

ROCHESTER INSTITUTE OF TECHNOLOGY

A Thesis Submitted to the Faculty of
The College of Imaging Arts and Sciences

In Candidacy for the Degree of
MASTER OF FINE ARTS

LEI RIMANA "SHE STAYS"

by

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Date: September 17, 1996

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Abstract:

My concept is to re-evaluate and advance personal communication aids, generally, but not entirely, in the form of greeting cards, to a new level of interest and signification. The goal is to eliminate the passive viewer, and have the individual actively participate in the presentation. The computer-based, interactive media project is designed around three-dimensional sculptures, which serve as "narrators," and put back the one-to-one interaction that is so often missing in non-verbal greetings. In combining technology with more traditional storytelling techniques, it will develop and express a personal message that will help reinforce the intent of the message by becoming multi-sensory, and allowing for a deep and rich experience.

Statement of Problem

With the understanding of the meaning and functionality of interactive media being rapidly spread through the masses, it has exposed the viewer and the artist to a more informative and interesting level of communication. This form of communication has been well-received within the educational marketplace because it encourages the basic premise of interactive media, maintaining attention and interest over a long period of time. However, the beauty of interactive media—even when the message is far from light-hearted—seems to invoke a sense entertainment, as well as serve its purpose of conveying its message to a wide range of age groups.

With these characteristics, interactive media could be a solid platform for exchanging personal greetings, by taking advantage of both the traditional and non-traditional arena that produces a project that is enhanced by solid design principles. With this new strategy and approach, there is an opportunity to re-establish a narrator, and put back the one-to-one interaction that is so often missing in non-verbal, communicative, personal greetings.

Significance of the Problem

Interactive media is a movement that seems on the cusp of becoming a timeless entity of our society as we know it. Time itself has a way of calming things down, but in the context of personal story telling, where people are being directly related to messages and images, this could result in producing an extended interest level. To accomplish this level of interest, the story, not open-ended dilemmas, must pinpoint intellectual and human problems, which aids in giving confidence and validity to how an individual can articulate feelings and concerns.

The “touchy flowery fringe” of traditional and non-traditional greeting messages, seems to invalidate personal messages, especially for men, and are sugar-coated Band-Aids, not stepping stones for opening the mind to better personal communication. Straightforward, truthful messages that evoke a multitude of senses, and ask the reader not to just read but to look, listen, and investigate what is trying to be communicated is the challenge that needs to be addressed—to engage the individual who receives these presentations, not just as a card accompanying a gift, but rather a gift in itself, a gift whose lasting impression of effort to communicate its true meaning can be everlasting.

Limitations

The restrictions that confront this style of personal communication are based mainly in two different areas: audience and technology. The audience is open to those who understand the pressures of articulating personal feelings and/or impressions to another individual. However, having the presentation stored and produced on a CD-ROM, the ability to transmit the message is not guaranteed. With the increasing sales of CD-ROM products, especially over the last two years, this concern might be remedied in the future, but it has to be considered at present.

Another factor is the pace at which the audience will need this information transmitted to keep them engaged, interested and focused. It is hoped that the message that will be communicated will have importance to the viewer, as well as the giver, and in the worst case scenario, the recipient will be patient in respect to the effort that was made to communicate one's feelings. On a more favorable scenario, it would be a combination of respect and interest to how the viewer analyzes and extrapolates the information from the presentation.

With all the tools available to interactive media, the perceptions around producing an intimate experience in front of the computer still has its limitations. The two main restrictions that have to be considered are the comfort factor of being in front of a machine that is more often than not associated with work, and the general mental block toward technology. "I hate computers," and "I like to relax and reflect on topics in my favorite chair" is what all interactive designers have to face and work to improve. Once again, the ability to communicate necessary information but make it entertaining, or at least less of a chore, is what we have to exploit to make these two limitations less of a factor.

Assumptions

The chance to re-establish a narrator, include sound, and motion in non-personal communication, would increase the chances of the message to be comprehended. The narrator would serve as the essential character in the presentation, which would replace the "cute teddy bear and flowery verses" with straightforward messages. This transmission of short, honest information would be entertaining as well as useful in understanding what the communicator is trying to express. The commercial value and mass-production restraints are not a main concern, but rather how the user relates to the information and how it could be used to express intimate feelings to another individual. The end goal is that the presentation, because of the many different ways it approaches and addresses different forms of interactions, can uncover different ways of expressing personal feelings without the need of additional communication aids.

Historical Review: Personal Greetings

History

I Multi-Layer Imagery and Conclusions

a. Exploratory Graphics

Stimulates the audience's mind presenting but not one obvious message, but presenting many smaller pieces of information that can be put together producing many different conclusions. In this environment, elements need to have the ability to stand as independent elements and have the ability to be quickly associated with other elements, or combination of the two. The more opportunity an artist gives his viewer to rearrange the pieces of information and reach conclusions, the greater the chance the message will be remembered.

- "... keeps you looking at it long after an image that yields its meaning immediately has ceased to be of interest" (Poyaor 51).

EXPLANATION

The visual elements can be constantly rearranged to form infinite conclusions. The conclusions and how they relate to the personality or the mood of the viewer is what is interesting to speculate on during and after the conclusion of the project.

- "... conceptual rather than actual, ...matter of association than visual effect" (Poyaor 51).

EXPLANATION

Compare the visual interest of a perfume bottle sitting on a desk to a collage of images illustrating some of the occasions that the scent was recognized; something as simple as which image would evoke more "visual effect."

- "... The poster does not solve communication problems as much as presenting the viewer with a communication problem to solve" (Poyaor 51).

EXPLANATION

To use and appreciate this methodology one has to believe that making people analyze and wonder is a greater goal to achieve than adding another quick solution to our daily lives. The added time which these pieces take to produce builds patience and tolerance to the fast-paced lifestyle of modern times.

b. Interactive Storytelling

The ability to use a medium that easily stimulates more than one sensory receptor should excite any artist at any level. To build an entire virtual stage with limited means adds to the time devoted to the actual art itself. Stronger concepts and better integration of the many different types of media should be gained by these time-saving tools. Put all these advantages together and the whole experience of story-telling, of communication, is going to change dramatically. The opportunity to experience so closely what the artist was experiencing while producing the piece—internally and externally—is no longer a fantasy. To educate (or in modern terms, to entertain) to this degree would produce lasting effects on individuals that would add positive influences on their lives.

- "... Break the hypnotic spell of the passive viewer; the spectator must engage actively with the medium in order to experience it" (Cornwell 45).

EXPLANATION

No better way to produce this goal than building an open architecture that the user builds individually. Allow them productive ways of constructing different meanings and they will hopefully repeat and share their experiences with others.

- "Everywhere one looks human beings have arranged the world into hierarchies and assumed that the greatest value lies at top" (Opt 320).

EXPLANATION

This perception has to be changed—interactive media makes it possible for every viewer to have the ability to build an individual structure while comprehending the information at hand.

- "Interactive fiction" (Cornwell 45).

c. Project Feeds Itself

From the artist's and user's perspective, the project would uncover forms and alternative meanings that were not expected. A project that would have the best opportunity to communicate successfully to a large public would be developed from a concept that was constantly improved over time. If a concept, no matter how innovative, does not develop the project's meaning, it would mirror the lack of effort.

- I hope the project "...will find its own food and water" (Ovenell 62).

EXPLANATION

The best concepts will produce other hidden treasures with only a little effort from the artist. This should reduce the artist's anxiety that the idea will not die. With this sense of confidence, the artist is fed and builds multi-layered meanings into the art. In return the project's richness is then fed to the viewer.

- "What can we do that will actually stimulate the public..." (Ovenell 62)?

EXPLANATION

Artists, in my opinion, have a responsibility to the public to produce work and concepts that will elevate their feelings and opinions. This does not mean "spoon-feeding" the public with simple meanings and imagery to evoke a response. To stimulate, one must challenge and activate the mind to ask questions and come to independent solutions.

- "... If in producing a painting you are thinking of the reward you will gain, you must tear it up" (Ovenell 62).

EXPLANATION

Artists must keep in the present. Thinking about the outcome of a project builds anxiety that hampers the creative process. Think only about the next step not the final outcome to be productive.

- "... important to keep moving back and forth, between intellect and emotion,...logic and intuition" (Ovenell 62).

EXPLANATION

To have and to build a creative concept an artist must be willing to move in any direction to find inspiration. Trust and listen to all sensory receptors to find food and water for innovative products.

II. Card Market

a. Changing Shifts in Card Topics

The traditional greeting card market and the cards themselves have been changing to adjust to demographic trends and new, personal communicative needs. The lack of time, interest, or desire has made the card industry part of most modern-day relationships, often serving as almost a "marriage counselor" by giving guidance at how to work out problems and to capture and treasure what is really important.

- "...women purchase 90% of all greeting cards..." (Gephar 26).
- "...sales of traditional greeting cards—for birthdays, weddings, anniversaries..." Christmas, Valentine's Day, and Get Well (Engstorm 57).

EXPLANATION

The modern-day greeting card is the means for communicating difficult feelings and issues to an individual. As much as cards should be used as catalysts for personal communication, they are becoming, if not already, the sole means of personal dialog.

- "Few industries have been as hemmed in by demographics as the greeting card business... And unfortunately, U.S. birthday growth ain't what it used to be" (Wondyz 89).
- "'Greeting cards probably reflect societal changes more rapidly and more accurately than any other industry,'" says Marianne McDermott, executive vice-president of the Greeting Card Association" (Kanner 23).

- Advertising: "The advertising was typically tug-at-the-heartstrings and focused on the receiver,' says Tom Spangenberg senior vice-president and management supervisor at Young & Rubicam... In the greeting-card business. the product has traditionally been incidental,... '(Now) he product is a hero...' The viewer can be a hero, too, just by catching on to the power of the card--and sending it to the right person" (Kanner 23).

