The recent Exhibitionist article on the New England conference neglected to mention a NAME-sponsored seminar that I gave with Richard Rich, Director of Exhibits at the Science Center of Connecticut. Both of us are longtime NAME members. Hosting Traveling Exhibitions gave a fun, richly-detailed overview of what a host museum needs to know about traveling exhibits. We went from deciding if renting an exhibit would fulfill a museum's needs, through selection, contracts, the logistics of setup, maintenance and load-out. The seminar was very well received, and we plan to write it up for future publication.

Adam Zuckerman
Exhibit Fabricator/Designer
The Maritime Aquarium at Norwalk

As dedicated readers we congratulate Jay Rounds on his stewardship of the Exhibitionist, and find ourselves astonished that it's already been four years. The articles have been wide-ranging and quite professional under his helm. That said, as the designers and developers of the American National Fish and Wildlife Museum (ANFWM), we take exception to Mr. Rounds' review, "Ask Questions First, Shoot Later," one of his parting "shots" in the Fall 2002 issue. Protestation by Rounds to the contrary, his review is critically constrained by his underlying personal rejection of hunting and the curious exclusion of the museum's dominant management theme from his review.

Peter Kuttner FAIA, Principal-in-Charge
Penny Sander, Exhibit Project Manager
David Perry, Senior Habitat Designer
Douglas Simpson, Exhibit Designer
Cambridge Seven Associates, Inc.

For the complete content of this letter, check the Exhibitionist page on the NAME web site.
WHEN WORKERS SPEAK
TRANSLATING THE PAST IN BROOKLYN

The Brooklyn Historical Society's new core exhibition, *Brooklyn Works: 400 Years of Making a Living in Brooklyn* puts the ordinary working men and women of Brooklyn in the protagonist role, as people who, through their labor and skill, shaped Brooklyn's growth. The exhibition, fundamentally a history of Brooklyn's industries and the people who worked in them, places the worker-protagonists firmly in the context of the development of Brooklyn's defining industries -- initially agriculture, then national and international commercial trade and industrial production, and more contemporarily, the service sector. And it shows how the conditions giving rise to these industries stemmed from factors unique to Brooklyn as well as national and international trends. One of the exhibition's underlying messages is that people's choice of livelihoods was highly contingent and determined by constraints beyond their control.

History museums have come a long way from being, in Mike Wallace's words, primarily "preserves where the past, an endangered species, was kept alive for visitors to see." Building upon decades of the social history movement, history museums no longer "render the majority of the population invisible as shapers of history" or cover up "the existence of broad-based oppositional traditions and popular cultures." Wallace argues that this old style interpretive approach inhibited "the capacity of visitors to imagine alternative social orders - past or future." He implies, of course, a strong value placed on changing the social order and on the role of human agency. We can only hope that the interpretations and selections we make - "for museums are institutions of cultural memory, selecting, legitimating and interpreting the past
for its visitors—will provide an environment in which museum-goers will think expansively about historical change and their place in it.

The choices we made in Brooklyn Works as to overall structure, design and media all flow from the interplay of these two aspects of the story—the objective economic forces, and the ordinary worker as protagonist acting both as an individual and as part of a group. The trick has been to show, as Roger Waldinger put it, both the "world that made the immigrant" and the "world that the immigrant has made."

The three key interpretive elements we employ to tell this story of work are 1) a chronological, and non-the-matric, organization of the historical content; 2) the construction of immersive environments in which artifacts are integrated (and only those artifacts that further the storyline); and 3) the use of personal narratives, mostly primary source, first-person accounts.

A Chronological Approach
We struggled with the issue of whether to structure the exhibit along thematic lines or take a more traditional chronological approach. With our academic advisory committee, we explored organizing the exhibit around themes such as "the rise and fall of manufacturing and shipping," "forging Brooklyn's workforce," "labor struggles in Brooklyn," "kids' work," "the building of the Brooklyn Bridge," "Brooklyn work today," and so forth.

The chronological approach we chose guides the visitor through four distinct historical periods (roughly pre-colonial/colonial, mercantile, industrial, and post-industrial) in a linear fashion, reinforcing the exhibit's basic historical interpretation. Visitors, by exploring the prevailing modes of production, which unfold and build upon each other, are better able to understand the work choices that were made.

Underscoring the importance of the mode of production can also serve to address a gnawing question that may be in the back of many people's minds: How is it that different ethnic and racial groups fared differentially through these changes in the mode of production? The message is that
there is more than individual gump tion at work here and that particular groups' success in work has much to do with the prevailing stage of economic development at the time they arrived on the scene. The chronological scheme was further buttressed by formative evaluation with teachers and community members, from which we determined that people, despite their often negative feelings about learning history in school, are accustomed to understanding history through dates and chronology. The decision to not allow visitors to enter the historical periods out of order goes along with this rather controlling approach, but was not reached without some internal struggle; freedom of movement and choice for visitors is a controversial issue for exhibit designers. It was our task, nonetheless, to make the journey an exciting adventure and a departure from the conventional history taught in most schools.

