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Interdisciplinarity in College Museums and Galleries: Does it Work? An Assessment of Three College Exhibition Collaborations

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**INTERDISCIPLINARITY IN COLLEGE MUSEUMS AND GALLERIES: DOES
IT WORK?
AN ASSESSMENT OF THREE COLLEGE EXHIBITION COLLABORATIONS**

By

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Submitted in partial fulfillment of the requirements for the degree of
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Abstract

This thesis discusses the value of interdisciplinary collaborative exhibitions in the university museum and gallery. The three case studies presented each represent four year colleges but each gallery differs in its relationship with the larger university, in its funding level and in its defining of mission.

Defining the elements for successful interdisciplinary exhibitions is important to understanding how they might flourish. In addition I argue that the college gallery can produce compelling interdisciplinary exhibitions with less than the ideal requirements of institutional support such as a museum staff motivated to engage in interdisciplinarity, staff dedicated to audience development, staff dedicated to fundraising development, and the creation of learning communities among other needs. This thesis will show that the willingness of the gallery to engage in interdisciplinarity is paramount to other requirements.

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CHAPTER I

An Introduction to Interdisciplinarity

What are the ingredients needed to produce successful interdisciplinary collaborative exhibitions? In the following case studies it is clear that those needs include: institutional support; the museums' motivation to engage in interdisciplinary exhibitions; audience development; museum/gallery relevance; the development of learning communities; adequate funding; including mentorship of faculty curators; creation of effective websites; willingness of the museum see itself as a laboratory; ability of collaborative partners to view their exhibition project as an experiment. I suggest that all of these issues contribute to a successful interdisciplinary and collaborative exhibition.

Among the goals of interdisciplinary collaborative exhibitions the most important is enhancing critical thinking and discourse of all participants by learning to look at objects and information in new ways, making new connections between varying disciplines that offer alternatives to traditional methods of viewing/reading the arts, humanities and the sciences.

Case Study Introductions

In this thesis I will analyze three recent university exhibitions to determine the efficacy of interdisciplinary exhibition programs and the impact the exhibitions had on the university museum, participating faculty and students. The three case studies I will analyze are: *Molecules That Matter*, September 8, 2007 through April 13, 2008, The Frances Young Tang Teaching Museum and Art Gallery, Skidmore College; *On Ice*,

January 3, 2007 through February 11, 2007, Williams Center Art Gallery, Lafayette College; and *Word, Mind, City: The Universal Resonance*, November 20, 2007 through December 15, 2007, Martin Art Gallery, Muhlenberg College.

When a university museum or gallery engages in non-traditional exhibitions and programs that mix art, artifact and scholarship by involving other academic departments, the museum provides an arena for experimentation. In such an environment art and objects may acquire new or enhanced meaning by making connections that broaden perceptions as well as understanding by providing a new context for art, object and research. In these instances, the gallery may be considered a laboratory.

Michael Oatman, an artist who uses collage as his primary medium, stated during the *Molecules That Matter* panel on September 8, 2007, “This show reflects the laboratory and the studio. Pedagogy and artistic practice is lab based. [It is] romancing science through material.”¹ Oatman’s determination of the studio as lab based underscores that the nature of artistic practice is also based in research. That research is built upon reading and discussions with other artists, and in Oatman’s case by talking about science with scientists. Oatman readily admits that he is not a scientist but an interpreter of the ideas of science. For the scientist the artists’ use and interpretation of their scientific research may be messy science. “It is the power to mix things up”, that affords the artist his lab-based hypotheses that results in works that challenge notions of what art can be and the university museum is a forum for experimentation.²

¹ Michael Oatman, *Molecules That Matter* panel discussion, The Frances Young Tang Teaching Museum and Art Gallery at Skidmore College, September 8, 2007.

² Janet Marstine. “What a Mess! Claiming a Space for Undergraduate Student Experimentation in the University Museum.” *Museum Management and Curatorship*, Vol. 22, No. 3, (September 2007): p. 305.

The gallery as laboratory often engages in museological experimentation, for example, installations that explore ideas about the act of collecting. Artist Fred Wilson helped shape the concept of gallery as laboratory with his work in museum intervention and his revelatory juxtapositions of objects in American museum collections that address class, politics and race. The exhibition *Mining the Museum* at the Maryland Historical Society, October 16, 1992 – January 3, 1993 remains an important contribution that critiqued the way that museums represent or neglect to represent African American and Native American experiences. Each of the three exhibitions that I will analyze are the result of a collaboration between a university gallery and a science department specifically - chemistry, geology and neuroscience - and required the participation of faculty, students, and the museum staff. It is through assessment of these case studies that a determination can be made of the value of interdisciplinary exhibitions.

Skidmore College's Tang Teaching Museum and Art Gallery in Saratoga Springs, NY has since its 2001 inception employed the concept of interdisciplinarity in at least one exhibition per year. From the Tang's mission statement we learn that

the purpose of the museum is to foster interdisciplinary thinking and studying, to invite active and collaborative learning and to awaken the community to the richness and diversity of the human experience through the medium of art.”³

Skidmore College encourages faculty from all academic departments to develop exhibition ideas. Following the 2002 exhibition *Fred Wilson: Objects and Installations, 1985 – 2000*, Susan Bender, then Associate Dean of Faculty and Director of *The Luce Program in Object Exhibition and Knowledge*, and Fred Wilson, artist and *The Luce Distinguished Visiting Fellow for the Program in Object Exhibition and Knowledge* co-

³ <http://tang.skidmore.edu>. Accessed April 11, 2007.

led the program which was an initiative funded by the Henry R. Luce Foundation, 2004 – 2006. The college sought to make the museum as integral to its students' learning experience as the library or laboratory. Over a three-year period faculty took part in seminars that provided a “structure in which to develop a working knowledge of the critical vocabulary of museums.”⁴ In the first year faculty learned about objects and object exhibition. The second and third year seminars consisted of course readings and visits to different types of museums around the country. The Luce grant enabled faculty to develop a collaborative curatorial relationship with the museum that expands the reach of their research and embraces new audiences.

Molecules That Matter, September 8, 2007 through April 13, 2008, is an interdisciplinary exhibition with the stated goal of “enhancing the visitors' appreciation and understanding of natural science.”⁵ *Molecules That Matter* creates an exciting forum where science and art intersect and engages the visitor on multiple levels. It is filled with documentation about each molecule, allowing the viewer to approximate the process of discovery. The larger-than-life construction of each molecule ensures that the visitor understands the importance of that tiny piece of organic matter. Raymond Gugiere said that we, like “the reptilian mind believe, if it's bigger than me its important.”⁶ The impact of this exhibit on the museum is significant in that it is creating new relationships with regional high schools and science teachers.

The exhibit continues to expand and reach new audiences, in large part through its web feature. The website became necessary to house the increasing quantity of

⁴ <http://tang.skidmore.edu/3/education/doc/179>, accessed October 28, 2007.

⁵ Raymond J. Gugiere, *Molecules That Matter* panel discussion on the occasion of the exhibition opening on September 8, 2007.

⁶ Raymond J. Gugiere Telephone interview by author 4 December 2007.

information, which was too vast to be included in the exhibition. Weber and Gugiere engaged teams of Skidmore students to create and develop the website. These students continue to compile additional research and provide more information about each molecule.

Molecules That Matter is a laboratory by virtue of the way it plays with documentation and artistic interpretation of the ten molecules and with abstract representation of the molecules utilizing scale. By combining the disciplines of art and science, this exhibit creates an exciting, sensory-laden experience from what could have been a rather dry, textbook discussion of the contribution of chemistry to humanity.

The second case study, *On Ice* at the Williams Center Gallery at Lafayette College in Easton, PA

Presents exhibitions, related activities (lectures, workshops, films and other time educational programs, etc.), and publications which represent a wide range of media, cultures and time periods. . .⁷

While the mission statement does not specifically address interdisciplinary programming, it does reveal the gallery's interest in non-traditional or experimental works.

On Ice co-curators Michiko Okaya and Kathy Bruce wanted the exhibit to be a thorough investigation of ice in its various manifestations. The exhibit examined how multiple disciplines (the visual arts, literature and science) view ice. Some artists used the theme of ice to investigate sound, others used ice carving and recorded the object melting, and still others used ice as a metaphor to discuss social and political issues. The participating scientists demonstrated their research through digital images of the

⁷ Williams Center Gallery Mission Statement, http://ww2.lafayette.edu/~artscntr/williams/wms_artgallery_info.php, accessed Feb. 23. 2008.

formation of snowflakes, sound recordings of ice movement and by providing a demonstration of glacial ice flows.

On Ice required that the scientific laboratory and the art studio laboratory each seek a new ground on which to, as Oatman said, “romance material” and ideas.⁸ This exhibition placed Plaster of Paris demonstrations mimicking ice flows along side photographs of actual ice flows, which resonated with a group of elementary and middle school children that arrived unexpectedly. David Sunderlin, Professor of Geology and Archeology, witnessed these students making the connection between the photographs and his demonstration and stated he had to “change the language of his lecture” and since “has incorporated greater hands on activities in his syllabus”⁹

Sculptor Scott Sherk and painter Pat Badt collaborated on a work that used glass to recreate the sound of ice breaking and cracking. Combining technology, the written word, melting ice, and the recorded sounds of ice provided the gallery, faculty, and students an opportunity to revel in an abstract conception through sense and idea that had real human meaning.

The exhibition was guest curated by artist Kathy Bruce and grew out of a grant proposal the artist had made to the National Science Foundation. Bruce did not receive the grant but developed the exhibit idea nonetheless. The show opened January 3 and concluded February 11, 2007, funded in part by the Pennsylvania Council on the Arts and the National Endowment for the Arts. According to comments published in the Easton,

⁸ Michael Oatman, *Molecules That Matter* panel discussion, The Frances Young Tang Teaching Museum and Art Gallery at Skidmore College, September 8, 2007.

⁹ David Sunderlin, Telephone interview by author 20 December 2007.

PA local newspaper, *The Morning Call*, *On Ice* proved to be the most comprehensive interdisciplinary exhibition ever presented by the Williams Center Art Gallery.¹⁰

As *On Ice* and *Molecules That Matter* show, interdisciplinary exhibition programs clearly require the participation of many collaborators to create an experience that can capture the imagination of the museum, faculty, students and community in a broader, more expansive way.

The final interdisciplinary exhibit to be examined is *Words, City, Mind: The Universal Resonance*, November 20, 2007 through December 15, 2007, Martin Art Gallery, Muhlenberg College, Allentown, PA. *Word, City, Mind* represented one aspect of a year-long program at Muhlenberg College called *Occupied Territories: Crossing Boundaries of Science and Art*. The goal of *Occupied Territories* is to

showcase existing dialogue between artists and scientists. We hope to explore how science and art can continue to inspire each other and to catalyze the creation of new ideas at the interface of these two fields.¹¹

Facilitators and program organizers Holly Cate, Visiting Professor of Theatre, Amze Emmons, Assistant Professor of Art and Jeremy Teissere, Assistant Professor of Biology and Neuroscience, stated in their proposal:

We support a balanced, open cross-disciplinary conversation between science and art, the tensions inherent in making these border crossings are real; ... these tensions, and the attempt to translate across them, often become a site of creation itself when science and art collaborate.¹²

Word, City, Mind is a collaboration that explores concepts in neuroscience, using digital printing on Mylar as the medium of production for multi-layered works. Because the

¹⁰ Geoff Gehman, *Go Guide*, "Morning Call", Section G, p. 9, December 27, 2007.

¹¹ Proposal: *Occupied Territories: Crossing Boundaries of Science and Art 2007 -2008*.

¹² Ibid.

Mylar is transparent to translucent and because each layer features a differently-constructed image or composition, the viewer can see through the printed layers and gains a sense of the accretion of knowledge or language development.

Ed Kerns, Professor of Painting at Lafayette College, invited visiting artist Elizabeth Chapman to Lafayette College largely because her painting and architectural work is centered on understanding language centers -- particularly the development of language in the brain. Her interest is motivated by her child's autism. Both Kerns and Chapman interacted with neuroscientist Elaine Reynolds, Professor of Neuroscience and Biology at Lafayette. They were invited by facilitators Teissere and Emmons to participate in programming for *Occupied Territories. Word, City, Mind: The Universal Resonance* along with other programming that included a performance, screening, readings and a panel discussion. It is through the programs that *Occupied Territories* asked audiences and participants to reassess traditional ideas that science and art operate in isolation. Kerns refers to Edward O. Wilson's *Consilience: The Unity of Knowledge*, which makes the case that all things are connected. The connections made between Reynolds' science and Chapman's architectural map-making affirms that notion and their conversations continue and expand through their monthly meetings in Reynolds' laboratory. This relationship between two different disciplines represents a possible long-term impact of collaboration across disciplines.

These three exhibitions offer prime examples of interdisciplinarity among academic departments, faculty and the university gallery and each has extended their reach in the community offering new opportunities for discussion -- within the museum/gallery and without. Providing alternative ways of viewing and understanding

material creates new learning communities so that the gallery, faculty, students and the community have an opportunity to create new connections to the wider world. But can these examples be considered successful?

Do they have, or are they a product of, institutional support and did these exhibitions create new initiatives or expand an existing institutional initiative? What initiated the museum's engagement with interdisciplinary exhibitions? Have interdisciplinary exhibitions brought new audiences into the museum? Has the development of ancillary exhibition programs, where they occur, created new learning communities between the museum and university departments? What are the funding issues? What kind of internet presence does the gallery have and does the museum have funding or personnel to develop such a presence? Does the university museum see itself as a laboratory and do participants view their exhibition as an experiment? Finally do faculty benefit from the museum collaboration as they do when involved with peer-reviewed publications? An analysis of these questions is necessary to determine the success and value of interdisciplinary exhibitions.

Assessing these three case studies will reveal the efficacy of interdisciplinary exhibitions and determine what their impact may be and whether any significant alterations can be detected in relations between the museum, faculty and students in the aftermath of such collaborations.