EXPLANATION

I feel people would capture the "power of the card" more easily, if the aesthetic qualities of the art work kept them more interested in message and had the power to make both parties revisit the presentation.

b. Card Giving Intent

The evolving changes in demographics and communicative styles directly impact the card giving intention. It is interesting to realize how greeting cards reflect the attitude and the fears of the giver as much as a problem-solver from the perspective of the recipient.

- "Most of us feel that the way we express ourselves is inadequate. Seeing something in print validates our whole experience and gives us a sense of security" (Kanner 22).

EXPLANATION

This sense of security should not be underestimated. Knowing that others have been in similar situations makes one feel less isolated, and gives hope that there is a solution to their particular problem. Building a piece of artwork that establishes security and confidence with giving guidance, not an immediate solution, should establish an environment for further verbal communication.

- Time; Laura Guder "People just don't have time to write love letters any more" (Rice 80).

- “Because Americans have less time (or inclination) to sit down and pen a letter, they are using cards to do the work—and to say things lots of people find difficult to express face-to-face” (Kanner 22).
- “...28 percent thought cards played a significant role in their romantic lives...” (Kanner 22).

EXPLANATION

The lack of time is usually what causes most problems in relationships. Yes, giving a greeting card shows one was thinking about the other individual. However, if the card is not followed up by some personal time to discuss why the card was given, the card’s usefulness was only half explored.

- “...put your feelings into words—your words,” says Karen Grace American Greetings’ executive director of corporate communications (Kanner 23).
- “..cards whose chief purpose was to say what might have been better said by handwritten notes or even eye-to-eye conversations” (Wandyez 89).

EXPLANATION

The card giver must realize that a greeting card might not be the answer.

- “For all the money we spend on education, we don’t seem to teach people to express themselves” (Wandyez 89).

EXPLANATION

The challenge is to make a product that enlightens and shows the opportunity of what the creative mind is capable of. The mixture of mediums that interactive presentations can support illustrates many ways an individual could build private greetings. It cannot be reinforced enough that even if an individual is not gifted with a creative sense, the artist must establish a presentation that encourages personal-verbal communication.

- People seem to be unable to “articulate enough to apologize unassisted” (Sands 65).

EXPLANATION

Bearing a gift to apologize is a practice that should be closely studied. The importance of personal communication in this situation to solve a problem should not be distracted by any communicative aides.

c. New Card Demands

Besides buying greeting cards in more convenient places, the card messages themselves also reflect the pace of our modern times. Shorter, more direct statements are replacing more flowery tones. This trend has built an audience that is comfortable with intimate, honest dialog. This direct tone has a greater potential of being remembered and realistically having the potential to evoke long-term change.

- Demand for cards that are “...outside the greeting-card mainstream” (Barrier 11).

EXPLANATION

Due to changes in work schedules and basic pace of a multitude of lifestyles, people are relying on greetings cards that help tell a story and guide them through ordinary, day-to-day tribulations. Greeting cards go beyond the norm of occasion and focus on the experiences that would impact everyday lifestyles.

- “The communication revolution of the sixties and seventies has made a once homogeneous market heterogeneous, and spawned a new type of card that is open, honest, and straightforward, that’s used to flirt, get to know someone, to express commitment, to apologize, to share a joke...” (Kanner 24).

EXPLANATION

In order to make the most of each moment, people are relying on a straightforward and direct communicative style to suggest the most intimate meanings. Greeting cards help to bridge the gap between flirtation and directness.

- As an artist and as a communicator “...ask more of the reader. A more sophisticated sense” (Engstorm 58).

EXPLANATION

As with any alternative medium, the interpretation comes from the recipient’s schema. The sender should be aware of any pre-conceived notions the recipient has and build upon what the message is trying to invoke with a touch a sophistication and elegance that allows for multiple conclusions.

- It’s time to play down “...touchy feely fringe. Could the day be coming that when two people meet they exchange cards instead of talking” (Wandyez 89).

EXPLANATION

The question that arises with this type of methodology, “Would people rely on greeting cards to even say hello?”

d. Non-Occasional Cards

The greeting card is being positioned as the problem-solving device. The day when people got excited to receive a greeting could change. It may become so matter-of-fact that the interpretation may be such as sitting down and having a heart-to-heart with your mate.

- “By the year 2000, non occasion cards are expected to account for up to 18% of all card sales, worth an impressive \$1.7 billion. Solving problems, resolving conflicts is in” (Wandyez 89).

e. Alternative Cards

The industry is supporting the hypothesis that cards are being used as a mechanism in dealing with the hard to talk about. Greetings cards should not replace one-to-one communication, but rather encourage the personal exchange among one another. The aesthetics and the written message should encourage further dialog.

- “Just for Today motto, which targets those recovering from various addictions...” (Rice 80).

- “Hallmark estimates that 15 million people attend support groups for alcohol, drug and other dependencies and an additional 100 million family members and friends encourage their efforts” (Sands 65).

f. High Tech Cards

Cards that do more are remembered more. Cards that give a performance, like Lei Rimana, get played and looked upon with more intensity and sensitivity to personal interaction.

- “... cards that talk, light up, or play music, offer a bonus such as a decorative paper sculpture” (Kanner 24).

III. Men and Cards

a. Card Messages Lack a Male Approach

The most challenging thing is to illustrate something very sensuous in a sophisticated manner without losing the intensity of the daydream. Men must become comfortable enough to share their fantasies without the fear that they are being judged like a 16-year-old boy.

- “Men might be buying more cards (30% of Recycled Paper business), but the cards still contain messages designed for a woman” (Engstorm 60).

EXPLANATION

However, do not degrade the sensitivity of a male
by producing cards with this tone:

Outside: “Happy birthday to a special person—It may sound
sentimental, but” Inside: “I love you more than beer” (Engstrom 58).

- Keep in mind with a specific audience “How does the card achieve the desired effect” (Gephar 26).

b. Producing a Personalized Card

The combination of wanting to give a card and using modern-day equipment to produce a card is an exciting prospect to personalized greetings. The accessibility to technology allows the user to be more creative and free-spirited and explore all the possibilities... the card becomes the gift.

- American Greetings "Create-A-Card" and Hallmark "Personalize It!" has reached the tough male market. "Some 20% to 30% of the initial sales were to men, who buy just 10% of traditional cards" (Lehtet 53).

EXPLANATION

One reason I feel that men are attracted to this type of greeting card is that they are able to eliminate the flowery feel that the traditional prose has reinforced.

Aesthetic Reasoning

Aesthetic Reasoning

To build an interactive presentation that eliminates the passive user was initially more of an analytical than a creative problem. The aesthetic vision was based on a simulation that would resemble an object, free-floating in space, where the user could touch and move the form to investigate all views while standing in a fixed position. To achieve this vision, the free-spirited thinking that developed this idea had to be in balance with analytical reasoning and good problem solving. The union between these two mindsets built a solid foundation which aided and supported personal, creative concepts. The integration of these different cognitive processes established a structure that harvested life to the project.

The problem-solving process seemed to resemble a chess match where my opponent was the limitation of personal knowledge. The complexity of the problem offered many unseen challenges, and even the obvious solutions would have to be tested against an efficient model. Building a prototype with similar characteristics of the final product was underestimated and misdiagnosed. The excitement of starting a new project needed to be contained. The energy must not push the artist past the necessary preliminary stages, where fundamental characteristics should be determined and carefully recorded.

Analytical reasoning would dominate the early formulation sessions, with concerns ranging from time management to human computer interactions. The creative spark that opened the questions of possibility had to accompany the straightforward logic of probability. An adequate module had to accompany the ideas of creative direction to pinpoint early problems and be well suited for the ever-changing scenarios of the creative mind.

The excitement of a new project affected all the beginning stages of production. Even identifying this anxiety before the first module was in production; the process of reasoning seemed to advance quickly over the preliminary steps, producing a false starting line. This occurred because a premature vision of a complete product was more important than the steps to discovery. When the end goal is elected over the learning process of problem solving, this once positive motivating feeling of excitement turns into anxiety. This apprehension produces a thought process that favors shortcuts over innovation. Constant questioning on the direction of the project made it possible to pull back the reins of advancement, and take the necessary step backward to the proper starting line.

The goal of the initial module was to identify and solve how the user would move the object—a three-dimensional sculpture—around one central axis, and what production requirements this would entail.

Placement of Navigation

Standard navigation:

1. Navigational arrows
2. Help
3. Quit
4. Return to the Main Narrator

Navigational Features

1. Floating palette
2. Ground buttons on the bottom of the screen
3. Ground directional buttons along the edges of the screen and additional buttons would be implemented by keystrokes

One of the main problems with all these navigational solutions was that the buttons took up a significant portion of valuable screen “real estate.” In the early stages of production this was an important consideration because the sculptures were going through many different design alterations, especially in scale. At the time, these navigational issues were being considered when there was only one sculpture, “Holding”, that was finalized on paper. This sculpture was conservative in scale, and would limit the possibility of growth if the navigational issues were based solely on this design. Even with limited examples of the actual sculptures, preserving the integrity of the image was the most important factor in solving this navigational strategy.

Keeping an intimate feel to the entire project was the principal reason to preserve the quality of the art. Let the bold shapes stand on their own, reducing the possibility that their messages would be lost in the production tools. Even the needless sound of the mouse click had to be minimized. Designing with this controlled approach, the decision was made to make the navigational buttons invisible. The buttons, about an inch wide, would be placed around the edges of the screen, framing the sculptures. This strategic placement removed the cursor away from the sculpture as it changed position, producing a clean environment for the presentation.

This intuitive navigational structure produced a completely new design problem with a completely new set of questions. How would the user understand how the navigational architecture functions if the buttons were invisible? Would there have to be an extensive help section to teach the user even the most basic features? Would the quit, help, and return to the Main Narrator buttons also be invisible?

Before all these questions could be answered a module had to be built to isolate the necessary features and analyze the characteristics of this new system. However the initial module that was developed for the “Lei Rimana” project was not a successful replica of the sculptures it was designed to emulate. The test module was unfortunately a square with different-colored cones protruding from all six planes. The prominent problem with these isometric shapes was the difficulty of tracking the orientation of the form when it changed position. Initially, this inability to follow the object’s movements was associated with the intuitive, navigational structure. However, the sculpture moved as anticipated two-thirds of the time, and the problem was not how to make the object move, but how it moved.