Immersive Environments
In each of the historical periods, visitors will be transported back in time by entering an immersive, stage-set type environment, designed to suggest real workplaces in which the story's protagonists labored. For example, in the pre-1820 Brooklyn period, visitors enter a Dutch farmhouse, circa 1790. They encounter authentic artifacts such as a spinning wheel, a quilt and farm tools illustrating agricultural work as well as the home as an important unit of production, especially for women. The idea is to make the artifacts an integral part of the re-created setting. In this farmstead, visitors also can push a button and an object theater, focusing on the role of enslaved labor during this agricultural mode of production, draws them in. The object theater further makes the objects come alive with light, ambient sound and voices.

In the next period, the environment is a warehouse on the Brooklyn waterfront, circa 1860, complete with product barrels, to help telling the story of Brooklyn's central role in the pre-eminent Port of New York and the beginnings of manufacturing. Next, visitors enter a typical streetscape, circa 1915, re-creating several workplace environments during Brooklyn's industrial and commercial height: a garment factory, a sugar refinery, a waterfront industrial terminal, a tenement and a barbershop. In the final period, visitors enter a locker room, circa 1970, to learn about de-industrialization and the shift to the service sector. Again, authentic artifacts are integrated into the environments. These settings are selected as emblematic of the defining work of the period but can only scratch the surface of the tremendous breadth, scope and complexity of the industrial life of the time.

Personal Narratives
The notion of ordinary people as actors and shapers of history finds its strongest representation in the first person accounts that are central in to the show. These "voices" of real individuals from the past, largely uninterpreted, are almost treated as artifacts, from which visitors can make their own meaning.

Within the work environments, various media present the actions and perspectives of Brooklyn individuals. In the first object theater we hear the voice of a man enslaved on a Flatbush farm (taken from a slave narrative published in 1800), an Irish-descended farmer (taken from a diary begun in 1790) and a slaveowner both selling his slave and trying to retrieve his runaway (taken from a newspaper ad), all performed by actors. In the next historical period we learn about a ropemaker who lived and worked in Williamsburg in the 1830s at the time of a Luddite action against the mechanization of rope. In the industrial period we have both a video featuring the voices of elderly African-American Brooklynites sharing their work experiences from the 1920s though the 60s, and several audio programs based on first person accounts, performed by actors: a Jewish woman garment worker in 1908, an Italian bootblack in 1902, a Puerto Rican laborer in the 1920s, an Italian woman doing piecework at home in 1915. And finally, in the last period visitors can view a videotape based on interviews with a number of workers talking about the work they do today.

Visitors get to meet (and maybe identify with) an array of individuals who collectively can be seen as shapers of history. But, as Mike Wallace has written, "all history is production – a deliberate selection, ordering, and evaluation of past events, experiences and processes" and the selection of these particular narratives is no exception. To be sure, we can only select the accounts that have survived, for working people, a limited group. We chose ones that advance the story-line we have formulated: ones that shed light on the forces that shaped people's work experiences and choices, as
Exposed: When Workers Speak

well as ones that show human agency (in some cases, collective action) and therefore history's malleability. For example, recorded oral interviews with two workers who organized to fight the closing of the Drakes Bakery in the 1970s convey the message that by organizing, concessions (such as getting the company to provide bus transportation to the new factory in New Jersey) could be won, even though the fundamental tide of deindustrialization in Brooklyn could not be stopped.

Privileged Themes

Particular themes are privileged within the exhibition's main storyline. Beyond the general story of ordinary workers, the experience of women and people of African descent are privileged because historical scholarship in the last thirty years has made some "dramatic discoveries about the behavior and beliefs of these groups traditionally slighted by the older historical synthesis." 5

The exhibit highlights women workers beginning with a drawing of an Indian woman from a rare 1679 manuscript, and including the voice of a Dutch matron in the object theater, the observations of an African-American girl during the Draft Riots of 1863, factory workers of the early 20th century, domestic workers, women in the Navy Yard, and hospital attendants of today. One of the messages embedded in this story is that substantial numbers of women worked outside the home in Brooklyn from a much earlier time than one would have thought, after

(continued on page 16)
On November 20th, 2002, a public autopsy was performed in London. It was broadcast live on television and served, partially, as a publicity tool for Professor Gunther von Hagens and his *Body Worlds* exhibition. The Body Worlds exhibits have been deemed controversial since their first exposure in 1996. When the exhibit opened in London on March 21, 2002 crowds of people attended. Between its opening and closing on February 9, 2003, the exhibit was seen by 840,000 people. Over eleven million people have seen Body Worlds exhibitions in Europe and Asia.