Existing Literature

Over the last twenty years, many articles and papers have been published and presented at conferences that describe university museum and gallery interdisciplinary collaborations that in part outline the same requirements for a successful interdisciplinary

exhibit that I present here. One early contribution to the discourse on interdisciplinary programs and assessment is found in Sanford Sivitz Shaman's 1989 article, *College Museums are Often Held in Dubious Esteem, but They Can Serve a Broad Public in Unique Ways*. In it, the author chastises universities for failing to sufficiently emphasize their museums, maintaining that "the academic community must begin to see its museums as laboratories that can benefit a wide spectrum of constituencies"¹³ He praises the interdisciplinary exhibition program at the Palmer Museum of Art at Pennsylvania State University, in particular the 1988 exhibit *Art and the Land*, that launched a controversial discussion about the significance of art at a land grant institution. The university's proximity to the Three Mile Island Nuclear Generating Station made it necessary for the exhibition organizers to ask "what threats does contemporary society pose to the surrounding landscape."¹⁴ Shaman states that

the apex of the Palmer's programming was the symposium [on nuclear energy] and it illustrated the effectiveness of the interdisciplinary approach in reaching a broad audience and in exploring pressing issues of universal significance . . . great art always deals with a rich spectrum of cultural issues and museums have an obligation to promote understanding of the full range of issues to as broad an audience as possible.¹⁵

This exhibit included lectures, tours and screenings, multiple program events suggesting that there are many layers of meaning in interdisciplinary and collaborative exhibitions.

Fourteen years after the Shaman article was published, Ewen Smith, Deputy Director of the Hunterian Museum and Art Gallery, University of Glasgow and Jim Devine, Head of Education and Digital Media Resources, Hunterian Museum and Art Gallery authored the paper, *University Museums: Collaboration with Non Traditional*

¹³Sanford Sivitz Shaman, "College Museums are Often Held in Dubious Esteem, but They Can Serve a Broad Public in Unique Ways." *The Chronicle of Higher Education*. 31 May, 1989, p. 35, 38. Section B3.

¹⁴ Ibid.

¹⁵ Ibid.

Academic Departments. The publication expresses the authors' belief that the term "research" should be redefined and that by "broadening that scope of the definition of research museums will be able to tap into new resources both financially and intellectually that until now have been inaccessible to the museum."¹⁶ The authors discuss their collaborative exhibition *The Revelation Project* as evidence that broadening museological boundaries to include collaborations with new and unlikely partners has been beneficial for the Hunterian's constituents, students and academic departments.

Students participating in *The Revelation Project* through the (new) Hunterian Museum and Art Gallery Summer Scholarship program came from a variety of departments including anatomy, art history, history, geology and zoology. In evaluating their part in the program students reported that they gained

familiarity with complex anatomical terms and felt able to identify specimens accurately. . . The scholarship has given me experience in general skills such as prioritizing, decision making, setting goals and organization. . . . learned about the importance of museums.¹⁷

Assessments further revealed that faculty who were involved in the collaborative program were also pleased with the results.

Cornelia Weber, at the Hermann von Helmholtz-Zentrum für Kulturtechnik, Humboldt University of Berlin, provides another perspective in *Using Interdisciplinary Education Programs and Wide Ranging Projects to Raise the Profile of University Collections*. First presented at the International Committee on Museums (ICOM) 2006 University Museums and Collections, *New Inroads for University Museums*, September 25 - 29, 2006, Mexico City, the paper offers suggestions regarding the use of collections

¹⁶ Ewen Smith and Jim Devin, "University Museums: Collaboration with Non Traditional Academic Departments." *ICOM Study Series 11, 2003*. ICOM International Committee for University Museums and Collections. P.10-12.

¹⁷ Ibid p.11.

that reside within academic departments for interdisciplinary exhibition projects. Weber writes that “this trend to overcome disciplinary boundaries is a great challenge for university collections to extend their sphere of activity and play a new part in academic life.”¹⁸ Weber suggests that such exhibitions “enhance the students’ understanding of ideas and issues from an interdisciplinary perspective.”¹⁹

The 2006 Football World Cup, which was held in Germany, provided an opportunity for the Pergamon Museum in Berlin and Humboldt University to collaborate in presenting the exhibition, *The Ball is Round: Circle, Sphere, Cosmos*, June 10 through August 27, 2007. These two institutions used their collections and academic expertise to connect historical artifacts with the populist pastime: football. Weber’s asserts that “universities and their museums should be viewed as interdisciplinary educative tools”²⁰

Weber’s example of interdisciplinarity between the Pergamon Museum and Hermann von Helmholtz-Zentrum für Kulturtechnik, Humboldt University incorporated objects and artifacts based on a symbol that we are in touch with everyday. *The Ball is Round* was an opportunity to extend the simple idea of a ball by returning to it some of its mysticism and imbedded mathematics. This exhibition gave new relevance to the museums by linking geometry, mysticism and the perfection of the circle with the common football game.

The three essays by Shaman, Ewin and Devine, and Weber illustrate distinctly different approaches toward interdisciplinary exhibition programs, yet they share a

¹⁸ Cornelia Weber. “Using Interdisciplinary Educational Programs and Wide Ranging Projects to Raise the Profile of University Collections.” ICOM 2006, New Roads for University Museums, September 25-29, 2006, Mexico City, Mexico.

¹⁹ Ibid.

²⁰ Ibid.

common thread. Each essay highlights partnerships that broadened the university museums' reach to academic departments and created non-traditional collaborations. The case studies presented here, *On Ice*, The Williams Center Gallery, *Molecules That Matter*, The Tang Teaching Museum and Art Gallery and *Word, City, Mind: A Universal Resonance* at the Martin Art Gallery provide three very different methods to bring collaborative interdisciplinary exhibitions to their constituents.

Interdisciplinarity in the university and college museum is an important topic for gallery and museum directors, faculty and students. By focusing this paper on the college gallery it is my hope that by continuing to develop interdisciplinary exhibitions new ways can be found to engage our communities. By building audiences and institutional relevance the museum can enhance the educational experience of students. By involving faculty across the curriculum the museum can offer students new opportunities to develop critical thinking skills and more importantly offer alternatives to traditional views of art, science and history. By assessing the impact of these exhibitions on all participants I will show that collaborative exhibitions possess a significant educative component that is worth the investment.

CHAPTER II

Case Study I

Molecules That Matter
The Tang Teaching Museum and Art Gallery
Skidmore College

Introduction to Requirements for Interdisciplinary Exhibitions

The characteristics of successful interdisciplinary and collaborative exhibitions at the Tang Teaching Museum and Art Gallery at Skidmore College are all present in the exhibit program at the Tang. The Tang's institutional support was apparent at its inception. Interdisciplinarity and creativity permeate the curriculum to develop critical thinking and discourse that inspire questions and seek new perspectives on issues.

Of my three case studies the Tang possesses the resources to create an exhibition as successful as *Molecules That Matter* to impact the college constituents and local and regional community. Resources such as an institutional mandate for continued interdisciplinarity leading to the development of museum based learning and the concept of the museum/gallery as a laboratory, a staff of five, the continued mentoring of faculty curators, an established relationship with the office of development and advancement, and sophisticated help for students building an exhibition website. Along with museum-based learning came audience development that enhanced the relevance of the museum. The remaining challenge for the Tang Teaching Museum and Art Gallery's (along with other university museums and galleries) is finding a way to ensure that faculty curators receive recognition for their two year curatorial efforts similar to publication credit.

The greatest impact of the Tang's museum-based learning initiative and its 2006 conference the *College Museum a Collision of Disciplines: A Laboratory of Perception*

was its challenge to university museums and galleries across the country to consider a new way to use their collections and facilities.

Interdisciplinarity at Skidmore College

At Skidmore creativity is at the nexus of all academic disciplines, and that approach supports life-long learning. In a recent telephone interview Raymond Guigere, 1965 Term Professor of Chemistry, discussed Skidmore's early dedication to interdisciplinary education at Skidmore. Traditionally, the first year core courses are team taught by faculty from diverse disciplines and encouraged students to make connections between different subject areas through critical inquiry.¹ Guigere and John Weber, Dayton Director of the Tang Museum, agree that the Tang is the logical extension of the college's interdisciplinary approach to education.²

According to a 2007 article in *The Business Review*, the Tang is "a core partner in pioneering interdisciplinary learning for the Skidmore College community."³ The article continues that the

goal is to build on the Tang's reputation for intense and experimental interdisciplinary activity so that the museum becomes as central to academic inquiry as the library, the laboratory, the seminar room, and the studio.⁴

From its opening in 2000 the Frances Young Tang Teaching Museum and Art Gallery was viewed as a vehicle to enhance interdisciplinary exchanges across the college. The Tang uses its collection of 4,500 objects as a tool for faculty and student research to expand interdisciplinarity within the classroom.

¹ Raymond J. Guigere, Telephone interview by author, 4 December 2007.

² John S. Weber, Telephone interview by author, 4 December 2007.

³ Elzbieta Lepkowska-White and Kristina Powell, "Marketing to Multiple Audiences: A Case of the Tang Teaching Museum at Skidmore College, NY", *The Business Review* Vol. 8, Iss. 1, (Summer 2007): 184.

⁴ Ibid.

Fred Wilson as a Catalyst for Interdisciplinarity

During 2002 the Tang Teaching Museum and Art Gallery exhibited Fred Wilson's traveling retrospective, *Fred Wilson: Objects and Installations, 1985 – 2000*. The exhibit showed museum staff and visitors another way to enhance interdisciplinarity in the museum by making connections with academic departments across the college. This exhibit of Wilson's interventionist work in museums challenges and manipulates "museum display strategies and collections," revealing biased practices of representation by museums.⁵ It was Ian Berry, Susan Bender and then Tang director Charles Stainback who thought that Wilson's work would be ideal to support faculty inquiry into interdisciplinary museum exhibitions. One example of Wilson's interventionist work is the critical display *Yours/Mine*, 1995 which consists of eight racial stereotypes including Aunt Jemimas, Uncle Toms and Black Sambos. Wilson juxtaposes the black figurines with a vintage photograph of eight African American family members proudly posed in front of their home. This example illustrates the duality of representation, in this instance, of an African American real life experience versus the dominant culture which continues to embrace parodies of blacks in America. By mocking stereotypes, as presented in the museum, Wilson shatters visitors' illusions of othering. *Yours/Mine* is an example of how museum display affects our understanding of culture and society.

Program in Object Exhibition and Knowledge

It is with this history in mind that Susan Bender, then Associate Dean of Faculty at Skidmore, applied for and received multi-year funding from the Henry R. Luce Foundation (2004 – 2006) for the *Program in Object Exhibition and Knowledge*. Bender

⁵ www.tang.skidmore.edu, accessed 10/28/2007

served as Director of the Program and Fred Wilson became the Program's Luce Distinguished Visiting Fellow for the *Program in Object Exhibition and Knowledge*.

Fred Wilson led the faculty seminars with Susan Bender that taught faculty about the challenges of museum display and what type of critical gains can be had through interdisciplinary collaborations between academic disciplines and the Tang museum. The first year seminar centered on object exhibition and the practice of interpreting an object's content, that is, placing the object in a context, historically, metaphorically and, or aesthetically. In the second year, faculty learned how to apply critical thinking skills in the museum environment. They visited museums and were assigned readings for critical discussion. The third and final year the seminar sought to compare exhibitions at art and science museums, to look at the many ways exhibitions and objects can be displayed. Fred Wilson's participation as the visiting fellow was intended to develop in the faculty critical methods for viewing exhibitions and to illustrate how a new awareness of objects and their use in museums could impact their research and teaching. Raymond Gugiere, the co-curator of *Molecules That Matter*, was one of the faculty participants in this program.

The program funded by the Luce Foundation resulted in the April 2006 conference the *College Museum: Collision of Disciplines, A Laboratory of Perception*. The conference brought together university museum directors, curators and theorists from across the country and through discussions, workshops and panels explored the issues that face the college museum/gallery today and into the future. The university museum is said to be in transition and requires new ways to engage its many audiences.

The impact of the conference revealed that engaging faculty as curators to support interdisciplinary exhibitions that reach across the university is challenging. However the conference presenters shared their experiences and strategies of engagement as well as methods to resolve the challenges inherent in this re-structuring of the vision of a university museum. It is this new thinking about the university museum that Fred Wilson's Luce Visiting Fellowship helped to move forward. *Molecules That Matter*, already in the initial stages of development certainly reaped the benefits of the *Program in Object Exhibition and Knowledge* and the discourse during and after *Collision of Disciplines*.

Molecules That Matter: A Model of Interdisciplinarity

Molecules That Matter was co-curated by chemistry Professor Raymond Gugiere and John Weber, Director of the Tang Teaching Museum and Art Gallery. The exhibit highlights ten important molecules of the 20th century – isooctane, progesterin, aspirin or acetylsalicylic acid, penicillin, nylon, polyethylene, DDT, DNA, Prozac, and buckminsterfulleren. These were chosen by an advisory board convened to decide which of the many molecules of the 20th century had the most far reaching effect on contemporary society, and at the same time would mean something to current students of Skidmore College.

The ten molecules were fabricated at 2.5 billion times the molecules' actual size. Framing the molecules in this way affords the audience a physical experience and makes them appear to be of great importance. In addition to the large-scale molecules the exhibit contains historical documents of the inventors, including notes and artifacts some of which came from the Chemical Heritage Foundation and others purchased on

ebay.com. Along with the documentation and molecules are works of art that address particular molecules.

Examples of art work include Jean Shin's piece *Chemical Balance*, vertically stacked prescription bottles in a circular formation, one pointing upward toward the ceiling and another circular group of bottles hanging from the ceiling pointing downward, the arrangement looks like plastic stalactites. Bryan Crockett represents molecule DNA through three very large pink marble genetically engineered rats. The piece is based on an actual experiment and Crockett used this opportunity to illustrate three of the seven deadly sins. Michael Oatman's piece *Code of Arms* relates to DNA as well and is indicative of his collage work using science as source material. Melissa Gwyn contributed three oil paintings on wood, *September Chorus* for Prozac, *Buckminsterfullerene*, *DDT* and a drawing for Progesterone. Gwyn conducts research on all the molecules she makes paintings of and includes the positive as well as the negative aspects of it. Gwyn explained that for Prozac she

created a surrealistic, fantastic pond-like site where frogs --an indicator species--are swimming among algae and seaweed that resemble human neurons and nephrons (the kidney filtration system)--as their realities and ours are intertwined.⁶

In addition to documents, artifacts and art, the co-curators created a web feature to provide additional information about the molecules that could not be included in the exhibit. *Molecules That Matter* is a good example of interdisciplinary collaboration within the museum.

The participants in *Molecules That Matter* (MTM) that I interviewed are John Weber, Dayton Director of the Tang Teaching Museum and Art Gallery, co-curator of the

⁶ Scott Rapport, "Science as the Muse for Art: Melissa Gwyn Paints "Molecules That Matter"". UCSC, UC Santa Cruz Review. Vol. 45, No. 3 (March 2008): 20.

exhibit with Raymond Gugiere 1965 Term Professor of Chemistry, Michael Oatman artist, and student intern Lillian Torrey who spent two years working on research and developing the MTM website.