The point at which I identified that the test module was inadequate was when I revisited the sketches of the "Holding" sculpture. I closely studied the top and bottom elements and discovered a line of type that helped identify why the test module was consistently in the wrong orientation (ironically the text element was never implemented in the final design). The line of text was the only object that had to be in a fixed orientation to be functional. This element provided me with an efficient guide to how the sculptures would have to move to be in the correct orientation.

This guide was particularly useful especially when trying to understand all the necessary movements to correctly position the object when moving to the top and bottom views. The goal was to have the object move consistently and with no unnecessary rotations to reduce confusion. There needed to be a process developed to quickly and accurately test the movements of the form, to see if the project was even feasible. The solution was another sophisticated technical device: a small, empty, rectangular box and a felt-tip marker.

What was achieved by this simple device was a quick way to test all the scenarios the sculpture would be presented with, and the corresponding responses. With labeling all the sides of the box with descriptive text, the box could be easily rotated in my hands illustrating all the necessary movements. Besides the text providing a directional aid, it was the main element that guaranteed the correct orientation of the sculpture. If the text could be read left to right the sculpture would be in the correct position. With this simple guide all the necessary movements of the sculpture were clearly documented. A map was developed, which illustrated that the sculpture's movements were not as complex as initially anticipated. With this information a decision was made that even a user with basic knowledge of the system could easily follow all the necessary movements with minimal confusion. This simple module supplied sufficient information that this project would be an adequate environment to implement an implicit navigational scheme.

Informing the user that the navigation buttons were invisible seemed to be a viable solution that relied on the curiosity of the human mind. A trend of moving the cursor over the entire screen in search of any feedback seemed like a reliable characteristic that could be exploited when observing new and advanced individuals using different multimedia products. With having only one main object on the screen, the hypothesis was made that the lack of information would increase the user's curiosity to investigate in and around the sculpture.

To build such an implicit navigational architecture, the system has to rely on an established structure that is easily recognized and fully understood from the outset. With this in mind, the solution was based on the way a human hand could move a three-dimensional object to investigate the entire form. For example, if the form was suspended in water (which simulates the computer environment of the sculptures), an individual would only have to make a left-to-right push to examine the left side of the object. Trying to emulate this motion, the cursor, which is indicated by a hand icon, would turn the sculpture to the left if the cursor moved to the left.

The one characteristic that took some problem solving was exactly when the object would move. Returning to the example of an object suspended in water, the form would move when the human hand came into contact with the object, and most likely would come to rest when the hand stopped the rotation. However, if the cursor's movement directly simulated the movement of the sculpture, the object would never come to a complete rest, making the form seem unstable. In this scenario the user would have to constantly freeze the input device in one stationary position to stop the object from moving. This continuous start-and-stop movement would add to the already unnatural relationship between user and machine.

There needed to be a duration where the structure would be in a natural stationary position so the user would have time to investigate the artwork. Besides taking time to comprehend the visual messages, many audio tracks and short animation sequences linger within the forms. Investigation was encouraged to activate these additional forms of communication by clicking anywhere in the object. Using the cursor both as an exploratory and navigational tool meant that there needed to be some type of toggle switch that clearly distinguished these two functions. I recognized that the exploratory characteristics needed to have priority when the cursor was positioned over the sculpture, establishing a guide to when the functionality would change.

To educate the viewer about the different functions of the cursor, a few aids were built directly into the system. To indicate that the exploratory function of the cursor was active, the hand icon changed to resemble a hand with an outstretched finger preparing to touch a foreign object. This characteristic was always activated when the cursor was in contact with the sculpture. Once the icon is no longer over the object, the cursor changes icons and functionality. The original hand icon returns, and the cursor is now a navigational tool. To help guarantee that the user can track the cursor functionality and the sculpture's movements,

the navigational tool can only implement one change of position at a time. After the user changes the object's orientation, he or she must re-investigate the sculpture, which reactivates the navigational functionality. Solving the icon's multi-tasking responsibilities in this fashion made the transition resemble human characteristics, which established clear guidelines to how the system works.

Even after the navigational guidelines have been established, the behavior throughout the presentation has to be extremely consistent and predictable to build user confidence. A tempo—a sense of harmony between navigating and exploration—could not be interrupted with inconsistencies. However, what are the consequences if a hidden feature is consistent, but never clearly explained to the user? What if the feature mimicked a sensibility usually associated with exploration and caution?

Although the fundamental theory behind this navigational architecture is based on the investigative nature of the human mind, the process to accomplish this goal needs to be generally understood. What's important to understand for this particular project is that people generally like some form of insight, a preview to what is to come, before entering into uncharted territory.

To make a navigational scheme that resemble the characteristics of the human mind and body, these feelings and concerns have to be emulated. This was achieved by allowing the user to investigate the sculpture at a 45° angle. With the object positioned at this orientation, the user could peek (preview) what the next image was going to be. If an individual felt comfortable with the particular image, the user could continue on the journey. However, if the image produced some type of anxiety, even disapproval, one could just retreat with no negative consequences.

The structure that provided the unique glances was as simple as adding an additional set of buttons inside the original navigational system. The "peek" buttons, as I like to refer to them, had the same characteristics as the other navigational buttons, except the width was reduced by half. If the user took the time to investigate around the sculpture as was done within the sculpture, he or she would find this hidden feature. Patience, balanced with curiosity, offers gifts as other journeys would go beyond this mechanical one.

Help

The advantage of developing such a self-explanatory navigation architecture was that it minimized the need for instruction, assistance, and guidance (Rheinfrank 52). For this reason there was no need for an extensive help section. The same elementary curve was also adopted for the help, quit, and return to Main Narrator buttons. However, the issue of placement for these three buttons required a different type of reasoning. The problem-solving approach moved away from the “user-center” and changed to more of a “usage-centered” approach, meaning that the size and shape of the buttons was insignificant compared to how the individual perceived his or her role in relation to the system (Constantine 36). Changing hats in this fashion moved my problem-solving process away from the screen and more toward the entire system that would accompany the user. The resolution to the problem was indeed part of the system: the keyboard.

There are many commonly known navigational buttons associated with a standard, interactive interface. Being conscious about what the designer is asking the user to memorize is a difficult task. After careful thought, asking the user to memorize the first letter of the three additional navigational commands seemed reasonable. Instructions were immediately supplied on the introductory page describing the function of each letter. To establish how the structure would function and to supply more information, the user was encouraged to engage the “H” key before advancing. The hypothesis was that if the user engaged in the keyboard early in the process and received immediate feedback, the system would begin to be understood and trusted.

If the user activated the “H” key on the introductory page, verbal help would have further explained the system’s functionality and other hidden features. However, after this point the help section was reduced to the minimum relying on the system’s ability to be self taught. Constant feedback offered a short learning curve of all the necessary features. The entire project was designed on the principle that if a system could not be functional without an extensive help section than the system should not even be implemented. Let’s reinforce that help was not eliminated in the “Lei Rimana” project, but was reduced to the bare minimum.

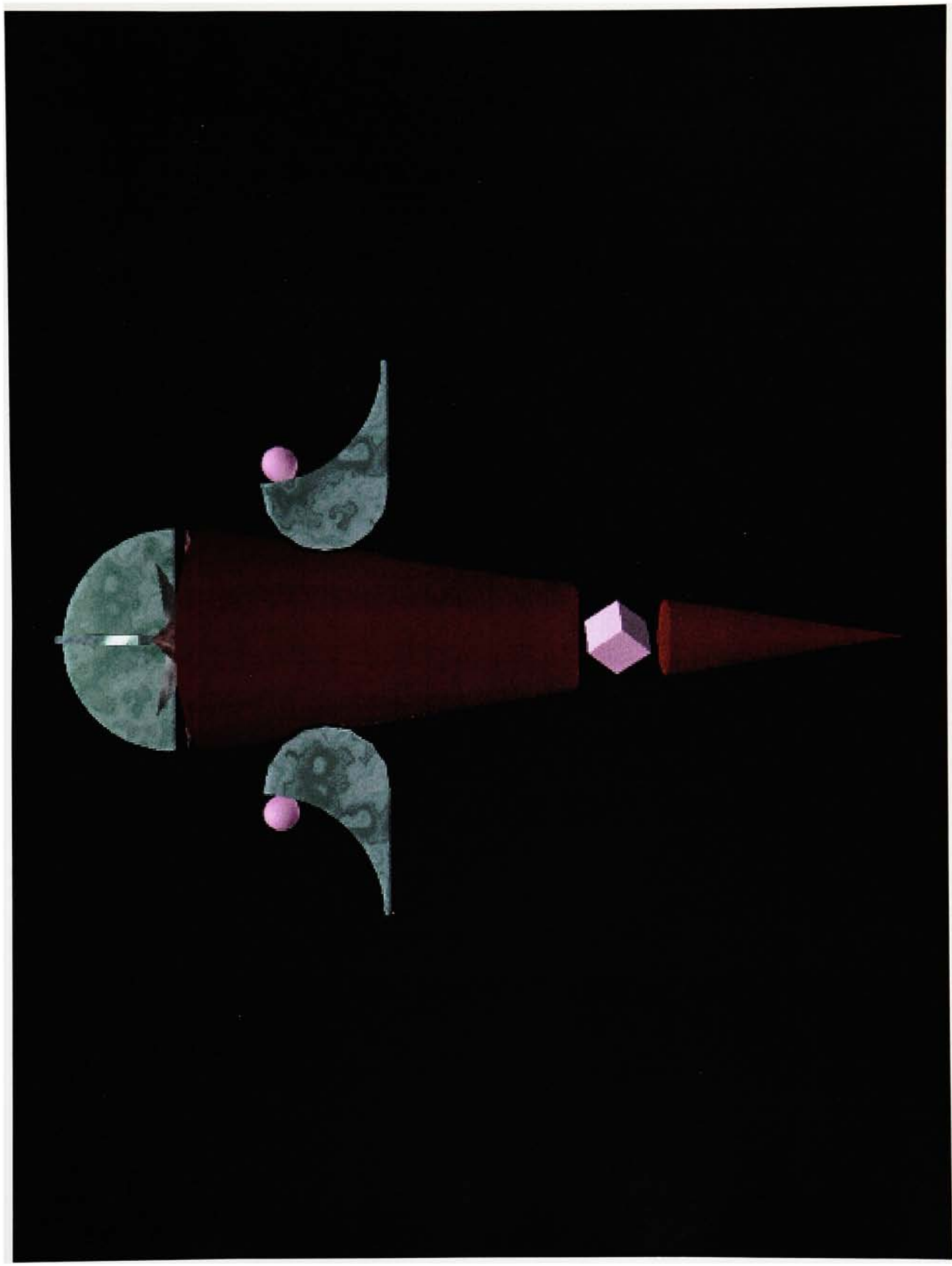
The availability of the text based help was always available simply by engaging the "H" key. This supplied written instructions on top and bottom of the screen, and made the main navigational buttons visible. A short sentence informed the user of the next available action on top of the screen, and the three key commands were listed once again on the bottom.