I was in London for the International Committee for Exhibition Exchange conference (editor's note: the next ICEE conference, to be held in New York, is advertised in this edition of Exhibitionist) during the exhibition and, although I missed the television broadcast, I did make my way to the Atlantis Gallery at the Old Truman Brewery where Body Worlds was being shown. My two travel companions chose not to join me because they sensed, from the graphic, full-color posters hanging throughout London's Underground, that this was not their type of exhibit. I was too intrigued by the skinless basketball player on the posters to pass up an unusual opportunity.
Most medical museum collections, like those of the National Museum of Health and Medicine in Washington and the Mütter Museum in Philadelphia, consist largely of various specimens floating in liquid, bleached and disintegrating, like eerie specters reminiscent of your worst nightmares. The difference between the Body Worlds collection and that of other medical exhibits is that rather than corpses appearing dead or sickly, or disembodied organs floating in a jar, the plastinated specimens of Body Worlds look as though they are still alive. Alive, that is, without skin, in order to highlight a particular system or function of the human body. Wilhelm Kriz, an anatomy professor, writes of the Body Worlds exhibition, that, even for medical laypersons, the impression wears off that this is a corpse. It becomes easier for them to overcome their timidity at the sight of the specimens, to approach them and to look at the uncovered and projecting structures of the inner realms of the body. They see things that they have never seen before and that they could never have imagined. They are amazed. Renaissance artists such as Dürer and da Vinci blurred the line between science and art with their drawings of dissections they had performed. With the same sort of verisimilitude, the bodies on display in Body Worlds are exhibited as "living" tissue. I revel in seeing those mysterious organs and systems within me and, perhaps precociously, enjoyed the hobby of dissection when I was about eight years old. I thought I was unusual in my interests and expected few others would be able to "stomach" an exhibit of this sort. Much to my surprise, the Body Worlds London exhibition was extended twice in London due to its immense popularity. The Atlantis Gallery in the Old Truman Brewery is a reclaimed
industrial space. The entrance is not monumental and exterior signage is nothing more than posters stapled to bulletin boards. At the entrance of the exhibit, there were many makeshift walls that evoked a convention hall. Signs posted on the queuing walls indicated that huge lines for entrance were the norm. The ceilings are quite high and fluorescent lighting only enhanced the lack of emotion. Regardless of the weather, time of week and poor ambiance, what I found inside were tons of eager visitors of all ages, ethnicities, religions and reasons. From the website, I am aware that there is no consistency in ambiance from venue to venue. Press photographs show that the specimens were shown amongst lush greenery in Cologne, while the Brussels venue exhibited the plastinates under cavernous vaults. Although the information is fairly uniform and the specimens themselves are similar, I am positive that the characteristics of a particular venue would radiate through a visitor’s impression of the display and form preconceived expectations about what a visitor might view. Perhaps that lack of ambiance in London made me concentrate more on the specimens themselves.

During Body Worlds’ first showing in Mannheim, Germany, a visitor study was conducted over a two and a half month period. The results of the study illuminated the emotions and opinions of the exhibit’s audience. In the words of Dr. Ernst Lantermann, who was responsible for developing and conducting the study, ’...Before it had even been seen, representatives of the Church – supported by politicians from the conservative camp – had warned that large sections of the population could find their ethical and moral values offended by the sight of the exhibition.’ Even medical professionals did not believe such an exhibit should be shown to the general public.

Perhaps surprisingly, the exhibit was immediately successful, welcoming thousands of visitors who were most likely attracted by the media-followed controversy. What the study revealed was that the people who attended Body Worlds were aware of the nature and style of the collection that they would be seeing and had thus prepared themselves mentally for the exhibit. Impressively, 59% of the study participants said that because of the exhibit they would now pay more attention to their health and 36% said that they would declare themselves organ donors. It was evident from my visit that no one was frightened of the bodies. School children were well behaved. A boy I spoke with explained that his class had watched the autopsy on television the night before. Following the television broadcast, his classmate chose not to attend the trip that day to the exhibit because he was unable to tolerate the autopsy. They were studying human biology and curiously wandered through the exhibit, notebooks in hand. A woman complete with large sketching pad, folding stool and charcoal told me she visits frequently to draw the bodies. I found her attentively sketching, continuing a study she had started days earlier. No one seemed to mind her as an obstacle. She became part of the exhibit experience, and visitors enjoyed seeing the relationship between the forms she placed on the page and her model.