Perspective of Co-Curators

For John Weber, the purpose of the Luce grant was to foster critical examination by faculty of the nature of the college museum, specifically the curatorial voices used to speak about objects, the methods of display, and to encourage critical reading of exhibitions – which in turn would educate all visitors whether university staff, faculty or students. He states, “the Henry R. Luce Grant was meant to implement the interdisciplinary museum.”⁷ He further asserts that “the art historical content is not primary in exhibitions at the Tang: the point is to make art relevant to contemporary life and society.”⁸

Raymond J. Gugiere, conceived of *Molecules That Matter* for his course *The History of Chemistry* and was thought of as chemistry in history.⁹ The exhibition’s interdisciplinarity, according to Gugiere, was designed to amplify the science and the history of chemistry, not the art in the exhibition.

The Tang is breaking ground as a result of its mandate to be as central to learning as any other part of the university. Fred Wilson’s involvement enabled faculty to actualize potential exhibition projects that would intersect with their research and teaching and expand both. During the two-year period leading to the opening of *Molecules That Matter*, Gugiere and Wilson had “several structured and unstructured

⁷ John S. Weber, Telephone interview by author 4 December 2007.

⁸ Ibid.

⁹ John S. Weber, *Molecules That Matter* panel, 8 September 2007.

meetings about the exhibit during which they brainstormed about what the possibilities could be and what the exhibit [such as this] could look like.”¹⁰

As a faculty curator without actual museum experience, Raymond Gugiere received extraordinary support from the museum staff, including significant involvement from Director and co-curator John Weber. It is Skidmore’s institutional support of the Tang and the College’s interdisciplinarity that promotes trust in the curatorial process. Weber remarked that “faculty participation brings a high level of expectation and resources to the project.”¹¹ This may be because those in the sciences require that the science be correct.¹²

The collaborative nature of *Molecules That Matter* begins at the start of the exhibition process. Robert Hargrove, Professor of Chemistry and Environmental Science at Mercer University, and Gugiere, along with eight other scientists and members of the Chemical Heritage Foundation, were on the advisory panel that decided which ten molecules to include. The list also received a final review by two Nobel Laureates in chemistry. Hargrove states that *Molecules That Matter* “allows us, exhibit visitors, to understand the molecules and the artists provide a new way to look at molecules.”¹³ *Molecules That Matter* is an “interdisciplinary exhibition that attempts to blend art and science.”¹⁴ Tang Director John Weber, in defining the progression of this exhibition’s development, names the “three main sources, [we begin with] science, contemporary art

¹⁰ Raymond J. Gugiere, Telephone interviewed by author, 4 December 2007.

¹¹ John Weber, Telephone interviewed by author, 4 December 2007.

¹² This idea that scientists have issues with the arts and artists that either take liberties with the science or get it wrong.

¹³ Robert Hargrove, *Molecules That Matter* panel, 8 September 2007.

¹⁴ John Weber, Dayton Director Tang Teaching Museum and Art Gallery, Panel for *Molecules That Matter*, The Frances Young Tang Teaching Museum and Art Gallery, 8 September 2007.

and [include] material culture; that is, objects of daily life.”¹⁵ These sources are the elements of collaboration that are evident throughout the exhibition. Primary is the careful selection of molecules to be addressed in the exhibition; the art would address those chosen molecules aesthetically; and finally through loans and acquisitions of material culture, which are represented by written notes and letters of scientists involved in research specific to the molecules exhibited.

For curators Weber and Gugiere the collaboration did indeed precipitate transformations. Weber said that the “exhibition process made him see the world differently and understand the depth of the engagement in science.”¹⁶ For Gugiere “the effort to translate the information, make it understandable, was the real challenge; and [then he eventually] sees the relationship between art and science.”¹⁷

Gugiere, a scientist, through his three-year training in *The Program in Object Exhibition and Knowledge*, evinced a new relationship with the museum that previously did not exist. When the scientist or other faculty member engages with the art museum a new relationship is created, and it is one that may actually encourage other faculty to participate and create a similar interdisciplinary collaboration. It was due to this exhibition experience that Gugiere could “see the relationship between art and science and [he] acknowledges that for him the exhibition was not predicated on its relationship to art.”¹⁸ The exhibit and his relationship to art is something that evolved over the course of the planning. Gugiere’s collaboration with the museum was an opportunity for him to

¹⁵ John S. Weber, *Molecules That Matter* panel, 8 September 2007.

¹⁶ Ibid.

¹⁷ Raymond J. Gugiere, Telephone interview by author, 4 December 2007.

¹⁸ Ibid.

tell a big story about chemistry in a more expansive way than would have been possible without the museum's involvement.

Skidmore College, in supporting interdisciplinary exhibitions at the Tang, recognizes that such exhibition programs bring new audiences to the museum. The web feature for *Molecules That Matter* contains the history of each molecule. The goal of the website is to literally to be a repository for the research gathered by student interns. Does it promote interdisciplinarity? *Molecules That Matter* fostered the creation of new learning communities through relationships formed with science teachers locally and regionally, from elementary school through high school and benefits young researchers. The website expands the reach of Skidmore's chemistry department as well as the museum. New learning communities are created virtually through global access to the exhibition through the *Molecules That Matter* website.

Perspective of Participating Artists

Artist Michael Oatman is Clinical Associate Professor of Architecture at Rensselaer Polytechnic and uses collage as his primary medium: he stated during the *Molecules That Matter* panel on September 8, 2007, that "this show reflects the laboratory and the studio. Pedagogy and artistic practice is lab based. [It is] romancing science through material."¹⁹ Oatman's characterization of the artist's studio as a laboratory underscores the nature of artistic practice as based in research. That research is built upon reading and discussions with other artists and scientists. Oatman readily admits that he is not a scientist but an interpretator of the ideas of science. For the scientist the artist's use and interpretation of scientific research may be messy. "It is the

¹⁹ Michael Oatman, *Molecules That Matter* panel discussion, The Frances Young Tang Teaching Museum and Art Gallery at Skidmore College, September 8, 2007.

power to mix things up”, that affords the artist his or her lab-based hypotheses that results in works that challenge notions of what art can be constructed of and the university museum is a forum for such experimentation.²⁰

Through *Molecules That Matter* Oatman and Gwyn’s work could offer the audience an expanded and deeper experience of their work because it is shown in the context of actual documentation about each molecule, and the enlarged fabrications that help show the public how important the molecules are in everyday life.

In bridging the university museum with academic departments, *Molecules That Matter* became an exhibition that utilized the visual to interpret material, ideas and organize content in a new way. At the same time it provides the visitor educational content about chemistry that is visually interesting, which enhances the museum experience and creates new communities and develops audiences for the university museum. Developing new audiences or increasing its existing audience enhances the museum’s relevance to its regional communities and through its internet presence, international relevance. *Molecules That Matter* expanded the reach and relevance of the Tang beyond its local community when the museum received students from a Utica, NY high school. When the Tang engaged in this collaboration between faculty and museum, between art and science, it brought together those interested in both the science and artistic interpretation of science, thereby creating an arena of excitement at the possibilities for each. Interdisciplinary exhibitions of this depth provide a heightened presence for the university as a whole.

²⁰ Janet Marstine. “What a Mess! Claiming a Space for Undergraduate Student Experimentation in the University Museum.” *Museum Management and Curatorship*, Vol. 22, No. 3, (Sept. 2007): 305.

The Students' Point of View

Student participation was crucial in the development of *Molecules That Matter*. From the beginning Gugiere enlisted students to conduct research for each of the ten molecules. Lillian Torrey, one of the primary student researchers for this project was enlisted by Gugiere because he knew of her dual interest in chemistry and art.

Later on in the exhibition process Torrey worked on the website using web-authoring software Pachyderm™²¹. She created the site's multimedia presentations for penicillin (the mid-twentieth century wonder drug that cures bacterial infections); buckyball, (the newest type carbon structure also called C60 is used to make tennis rackets, bicycle frames and is the foundation of nanotechnologies development); and isooctane (a hydrocarbon that prevents knocking in automobile engines and calibrates engine performance). Between the spring of 2006 and the summer of 2007 she was responsible for editing, reformatting, writing and researching. Over this period her status changed from intern to employee and back to intern.

When asked what she liked about the process of building the website for the exhibition Torrey said that the project was unique compared to anything she did previously in her college career.

the fact that my work, and the work of our team, was not just some report we were passing in for credit. it was representing the

²¹™ Pachyderm is designed for people with little multimedia experience; Pachyderm is accessed through a web browser and is as easy to use as filling out a web form. Authors upload their own media (images, audio clips, and short video segments) and place them into pre-designed templates, which can play video and audio, link to other templates, zoom in on images, and more. Once the templates have been completed and linked together, the presentation is published and can then be downloaded and placed on the author's website or on a CD or DVD ROM. Authors may also leave their presentations on the Pachyderm server and link directly to them there. <http://pachyderm.nmc.org/>, accessed 29 March 2008.

Tang museum and the college, which definitely added a lot more responsibility on our shoulders and the amount of professionalism that we have to take on . . . Because of the uniqueness of the project, and its interface between art and science, Skidmore really promoted this show as sort of a testament to the “Creative Thought Matters” slogan.²²

She reminds us that Skidmore’s slogan “*Creative Thought Matters*” is not a mere slogan.²³ It is a concretion of ideas, methods, and interpretation of materials that has helped to convert the museum into a laboratory where ongoing experimentation is encouraged and supported.

What did Torrey take away from the exhibition and its process?

It was exciting to walk into an art exhibition (and watch it being built by the curatorial team) and see work by artists or see art using material that I’d read about and researched.²⁴

As for unanticipated issues, she didn’t expect it to be as time consuming as it was. She further related that her family, with whom she often discussed this project, also became involved in that they would send her clippings from articles about a molecule she was working on. “It really showed how approachable this exhibition is, and a small example of how these molecules have blended into and even shaped our popular culture.”²⁵

For Lillian Torrey and other students who worked on *Molecules That Matter* - it was a rewarding experience. I was present during the opening of the exhibition and witnessed students talking about the website and the parts that they worked on with their family and peers. The excitement and depth of their knowledge about the project and their part in it was remarkable. Skidmore College and the Tang Teaching Museum and Art Gallery benefited from John Weber’s and Raymond Gugiere’s profound engagement

²² Lillian Torrey, Email correspondence interview by author, 9 January 2008.

²³ <http://www.skidmore.edu/homepage03/ctm.htm>.

²⁴ Ibid.

²⁵ Ibid.

in developing this interdisciplinary exhibition. The institution clearly achieved much more than what was initially imagined.

Molecules That Matter and Interdisciplinary

Molecules That Matter is interdisciplinary because it makes use of the expertise and research of faculty curator Raymond Gugiere, and incorporates the discussions Gugiere had with Fred Wilson as to what this exhibition could look like; as well as the expertise and experience in the museum of Tang director John Weber. In addition to their collaboration, the engagement of students in the research process, acquisition of artifacts and creation of the website were important contributions that resulted in a project that found new insights into science by looking at art.

An interdisciplinary teaching museum such as the Tang can be described as a ‘laboratory’ because it creates an environment where faculty and students are encouraged to develop new ideas and experiment with display and the meaning of objects and artifacts. This experimental museum builds links across disciplines offering the viewer and collaborator, whether faculty, student or museum staff new visual interpretations, and at the same time, it expands critical thinking and understanding of material. The interdisciplinary museum offers university constituents and the community an array of possibilities for critical thinking and brainstorming. By providing a variety of approaches to a subject, a problem, or object, such a museum can link multiple subject areas and encourages the expansion of inquiry and contemplation.

Programs for *Molecules That Matter*

Programming developed for *Molecules That Matter* began 8 September 2007 with the opening panel discussion, *Molecules That Matter: Reactions and Reflection* with Robert Hargrove, Professor of Chemistry and Environmental Sciences at Mercer University; Mary C. Lynn, Douglas Family Professor of American Culture, Skidmore College; and exhibiting artists Melissa Gwyn and Michael Oatman. Each panel participant addressed his or her role i.e. Hargrove as advisory panel member that decided which molecules to include in the exhibit. Mary C. Lynn addressed the importance of Progesterone and the development of birth control pills and its social significance to women and society. Oatman and Gwyn spoke of their artistic process and how they began using science in their work.

During the fall of 2007 there were screenings of three films with introductions by Skidmore faculty, *Gattaca* (1997), introduced by Bernie Possidente, Professor of Biology and Director of Neuroscience Program; *American Experience: The Pill* (2003) introduced by Mary C. Lynn, Douglas Family Professor of American Culture and *American Experience: Rachel Carson's Silent Spring* (1993) introduced by Rik Scarce, Associate Professor of Sociology. A *Curator's Tour* of *Molecules That Matter* with Raymond Gugiere, Class of 1962 Term Professor of Chemistry and John Weber, Dayton Director, Tang Museum. Programs related to the exhibit occurred throughout the 2007 – 2008 academic year and included *Chemistry's Essential Tensions: A Different Look at Science*, Roald Hoffmann, Nobel Laureate in Chemistry (1981) and the Frank H.T. Rhodes Professor of Humane Letters, Cornell University, *Nanotechnology: Buss, Buckballs & Business on the World's Tiniest Stage*, and several Curator's Tours. The programming

support from the Chemical Heritage Foundation among others, as related by Raymond Gugiere dictated that the science was foremost in this interdisciplinary exhibit.

An important long-term program is the web feature for *Molecules That Matter*; it features an encyclopedic entry for each molecule and is a reference source. The web feature is one part of the programming that can outlast the exhibit as an educational tool.

What impact did MTM have on collaborative partners and audiences? Not only is the web feature for *Molecules That Matter* outstanding for its research potential particularly for young audiences and researchers, but if nothing new were added to the site it is a stable and usable site for the long-term. The website has already brought new audiences to the museum from areas outside the museum's region (Utica, NY). In addition the exhibit was reviewed in several chemistry magazines and journals such as e-news *Chemistry International*, from IUPAC; Homechemistry a blogspot.com, a chemistry blog for kids; UC Santa Cruz's e-news; the Royal Society of Chemistry's magazine *Chemistry World* and website and blogspot ANABA. The magazines, e-magazines and blogs point to *Molecules That Matter*'s impact on the scientific world large and small, scientist and artist. The impact on participants in the development of the exhibition and the web feature, is that each one related that she or he look at the world through a different lens, a chemical lens, noticing the chemistry around them.