The gray navigational buttons that surrounded the screen were crowded around the sculpture like a rude imposing individual. The bold gray blocks were made aesthetically displeasing to force the user to turn off the help feature. The text-based help was designed to quickly educate the user, and then return the stage to its previous state. Close attention was paid to insure usability and aesthetic quality of the artwork.

There were two instances that warranted some extended automatic help, for both advanced and beginner users. The first case was to automatically engage textual remediation on the main narrator screen if the user was inactive for more than 30 seconds. This was necessary to ensure the user would enter into the body of the project, and not get isolated in the introduction. The second case was when the user was going to leave the narrator and enter into a specific narration. The total number of narrations that were available was never documented before this time. Without this information the user could come to the conclusion that the project only consisted of two sections. To compound this problem, the "N" key, which returns the user to the main narrator, would not have been implemented in the introductory level. The chance that the user would not remember this important function (which was only documented on the introductory screen) could not be chanced. To minimize these concerns, an audio track automatically initiates, reviewing how to return to the main narrator, and the possible stories and features that were left unexplored before entering the next phase of the project.

The task of the user engaging in these sculptures was producing them to move and communicate with a group of actions that could be reliable upon from individual to individual. With such an implicit approach to the navigation architecture, the functionality seemed to be a natural extension of the human arm and hand. In addition, the minimalist approach produced a glorious stage that the art work would solely occupy, and produces an intimate feeling of a private one-to-one conversation.

Narrator





Narrator

You would think looking at geometric shapes and uncovering their relationships would be a safe, comfortable experience. The title "Lei Rimana" (She Stays), hints at imagery of two individuals in a locking embrace celebrating a victory over loneliness. However, the Norman Rockwell sensibilities are quickly dismissed as the project opens with religious chants and rotating geometric shapes preparing the audience for a deeper experience than just an innocent kiss on the cheek.

The opening screen of the presentation is filled with thin digitally mastered gray lines on a solid black background roughly resembling an ancient naval compass. This romantic, life-saving device was minimized to three basic parts: a small center sphere, two four-pointed stars varying in scale, and a large sphere that functioned as a background which framed the other elements. The arrangement of these elements raised many questions about the function and the underlining meanings, and did not provide the reliable direction of the compass it emulated.

As questions filled the mind, the two star-shaped objects started to rotate in opposite directions. After one complete rotation the mechanical movements halted as the polished red letters of the Italian title, "Lei Rimana," filled the screen. The English translation, She Stays, was quickly supplied below the foreign title with no alteration in color but smaller in scale. The elegance of the foreign text, the Latin verses of the music, and the mysteries of the abstract shapes produced an atmosphere of a candlelit room waiting for a couple to begin an intimate evening.

As the music and the title faded a young woman's voice read an introductory paragraph like a close friend would narrate a private story. The voice added a humanistic quality to the digital message on the screen, which minimized the complexity of the mechanical host to a personal narrator. As the narrator completed the introduction, the music rose once again and the screen slowly transitions to another glossy red heading, spelling out the word Narrator.

As the wire frame compass and the heading faded, the first graphic, solid in form, arose from the darkness. The overall characteristics of the new graphic was similar to the original wire frame except two-thirds smaller in scale. The obvious difference in the graphics is that the

new objects had a sense of mass. The foundation graphic that supported the two star-shaped forms was seemingly a thin, flat, maroon sphere. The bottom star resembled the color and texture of oak wood, supporting the illusion of a compass on a naval vessel. The top star resembled gray and white polished marble, which added stability to the shape that still floated on a black background.

The main difference of this particular compass was a polished, foliage-green marble form that was similar in shape to that of a mathematical addition sign (+). The addition sign was extended on the x-axis and located above the four-pointed star. The extended left and right arms balanced light, fleshy pink spheres, which added a humanized pulse to the other geometric forms.

The four-pointed stars came to life as each one rotated in a circular pattern; one clockwise and the other counter-clockwise. After each element completed one rotation, the sculpture and the narrator lifted upward revealing a beautiful, triangular form. The abstract shapes resembled a strong, confident human figure. From this frontal view, the once-thin arms revealed their true shape by subtly transforming into a wider, more pronounced set of arms. Although strong in composition, the overall form gave a sense that this unfeeling material could be damaged or hurt if not nurtured. Even the mass and the scale of the smooth, triangular form had a sense that it would be pliable to the human touch.

What was so stimulating about the human qualities of the entire form was the sense that it was freely exposing its uncovered body. A cube, same in color as the soft-pink spheres, dissected the mid-section of the triangle. Magically, the cube was defying gravity as it hovered in its personal space. The soft-pink shapes reminded the audience of the softer qualities of the human body. The once directional elements that formed the compass now looked like a pointed crown. These elements helped to reinforce the protectorate philosophy which symbolized strength and the ability to be approachable but not to the extent of be taken advantage of.

The hint of such seemingly unnecessary protection was a secondary thought when the figure came alive as all the pink objects started to move. The pink spheres followed the curves of the arms and rolled to the very end of its fingers before it switched direction and repeated the

movement. The cube seemed to be slightly pushed which established a smooth, counter-clockwise spinning rotation which appeared effortless; reinforcing its extraterrestrial environment.

Both animations added a sense of intensity as the audience wanted to help break the repetitious movements of the object forcing them to engage in the form. Now the piece stands before the audience waiting for some direction, some stimulating insight. For the first time the Narrator invites the guests to touch its body with respect, but not fear. The instrument of contact is the computer's cursor controlled by an input device which the user holds in the hand. The standard arrow cursor was replaced with an icon of a human hand. Fat and a little insensitive in form, the cursor still holds enough symbolism that the first engagement encourages respect.

Beyond the gaze of the audience is a sense of further interaction waiting to be investigated. The artist encouraged the probe of deeper thoughts and experiences and welcomed the user to interact with the sculpture. These elements enticed the user to experience each element as a distinct unit in and of itself.

As the user glided over the sculpture, the user saw a change in the cursor. When the user clicked on the pink square or the crown, the user heard a audio track specifically related to the narrator. When the user clicked on the pink spheres, each sphere presented an independent story that the narrator wanted to tell.

Narration: Green Crown

The mechanical elements that keep track of our passing time can easily be rewound and reset. However, their repetition of movements, gear meshing with gear, is unfortunately a better metaphor for how we approach and act in a common day. Routines that numb our perception of what is beautiful and important needs to be safeguarded against. Facing such dilemmas, we should at least ponder a new direction, or with the strength that I hope I always posses, choose another path. In essence, be a human with two qualities that we cannot naturally obtain. The vision of a great eagle, and the ability to manipulate time for our personal pleasures. With the perspective and sharpen vision of a god-like bird, with the ability to control time, to advance or rewind passing hours at will, could bring direction and peace to our lives that we might not be able to comprehend—but when the energy of the light leaves the room,

after a positive day, and you touch the soft flesh of the one you love, I have these unattainable qualities of sight and time control.

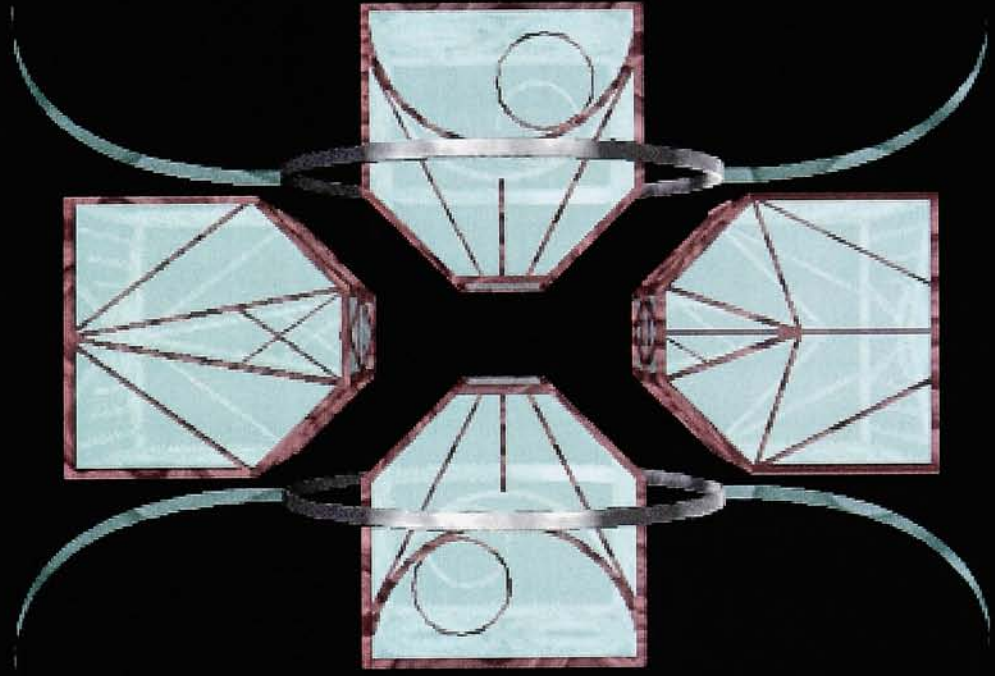
Narration: Spinning Cube

I respond to a narrative tradition very strongly. It fills me with a calmness that can only be compared to a mother's embrace. The ability to listen, see, understand, and evaluate a situation for qualities of inspiration takes dedication and courage. The performance of my observations and conclusions are on my own personal stage, alone and vulnerable, to the eyes of judgment waiting to be inspired. This pressure surrounded me since the decision of re-communication, and for this reason, I have let go of the handles of reality and played in the world of more insight. I study and perform on this high plane of observation and sensitivity hoping it can lift your spirit with love and dedication so we can shake hands face to face... lean on the hopes of possibility.