Body Worlds is primarily composed of three distinct specimen types: 1) pathological and healthy organ specimens; 2) transparent body slices, 3-millimeters thick, which offer cross-sectional views of the body; and 3) “plastinated” bodies. The process of plastination is at the foundation of Body Worlds existence. Sadly, there are no participatory elements in the exhibit. Perhaps the developers of Body Worlds chose to avoid increased participation that could trigger extreme emotions and upset some visitors. Also, there were few children younger than ten years of age evident in the audience for whom interactive elements would seem necessary. The mood of the audience appeared to be contemplative but the rooms were never quiet. The specimens generated enthusiastic discussions between small groups and, because I was by myself, I missed the opportunity to discuss what I was seeing with friends.

In 1977, Professor Gunther von Hagens developed a method of preserving live tissue that frees his specimens from traditional pickling jars. His specimens are colorful,
"lively" and, even, humorous. Von Hagens produces the plastinates by replacing the natural bodily fluids with "...Reactive plastics, such as silicone rubber, epoxy resin or polyester, in a vacuum process." The exhibit includes a display illustrating the actual production of a plastinated organ specimen. The bubbling liquid that surrounds the organ is acetone being vacuumed out of the tissue, part of the lengthy process to fully impregnate the organ with plastic. Many visitors, including myself, spent little time at this display. My urge to see the next plastinate overcame me. Whole dissected bodies can take many weeks to be turned into plastinated figures. These are "people" to whom the still-living can relate, and with whom they can identify, without recoiling in horror.

Von Hagens poses his figures in positions that get attention and easily convey difficult information about bodily functions and systems. The most exciting aspect of how the full-body plastinates are displayed is that you are able to get extremely close to them. I approached the "Chess Player" from the front. He appeared pensive, all of his attention seemed focused on the chess board in front of him. The dissection had exposed his arm and chest muscles and his ribcage filled out his torso. The cords of his nervous system lead to his non-dissected fingers as he prepared his next move. His cranium had been removed, revealing his brain. As I walked around the "Chess Player," my eyes focused on his exposed brain. The rear view of the dissection emphasized the brain's connection with the spinal cord and the intricate nervous system which branches out in all directions. As an artistic statement, the "Chess Player" explained how a thought travels through the body to become an action. When you see this man sitting and playing chess, you relate to him because you have played chess before. The label for the "Chess Player" reads like a map. From the brain, "...the spinal cord extends down through the spinal column...The peripheral nerves emanate from the spinal cord. They can be followed to the respective muscles that they control." 6

Von Hagens dissects each body in a manner that precisely reveals this information by highlighting the organs involved. For full-body plastinates, dissection is performed while natural fluids are still in the tissue. It is only after the body has been impregnated with plastic and prior to being gas-cured that the body is set, with fine needles and pieces of styrofoam, in von Hagens' artistic poses. His results show butterflied muscle groups and delicately woven blood vessels. The muscle groups of "The Runner," for example, fan out in every direction, emanate from each limb. Von Hagens highlights the functional muscle groups of the body in this way, examining how muscles are attached to their bone structures. The "Configuration of the Arteries of the Head and Brain" specimen is a face reduced to a maze of red blood vessels. The smaller vessels, bound closely together, approximate the nose, lips and eyes of the donor. In the head we see that the system that allows oxygenated blood to circulate throughout the body has developed a particularly elegant arrangement of vessels. The beauty of this delicate cloud of red floating weightless in a glass case is mesmerizing and indescribable.

Body slices are also considered "plastinates" because they are produced by using a variety of plastics and resins, but these specimens are just millimeters thick, non-pliable and transparent. Von Hagens artistically unites both longitudinal and lateral cross-sections of bodies in interlocking compositions that become three-dimensional and figurative when connected. Another benefit to the slice display is that it can be used to explore the subtle differences between people. One case dramatically proved this by aligning multiple slices from different donors, each taken from the same approximate location. Clearly hearts and lungs varied in size and the locations of the organs were never identical from one sample to the next. The beauty of both our similarities and differences was miraculous and I wanted the opportunity to touch the discs for closer inspection.

Another fascinating specimen was composed of eighty-three slices of a body, each slice well-distanced from the next for viewing purposes. The elongation of the body called attention to itself and reminded me of a still version of the Visible Human Project CD-ROM that was released not too long ago which utilized animated body slices in a fly-through journey of the human body. The benefit of seeing this information in person is that the textures and sizes of the organ tissues are rendered naturally and the whole picture is not sacrificed to the detail.