The Mellon Grant and the Future

Significantly, the Tang Teaching Museum and Art Gallery recently applied for and received a 1.7 million dollar grant from the Andrew W. Mellon Foundation. This provides continued support of faculty curators and to

expand and consolidate Skidmore's program of museum

based-education, in which exhibitions at the Tang function as a resource for curricular innovation.²⁶

Skidmore will supply a three to one matching grant to the Tang over three years and these funds will found a 4.8 million dollar endowment supporting the Tang's museum-based teaching program of interdisciplinarity. Part of the funds will allow the Tang to create two new positions, an associate curator whose work will include collaborating with faculty to co-curate their exhibits as well as student projects and an assistant registrar who will assist faculty and student small scaled exhibitions based on the Tang's permanent collection. A new project is the creation of digitized audiovisual documentation and commentary that will coincide with exhibitions to provide web access to an entire exhibition including interviews and objects.

The future of the Tang and its museum-based teaching is secure. Faculty curated interdisciplinary and collaborative exhibitions like *Molecules That Matter* are significant because they have wide-ranging impact within the museum, the institution, and university museums across the country and globally via the internet. The Tang has influenced many university museum and gallery personnel through its conference *Collision of Disciplines* and its exhibits. *Molecules That Matter* may be the Tang's most successful faculty curated interdisciplinary exhibition due to the breath of its influence, making the Tang a model for the field.

Conclusion

How was this funded? The exhibition was a great undertaking even for the Tang Teaching Museum and Art Gallery. *Molecules That Matter* was created in partnership with the Chemical Heritage Foundation which will also host the exhibition at

²⁶ <http://tang.skidmore.edu/doc/2172/>.

its museum in Philadelphia, PA. Additional support came from individual Chemical Heritage Foundation donors, and from the Camille and Henry Dreyfus Foundation, the Friends of the Tang, Hach Scientific Foundation and Amgen.

This high level of financial support from the Chemical Heritage Foundation donors and donors from the Dreyfus, Hach Scientific Foundation and others, ensured the success of *Molecules That Matter*. How can smaller institutions with more limited funding achieve similar success in their attempts at interdisciplinary exhibitions? Acknowledging that smaller university museums are typically challenged with a small staff, sometimes consisting only of one, the gallery director and student volunteers, with little access to the development/fundraising office, or to public relations personnel the university museum/gallery can still provide collaborative interdisciplinary exhibition programs. Interdisciplinary exhibitions are initiated by developing relationship with faculty across the university by reaching out to faculty and mentoring them in museum best practice and then brainstorming as Fred Wilson and Raymond Gugiere did at the beginning of the exhibition process for potential aesthetic and educational outcomes. The university is rich in academic resources that can move the gallery and faculty toward an interdisciplinarity that will enhance the museum's relevance and provide faculty expanded audiences for their research. Faculty that are involved in interdisciplinary exhibitions attract students, potential collaborators and new funding streams. There are many different institutional incarnations of interdisciplinarity that will result in effective learning through collaborative exhibition projects.

Attempting interdisciplinary exhibitions, whether accessing the sciences or humanities, requires a commitment by the museum to train faculty in the functions and

use of the museum. Faculty must develop a comfort level that allows for the percolation of ideas for exhibition projects that will come from across the university community. Such projects were the aim of the Tang, and due to Fred Wilson and Susan Bender's collaboration and mentoring through the *Program in Object Exhibition and Knowledge*, an exhibit such as *Molecules That Matter* was possible.

This interdisciplinary collaborative exhibit is very successful. Student responses to the exhibit were favorable, in addition to the anecdotal responses reported here. Furthermore, co-curators Gugiere and Weber note that the exhibit is popular with students at Skidmore, and those from around the region visiting the exhibit. Museum staff related that audience members spend a longer than average time looking and reading (during the opening reception I too witnessed this). Without the mandate of institutional interdisciplinary education in all realms of Skidmore College, this exhibition would not have been realized.

CHAPTER III

Case Study 2

On Ice
The Williams Center Gallery
Lafayette College

On Ice at the Williams Center Gallery at Lafayette College experienced success as a local/regional interdisciplinary collaborative exhibit. Even though the Williams Center Gallery has a reasonable budget, how did the gallery attain this success when it lacks institutional support, access to other funding, staff and a web presence? This was possible because gallery director Michiko Okaya is interested in exhibits that combine art and science. She, like many gallery and museum directors want to increase the gallery's audience. Okaya is a staff of one and the gallery does not have an established relationship with the development office to help her seek additional funding sources for interdisciplinary exhibits. The Williams Center Gallery website offers the usual listings of exhibits, current and archived. However because *On Ice* was so successful with the college and the community she provided on line access to the exhibit's catalogs and press releases.

Michiko Okaya attended the 2006 conference the *College Museum: Collision of Disciplines, A Laboratory of Perception* at the Tang Teaching Museum and Art Gallery. With Okaya's existing interest in art and science, and this new challenge to university museums and galleries to expand their role within the institution, Okaya embraced the interdisciplinarity of *On Ice*.

Okaya is motivated to produce interdisciplinary exhibits as a means to an end and that is audience development. A by product of increased audience attendance is

enhanced relevance of the gallery to the institution as well as the local community. *On Ice* also made it clear to faculty that the gallery could enhance teaching and provide access to their research. Interdisciplinary exhibits are a challenge for any museum, however for small galleries like the Williams and the Martin Art Gallery where staffing consists of one person the challenges are more strongly felt. Collaborative exhibits require long- range planning and oversight by the gallery director to ensure quality. *On Ice* created a learning community that involved the college and local community. However that learning community could have been extended if Okaya had the support and staff to create an exhibition website.

Of all the participants involved in *On Ice* none viewed the gallery as a laboratory. Most viewed it as a repository or library and one artist could see his studio as a lab. In general most participants outside of the Tang and its staff and Kathy Burke at the Martin Art Gallery did not relate to the gallery as a laboratory.

Exhibition and Museum Background

The Williams Center Gallery at the Morris R. Williams Center for the Arts, Lafayette College, Easton, Pennsylvania, was founded in 1983 with the mandate to serve the “educational and cultural programming objectives of Lafayette College while engaging the various cultural and ethnic groups throughout the greater Lehigh Valley of which Easton and Allentown, PA are a part.”¹ Williams Center Gallery expanded on the Williams Center for the Arts’ initial mission to include presenting exhibitions with additional related media where appropriate. Exhibitions are sought that support

¹ Ww2.lafayette.edu/~artcentr/Williams/wms_artgallery_info.php.

curriculum, and that serve the gallery's regional audience by providing engaging exhibitions some of which are interdisciplinary.

Williams Center Gallery director Michiko Okaya and guest curator Kathy Bruce co-curated *On Ice*, which opened January 3, 2007 and closed February 11th. All works in the exhibition are a response to some aspect or characteristic of ice. They were contributed by a variety of scientists, writers and visual artists. Pieces include two and three-dimensional works of art, poetry, literary essay, a collaborative artist-made book, scientific demonstrations, lectures, video presentations, photographs of ice, and computer-generated simulations of the formation of ice and snow. This collaboration between art, science and literature resulted in an engaging and interactive interdisciplinary exhibition.

On Ice an Interdisciplinary Collaboration

What makes *On Ice* work as an interdisciplinary collaborative exhibition is the range of disciplines represented throughout the exhibit and interpretations of ice and its various forms. Among the science based works exhibited is mathematician Cliff Reiter's animation of snowflake growth and documentation of ice spike formation and Robert S. Anderson's video of ice flow beneath the Grinnell Glacier. Catherine Riihimaki, Bryn Mawr College presented glacial research photographs from her work at Wortmann's Glacier in Alaska, 1999.

Other interpretations and explorations of ice include the impact of global warming as contributed by artist Michael Grothusen in his *Explanation of Mysterious Forces*, 2001. This sculpture is a large-scale steel map of Antarctica. It is suspended from the ceiling and a fan motor spins the map in a circle. Co-curator Kathy Bruce suggests a global

warming context – the disappearance of ice from world. Pat Badt and Scott Sherk contribute a sound work using the sound of breaking glass, while Mineko Grimmer uses falling pebbles in melting ice water, producing a low-key tone as the pebbles drop slowly to the bottom of the basin. Nava Lubleski presented an embroidered painting titled *A Snowflake in Hell*, 2003 is a narrative of what a snowflake might look like arriving in hell.

In addition to the visuals which include scientific documentation were demonstrations such as David F. Sunderlin's ice flow demonstration using Plaster of Paris to illustrate ice flows and the ice flow formations. His demonstration gave a three dimensional experience of ice flows that also appear in the exhibit in photographs and another demonstration included using ice to generate sound or music.

Along with the visual art and scientific demonstrations the curators included literary works that describe ice. The essay, *Ice, My Teacher* by Ann Felker, for example is a narrative of winter and a child's longing for the ice cover pond. The different media, the visual, literary and scientific made the exhibit a multi-media event.

On Ice fits neatly into Cornelia Weber's concept of the theatre of knowledge where entertainment and education intersect within the museum. The exhibit was voted by the local public as the best show of the year (2007). *On Ice* proved to the Lafayette College community that an interdisciplinary and collaborative exhibition designed around an idea as simple and complex as ice could have a significant impact on the college and the regional community.

The participants in *On Ice* from exhibition development to artistic, scientific and student contributors that I interviewed include Michiko Okaya, gallery director of the Williams Center Gallery and co-curator and artist Kathy Bruce; David Sunderlin,

Professor of Geology and Archeology, Lafayette College, artists Pat Badt, Professor of Art, Cedar Crest College, Allentown, PA and Scott Sherk, Professor of Art, Muhlenberg College, Allentown, PA. and Lafayette College student Jonathan Esser.

The Gallery Director's Perspective

Michiko Okaya, Director of the Williams Center Gallery, has long been interested in artists and art work that engaged scientific ideas. Okaya has “initiated exhibitions that tie art and science together, not through science but the artist’s interest in science which provides a new way to view science.”² A previous example of her ongoing interest in interdisciplinary exhibitions is *Blue Lake*, an installation by artist Stacy Levy exhibited at the Williams Center Gallery in 2005. Okaya found *Blue Lake* compelling because Levy’s work “combines science and art and focuses on themes related to water, wind, tides, pollution and decay, relaying stories of specific sites and the intersection of ecological and cultural influences.”³ Another example of Okaya’s interdisciplinary interest is found in Larry Miller’s 2001 Williams Center exhibit *Either/Or*. Miller is a multi-media artist whose work is rooted in the “Fluxus movement of the 1960’s using performance and objects to question art and social values.”⁴

Artist Kathy Bruce presented *On Ice* to Okaya. Bruce listed the exhibition as an outcome in her National Science Foundation grant proposal (2000) to visit Antarctica so that she could “perceive ICE by touch, smell and experience.”⁵ Although Bruce failed to

² Michiko Okaya, Telephone interview by author 8 January 2008.

³ Michiko Okaya, Acknowledgement, Catalog for *Blue Lake*, Williams Center Art Gallery, Morris R. Williams Center for the Arts, Lafayette College, Easton, PA 2006. P. 1.

⁴ Robert S. Mattison, *Larry Miller, Either/Or*. Williams Center Art Gallery, Morris R. Williams Center for the Arts, Lafayette College, Easton, PA. 2001. P. 3.

⁵ Kathy Bruce, Curator’s Statement, *On Ice: Art*, Published in conjunction with the exhibition, *On Ice: Art, Poetry, Science*. Williams Center Gallery, Morris R. Williams Center for the Arts, Lafayette College, Easton, PA.

obtain the grant, the exhibition went forward. Another interdisciplinary exhibition that would bring together art and science was definitely of interest to Michiko Okaya.

Okaya's primary concern is to get Lafayette's students, faculty and community interested in and into the gallery. She explains she must repeatedly "point out that art is part of life." She describes how she initiated faculty participation in *On Ice*, - it was through casual conversations and word-of-mouth rather than a formal call for participation. Okaya maintains that Lafayette's small size is an advantage when it comes to developing relationships with faculty.

In 2006 there was no institutional initiative in place to support interdisciplinary collaborations across the college or in the Williams Center Art Gallery as there are at Skidmore. However, I would suggest that *On Ice*'s interdisciplinary collaboration that occurred across the college became a beacon, spotlighting the gallery's potential as a new learning community. The exhibition made the institution aware of the possibilities for engagement across disciplines. As of January 8, 2008

There was no formal institutional initiative as yet. The college's new President (Daniel H. Weiss) has announced that he would like to see more interdisciplinarity in the college as a whole. The new strategic plan for the college will formalize an initiative toward interdisciplinarity.⁶

The search for external funding for *On Ice* proved challenging. Okaya worked with the college's development office, but she learned to her dismay that the development office prioritizes large projects and she was trying to raise only \$6000. The development office did help her identify possible funding sources, however Okaya had to write the grant herself. She did locate a local corporation that makes ice machines and sought to

⁶ Michiko Okaya, Telephone interviewed by author 8 January 2008.

acquire funding from the company, but found the ice machines to be of greater interest.

The company produces a special machine that makes:

“softer ice that is meant to be chewed or melt more easily than hard ice. This soft ice could be sent through tubes to remote locations up to 50’ away and the soft ice made a sound as it moved through the tubes. It was clear to me that artists could make use of this technology.”⁷

Michiko Okaya did not get the money she applied for, however she did convince the ice company to lend her the soft ice machine for the exhibit. She definitely understands how artists view technology as possible material resources to aid in interpreting concepts.

Michiko Okaya and Kathy Bruce from the beginning intended the project to be as interdisciplinary as possible. Initially artist participation was by invitation only. Bruce enlisted artists whose work she knew and then used the internet to find additional artists that incorporate ice and/or water in their work. Okaya located science faculty whose work and teaching had connections to ice, environment and global warming. Faculty participants then enlisted student participants.

To further develop the roster of artist participants Bruce and Michiko reached out to regional artists through the annual open call exhibit held each January to benefit local artists. Bruce sought to provide these artists with a definition of *On Ice* by asking the artists to consider questions such as “how does the experience of nothingness/the void affect an artist’s understanding of poetry, space and scale? Or, how can abstract concepts of ice be transformed by metaphor into various forms of artistic expression?”⁸ It seems that, at least in some part, Bruce sought a more conceptual approach to the theme

For the reasons that my own questions address and for those stated by Robert Frost, ‘Some say the world will end in fire, some

⁷ Ibid.

⁸ Kathy Bruce, *On Ice*, Curator’s statement, p. 2.

say in ice,'⁹

Bruce thought the art submitted would be less literal and more conceptual. Bruce has been involved with the gallery for several years and states that *On Ice* was the gallery's most interdisciplinary exhibition to date encompassing literature, science, visual art, sculpture painting, sound, installation, photographs and demonstrations. She calls it 'phenomenal' because it was global in character, bringing together technology and traditional media; the show was visually diverse and interactive.

In her estimation, the exhibit deserves its popularity as the best show in the Lehigh Valley of 2007. At the same time, Bruce admits that it was a challenging undertaking. And while "the curatorial experience did not affect her practice it did provide a deeper understanding of curatorial practice.