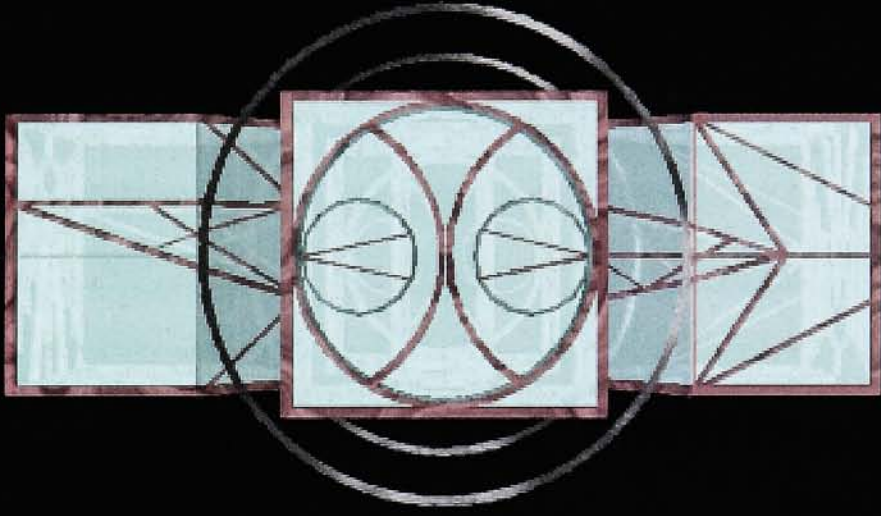
A sense of new intimacy was now established. The artist wanted his audience to freely touch the art, investigate his dreams, thoughts and share in his passion of experience. When the art engaged the audience, they have now entered his dreams; they can change the order of the messages, but the theme remains unchanged.