Surrounding each plastinate figure are cases of plastinated pathological and healthy specimens, typically organs, with superb descriptions as to how to distinguish the healthy from the unhealthy. There
is no preaching going on here but it is rather easy for the visitor to interpret how he or she can affect his or her own body. Similar to the reactions of people quoted in the visitor study, I heard many people exclaiming that they would stop smoking two packs a day. These specimens surprisingly commanded the same amount of audience attention as the artful plastinate figures. Everyone I watched read every label provided. The crowd was patient, apparently in no rush to sacrifice knowledge in order to get through the exhibit faster.

The exhibit arrangement does insist that visitors stay on a prescribed path but visitors can wander within each section. The bodies and specimens are arranged sculpturally such that you can examine them from every angle. The method of displaying the information reminded me of exhibits I had seen in natural history museums. This is especially evident in cases where multiple specimens of the same type are used to illustrate a point. Although text panels were concise, they were also thorough. It takes visitors some time to fully read the panels and look at the details of the specimens, and they certainly spent a lot of attention on the exhibit text. The benefits of this arrangement is that it allows each visitor to see the information of a particular section of the exhibit in any order they wish. If one area is overly busy for a time, one can easily see another element of that section and return later.

The exhibit is divided into the systems of the body and at London's The Old Truman Brewery, the smallest venue that has housed Body Worlds, the reproductive system is upstairs. According to the Body Worlds' exhibit office (and corroborated by another exhibit visitor), the specimens shown here are the most difficult for audiences to handle. Fetuses in each stage of development in one section of the second floor dramatically lead the visitors to the reclining plastinate figure
of a pregnant woman, her womb dissected to reveal the plastinat-ed baby inside. These are the figures that inspired someone to cover them with a blanket and then throw fake blood on top. Another visitor protested the unequal number of female to male plastinates in the exhibit. Reproductive ethics is, understandably, a contentious issue and one which for many people pushes this exhibit into difficult terrain. Von Hagens only uses bodies that people, while still living, have donated to his cause. Adjacent to the reproductive system hall is the altar for the donors to Body Worlds. A plastinate kneels, arms reaching towards the heavens, cross in hand. Beyond the over-sentimentality of this altar and the melodramatic photographic images of the plastinate figures available as souvenirs, this exhibit is both highly insightful and (dare I say it?) fun. The exhibit office showed me impressive daily attendance figures of between 4,000 and 5,000 visitors per day. Unfortunately, it will be at least two or three years before the Body Worlds exhibit comes to the United States. Knowing this and aware that it would be truly impossible for me to convey why I was entirely fascinated by this exhibition, I purchased the full-color catalog as a souvenir. When Body Worlds does come to the States, I doubt they will need any colorful posters to advertise. As many controversial exhibits shown in the United States in the near past have proved, negative publicity is just as effective as costly advertising for bringing in the crowds.

notes:
2. 2002, p. 208
4. 2002, p. 213
5. 2002, p. 20

Body Worlds is on the web at http://www.koerperwelten.com/index2.htm

EXHIBIT REVIEW BY
Ciné Ostrow

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BODY WORLDS
THE BILINGUAL DILEMMA:

SHOULD WE OR SHOULDN'T WE?

Our society is diverse, and good museums respect and celebrate diversity. Some countries mandate bilingual signage, and strict guidelines must be followed. In the United States, we face a choice—the bilingual dilemma. How do we decide to go bilingual, or even multilingual?

To have bilingual labels or not? This may appear simple question on the surface, but the complexity becomes apparent as you go deeper. There is no right answer to our deliberations, nor is there a universal procedure. We must balance a range of issues related to our goals and resources. To facilitate this process, we need to think carefully and proceed thoughtfully.

To get a handle on the bilingual dilemma, this article focuses on questions related to why and who. We seek to clarify our goals and expectations. We inquire about our audience. A subsequent article will address the what and how of bilingual interpretation. Then we'll discuss strategies and techniques to achieve success and avoid pitfalls. Be wary of the adage "if we build it, they will come." Bilingual interpretation does not equal broader accessibility. We need to investigate all possible barriers to attendance, and language is only one.

First and foremost, why present information bilingually? Bilingual interpretation is typically intended to make exhibition content more accessible to a wider audience. We may have multiple reasons to pursue bilingual interpretation.
Do we seek to please a donor, a board member, or a political entity? (Broader accessibility may be the hook.) Do we expect higher attendance and increased revenues? Will the exhibition travel to a bilingual region? How might we prioritize our many motivations, and what is our primary reason? A thorough accounting of our expectations will help the decision-making process.

Does our mission mandate bilingual interpretation?
An institution’s audience, subject matter, and/or geography may compel bilingual interpretation. For example, the San Diego Natural History Museum has a regional focus—research, education, and exhibits promote understanding of southern California and the peninsula of Baja California. Two-thirds of the region of interpretation is within Mexico, and the museum serves an audience from both sides of the border. Hence, bilingual interpretation is both a philosophical expression of the museum’s mission and a practical matter of visitor service. Our shared legacy of art, culture, history, and natural history often transcends borders and language barriers. In what ways might bilingual interpretation express this transcendence?