Science Faculty Participant

David Sunderlin, Professor of Geology and Archeology at Lafayette, researches paleontology, ice ages, the physics of ice movement and how climate change is experienced by biology. Gallery director Michiko Okaya contacted Sunderlin because he "teaches a course in glaciology and a new multidisciplinary approach to understand the goals of climate change."¹⁰ Sunderlin contributed photographs of ice flows and gave a talk near the close of the exhibition on ice and its many forms. Sunderlin had prepared a talk about ice for college students but altered his lecture when he saw 25 students in grades K – 8 arrive for both talk and demonstration. Their presence in the audience was

⁹ Robert Frost, "Fire and Ice," New Hampshire: a Poem with Notes and Grace Notes. New York: Henry Hold, 1923, p. 80.

¹⁰ David Sunderlin, Telephone interviewed by author 20 December 2007.

“unexpected and exciting.”¹¹ With the help of his students, he created an ice flow demonstration/performance using Plaster of Paris.

Plaster of Paris mimics the structure of ice in a glacier. The demonstration was held in an open space. There were nine stations of ice flow, and the plaster of Paris created converging valleys of ice/plaster.¹²

Sunderlin remarked that he was “surprised to see that the elementary school students who attended the exhibit acknowledged the relationship between the patterns in the Plaster of Paris demonstration to those recorded in his exhibited photographs.”¹³ After the event, Sunderlin realized that he would have liked to do the demonstration earlier during the run of the exhibit, because the plaster ice flow would have hardened and remained in the show as a three-dimensional ‘sculpture’ in relationship to his two dimensional photographs of ice flows.

In Sunderlin’s view, the participation of elementary school students, and the involvement of Lafayette Environmental Awareness Protection (LEAP) (a student run organization that promotes environmental responsibility) were two important results for *On Ice*. *On Ice* changed the way participants used and viewed the gallery. It was for that moment a site of engaging and entertaining education.

For Sunderlin, *On Ice* definitely bridged disciplines. When asked how this collaboration affected his research, Sunderlin said,

While the experience does/did not inform or effect my research, it has influenced my teaching of glaciology. I am developing my syllabus to incorporate greater “hands on” activities.¹⁴

¹¹ Ibid.

¹² Ibid.

¹³ Ibid.

¹⁴ David Sunderlin, Telephone interview by author, 20 December 2007.

His collaboration with the gallery with *On Ice* did expand his vision of his research because he saw “how others (particularly artists) viewed the coldness and rigidity of ice in the abstract.”¹⁵ Sunderlin felt that this experience did create a new relationship for him with the museum and he hopes that *On Ice* will lead to more interactive and community building exhibition programs.

The Artist Perspective

Artists Patricia Badt and Scott Sherk, each of whom contributed work to *On Ice*, are Professors of Art at, respectively, Cedar Crest College and Muhlenberg College, both in Allentown, PA. In the work of both there is ongoing experimentation. They work individually and on occasion collaboratively. Badt contributed a painting – the only painting in the show - and Sherk contributed sound recordings of ice breaking, using glass as a substitute for ice. *On Ice* presented an opportunity to broaden Sherk’s current research in the use of sound art. Scott Sherk has been working with sound since 2003 and this exhibition encouraged him to develop a course in Sound Art at Muhlenberg College.

A Student’s Perspective

Jonathan Esser, a sophomore during the fall of 2006, was a biology and music major. He planned to compose a work for an electronic instrument known as the Theremin. The Theremin was the first electronic musical instrument invented. It is played by moving one’s hands around and near the antenna, but never touching it. The Theremin built for *On Ice* was to be constructed by three engineering students and played through a block of ice and Jonathan Esser was to compose and play the piece.

¹⁵ Ibid.

Unfortunately the composition didn't get written. The engineering students didn't build the Theremin in enough time for Esser to compose a work for it. Jonathan does not blame the students. He relates that the engineering program at Lafayette is extremely rigorous and the students just did not have time to work on the project. Certainly an unanticipated result for Jonathan Esser was that in the future he will scrutinize any and all projects presented to him.

However Esser does look forward to collaborating across disciplines in the future. I asked whether he was cognizant of a connection between art and science he answers in the affirmative. Jonathan Esser has been involved in both science and art (music) and there is a belief that whether one's work is based in scientific theory or art, it's the expression that matters. In science the expression is through learning new concepts and for art that expression is through the creative work that results. "All are related."¹⁶

Esser views the gallery as the concert hall of the visual arts. He appreciates that Michiko Okaya tries to blend boundaries in the exhibitions she presents. That effort was especially apparent in *On Ice*, a montage of objects mixed or blended with the science of ice. While his particular Theremin project was not successful he believes "the overall exhibit was successful and he would absolutely like to collaborate and integrate music with science."¹⁷

On Ice Interdisciplinary Laboratory

Could the Williams Center Gallery be considered a laboratory when it engaged in the interdisciplinary exhibit *On Ice*? How should the laboratory be defined in this instance? Is it an opportunity for university museums to "impart scientific knowledge to

¹⁶ Jonathan Esser, Telephone interview by author, 11 April 2008.

¹⁷ Ibid.

a broader audience”?¹⁸ Or is it, as Cornelia Weber suggests, a theatre of knowledge actively presents objects from different spheres or disciplines in the museum that entertains and educates.

I agree with Weber, that the university museum is situated to provide broad range of experiences for the participants in the exhibition process and in providing educational programs that are informative and interactive. Collaborations between museum personnel and faculty are one example by which ‘laboratory’ is being redefined. The museum can also be viewed as an organism interacting with its environment, and those interactions – interdisciplinary exhibitions - are the experiments. Each ‘organism’ or museum, interacting with faculty, and student creates a new or different experimental result.

One 16th century definition of ‘laboratory’ was ‘a workshop’¹⁹. The American Heritage Dictionary explains that a laboratory is a place of practice, observation and testing. For Janet Marstine, Assistant Professor in the M.A Program in Museum Professions at Seton Hall University the notion of laboratory makes it possible to present exhibitions that “challenge museological rituals, express diverse political view points, and experiment with alternative design strategies. . .”²⁰

The laboratory as workshop and as a place of practice, observation and testing seems to me to be just right. Another early definition of a workshop is as a place of

¹⁸ Cornelia Weber. “The University Museum as a “Theatre of Knowledge.” *ICOM Study Series 11, 2003*. ICOM International Committee for University Museums and Collections. P.19-20.

¹⁹ laboratory. Dictionary.com. “Dictionary.com Unabridged (v1.1).” Random House, Inc. <http://dictionary.reference.com/browse/laboratory> (accessed: 20 April 2008).

²⁰ Janet Marstine, “What A Mess! Claiming a Space for Undergraduate Student Experimentation in the University Museum:” *Museum Management and Curatorship*. Vol. 22, No.3, (September 2007): P. 305.

invention and creativity.²¹ It is a site that necessitates finding new ways to reconfigure the past to create a future. That effort relies on, as Marstine points out, “respect of best practice” and builds on that foundation to create alternatives to existing museum practice.²² *On Ice* operated as a laboratory in that various departmental factions came together with two and three dimensional art, video, photographs, sound recording, installations, demonstrations and literature that created a theatre of experimentation. That theatre, that laboratory, was a site of interactivity that transformed the youngest students as well as faculty.

Exhibition Programming

Programming for *On Ice* took a variety of forms. It included the visual and literary arts as well as lectures and films. The Skillman Library at Lafayette College presented *Mallarme's Swan: Frozen in Word and Image* a series of photographs by Kathy Bruce based on *The Swan (La Cygne)* a sonnet by Stephane Mallarme in which a swan is trapped in frozen ice. Planned readings included work from the collaborative artist's book *Ice Flow* and poetry readings that included M.J. Fitzwater, Maryann Riker, Alice Kwiatkowski, Marya and Patricia Goodrich, Marilyn Hazelton.

There were two events titled *Entering the Conversation*. This event required that participants explore the exhibition and note their personal responses to the visual art and poetry. *Entering the Conversation* provided a means through which visitors could explore their own responses to the exhibition. Lectures for *On Ice* included the Landis Lecture. Dr. George Divoky, Ornithologist and Research Associate at the Institute of

²¹ laboratory. Dictionary.com. “Dictionary.com Unabridged (v1.1).” Random House, Inc. <http://dictionary.reference.com/browse/laboratory> (accessed: 20 April 2008).

²² Marstine, *What A Mess*, 305.

Arctic Biology, University of Alaska-Fairbanks, and director of Friends of Cooper Island presented *Watching the Arctic Melt Away: Three Decades of Change from a Warming Globe*, and screenings of Al Gore's *An Inconvenient Truth* and Disney's *Happy Feet*. The final demonstration by Prof. David Sunderlin and his students was the *Glacier Flow Demonstration and Illustrated Talk*.

In order to make components of *On Ice* available after the close of the exhibition Michiko Okaya created links to the gallery's website. Though they are difficult to find, she linked the catalogs produced for the exhibit *On Ice: Art* and *On Ice: Poetry*, and Anne Felker's essay *Ice, My Teacher*. Also linked are press releases for exhibition-related events.

The Collaborative and Audience Impact

What are the short- and long-term benefits of *On Ice*? Gallery director, Michiko Okaya is always looking for ways to increase attendance. *On Ice* was one of the most successful of the interdisciplinary exhibits she has presented. It brought visitors from across the city of Easton, PA, into the gallery, including elementary school students. The show was reviewed in the local newspaper (*Morning Call*) and in December 2007, and ten months after it closed, it was voted by *Morning Call* readers the most popular exhibition of the year. The gallery benefits in the short-term when it is able to reveal to visitors and participants the different ways that disciplines are related. Faculty collaborated in an advisory capacity rather than curatorial. Faculty made suggestions regarding the kind and type of demonstrations that could be presented in the museum.

Long-term benefits for Okaya “could be inspiring the administration to see the benefits of interdisciplinary exhibitions.”²³ Wendy Hill, the William C. and Pamela H. Rappolt ’67 Professor in Neuroscience, and a member of the Psychology department is currently Acting Provost at Lafayette and she was impressed with *On Ice*’s interdisciplinary construction.

Hill attended a meeting at Skidmore College and was taken on a tour of *Molecules That Matter* and saw the relationship [that is] the collaborative nature of the exhibit and immediately called me.²⁴

The long-term benefits of *On Ice* will continue to unfold as administrative and institutional support increases and is augmented with additional funding streams and staff. As Lafayette College moves toward increased interdisciplinarity across the college, Okaya sees an increase in faculty exhibition collaborations. She notes that the faculty now sees and Okaya looks forward to their ideas for collaboration.

Outcomes for *On Ice*, as with other exhibits at the Williams Center Gallery, are often anecdotal. While “there is a visitor’s survey that student gallery sitters are supposed to administer, it doesn’t usually get done.”²⁵ Okaya gathers the anecdotal information from conversations she has with students and faculty, and by listening to students talking to each other. Sometimes students and other visitors write responses to the exhibit and make repeat visits. Okaya relates “that visitors have said they keep coming [to the gallery] because they never know what they will see.”²⁶

Professional audience research undoubtedly could aid the effort for greater institutional support. However in cases such as The Williams Center Gallery and the

²³Michiko Okaya. Telephone interview by author, 8 January 2008.

²⁴Ibid.

²⁵Ibid.

²⁶Ibid.

Martin Art Gallery, as well as my own situation at the Bertha V.B. Lederer Gallery at State University of New York Geneseo, where the gallery director is the sole administrator, this expense would not be the first choice. Institutional support can and is initiated by recognition of excellence in exhibitions that engage faculty, students and the community. Exhibitions such as these expand the reach of the institution regionally and with a revamped website, globally.

I believe it will be the President and Provost's new institutional directive taking the college toward greater interdisciplinarity in education that will most greatly effect the gallery's exhibitions and programs, increasing the relevance of the gallery within the college and the community.

The Future of Interdisciplinary Exhibitions

Fundraising is an issue for all museums, however funding levels for many university museums and galleries is less than adequate. Because fundraising is in itself a full-time position, building a strong relationship with the office of development and advancement is imperative to maintain and grow the gallery and its exhibition programs. Additionally, Okaya is the first to suggest that the gallery's internet presence should be expanded but that would also require additional funding and personnel. Presently there is just one staff member who maintains all department websites.

While the Williams Center Gallery does enjoy some funding from the Pennsylvania Council on the Arts for exhibitions it remains true that until a dedicated position is earmarked for the gallery, fundraising will be inconsistent because it requires long-term planning and most university museum and gallery funding requests generally are based on programming and not for operational support.

The future for the Williams Center Gallery will be status quo until the administration realizes that the gallery holds untapped opportunities for interdisciplinarity across the university, and that the gallery can be an important contributor toward interdisciplinarity for the whole institution.

Conclusion

The curators of *On Ice* didn't begin locating artwork and related scientific projects and documentation for the exhibition until the fall of 2006. While Michiko Okaya has a keen interest in exhibits that combine art and science especially from the artists' perspective, organizing an exhibit such as *On Ice* is a different matter. Kathy Bruce said that *On Ice* was the central or focal point of creativity for faculty and student participants, and for the Williams Center Gallery audience, the axis mundi²⁷. This exhibit focused the campus on the gallery's potential for interdisciplinarity at Lafayette.

The Williams Center Gallery became a workshop for labor and investigation. It became a laboratory, because it was in that gallery that Sunderlin became aware of the power of interactivity for his students. It was because of *On Ice* that artist Badt and Sherk collaborated with a new media and that Sherk would develop a new course in Sound Art.

All participants in *On Ice* found it to be beneficial and it answered Janet Marstine's call to consider the museum as laboratory and challenge existing use and practice in the university museum. *On Ice* mixed things up by involving many different art forms and science. It reached beyond the Lafayette campus encountering art and geology. It

²⁷ Bruce, *On Ice*, catalog essay, *On Ice: Art*, p. 1.

expressed diverse viewpoints and experimented with the abstract presentation of ice that allowed many to see their various research efforts in new ways.

CHAPTER IV

Case Study 3

Word, City, Mind: A Universal Resonance
Martin Art Gallery, Muhlenberg College

Introduction to Steps toward Interdisciplinarity

The primary requirements for a successful interdisciplinary exhibition are institutional support, the museum's motivation to engage in interdisciplinary collaborations, audience development and museum/gallery institutional relevance, creating new learning communities, adequate funds and appropriate website development. When an interdisciplinary exhibition works does the gallery become a laboratory and do the participants view their exhibit as an experiment?