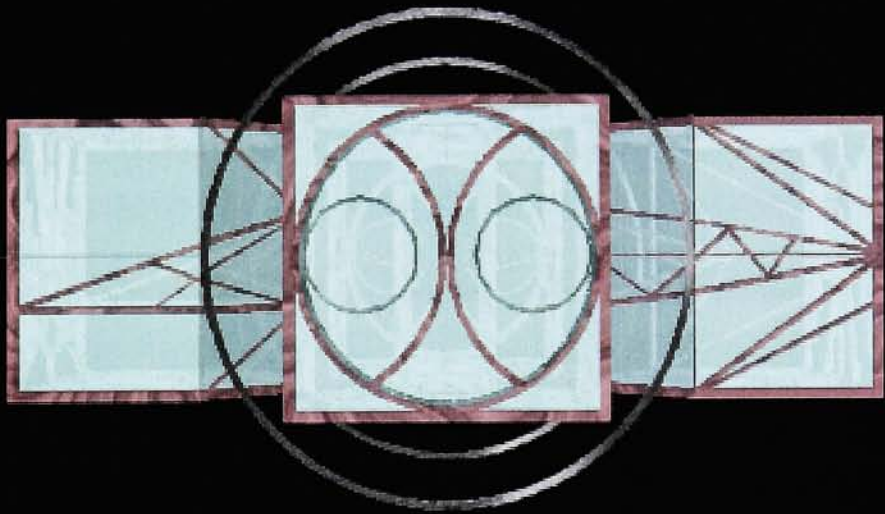
Holding

Holding_Front View

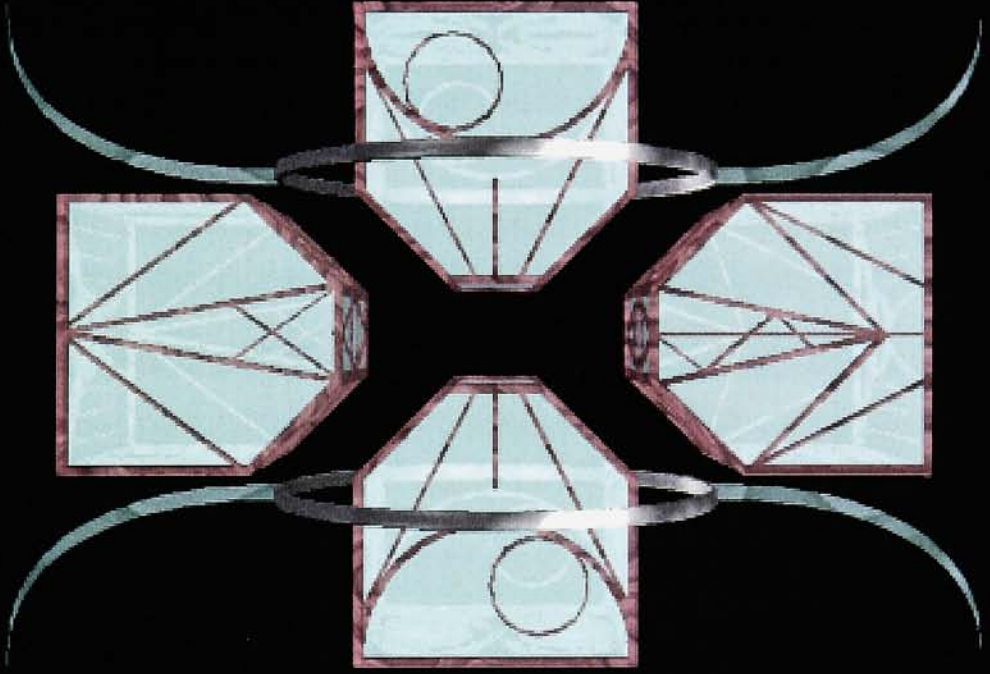


Holding_Left View

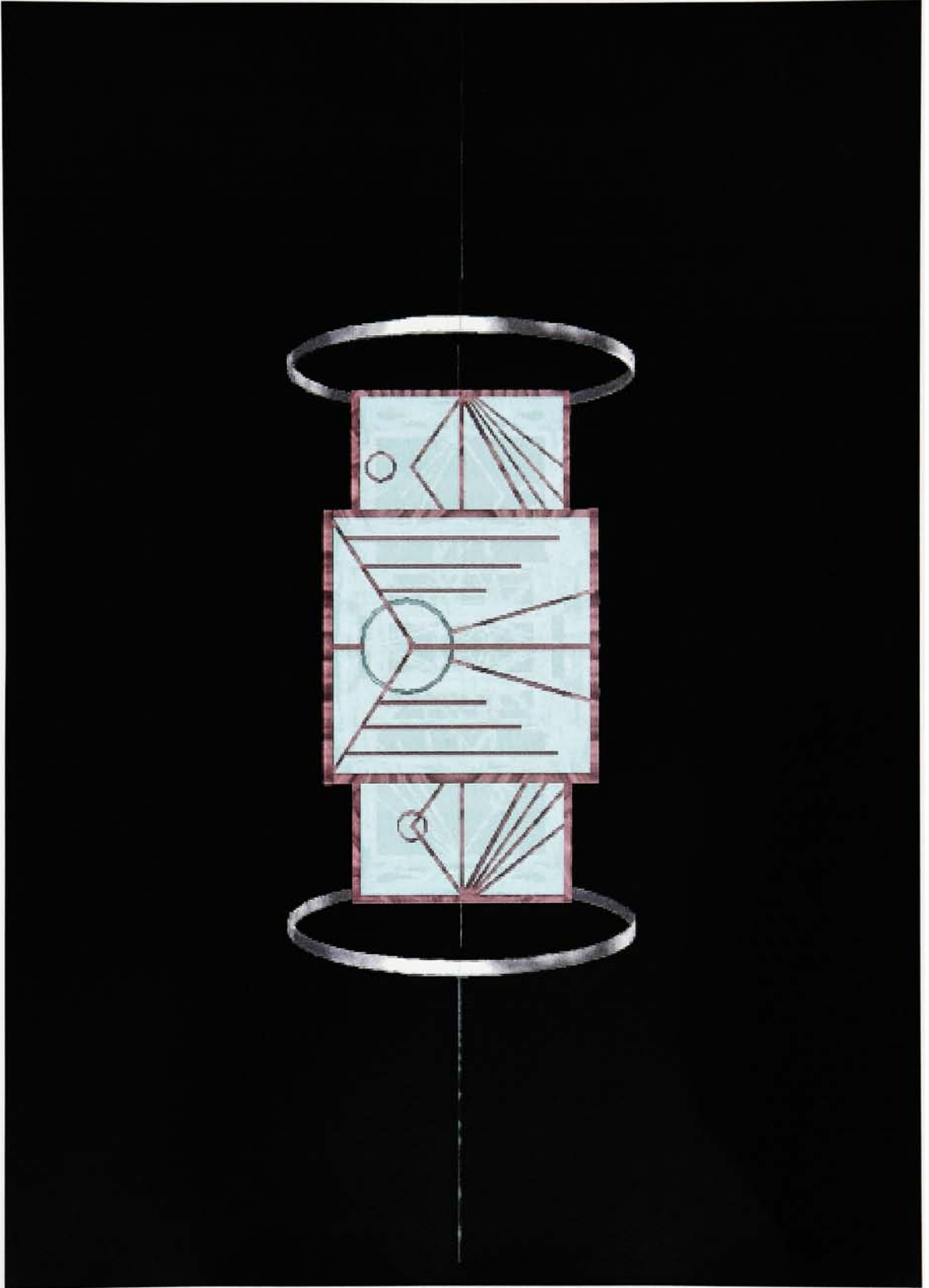




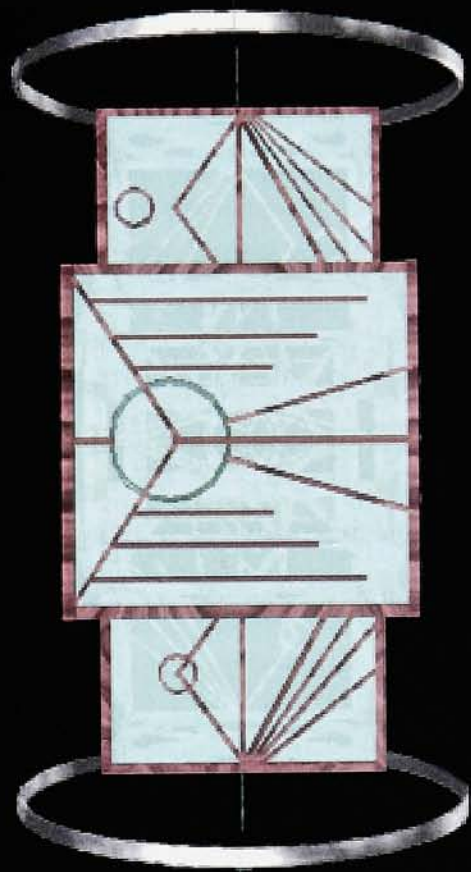
Holding_Back View



Holding_Top View



Holding_Bottom View



Holding, as an independent sculpture, evokes a very different sentiment than that of the other sculptures within the set. The most obvious difference, upon initiation, is the difference in mass compared to that of the Main Narrator. The Narrator sculpture was sleek, bold and strong like a traditional ring-leader of a circus—his job was to acquire an audience and excite them. In contrast, the Holding sculpture promotes the essence of subtlety and implied meaning. The user was encouraged to arrive at conclusions and re-engineer his or her own thought processes. The overall shape reinforced a sense of balance between containment and freedom, which supports the ability to convert thought from reality, to a more ethereal experience.

Color and Texture

When looking at the sculpture itself, four individual boxes are readily apparent. These boxes built an element of containment. Besides a group of boxes, it formed an abstract shape of a strong male—wide shouldered, strong, with a sensitive side that was hidden from view. The containment of the wooden boxes was also reflected, not only on the outermost framing elements of the box, but also within the interior, serving as decorative and containing element. At first these abstract shapes seemed detached from each other, but as the user investigated further, the frontal view of the Holding sculpture gave some hints and a foundation of story. As the user circumnavigated around the sculpture the different elements would surface and the story would slowly begin to build.

As the user continues to experience the sculpture, a metaphor becomes more apparent. The metaphor raises a question of the gentleness that is needed to hold something, while not damaging it in any way so to constantly cherish it. There is a balance between how much one reveals of self, while also being self-protecting. This entity suggests perhaps a belief in a supernatural power to add strength and guidance to this task. The first indication of the protectorate form was two silver rings around both the left and right boxes; serving as a foundation for a set of sharp and pointy marble objects.

Upon initial inspection, it could be argued that the knifelike objects served as a safeguard against a force that could cause harm. However, upon further investigation, the artist hints at movement and flexibility within the form itself while establishing a sense of unity. For this reason, the form should not be viewed as a weapon or a symbol of violence, but rather as an

entity with the ability to travel in any direction to aid in the vision of protecting the male or Holding sculpture itself. The curviness of the strong horns symbolize an abstract bird that has the ability to fly at great heights and speeds. The greatest gift as a protectorate is its vision from unique perspectives that made achieving balance between containment and admiration possible.

Protectorate

Holding, First Stage of Candle: Protectorate

I wish for a spirit to accompany me that protects both the physical and non-physical. Strong, feared and loyal and the qualities of my carnality. Besides a guardian that observes on all different perspectives, it reminds me of the battles it fought and the victories that have been won and savored.

As the user moved to the top and bottom of the sculpture a form with obvious representation of wings proved the hypothesis. What was so innovative about this form were the images of a mountain and a sun that framed the imagery of the bird. Having great vision is neutralized without adequate light—besides the obvious fact that the light built a sense of confidence and great strength, and it revealed all that one can see. The better the light, the better the vision.

Holding, Top: Great Bird

As she is lost in her joy, I too, separate myself from this place, and stretch out my arms—lay my palms up to the night sky. I close my eyes and press the back of my head down, producing my neck to arc. I lift above this common world with wings of a great bird, and view my lover's body from perspectives that would most likely make her blush.

The imagery of the sun in relation to the mountain also gave the essence of time. Why someone would want another entity to aid them in the vision is to capture more in a short period of time; to gather and appreciate different experiences to reference and build great timeless memories.

Holding, Third Stage of Candle: Capture Scent

When the traces of a woman's scent have dissipated through a room so they are undetectable, I want to cup my hands and lift them high and draw them back toward my face to re-concentrate the natural and unnatural scent.

The essence of time was one of the main points that the artist was trying to convey. If one looked at the frontal view and made direct relationships between the top and bottom boxes, one would find different forms that were dealing with this idea of passing time. The interior of the top box was decorated with varying thickness of wood slats forming many different size triangles. The forms were sleek and elegant. If this box was isolated it would be difficult to decipher what the imageries meaning.

However, if an association was made with the imagery in the bottom box, the central triangle would become an elongated diamond. Upon further observation, the bottom slants had substantial mass, compared to the upper elements, producing a foundation for the diamond. With the help of the audio, which was accessible to the user at any time, the representation of a candle and glass votive would be revealed.

Holding, Third Stage of Candle: Changing Shadows

The repetition of the high energy dance, of the changing shadows, represents the lack of control over my fantasies. With the ever-changing positions of these thoughts, it makes me eager to communicate them to my companion... curious of her response. But, as the soft candle light hides my body's imperfections, so does the darkness which accompanies her sleeping body, which makes my voice unable to be heard.

Putting the last three characteristics together—protectorate, flight and vision—the essence of why the boxes used slightly transparent rice paper as its skin starts to be understood.

Holding, Fourth Stage of Candle (Filled, Circles): Echo

As when you stare directly in the sun, an echo of the image lingers, and without thought, I rub my eyes to restore normal visions. But, when I caught myself staring at the last flickering life of the candle, her lips touched my neck with the last bit of energy before she concluded the day. I turned to return the

gesture and the echo of the flame framed her face. I did not restore my visions, for she was purely an angelic being.

The overall meaning builds upon the fact that the protectorate will guard the soft, pliable skin of the figure. Flight would symbolize the ability to see and react quickly to a given situation. Vision would be almost an essence of the two, because one would have the strength and the composure to expose the important part of themselves for the admiration of another individual.

Strength

Holding, Third Stage of Candle (Open, Circles): Pimpley Face

The first time soft light revealed an uncensored aspect of her body, I stared. I was greedy for more light, but did not want to be judged as a pimply faced boy. I stared directly into her eyes, while I as lost in her softness, and I felt and knew I could love like a man.

Although there are strong birds very capable of defending themselves, there is a sense of added security when having a massive figure close in proximity. For example, if you had two protectorates, an eagle and a great American black bear that could communicate telepathically, their natural abilities would be enhanced by building a superior army. For instance, a bear's ability to know when to attack would always be heightened because of his communication with the eagle. The beautiful aspects of both of these creatures is their ferocious, animal behaviors, which are well disguised because of their beautiful exterior. As these characteristics come together—flight, vision and strength—the pieces of the sculpture become unified, producing a sense of sophistication and a layer of complexity that might not have been recognized with a casual passing.

Time

Holding, First Stage Candle: Time

Time is the enemy of love. When you're alone the fire never melts the wax. When your companion's warm skin is in contact with yours, the beauty of the light that exposes her private, sensuous parts is blessed by the light, but the way it cuts and separates through the wax is cursed.

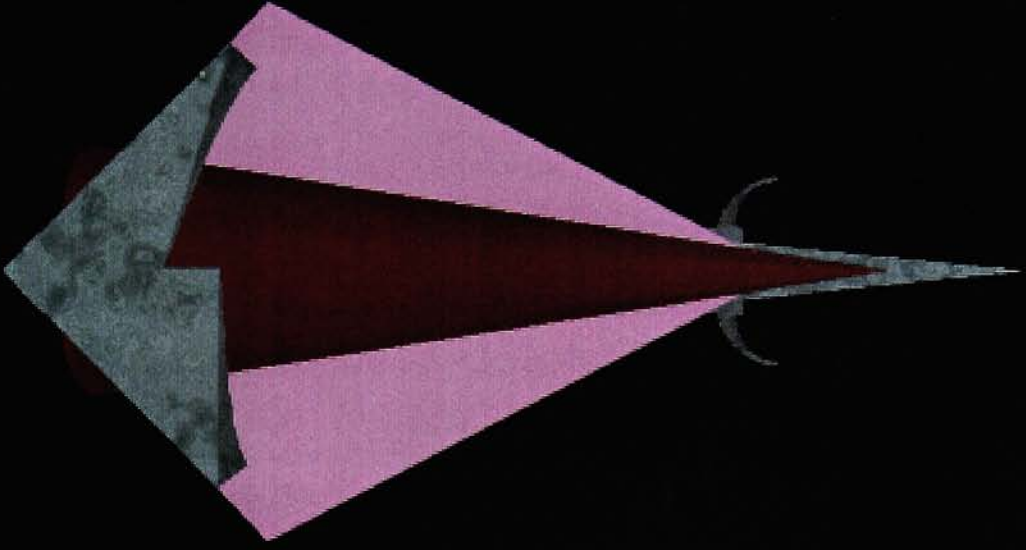
Everything has its enemy or a predator that always puts pressure on the survival of the being. Even with the ability to see and the strength to face the obstacles of life, the one thing that penetrates and destroys such a beautiful sculpture would be time itself. Time is something that can only be respected and used as a gauge; not of what was missed but what can be attained. The Holding sculpture symbolizes the reality that even with all the great protectorates of the world the only way to win the war over time is the ability to remember.