Fundamental questions of bilingual interpretation
As there is no one right answer to “should we or shouldn’t we?” there is no one right way to go about bilingual interpretation. Everything depends on the people and the project. We need to remember that adding another language is not just adding one more step. To add another language is to double the text writing process. Many more questions follow.... Will we develop text in the two languages simultaneously? Will we write in English then translate literally? Will we write in English then adapt the messages and idioms into the second language?
Will we use a particular dialect? Will we treat the two languages equally, or will one be dominant? How will we differentiate the two languages? Will we limit content to accommodate the second language? Will we evaluate the presentation for cultural connections and appropriateness? What will it cost; how much time will we need?
Is our bilingual effort a stepping-stone to a multilingual presentation? Are the same questions relevant, whatever the languages in question? Who is our audience? Do we know our audience? Are our current audience and target audience the same?
There are so many questions!
Let’s look at the demographic data of our museum visitors. How do our visitor demographics compare with the community at large? What role does tourism play? We may know cultural or ethnic identity, but do we know what language is spoken at home?
How will we decide what languages to present—is it simply the languages most frequently used? Is it based on the content of the exhibition? Will bilingual interpretation serve our existing audience, or is it part of an audience development plan? If so, how will bilingual labels complement other audience development efforts? Is demographic data sufficient to answer our questions? Do we need psychographic data, i.e. information about visitor motivations, expectations, and leisure choices? Have we asked the right questions of our audience?

What are visitor attitudes about bilingual interpretation?
The best way to find out is to ask. Don’t assume people are opposed, based on the comments of a vocal minority. In a recent survey in Balboa Park, San Diego—a border city with numerous Spanish speakers—most respondents agreed or strongly agreed that public institutions in the U.S. should provide information in languages other than English, especially for educational purposes.

How will our audience use bilingual text?
Visitor studies of English speakers in North America show that most museum-goers read some labels. Visitors look for concrete information, answers to their questions, and ways to interpret the experience for others in their social group. As the number of words per label increases, the number of label readers decreases. Anecdotal observations of bilingual and non-English speakers support these conclusions. However, what assumptions are we making about how people use bilingual text? Very little literature exists, and more research is needed.
How can bilingual interpretation enhance social interaction and learning?

Bilingual text offers learning opportunities that go beyond the content of the message. Exposure to another language engenders greater cultural awareness and sensitivity. In addition, label readers can learn and confirm their understanding of a second language's vocabulary, grammar, and idioms. Also, bilingual labels facilitate intergenerational communication. First-generation immigrants tend to be monolingual, with just enough English to get by. The second generation is usually bilingual, and the third generation is often English dominant. Bilingual labels and programs mediate the language gap, providing a shared experience and the words to talk about it.

What other media can we use to communicate?

Bilingual interpretation may include exhibit labels, audio tours, captioned video, gallery guides, and bilingual docents. Words are important. Words are powerful. In some ways, words are easy. Our challenge is to devote attention to effective non-verbal communication. Museums can tell stories with objects, pictures, and experiences. Do we rely too much on words?

What should our goals be?

In the next issue of the Exhibitionist, we will address the questions above and more, share comments, and explore how to employ bilingual interpretation, navigating the processes and pitfalls. Until then, please send me your thoughts on bilingual interpretation at nrenner@sdnhm.org

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Renner will be conducting a session “Bilingual Interpretation: For Whom, Why, What, When, Where, How?” at the AAM Annual Meeting in Portland
A typical Brooklyn streetscape, circa 1915

(continued from page 6)

work itself moved outside the home and small shop.

The work experience of people of African descent in Brooklyn occupies the most central role. A decision was made to make the story of slavery in Brooklyn the primary one in the colonial period rather than alternatives such as the work of the early Dutch descended farmers and villagers when Brooklyn (i.e., Kings County) was primarily agricultural. The environment and object theatre depicts a farmer counting his produce and his wife spinning flax into linen, but the message is that Brooklyn's earliest industry was built upon profits from enslaved labor.

By emphasizing this story we are not only reflecting the latest scholarship in the field, but also providing a direct and bold challenge to visitors' assumption that slavery is something that happened only on cotton plantations in the deep South. This serves the broader purpose of showing visitors something that is, in Warren Leon's words, "at odds with their previous ideas" to get them "to proceed alertly and analytically" and make them "think about what they are seeing rather than merely trying to absorb information."6 Later on during the industrial heyday part of the exhibition we privilege the African-American story again by segmenting out their story of work in a barbershop/beauty shop setting, chosen as an iconic symbol of an important gathering place in the black community. In this barbershop, visitors learn about segregation and racial discrimination around work and the role of civil service in providing an important occupational path for African-Americans in Brooklyn.