Word, City, Mind: A Universal Resonance at Muhlenberg College had just one of the required elements that I maintain are needed for successful interdisciplinary and collaborative exhibits, this is the willingness to engage in interdisciplinarity in the gallery. How is it possible that *Word, City, Mind* worked? Without an institutional consensus to support interdisciplinarity in the gallery *Word, City, Mind* enhanced audience attendance by bringing students and faculty from the sciences into the gallery. By generating new audiences *Word, City, Mind* also enhanced the gallery's relevance to the college. Following the exhibit, gallery director Kathy Burke organized a seminar for faculty interested in curating an interdisciplinary collaborative exhibit. The exhibit created new a learning community making connections between art and science. As for fundraising this particular exhibit was funded through the gallery's existing budget. The Martin Art Gallery's website lists the exhibit and cleverly has a link to Ed Kerns Lafayette website

to *Word, City, Mind: A Universal Resonance* which is illustrated with samples of three works in the exhibit and that show how the layering of the acetate affects the resulting image.

Kathy Burke agreed with the Tang's administration that the gallery could be thought of as a laboratory. She looks forward to working with faculty as they develop their exhibits that no doubt will engage many in the Martin Art Gallery.

Gallery and Exhibition Background

The Martin Art Gallery of Muhlenberg College, Allentown, PA, is situated within the Dorothy and Dexter Baker Center for the Arts. The primary mission of the gallery is to present exhibits that support art and art history department curriculum. Until 2003 the gallery exhibition program was an independent entity and had no relevance to the art and art history departments or to the college. Designed by architect Philip Johnson and opened in 1976, the Martin Art Gallery presents four to eight exhibitions yearly, ranging from selected works from the Muhlenberg permanent collection; faculty shows; the annual senior art seminar; and exhibitions of visiting artists and a range of other solo and group exhibitions. Though the gallery does not post its mission statement on its website, gallery coordinator Kathy Burke gave me the "Statement of Purpose Specific to Exhibitions"

The mission of the Martin Art Gallery is to offer to the Muhlenberg community, and to the general public, meaningful aesthetic and educational experiences in the visual arts. These experiences include exposure to a wide diversity of exhibitions, and to formal and contextual issues relating to the exhibitions. Each exhibit includes programming of public lecture and discussion with curators, artists, critics, and/or theoreticians, as well as community-

wide receptions.¹

Prior to Kathy Burke's arrival as coordinator in 2004, exhibitions at the Martin Art Gallery had "little or no relationship to the art department curriculum".² Since then, exhibition proposals are submitted to a gallery committee which is comprised of Burke and art department faculty. It is this group that decides which exhibits to present.

In 2007 – 2008 a group of Muhlenberg faculty members that included Amze Emmons Assistant Professor of Art, Jeremy Teissere, Assistant Professor of Biology and Neuroscience, and Holly Cate Visiting Assistant Professor of Theatre, undertook a year-long investigation into the relationship between science and art. This investigation was titled *Occupied Territories: Crossing Boundaries of Science and Art*.³ The authors of *Occupied Territories* approached the Martin Art Gallery through Amze Emmons, a member of the Martin Art Gallery exhibition committee. The organizers of *Occupied Territories* specifically sought an exhibition component that clearly engaged art, biology and neuroscience, and found that *Word, City, Mind: A Universal Resonance* fit program needs. *Occupied Territories Crossing Boundaries of Science and Art* featured Patricia Buckley's theatrical performance of *Evolution* and a discussion between long-time collaborators photographer Joe Elliot, and bio-ecologist Rich Niesenbaum *Connecting Art and Science in Costa Rica*. Another programming element was the 2001 profile documentary *Rivers and Tides* about artist Andy Goldsworthy, whose work is centered on understanding the natural world. Also included were a staged reading and discussion

¹ Statement of Purpose Specific to Exhibitions, Martin Art Gallery, Baker Center for the Arts, Muhlenberg College. Received from Kathy Burke on 1 May 2008.

² Kathy Burke, Telephone interview by author 9 January 2008.

³ *Occupied Territories: Crossing Boundaries of Science and Art 2007-2008*, This proposal is the result of the collaborative efforts of Holly Cate, Visiting Assistant Professor of Theatre; Amze Emmons, Assistant Professor of Art; and Jeremy Teissere, Assistant Professor of Biology and Neuroscience at Muhlenberg College, Allentown, PA.

of *Venus*, 1997, a work by Suzan-Lori Parks that is based on the life of the 19th century African Saartjie Baartman, who was known as the *Venus of Hottentot* and the exhibition *Word, City, Mind: A Universal Resonance*.

Word, City, Mind: A Universal Resonance
Collaborating Across Disciplines

Word, City, Mind was a collaborative effort by Assistant Professor and gallery committee member Amze Emmons, along with Jeremy Teissere, Professor of Biology and Neuroscience, and Holly Cate, Visiting Assistant Professor of Theatre. These three believed that such a comprehensive investigation would provide participants and the audience an opportunity to:

truly understand how ideas shuttle back and forth between art and science to look closely at the orientation of both fields towards truth in nature, and to see what mutual inspiration between these fields might look like⁴.

In proposing *Word, City, Mind* to gallery coordinator Burke, professors Emmons and Teissere intended that it would become an integral part of *Occupied Territories*. They hoped that through the collaboration between art and science the participants would attempt, as stated in the proposal for *Occupied Territories*, “to map the intersection of science and art.”⁵

Although both disciplines are primarily invested in the creation of new truths, the methods, works, and language of both fields often prevents an easy dialogic relationship. Recent attempts to see art in science rarely go beyond marveling at the aesthetics of data and scientific image; likewise, attempts to bring science to art merely to legitimize the work of artist as now quantifiable and objective - provided that they get the science right.⁶

⁴ Ibid.

⁵ Ibid.

⁶ Ibid.

In seemingly disparate disciplines, art and biology, art and neuroscience or art and chemistry; determining the scientist's and artist's differences and similarities in approaching questions or hypotheses is important. This mapping of those points of similarities illustrate that the goals of each and their resulting resolutions share methodologies that are more similar than different.

Word, City, Mind: A Universal Resonance is comprised of concepts rooted in neurology, biology, architectural urbanism, trade routes and language systems which have been combined in such a way that the layered images resemble

the brain neuron, with its dense center and strands of peripheral transmission, bears to a lighted city seen from above. . . Images which . . . seemed to have a purely linguistic association, might actually be members of a resonant pattern...the cerebellar Purkinje Cell and the tree . . . more than metaphors they share a common function and form.⁷

The resulting exhibition consisted of the layering of acetate for thirty of the pieces and twenty works framed in layered Plexiglas and was a metaphor for the accumulation or layering of self in the vernacular of neuroscience.

This exhibition is more than a collaboration between disciplines. It is also a collaboration between artists that use the vernacular of science to create works that seek to uncover the relationship between form and function of seemingly unrelated concepts: those of bodily systems, of language, of neuroscience and of the Purkinje Cell (Purkinje cells are the only cortical neurons whose axons extend through the white matter to synapse with the central nuclei of the cerebellum. They are involved in the processing of different impulses that come from the motor cortex) - each of which can also be seen as

⁷ Elizabeth Chapman, "Introduction", *Word, City, Mind: A Universal Resonance*. Catalog, Ed Kerns and Elizabeth Chapman, 2008, p. 1.

resembling aspects of urban planning and the tree.⁸ Each system, bodily, language, neuroscience and the transmitter Purkinje cell enjoy structural similarities in that there is a locus or central functioning receptor mass which branches out and transmits information to different parts of the brain – to different parts the body. Urban systems such as traffic lights, transportation systems, water or sewage piping systems etc. have a locus from which messages are relayed to initiate actions. Artists like Chapman, Kerns and Michael Oatman acknowledge these relationships; interpreting the language of science to produce artwork that speaks of larger issues that reflect the concerns of society.

Gallery Administration

Gallery coordinator Kathy Burke's position is different from those directorships at the Tang and the Williams Center Gallery. Burke is not the sole authority charged with direct curatorship of the gallery, however she collaborates with the exhibit committee and can initiate and support exhibitions by faculty. Burke "is very interested" in interdisciplinary exhibits.⁹

Burke relates that there is no institutional initiative, formal plan or program for organizing interdisciplinary exhibits, but they usually occur once or twice a year, and that most are initiated through casual conversations between Burke, art faculty and other academic faculty. *Word, City, Mind: A Universal Resonance* had a more formal inception due to the planned events and discourse surrounding *Occupied Territories: Crossing Boundaries of Science and Art*.

⁸ www.bioeng.auckland.ac.nz/anatml/anatml/database.cells.cells/parts/part/part_28.html.

⁹ Kathy Burke, Telephone interview by author, telephone, 9 January 2008.

Burke views interdisciplinary exhibits as a way “to use the gallery to broaden [and] reach a larger audience.”¹⁰ Her goal is “audience development -- getting students and faculty from across Chew Street to walk into the gallery.”¹¹ She acknowledges that faculty need to be trained or mentored to gain competency into the exhibition process and to better relate to it. She remarked that she

emailed all faculty and organized a meeting with the eight that responded and provided them with guidelines and procedures. She spoke about the 18- to 24- month lead time required to organize and accurate an exhibition, and other details. . .the meeting clarified the whole exhibition process for them; a meeting like this opens the door to the gallery, [wherein] the gallery becomes accessible to the faculty and departments.¹²

It is through meetings like this that true collaboration and interdisciplinarity between the gallery and academic faculty can take place because the faculty are encourage to take on the role of curator. The Martin Art Gallery supports art department curriculum and exhibitions require the approval of the exhibitions committee, however the Martin Art Gallery also seeks interdisciplinary exhibitions from across the college which is why Burke encourages other academic faculty to attend her exhibition development seminar.

Funding for interdisciplinary exhibitions that require a little extra money may come through the college’s foundation office grant application process. Occasionally funds can be obtained from the faculty curator’s department. However, Burke says that “usually the exhibit is entirely funded out of the gallery’s operating budget.”¹³

¹⁰ Kathy Burke, Telephone interview by author, 9 January 2008.

¹¹ Chew Street is the dividing line between science and art on the Muhlenberg College campus. On the north side of Chew Street are the science programs and the arts and humanities are situated on the south side.

¹² Kathy Burke, Telephone interview by author, 9 January 2008.

¹³ Ibid.

The Martin Art Gallery's internet presence is adequate though it needs updating, however that is unlikely given the financial and administrative limitations. The college employs one webmaster to serve all departments.

For Kathy Burke, "the most important and valued result of interdisciplinary exhibitions is collaboration and developing an inclusive environment. Since the Martin Art Gallery's exhibition program is guided by the exhibition committee and is more closely related to art department curriculum, it should not be assumed that the committee is only interested in department related exhibits. The Martin Art Gallery and the exhibitions committee are also interested in interdisciplinary collaborative exhibits from across the college. It is because of this effort toward collaborative interdisciplinarity that academic departments across the college better understand how the gallery can enhance teaching and faculty research. As a result the Martin Art Gallery as well as the Tang and the Williams Center Gallery took what I will call a two-dimensional educative experience and transformed the museum experience into a four-dimensional experience, utilizing sense and intellect to inform a more critical understanding of art and artifacts presented. For each the galleries cited here the gallery experience is more than standing in front of artwork reading labels.

Kathy Burke identified audience development as her primary concern. This exhibit brought students and faculty from across Chew Street (the science side of campus) to view an art exhibit and participate in a panel discussion that used scientific concepts and ideas in a new way. *Word, City, Mind* made the gallery relevant for science faculty and their students.¹⁴

¹⁴ The audience for the panel discussion for the exhibit *Word, City, Mind: A Universal Resonance* was filled with other science faculty and their students in addition to the usual art faculty and students.

Collaborating Faculty Participant

Elaine Reynolds, Associate Professor of Biology and Program Chair of Neuroscience at Lafayette College, Easton, PA, relates that she became involved with *Word, City, Mind: A Universal Resonance* because Diane Shaw, Special Collections librarian at Lafayette's Skillman Library suggested Ed Kerns speak with Reynolds, then both Kerns and Chapman met with Reynolds to discuss their collaborations. They discussed language and how it fits together, and they spoke about symbolism and imagery. They discussed written characters such as those in the Chinese language noting how there are different ways to form thought. Reynolds quotes Chapman saying, "art comes out of the body" and for Reynolds this idea provoked discussion.¹⁵

Elaine Reynolds teaches the *Introduction to Neuroscience* course and wants to make connections between this course and the humanities. Her involvement as a neuroscientist links with ideas and concepts similar to those of Kerns and Chapman which resulted in *Word, City, Mind*. Reynolds' discussions with Kerns and Chapman informed her efforts to develop a course in which "neuroscience can be viewed in the context of art, religion and consciousness."¹⁶ The discussions and collaboration she had with the artists during the course of the exhibition expanded her vision of the course. However when asked whether *Word, City, Mind* influenced her research in neuroscience and biology, she said that it did not.

Reynolds did not act as curator for this exhibit; she states that she was an observer, "watching the installation process, and [she] found some interest in how the artists and

¹⁵Elaine Reynolds, Telephone interview by author 21 February 2008.

¹⁶ Ibid.

the gallery coordinator used the art and the space in the gallery.”¹⁷ Reynolds’ experience brings home the idea that for some academic faculty participants that I interviewed involvement in a interdisciplinary exhibition was important to their recognition that a relationship exist between art and science. Reynolds notes that for her “the relationship between art and science was made concrete through *Word, City, Mind*.”¹⁸

Reynolds continues to collaborate with Elizabeth Chapman. Chapman visits Reynolds’ lab a few days a month to talk about Reynolds’ research. Through their ongoing discussions Reynolds relates “that artists use large ideas and that having an artist in the laboratory reveals how differently the artist sees research.”¹⁹ The collaboration between Kerns, Chapman and Reynolds was the important part of the process for Reynolds, so much so it is unlikely that she would propose an exhibit herself. Of those interdisciplinary exhibit partnerships Reynolds is not alone, insisting that the experiment did not impact her research. Kathy Bruce artist and co-curator of *On Ice*, also states her involvement in her exhibit did not alter how she views her work; David Sunderlin, geologist and contributor to *On Ice* has a similar perspective.

Collaborating Artists

Word, City, Mind: A Universal Resonance, a collaborative and interdisciplinary exhibition mounted at Muhlenberg College in the Martin Art Gallery was presented to gallery coordinator Kathy Burke by Muhlenberg faculty Amze Emmons and Jeremy Teissere as part of the series *Occupied Territories*. Emmons and Teissere offered the Martin Art Gallery as a venue for Ed Kerns and Elizabeth Chapman because their

¹⁷ Ibid.

¹⁸ Ibid.