Holding, Bottom: Reality

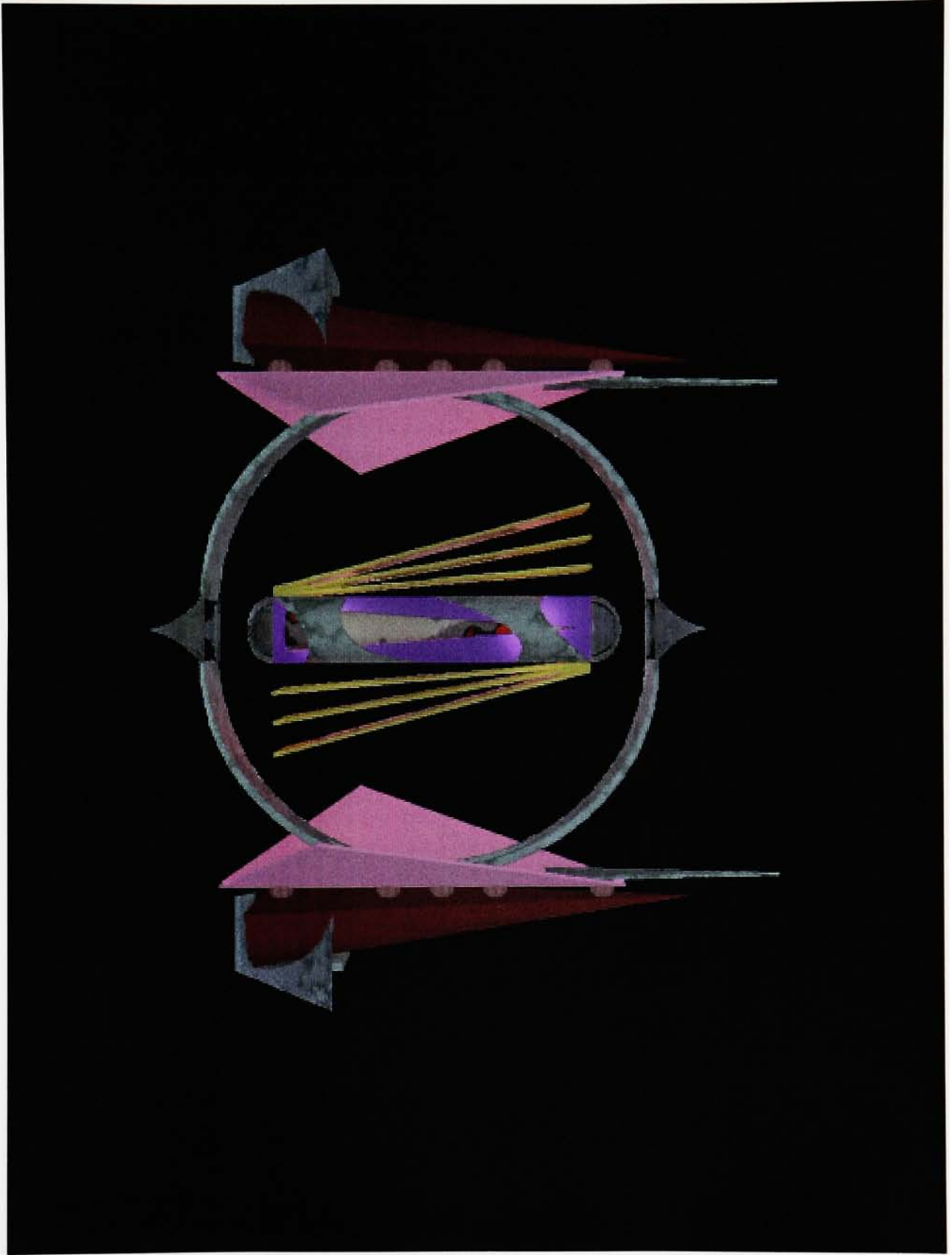
Traveling by the reflective light of the sun, I see many directions to travel. My enemy, like in the world we are more familiar with, is the length of time I will be able to travel before the night ends. My pulse quickens with anger over my lack of control over the moon's descent, and the reality of leaving this warm, musky place saddens me even more.