The development team struggled with both the decision to segment out this story and to select the barbershop as the appropriate vehicle, consulting with members of the African-American community. We were concerned that members of
other minorities, and also majority populations, would object to this non-inclusive approach. However, the story of Brooklyn’s black working class being denied the decent-paying, skilled jobs in factories available to European immigrants had to be told by itself, separately, to help explain the different occupational trajectories taken by people of color vs. whites in Brooklyn’s history. We also felt it necessary to highlight that the experience of people of African descent in Brooklyn because of the importance of race in the history of our nation in general, and specifically because our audience today draws from one of the largest concentrations in the U.S. of African-Americans, about 850,000 people. Brooklyn’s people of African descent need to see themselves and hear their largely untold story told in a museum environment. We are far from assuming that this decision will prove non-controversial when the exhibition opens.

Form of Exhibit Interpretation
The exhibition’s interpretive approach is experience- and information-based. The development team included from its very inception educators and curators. The result has been, in addition to the re-created environments, the inclusion of mental interactives that become part of the label text (e.g., questions that provoke observational skills), hands-on interactives, and a computer interactive. It remains to be seen if visitors experience a substantial amount “to see and do,” “if they are effectively engaged,” and “if interpretive labels are required before they can make any meaning of the experience.”

One example of a hands-on interactive designed for late elementary to middle school children and their parents is located inside the warehouse environment in the second period. Visitors interact with re-created barrels of some of the various products that were stored in the numerous warehouses on Brooklyn’s waterfront (such coffee, grain, and cotton), finding clue-type questions on exterior doors and then further questions and answers inside doors once they are opened. A role playing game is set up using a map and panoramic photograph which results in a deeper understanding of the breadth and scope of the commercial trade taking place in the Port of New York during the 19th century and Brooklyn’s central role in it.

Conclusion
It has to be said that there is something special about doing this exhibition in Brooklyn at this time. There are now almost as high a percentage of foreign born Brooklynites today (38%) as there were a hundred years ago, a time of the largest worldwide population movement in history. And in many ways, the stage of economic development of a hundred years ago is occurring in the countries of origin of these recent immigrants now, driving them, in fact, to immigrate here. Hence, Brooklyn’s newcomers are in a unique position to draw upon their own lives in order to understand Brooklyn’s history. And we, as exhibit developers, have an opportunity to reach these new audiences and help them make these connections.

Moreover, there may exist the potential of native and foreign-born Brooklynites interacting and sharing a deeper understanding of Brooklyn’s past and present which can also lead to greater tolerance of one another.

In approaching these new immigrant audiences, and inherent in the issue of immigration itself, however, there is a caveat that many urban history museums face: and that is, the pressure to be celebratory about Brooklyn, about economic progress, about workers realizing the American dream. On the one hand, we want to celebrate the energy, spirit and pride of the Brooklyn worker, but we do not want to uncritically celebrate the place. As Michael Frisch has pointed out, a celebratory impulse on the part of urban history museums “is an obvious obstacle to good historical interpretation” and often interferes with the presentation of historical truth. But beyond that, celebration leads to complacency which impacts the ability of visitors to “image alternative social orders.”

notes

Brooklyn Historic Society’s web site is at: http://www.brooklynhistory.org/
How do the overlapping roles and responsibilities of planners/designers and conservation fit together? Where do I find someone to consult with on my exhibit's conservation needs? What pollutants are contaminating my museum's exhibit environment? What advances have been made with regards to exhibit cases and lighting?

This one-day seminar, will identify new methodologies that address key conservation and exhibition issues; define successful strategies for establishing a collaborative working relationship between design and conservation specialists; and provide practical guidelines and techniques for successfully meeting conservation criteria in museum exhibits.

Seminar includes:

- Continental breakfast during registration and box lunch
- CD-ROM Exhibit Conservation Guidelines, produced by the National Park Service
- Resource notebook including conservation references and the NAME Exhibitionist issue, Designing for Conservation
- Instructional sessions and practical workshop with product literature and samples
- Conservation Marketplace showcasing the most useful products
- Informal discussion and resolution of participant's conservation problems

Faculty:

Toby Raphael, Exhibit Conservator, Harpers Ferry Center, National Park Service
Pamela Hatchfield, Head of Objects Conservation, Museum of Fine Arts, Boston
Daniel Quan, Principal, Daniel Quan Design
Larry Bowers, Conservator, Harpers Ferry Center, National Park Service

$100 NAME members
$125 non-members
Sponsored Sessions & Events

Saturday, May 17
8:30 a.m. – 6:00 p.m.
Designing for Conservation: NAME National Seminar
This one-day seminar will identify new methodologies that address key conservation and exhibition issues; define successful strategies for establishing a collaborative working relationship between design and conservation specialists; and provide practical guidelines and techniques for successfully meeting conservation criteria in museums.