¹⁹ Ibid.

collaboration with Elaine Reynolds was in keeping with the goals of *Occupied Territories*. This exhibition can also be viewed as an inter-institutional collaboration between Muhlenberg and Lafayette College, as well as a intra-institutional collaboration between biology/neuroscience and the fine and performing arts of Muhlenberg.

Ed Kerns, the Eugene H. Clapp II '36 Professor of Art at Lafayette College has been involved in many artistic collaborative projects and seeks artists with whom he can collaborate and broaden the artistic experience of his students.

Kerns invited Elizabeth Chapman to be a visiting artist at Lafayette because her work seemed to be centered on art and architecture. However “it turned out that her work is about systems of thought and it has a neurological base; and that interest in systems of thought was due in part to her son’s Asperger’s Syndrome.”²⁰

For Chapman, it is through conversations and feedback from viewers that she “gained a sense of what images best translate the ideas of greatest importance.”²¹ The whole collaborative enterprise was consistent with Chapman’s current artistic research regarding interpretative mapping of lingual brain function, and relating those concepts with visualizations of urban planning maps or other architectural structures. She also noted that “the community looks at this museum (Martin Art Gallery) as providing a forum for discussions which are significant to a broad range of individuals.”²²

Kerns views his collaborative endeavors as strictly American, in the same manner that Jazz is American – Jazz is based on call and response; a collaboration between musician and instrument, it is a method of communications. “Art is a conversation

²⁰ Ed Kerns, Telephone interview by author, telephone, 18 December 2007.

²¹ Elizabeth Chapman, Correspondence interview by author, email 2 December 2007.

²² Ibid.

between artist and object as well as between the object and the viewer – art tells you what to do, that is within the process.”²³

Word, City, Mind: A Universal Resonance was a two-year collaboration and when asked about concessions made in the collaborative process, Kerns states that “as an artist, one accepts the fact that the individual is not in charge. He says that there must be a merging of sensibilities and the real test for artists using scientific concepts is working through the problems that lead one to illustrate the ideas and principles of science to produce art.”²⁴ Learning by looking for reactions and responses to stimuli is the basis of observational work. Kerns relates that Reynolds speaks of a scientific truth that is gained by observation, Kerns maintains that “art is a way of modeling the nature of experience.”²⁵ He illustrates this statement by reminding us that artists (who were among the earliest documenters of the natural world) used their powers of observation from the earliest portraiture, still life painting, botanical illustrations and landscape painting. Kerns insists and I agree, “individuals see what they are taught and observation can only provide a fragment of what is viewed - a fragment of the process.”²⁶

A Student’s Perspective on Interdisciplinarity

Ed Kerns recruited art students to collaborate with him and Elizabeth Chapman because of their interest in art. Kerns related that the students worked with the digital printers at Lafayette to produce the prints on acetate. Student Allison Thompson continues to work on a next generation of the project to be installed at the Massachusetts

²³ Ed Kerns, Telephone interview by author, 18 December 2007.

²⁴ Ibid.

²⁵ Ibid.

²⁶ Ibid.

Institute of Technology. The extension of the exhibit is a positive result for her and for Kerns and Chapman.

Allison Thompson was a sophomore student in Ed Kerns' painting class. She became very involved with painting and "tried to be working in the studio in the Williams Visual Arts Building as often as possible."²⁷ She relates that Kerns asked her to use the digital printers for him for the *Word, City, Mind* exhibit because it was apparent that Allison was committed to her work. She started work during the summer of 2006. Allison worked with large format printing, digital imaging, catalogue and poster production. She also helped deliver and install the exhibit. When asked what she liked about the process of developing images for Kerns and Chapman she wrote:

I loved the manner in which we worked, it was similar to the systems depicted in the work. Using images of cities and cells was meant to indicate how communities are built and everyone had their role to help contribute. A community was definitely developed in the studio.²⁸

Until this experience Allison had not collaborated with another artist nor had she had an actual museum experience. This opportunity led to her continued to work with other artists outside the college. She was a studio assistant for artist Gary Komarin, and participated in a performance work. It is clear that being involved with *Word, City, Mind* and learning by observation by being in the presence of Kerns, Chapman and Reynolds played a role in broadening Allison's idea of art's potential.

Allison's assessment of her participation in *Word, City, Mind* included that she engaged in the creative process and

Something clicked with how I understood work visually.
Once that happened the worked floored me, not only because

²⁷ Allison Thompson, Email correspondence interview by author, 31 March 2008.

²⁸ Ibid.

I could really see it for the first time, but also the meaning of the work rang so true. The work demonstrates that volition starts in the body.²⁹

Allison maintains that the work and the collaborative nature of the project had an enormous impact on her work and that, according to Thompson “science became integrated with how I think about my work.”³⁰ *Word, City, Mind: A Universal Resonance* helped Allison to realize that viewing art is a visceral experience. Understanding the neuroscience - the natural processes experienced by the body and mind - helped her make connections between relationships whether those relationships are material-based or humanity-based.

Interdisciplinarity, Word, City, Mind and the Laboratory

Can *Word, City, Mind: A Universal Resonance* be described as an interdisciplinary and laboratorial site? What must occur for this to be the case? *Word, City, Mind* began as an collaboration between two artists and a neuroscientist. That collaboration sought to flesh out the meaning of cerebral function, visualize and interpret the Purkinje cell which is central to cellular communication and resembles city planning maps. Ed Kerns, Elizabeth Chapman and Elaine Reynolds found language that could be understood by each crossing disciplinary boundaries.

The multiple layered acetate prints and layered Plexiglas are a metaphor for accumulated experiences that are the foundations of self-hood. The presentation format of the resulting art work clearly illustrates the collaborative and interdisciplinary nature of this exhibition. This exhibit required that artist and scientist interact to find common

²⁹ Ibid.

³⁰ Ibid.

ground. Their respective research is grounded in similar concepts, however each used a different language to formulate his or her discourse.

Once the Martin Art Gallery agreed to present *Word, City, Mind* it became a laboratory. That resulting laboratory experiment could only have come about because of artistic and scientific collaboration. In the case of *Word, City, Mind* the catalog and panel discussion were crucial in relating and clarifying that collaboration. The experiment and its resulting fifty works of art offered to its audience a new view of brain function and the social function of an urban environment that illustrates another form of collaboration, that of conceptualized functionality. From artist to scientist to student, the participants each played very different roles and each participant agreed that they were impacted by the interdisciplinary nature of the entire project. Therefore the basic criteria for creating an experimental and laboratorial interdisciplinary exhibition is the participation of multiple disciplines proving multiple points of view that lead to creating a new learning community. Evidence of new learning communities is available through exhibit programs that elucidate that the relationship, in this case, between science and art forms included in *Occupied Territories* programming. Collaborations among disciplines yield new interpretations of research through the creative arts.

Exhibition Programming

Exhibition programs in addition to *Word, City, Mind: A Universal Resonance* that accompanied *Occupied Territories: Crossing Boundaries of Science and Art 2007 -2008* were limited to how artists create links to science through their work, thereby crossing boundaries. Events include the video performance by Patricia Buckley of *Evolution* and was presented in conjunction with the Department of Theatre and Dance. Buckley's

performance is based on a evolutionary puzzle that forged a discourse about family, mental illness and the limits of science. There was a screening of *Rivers & Tides*, 2001 that profiles sculptor Andy Goldsworthy's deep interest in understanding the natural world, using natural materials that are bio-degradable.

Additional programming includes *Connecting Art and Science in Costa Rica* is a discussion between two long-time collaborators, Joe Elliot photographer and head of the fine arts department and Richard Niesenbaum, ecologist whose conversation examined the different working methods of scientists and artists, and *Creativity Symposium*, a panel discussion which used Andy Goldsworthy's film *Rivers and Tides* to launch a discussion about creativity, risk and failure. This symposium is founded on the idea that there are certain core principles of creativity that are similar across disciplines.

The programs set in place for *Occupied Territories* itself suggests the highly collaborative nature of the year-long program and its grounding in experimentation. The experiment and its laboratorial construct is one of study and collaboration that provides the audience an idea of the difficulties of communicating across disciplinary boundaries.

The Impact of Interdisciplinary Collaboration on Audience

Word, City, Mind had a significant impact on the Muhlenberg gallery director Kathy Burke, and Lafayette College's neuroscientist Elaine Reynolds, Ed Kerns, Lafayette art department Visiting Artist Elizabeth Chapman and Allison Thompson, art student participant.

For Kathy Burke "the *Word, City, Mind* experience was tremendously helpful in guiding her toward the next exhibit *Wings of Fire: The Illuminated Book of William Blake*. She collaborated with a Muhlenberg professor of literature in the Martin Art

Gallery. His senior students not only conducted research, they built a scale model of the gallery to design the exhibition. They installed the work, wrote the wall labels, and gave presentation to a high school class.³¹

Neuroscientist Elaine Reynolds continues to involve students in her research projects, particularly students who are double majors in art and science. She sees long-term impact of such interdisciplinarity as ongoing. “Developing collaborations, and breaking down [discipline-based] barriers is key” and suggests that the on-going conversations between herself and Elizabeth Chapman may still yield additional outcomes because collaborations continue.³²

Reynolds said that the *Word, City, Mind* experience had a direct impact on the course she is developing by making connections between neuroscience and the humanities. The exhibit process uncovered the layered components of exhibition development and allowed Reynolds to make her own determination of the similarities between science and art.

Ed Kerns a long-time artistic collaborator considers *Word, City, Mind* to be “break through work” for the artist and the scientist.³³ An additional outcome for him includes a exhibition, as yet untitled, at MIT that will involve a new set of collaborators from the MIT faculty and students. Kerns also feels that because scientists were involved as collaborators in an artistic investigation the scientists brought a high level of credibility to the entire process.

Kerns evaluates the outcome for students by defining the goals of the liberal arts college:

³¹ Kathy Burke, Email correspondence by author, 1 May 2008.

³² Elaine Reynolds, Telephone interview by author, 21 February 2008.

³³ Ed Kerns, Telephone interview by author, 18 December 2007

the liberal arts education broadens general exposure to things and thought about the human experience. The new liberal arts require consilient language. Languages bound to specialties do not and can not communicate. Concilliant language speaks across specialties and is about creating a learner, that is, it leads to life long learning.³⁴

The idea of consilience is an assertion of biologist Edward O. Wilson that the science, humanities and the arts have common goal which is to give a purpose to understanding the details that the world is orderly and can be explained by a small number of natural laws. Edmond O. Wilson used consilience to describe the synthesis of knowledge from different specialized fields.³⁵ The success of faculty outcomes for *Word, City, Mind* is due to collaborations between artists and scientists. And that collaboration resulted in other scientists reaching out to Kerns and Chapman to develop new aspects, new science and new materials for a project alive with potential and meaning.

Allison Thompson explains that *Word, City, Mind* changed the way she thought about art. She said that “science became integrated with how she thinks about her art work. She could relate physical processes with manufactured processes and see the similarities between the two.

Word, City, Mind changed the way all the participants viewed art and science. It broadened research for both the scientist and artist, aided course development and brought new participants into Kerns and Chpaman’s evolving creative process.

Funding and the Future of Interdisciplinary Exhibitions

Can a gallery with a small budget produce interdisciplinary exhibitions? Funding for *Word, City, Mind* at Muhlenberg had three sources. The collaboration between Kerns

³⁴ Ed Kerns, interview by author, 18 December 2007.

³⁵ Edward O. Wilson, *Consilience: The Unity of Knowledge*, Alfred A. Knopf, Inc., New York: 1998

and Chapman was supported by Lafayette College through the art department. The catalog for *Word, City, Mind* was funded by artists Ed Kerns and Elizabeth Chapman. The remainder of the funding came from the Martin Art Gallery operating budget. Given the limits of funding for many mid-size or small college galleries, interdisciplinary exhibitions can be developed by accessing the faculty not only as curators but additionally as lecturers to extend the reach of exhibitions presented. Kathy Burke and Michiko Okaya at the Williams Center Gallery both said that in some instances additional funding may be acquired from the faculty curator's department in support of their interdisciplinary collaborations in the gallery. My own experience with the history department at SUNY Geneseo confirms that such support is possible. In addition some exhibits at Seton Hall University's Walsh Gallery receive financial support from departments or college organizations for specific exhibitions that support programs. However, the funding needed for collaborative exhibitions like any other require advance planning and grant writing to acquire the funding needed. Gallery director Kathy Burke in a seminar with potential faculty curators informed them of the projected exhibition development time of two years. Those two years is the minimum for funding streams to be developed.

The Martin Art Gallery like the Williams Center Gallery and most other university galleries developing audiences is important to the life of, and relevance of the gallery to its community. Interdisciplinary collaborative exhibitions have proven, in the case of *Word, City, Mind* and *On Ice* as well as *Molecules That Matter* to bring an array of new visitors into the gallery. Burke and Okaya each related that their primary effort is to develop their audience. At Muhlenberg the dividing line between the humanities and

the sciences is Chew Street and *Word, City, Mind* was the first exhibition of its kind that brought faculty and students from across Chew Street into the gallery. The impact of *Word, City, Mind* on the campus allowed science faculty and students to see how their work may be interpreted through another lens. *On Ice* in a similar way afforded the Williams Center Gallery broadened access to the university community by involving geologists, environmentalist and artists in its experiment with interdisciplinarity. The results of *On Ice* brought in audience members that included K – 8 students and engaged the City of Easton, Pennsylvania. Unlike the Tang Teaching Museum and Art Gallery, the Williams and the Martin galleries do not operate with an institutional directive or support to engage in interdisciplinary learning in the gallery. These case studies illustrate that university and college galleries can have a broad impact on their communities. Creating and supporting faculty curated interdisciplinary and collaborative exhibitions gives audiences engaging content and produces educational interactivity that impacts audiences, the gallery and the institution.

With a successful interdisciplinary collaborative exhibit program that develops audience, and brings colleagues and students from across the university another long-term impact could be greater institutional support for the gallery. As the level of engagement by faculty increases, the credibility of the gallery is enhanced as a site of not only education but experimentation that will test the limits of what the gallery can contribute to the institution as a whole.

Conclusion

A great deal of experimentation occurred prior to the actual presentation of the exhibit. This is seen in the collaborative efforts of Ed Kerns, Elizabeth Chapman and

Elaine Reynolds that resulted in the multi-layered digital prints of *Word, City, Mind* and the continuing collaboration between Chapman and Elaine Reynolds. During the panel discussion at the opening reception, Reynolds stated that

seeing the art begins the conversation. The exhibition helped me look at my own field differently and taught me how to look at art differently.³⁶

For student participant Allison Thompson working on digital printing and production made significant connections for her, linking the production process and the creative process with the science that Kerns, Chapman and Reynolds were using as the basis of their collaboration.