Relationship

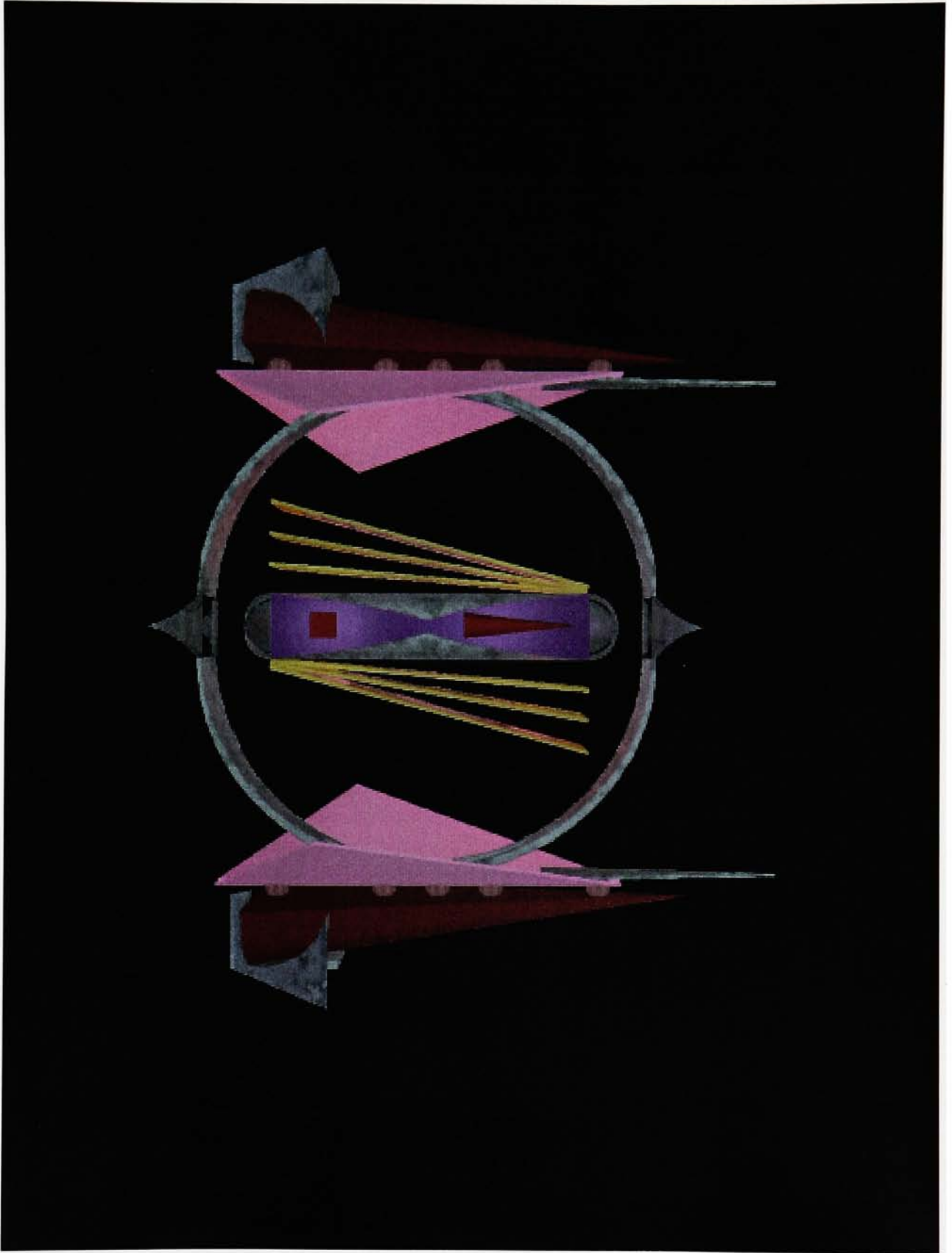
Relationship_Front & Back View



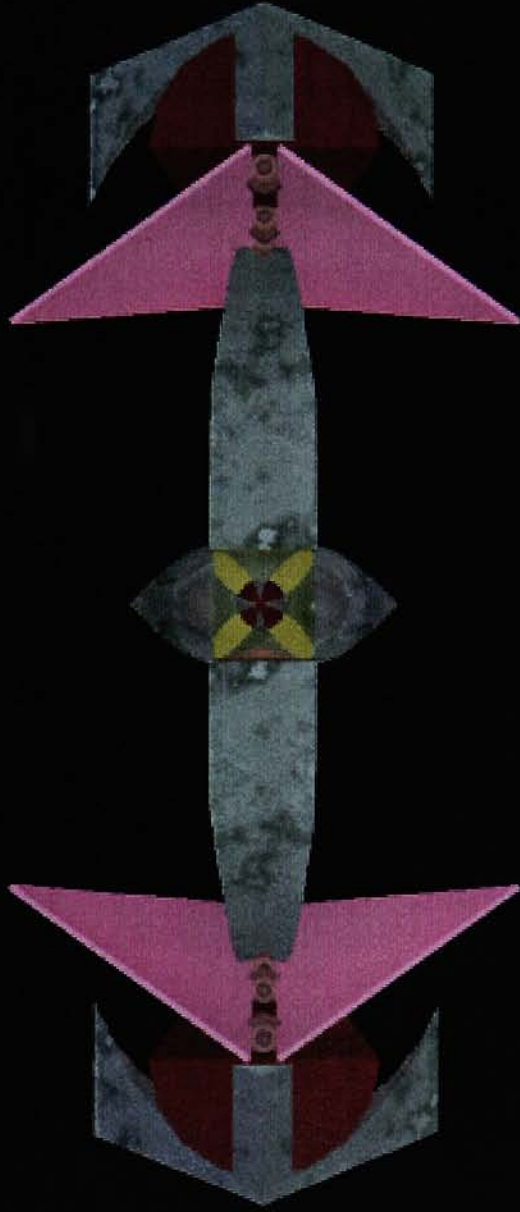
Relationship_Left View

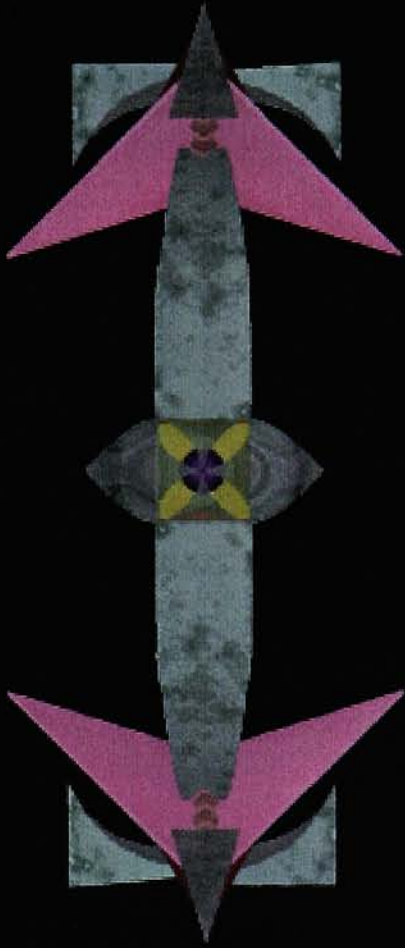


Relationship_Right View



Relationship_Top View





Loneliness is one of the most powerful and destructive feelings that humans have to face. As the Relationship sculpture opened and a solitary sculpture occupied the stage, the viewer was being reminded of this essence of reality. The form had the strength and the mass of the narrator, but with a sense of being of the supernatural. The triangular form had a sense of vertical movement that offered an uplifting experience. The mystery was not solved by his first engagement but the initial hypothesis about how loneliness was going to be quickly transformed.

Relationship, Angle One: Beliefs

Traditional beliefs seem to be drawing my attention and interest more since so many years have passed. The company of an angel's strength and beauty is welcomed and prayed for. To add balance to my human desires with the honor and respect of a mature man.

As the sculpture rotated bringing the right side into view, the idea of loneliness and isolation were not totally dismissed. The once mono triangular form was now connected by a large green sphere to another identical triangle shape. This symmetrical layout was reinforced by another independent, free-floating sculpture positioned in the center of the large sphere. This arrangement made it difficult to conclude if the meaning was a feeling of togetherness or once again reinforcing the idea of loneliness.

The center sculpture had a balance between exposure and concealment. The right and left side of the sculpture had yellow slants that reinforced the idea of movement in a gravity-free environment. The abstract geometric imagery suggested a female body, partly covered by a robe or a cloth. Tension was produced because the viewer did not know if the fabric was being let go to tantalize her lover, or if she was concealing herself.

Relationship, Open Robe: Balance

The balance between love and physical admiration is too often a faded, undefined line of comprehension. However, when the love is so pure, for the soul and the body, the bond that is sought after to calm the intensity of affection can dominate thoughts of logic. I do not want to be reserved with my actions and thoughts, for they are beautiful and kind, but I take a deep breath and realize the beauty must be understood and appreciated by the mind, within the body, I desire.

The complexity of the message was balanced by the many pieces of the sculpture that offered the user descriptive solutions to the puzzle. Finding clues throughout this sculpture offered the user hints and hidden treasures which reinforced the intensity that is found with a new relationship. As the user experimented within the sculpture, the user noticed a change in the cursor and in perception relating to the sculpture. This change in perception (cursor change) promoted the question of whether the advance was considered an intrusion or a welcomed invitation. For if the action can be taken for any reason with no sign of harm, a set of windows was presented to the viewer to reinforce the meaning which would have to be decided upon in an individual fashion.

Open Windows

Windows can contain as easily as they can be opened. The degree of effort to open these devices is as much the degree of how much change is required or wanted. The glass is a companion and an enemy, teasing me with the possibilities of true openness, or a barrier that will not let my voice travel and be heard.

Surely guidance would be welcomed to reduce the anxiety of such uncertain decisions. But as in the presentation and in life, this decision of advancement is made alone. One's character is judged by one's self and one's partner. With so many thoughts restricting good reasoning, one could look for guidance from a holy protectorate.

Relationship , Angle Two: Representation

Classic representations of angels are often beautiful women shrouded in white, with a heavenly glow that not even their mighty wings can dim—as they soar and play at the fingertips of the holy ones. But the abilities to love, believe, and create is a human gift. So, I represent these flying spirits, in a vision that I can touch, hold, and more closely admire.

Although many pieces of literature document many holy experiences, the true sense of love, the feeling that makes one return to worship, is usually never personally documented. There is a feeling of respect and admiration when important feelings or events are remembered and acted upon without constant reminders.

Relationship, Hide Yourself: Sketches

My mental walls are never decorated enough with sketches of her body drawn by my fingertips. Fearing that these pictures, which are studied and documented, is all that is appreciated. But, some things don't need to be written down. The poetic words that I use to describe her caring soul, are part of me—like my love for her.

As the user engages in the Relationship sculpture, the symmetric design was not foreshadowing for how the mystery would unfold. The sculpture was not relinquishing straightforward answers, but was illustrating situations that are often forgotten after the intensity of the moment has faded. The art and the audio messages enlighten the user that one has the ability to choose to act or become trapped in one's desires. The essence of happiness is often a mix of self gratification and self control.

Dividers in windows

I find so many mysteries in viewing the shadows of old windows on the dusty floors of abandoned shelters. The abstract shapes of broken glass, shadows seem to belong to a great, evil protectorate that has lost his battle of selfish containment. In one, great force of anger, the individual picked up a rock and crashed through the barrier, and listens for her whisper.

The choices one makes in life are unfortunately not all the correct ones. Coping and learning from life's mistakes adds strength to one's inner fortitude and in a sense to the outer armor. The sculpture reminds us of this fact and changes the approachable figure to an imposing aggressor when viewed from the top and bottom. If the user peeks at these views and decides to progress, the sharp triangle forms advance forward with an aggressor pace. Was the decision the correct one? The answer to this question is not important; however, one must realize that everybody is vulnerable to some degree. This should not be seen as a negative, because if people accept this fact they would be more aware of positive and negative situations that surround their lives.

Relationship, Top: Skin

Is the soft, vulnerable skin of our armor suitable for the battles we wage? For we sustain damage from within and are unshielded from the enemies we can see. But, when your lover traces around your body with pressure on her fingertips, it feels like the god that you believe in has chosen the perfect armor.

Relationship sculpture was a group of forms that made up a piece of art, that presented a collection of problem-solving units. The mystery was not solved by spoon feeding the viewer, but instead was implied and the missing pieces were filled in by one's own personal experiences. Training the eye to pick up on subtleties in art and in life can enrich one's personal life and those who love us.

Relationship, Bottom: Structures

The mighty structures that we physically and mentally construct to communicate our love and appreciation to others—a positive ideology? The ability to recognize subtle messages being communicated—by body and voice—are more admirable than mighty structures of beauty.

Conclusion

The story of Lei Rimana was a very personal and intimate undertaking. It took deep soul searching to develop an innovated personal narrative, courage to be judged publicly on personal intimate views, and the creative ability to visually produce the tangible piece of art. The intent was to make a personal piece that would communicated to a variety of users, that would continue to raise questions far after the initial engagement had been made.

Looking back over the thematic treatment and analyzing the effects of such a thesis, it's clear that the hypothesis of using a technological "greeting card" as a communication aid to encourage personal dialog is a goal that can be attained. The ability to design with a solid direction and goal in mind can make even ambitious goals achievable. That being said, the personal greeting market has room to grow and realize that communication can go much further than a flowery single line of text.

Lei Rimana ("She Stays") provided the ability to explore and learn a three-dimensional modeling program, to gain practical experience through organizing a project of this size, and to develop problem-solving skills both at the keyboard and in conceptual stages. The strategic planning and problem solving needed to produce such a product required long sessions of information mapping and mathematical calculations. This experience also provided an opportunity for the artist to mesh the worlds of creativity and a strong sense personality while meeting the production demands of the project. Important lessons were learned from following a strong concept from beginning to end, and pushing the realm of personal knowledge to make the entire system work. The experience has been invaluable in the artist's professional career as well.

Lei Rimana provided the stage to create works of art that stylistically represent very personal and very intimate emotions. It was the artist's intent to leverage a new set of technologies and apply them creatively to a market that has become for many mundane and meaningless. The success of this venture remains only to be tested by those who experience Lei Rimana with a loved one, and to discuss this shared experience on an intimate level.

Bibliography

Barrier, Michael. "How two ex-New Yorkers send greetings from beautiful Vermont." Nation's Business November 1990: 11-12.

Constantine, Larry I. Interactions April 1995: 36.

Cornwell, Regina. "Interactive Storytelling." Art in America January 1988: 43-45.

Engstrom, Theresa. "Greetings for all Seasons." Working Woman. December 1986: 57-58.

Gephar, Donna. "Writing and selling greeting cards." The Writer May 1992: 25-26.

Kanner, Bernice. "Card Game." New York April 1986: 22-23.

Lehrer, Helene. "This stick promises many happy returns." Money Forecast 1993: 53.

Poyaor, Rick. "Design with Boundaries." ID November: 51-56.

Rheinfrank, John. Interactions April 1995: 52.

Opt, Susan K. "Continuity and change in storytelling about artificial intelligence: extending the narrative paradigm." Communication Quarterly Fall 1988: 298-310.

Ovenell, Julie. "The Muse Released." Step-by-Step Graphics May/June 1993: 56-63.

Rice, Lamb. "Sentimental Returns." Black Enterprise December 1989: 79-82.

Sands, Craig. "Sobering Words from Hallmark." Newsweek 1 June 1992: 65.

Wandyez, Katarzyna. "Love means never having to say anything." Forbes 1 Apr. 1991: 89-90.