and therefore the painting could be hung and viewed from any angle. I reserved the greatest light, the glow from the explosion responsible for the nebula, for the center of the canvas (Color Plate B No. 1). The expression of the unity of being became important, and for the first time in my space paintings I included images derived from earthly life: people (see Fig. 1) and the nautilus (Fig. 2).

My study of the Harvard Observatory photographs gave me the confidence that I could find a way with paint to suggest astronomical space and its twin dimension of time. Those pictures gave me clues, and they gave me artistic license to invent myriads of tiny diverse forms to stand for eons of time. After I blocked out the over-all design, the canvas almost painted itself; I made no sketches or plans. But it took almost a year to achieve a unified painting of many complex forms.

Fig. 1. *Crab Nebula*, oil on linen, 30 × 36 in, 1982 (detail). The human image evolving from space forms.

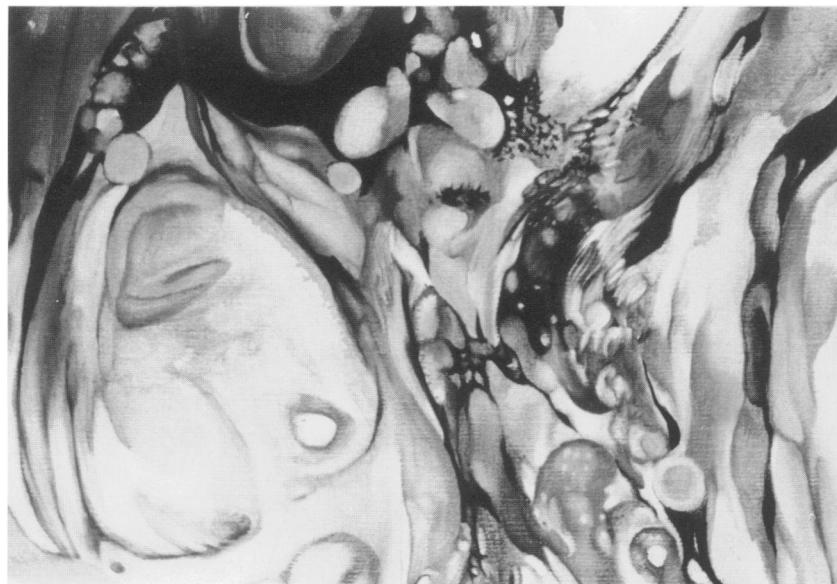
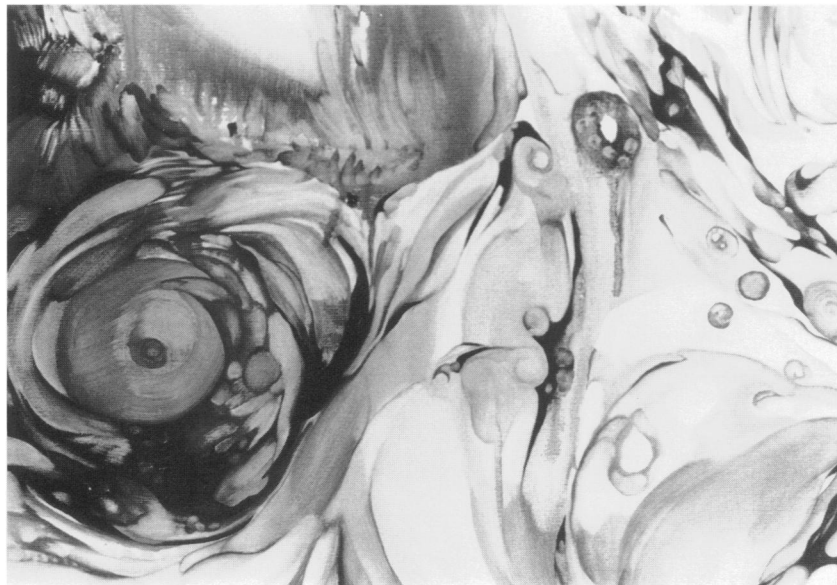


Fig. 2. *Crab Nebula* (detail). Nautilus-like form amid exploding gases.