The thirty layered works of acetate and the twenty framed pieces of *Word, City, Mind* are a metaphor for the accumulation or layering of self in the language of neuroscience. The format is meant to use layering as an aggregate of experience that result in the individual. Art helps the neuroscientists understand subjectivity, and according to Reynolds, science wonders what part of the consciousness is used to produce different kinds of art.”³⁷

The exhibition *Word, City, Mind* illustrates both short- and long-term repercussions for all who were involved. For Kathy Burke *Word, City, Mind* guided her as she moved forward with *Wings of Fire: The Illuminated Book of William Blake*. Another example of the benefits of this exhibit was that Provost and Professor of Philosophy Marjorie Hass of Muhlenberg College whose current research is centered on “the way artwork and memorials serve the work of memory and mourning, participated in a conference held in the gallery during the course of *Word, City, Mind*. This was an

³⁶ Elaine Reynolds, Prof. of Biology and Neuroscience, panel *Word, City, Mind: A Universal Resonance*, the Martin Art Gallery, Lafayette College, 28 November 2007.

³⁷ Ibid.

appropriate venue because of the conferences' relationship to art, neuroscience and memory.³⁸

Whether there is an institutional initiative for the development of university-wide interdisciplinarity or not, the gallery by its own initiatives can develop exhibitions and programs that maintain and increase the museum's relevance to the institution and the community. In so doing, the museum will increase audience attendance and its presence in the community at large. It is an 'if you build it, they will come' approach and it is possible the institution may enhance its role by ongoing development of the museum.

Word, City, Mind: A Universal Resonance can be counted as successful because it broadened the participants' approach to their work, and encouraged and provided direction for the gallery director in her support of interdisciplinary exhibits and mentoring of faculty. The exhibit was successful in engaging the administration and in providing student participants an avenue to expand their approach to their work as artists and critical thinkers.

How is the Martin different from the Williams and the Tang? The Martin Art Gallery and Williams Center Gallery have much in common. The size of the exhibit spaces are about 1600 sq. ft. and Skidmore's Tang is 39,000 sq. ft includes a multi-purpose room, two smart classrooms, construction and prep rooms, collection storage, two large exhibit galleries. Most college university galleries have exhibit space with minimal or no preparation space. The administration and museum staff at the Tang were clear about their needs and the need for flexibility. In addition any space as large as the Tang requires a significant operating budget and supplemental financial support from fundraising and grant writing, and the Tang has that support. The Martin and Williams

³⁸ <http://www.muhsenbergl.edu/mgt/provost/>.

like most small galleries, even in well funded institutions, don't have that kind of staffing or financial support. Certainly the motivations of the Williams and Martin galleries to sustain relevance, broaden exhibitions and programs, engage their communities and build audiences is apropos, they remain at a crossroad struggling to answer the call for interdisciplinarity in their galleries and to build a strong program. The Tang is the exception and not the rule for a college gallery, and it is clear that it takes all members of the institution create the kind of presence and programs that the Tang has done with an exhibition such as *Molecules That Matter*.

Conclusion

The conference the *College Museum: A Collision of Disciplines, A Laboratory of Perception* was the culminating event of the *Program in Object Exhibition and Knowledge* at the Tang Teaching Museum and Art Gallery and it brought university museum and gallery personnel from around the U.S. to participate in workshops and attend lectures by international museum professionals and artists. Among the attendees were Michiko Okaya from the Williams Center Gallery at Lafayette College, Janet Marstine, Assistant Professor of Museum in the M.A. Program in Professions at Seton Hall University in South Orange, New Jersey, myself and many others. During the course of the conference many museum staff were excited by the prospect of using a collaborative interdisciplinary structure and just as many were concerned about the cost in time and money. They were worried about the change in their position as gate keeper, and the challenges of this new effort of museum-based learning. Curators and directors would no longer present objects and lectures; they would have to create a new and different methodology that will lead to involving academic faculty from many disciplines. The gallery director/curator as salesperson, convincing faculty that such a collaboration is worth the effort, that art and ideas, art and research can produce extraordinary collaborations that benefit and expand research, expand and enhance teaching that broadens student learning and develops greater critical thinking.

Within each university and college resides a wealth of resources in academic departments, the libraries, faculty and students. Much can be accomplished with the resources already at hand.

Faculty mentoring for basic understanding of best curatorial practice is a must before faculty begin creating interdisciplinary collaborations in the museum/gallery. The mentoring may be as in depth as the *Program in Objection Exhibition and Knowledge* or as basic as Kathy Burke's seminar with interested faculty at Muhlenberg's Martin Art Gallery. The point is to begin the process. It is as much a challenge for the gallery director as it is for the faculty curator, learning to work in new ways, involving and considering a new set of considerations that have very little to do with aesthetics. But the benefits for the museum, faculty and students and the institution are great.

The museum as laboratory is as messy for the faculty curator as it is for student curatorial projects. However as long as guided best practice is maintained exciting collaborative exhibitions are to be had. Whether those interdisciplinary collaborations are based in the sciences or the humanities combining ideas and research with art and artifact creates new learning communities where connections can be made empowering critical thinking that can be carried beyond the museum.

The remaining questions are - do these case studies reflect the real world of university museums and galleries? What might the future of university and college museums and galleries be?

What does a 'real world' gallery look like, what do they accomplish? Having worked at real world galleries like the Cedar Crest College Tompkins Gallery and the Bertha V.B. Lederer Gallery at SUNY Geneseo, the goal is to present contemporary shows that offer art students in particular some insight into the artist's practice. To share with students how an artist thinks about his or her work, their thinking processes and work process. The real world college gallery provides faculty opportunities to exhibit

which is necessary for promotion and tenure. It also exhibits student work and capstone or graduating senior exhibits. These instances teach students about installing their work in a gallery, writing artist statements and perhaps they may even create their own catalog as is done at Cedar Crest College. During the summer the “real world” college gallery may open itself to the local community of artists or mount a ‘juried’ alumni exhibition.

The problem with describing either the Williams Center Gallery at Lafayette College or the Martin Art Gallery at Muhlenberg College as “real world” is that there are many variations of college galleries. Both the Williams and Martin galleries are real world in that they each provide these services to their community. At the Williams Center Gallery Michiko Okaya is now Director of Lafayette Art Galleries, meaning she supervises the Williams and the Grossman Gallery in the Williams Visual Arts Building (studio classes are held there and it houses art faculty studio/offices) the Grossman exhibits visiting artists, faculty and student exhibitions. The Williams Gallery exhibits master artists such as David Driskell, Robert Rauschenberg or an exhibit of Rembrandt etchings, and the Grossman gallery important contemporary artists include Ursula von Ryingsvard and Thomas Nozkowski. This roster illustrates that these particular galleries have a substantial budget which is not a real world situation, further, for particular exhibitions the programming events that coincide with these shows might include big name authors like Deborah Willis, an authority on photographic history.

The Williams Center Gallery is not real world, it does a great deal more than a gallery like the Tompkins or the Lederer gallery and the reason is that Lafayette links gallery exhibits and programs to the studio/classroom and the administration has the willingness to invest in the galleries providing a budget not only recognizes the worth of

art and interdisciplinarity, faculty research and teaching, it must also recognize the value of artists to society.

Kathy Burke works hard to develop and increase audience participation in Muhlenberg's real world gallery. Burke encourages faculty curators to engage in collaborative and interdisciplinary exhibitions from all sectors of the campus. The Martin presents one to two interdisciplinary exhibits a year. The rest of the gallery's shows consist of student exhibits, two shows were sponsored by college's the Institute for Jewish and Christian Understanding and the other sponsored by the Center for Ethics. The remaining shows for 2007-2008 include a Muhlenberg faculty member and a regional artist. This suggests to me that the Martin Art Gallery has much more limited funds than does the Williams Center Gallery, therefore the Martin has more in common with many other college galleries whose main exhibition program focus is faculty, students and regional artists. The Tang Teaching Museum and Art Gallery at Skidmore College is not a typical college museum/gallery. The Tang's mission is museum-based learning and it is part of an institutional initiative that supports all of its efforts. By creating a museum that is as important as the library it must have staff to support its teaching initiative, funding and a close relationship with the office of development. Since the Tang opened it has continued to grow and inspire other institutions and their museums and galleries. While museum-based learning is challenging for the museums and galleries it, at the same time enhances to gallery, the institution and enlivens discussion and inspires creative thinking.

What is the future of university museums and galleries? This is not an easy question to answer. College galleries around the country are aware of the challenge laid

before them by the *College Museum: A Collision of Disciplines, A Laboratory of Perception*, I believe that many directors and curators, including myself, Kathy Burke and Michiko Okaya want to and do engage in interdisciplinarity as time and budgets allow. College galleries can produce interdisciplinary collaborative exhibitions by working with faculty, brainstorming about exhibition possibilities and programs. Challenging though it may be the results are rewarding for the museum/gallery and the institution, creating new learning communities in and outside the college.

BIBLIOGRAPHY

Secondary Sources

Books

Solinger, Janet W. Editor, Museums and Universities: New Paths for Continuing Education. New York: Collier Macmillan Publishers, 1990.

Exhibition Catalogs

Bruce, Kathy. On Ice exh. cat. Easton: Williams Center Gallery, 2007.

_____. Stacy Levy: Blue Lake exh. cat. Easton: Williams Center Gallery, 2005.

Gay, Ross, and Donna Gustafson, Elaine Reynolds. Elizabeth Chapman and Ed Kerns, Word, City, Mind: A Universal Resonance. Easton: Elizabeth Chapman and Ed Kerns, 2007.

Mattison, Robert S. Larry Miller: Either/Or exh. cat. Easton: Williams Center Gallery, 2001.

Journals/Magazines

Ackerman, Frederick Lee. "College and Museum." *The Metropolitan Museum of Art Bulletin*. Vol. 14, No. 9 (September 1919): 196-198.

Boylan, Patrick J. "Universities and Museums: Past, Present and Future." *Museum Management and Curatorship*. Vol. 18, No. 1 (1999): 43-56.

Hammond, Anna and John Ricco. "The Role of the University Art Museum and Gallery." *Art Journal*. Vol. 65, No. 3, (Fall 2006): 21-39.

McDonald, Sally, "Desperately Seeking sustainability: University Museums in Meaningful Relationships." *ICOM International Committee for University Museums and Collections (UMAC)*. ICOM Study Series 11. (2003): 25-27.
On-line Version (41 KB.) http://icom.museum/study_series_pdf/11_ICOM-UMAC.pdf

Marstine, Janet. "What a Mess! Claiming a Space for Undergraduate Student Experimentation in the University Museum." *Museum Management and Curatorship*. Vol. 22, No. 3, (September 2007): 303-315.

Smith, Ewen and Jim Devine, "University Museums: Collaboration with Non Traditional Academic Departments." *ICOM International Committee for University Museums and Collections (UMAC)*. ICOM Study Series 11, (2003): 10 -12.
On-line Version (41 KB.) http://icom.museum/study_series_pdf/11_ICOM-UMAC.pdf

Tirrell, Peter B. "Emerging Strengths and Resources of University Museums for Meeting Global Challenges." *ICOM International Committee for University Museums and Collections (UMAC)*. ICOM Study Series 11. (2003): 7-9. On-line Version (41 KB.) http://icom.museum/study_series_pdf/11_ICOM-UMAC.pdf

Weber, Cornelia, "The University Museum as a "Theatre of Knowledge." *ICOM International Committee for University Museums and Collections (UMAC)*. ICOM Study Series 11. (2003): 19-21. On-line Version (41 KB.) http://icom.museum/study_series_pdf/11_ICOM-UMAC.pdf

Weber, Cornelia. "Using Interdisciplinary Educations Programs and Wide Ranging Projects to Raise the Profile of University Collections." In *New Road for University Museums: Proceedings of the conference in Mexico City, Mexico, September 25 -29, 2006*, by ICOM International Committee for University Museums and Collections (UMAC), 1-6. Mexico: ICOM International Committee for University Museums and Collections, 2006.

Weeks, Jane. "The Loneliness of the University Museum Curator." Museum International, No. 206, Vol.52, No. 2 (2000): 10-14.

Weintraub, Linda. "The Studio Potential of the University Art Gallery." *Art Journal*. Vol. 58, Iss.1, (Spring 1999): 36 – 42.

Villeneuve, Pat, Amanda Martin-Hamon, Kristina E. Mitchell. "University in the Art Museum: A Model for Museum-Faculty Collaboration." Art Education, Vol. 59, No. 1 (January 2006): 12-17.

Newspaper

Shaman, Sanford Sivitz. "College Museums are Often Held in Dubious Esteem, but They Can Serve a Broad Public in Unique Ways." The Chronicle of Higher Education. 31 May 1989, Vol. 35, No. 38. p. 3B.

Unpublished Report/Proposal

Cate, Holly, Amze Emmons and Jeremy Teissere, "Occupied Territories: Crossing Boundaries of Science and Art, 2007-2008" (Allentown, PA: Muhlenberg College, 2007. Accessed www.muhlenberg.edu, 10 October 2007.

Primary Sources

Chapter Two:

Molecules That Matter, Tang Teaching Museum and Art Gallery, Skidmore College, Saratoga Springs, NY

Telephone Interviews with author

Raymond J. Gugiere, 4 December 2007.

Michael Oatman, 11 March 2008

John Weber, 4 December, 2007

Email Correspondence Interview with author

Lillian Torrey, 9 January 2008

John Weber, 17, March 2008

Panel Notes

Molecules That Matter exhibition panel, 8 September 2007

Chapter Three

On Ice, The Williams Center Gallery, Lafayette College, Easton, PA

Personal Interview with author

Pat Badt, 12 January 2008

Scott Sherk, 12 January 2008

Telephone Interview with author

Kathy Bruce, 29 January 2008

Michiko Okaya, 8 January 2008

David Sunderlin, 20 December 2007

Jonathan Esser, 11 February 2008

Email Correspondence Interview with author

Pat Badt, 14 April 2008

Kathy Bruce, 13 April 2008

Michiko Okaya, 5 May 2008

Scott Sherk, 14 April 2008

David Sunderlin, 13 April 2008

Chapter Four

Word, City, Mind: A Universal Resonance, Martin Art Gallery, Muhlenberg College

Telephone Interview with author

Kathy Burke, 9 January 2008
Amze Emmons, 10 January 2008
Ed Kerns, 18 December 2007
Elaine Reynolds, 21 February 2008

Email Correspondence Interview with author

Kathy Burke, 29 April 2008
Elizabeth Chapman, 9 December 2007
Ed Kerns, 28 April 2008
Allison Thompson, 31 March 2008

Panel Notes

Word, City, Mind: A Universal Resonance exhibition panel discussion, 28 November 2007