TECHNIQUE

Painting the intricate imagery gave me the opportunity to refine and stretch to their technical limits the innovations of previous nebula paintings. So that this painting might reflect the lack of any atmosphere in space to modify the unimaginably intense color of exploding gases, I used (and still use) pure color, often applied directly from the tube. Where necessary, I reduced color with white; more often I allowed the white ground of the canvas to shine through thinly applied pigment. By modifying a color already on the canvas as opposed to mixing colors on the palette, I allowed the pigment particles suspended in the oil to preserve maximum brilliance.

The technique I now use evolved from that of my *Crab Nebula*. In my search for colors that might express the vividness of gases, I discovered the various red-violet shades of the newer quinacridone pigments (they play a prominent role on my palette), the potent phthalocyanine blues and greens and the indathrene blues and violets. My palette also includes the more traditional cadmium yellows and reds, ultramarine, cerulean, cobalt and manganese blues, cobalt violets, titanium white and vine and ivory blacks. Since shades and intensities differ across

manufacturers, I use several brands of some colors.

I apply paint with sable or the newer and cheaper white nylon brushes that have recently become available. These synthetic brushes do not shed, as the sable ones often do, and they handle paint in a similar way. Though they become stained, this does not affect their performance, and they retain their shape when rinsed in turpentine or lacquer thinner (they will fluff up if washed in water).

When I start a painting, I apply a first layer of paint thinned slightly with turpentine and then, in a thin layer, apply the paint as it comes from the tube. I never use oil or a medium, as these darken the color with time, and I find the buttery consistency of modern tube colors easy to manipulate without oil or medium. Since color is most brilliant when reflected off the white ground of a fine, closely woven linen, I rarely paint over, and the completed canvas has a thin matte surface. If an

area is unsuccessful, I carefully remove the unwanted pigment with a minute amount of lacquer thinner and reprime the area. After the painting has dried for at least one year, I have a conservator give it a spray-coating of nonyellowing polymer AYAA in a hydrocarbon base.

CONCLUSION

Painting in general is the interpretation of a three-dimensional world on a two-dimensional surface. The process of finding shapes, colors and forms for this mental reconstruction of spatial concepts involves the intellect, the emotions and the fertile realm of the imagination. The *Crab Nebula* painting involves extra dimensions as it strives to convey immense explosive energies in the space-time continuum. Had I thought very long before beginning this work, I would have considered it impossible to paint. Working on this canvas was an exciting adventure,

though at times it was emotionally draining as I worked to make an esthetic whole from a complex structure. The painting embodies time and is symbolic of human tenure in this dimension. So this work, in addition to extending my technical and formal vocabulary, has encouraged me to pursue new ways of expressing the passage of time since the Big Bang, and our relationship to the stars.

References and Notes

1. Donald H. Menzel, *Astronomy* (New York: Random House, 1975).

Editor's Note: See the following *Leonardo* articles on space art: Michael W. Carroll, "Space Art: The Impact of Space-Age Technology on Representational Art", **15**, No. 3, 210–212 (1982); Pierre Compe, "Leonardo in Orbit: Satellite Art", **20**, No. 1, 17–21 (1987); Hans-Gunther Cremers with Anna C. Funk, "Painting on Themes Taken from Astronautics", **6**, No. 3, 237–238 (1973); David Hardy, "Painting: The Impact of Astronautics and Science Fiction on My Work", **9**, No. 2, 95–98 (1976); Frank J. Malina, "On the Visual Fine Arts in the Space Age", **3**, No. 3, 323–325 (1970); L. Pesek, "An Artist in Modern Times: On Extraterrestrial Landscapes", **5**, No. 4, 297–300 (1972).