Sunday, May 18
12:00 – 5:00 p.m.
NAME Executive Board Meeting

12:30 – 4:30 p.m.
NAME Exhibit Development Roundtable
Join Paul Martin and Janet Kamien for this once-a-year get-together to talk about the hottest topics in exhibit design and development. Issues discussed here will shape the conference session "Hot Issues in Exhibit Development" on Monday, May 19 at 10:30 a.m. This roundtable is open to exhibit designers, developers, and other collaborators.

3:35 – 5:00 p.m.
Bolder Experiences: Lessons Learned from the Competition
Chair: John Chiodo, Director of Design, Academy Studios Inc., Novato, CA
With an ever increasingly complex and competitive world of leisure choices, museum-exhibit developers and designers need to compare what they offer to what customers are offered in the theme park, experience-based retail, and multimedia industries. How do museum professionals evaluate the appropriateness and fit between the mission, values, and role of museums and these new approaches, and are there ways museum professionals are missing the boat as these related industries compete more successfully for visitors' leisure time and dollars?

6:00 – 11:00 pm
Exhibitionist's Ball
You remember the good old days: working all night putting finishing touches on an exhibit prior to opening, eating take out with the radio blasting while you waited for the paint to dry. Well, here's your chance to relive the glory! Join NAME at PPI's exhibit shop for a trip down memory lane. We'll indulge in gourmet pizza and microbrewed beer while the band cranks out rock and rhythm and blues. Buses depart from the Convention Center between 5:45-6:15 p.m. at the Holladay Street entrance and return to host hotels at 10:30 p.m.
Monday, May 19

7:30 – 8:45 a.m.
Back to the Drawing Board: Working with Exhibit Design Firms
Chair: Meghan Lee, Exhibit Designer, California Science Center, Los Angeles, CA
Panelists will discuss how museums can get the most out of their working relationships with designers. Representing both in-house museum exhibit project teams and outside design firms, panelists will focus on how small and large museums can establish the ground rules for a productive process, which includes sticking to schedules and deliverables; preparing information for the designer; figuring out what to do when things go wrong; and knowing your rights as the client. Opening channels for dialogue with the designer, managing the in-house development team, and defining roles are integral to developing a creative and unique exhibit.

9:00 – 10:15 a.m.
Timely Exhibits: Fast-Tracking the Exhibit Development Process
Chair: Bryan Sieling, Chief of Design, Newseum, Arlington, VA
Can museums respond to current events while the events are still current and fresh in the minds of visitors? Should they? Can the exhibit-development process be streamlined or shortened without sacrificing depth and breadth of content, object conservation, sophistication of design, or quality of production and installation? This session will look at the exhibit-development process and the role of the museum in creating timely exhibits that respond to or plan for current events.

10:30 – 11:45 a.m.
What’s Going On V: A Conversation on Hot Issues in Exhibit Development
Chair: Paul Martin, Director of Exhibit Development, Science Museum of Minnesota, St. Paul, MN
This town meeting-style session will engage the audience in dialogue about exhibit-development issues, including those related to the conference theme “Bridges to the World.” The hottest issues identified in the pre-conference Exhibit Development Roundtable will be used to frame the discussion. Topics in the past have included: risk, institutional analysis, the exhibit process, and the use of new technologies.

12:15 – 12:45 p.m.
Bilingual Interpretation: For Whom, Why, What, When, Where, How?
Chair: Nancy Owens Renner, Exhibit Developer, San Diego Natural History Museum, San Diego, CA
This poster presentation will provide attendees with practical information and a model for thinking about bilingual communication. This model will not offer a formula for implementing bilingual interpretation, but it will provide navigational tools. Worksheets will encourage museum practitioners to: articulate goals and assumptions; identify institutional strengths and weaknesses; formulate ideas for visitor research; and devise a customized process to achieve a unique bilingual end product.

3:30 – 5:30 p.m.
NAME Marketplace of Ideas: Museum on the Go
In our fast-paced world, nothing stays in one place for very long. Management gurus preach about the need for today’s businesses to be agile, and museums are no exception. Come hear stories about museums keeping up with inventive solutions to: transferring collections, transporting programs, traveling exhibitions (for both organizers and hosts), movable walls, professional exchange, and even moving the whole darn museum to a new location!

Tuesday, May 20

8:45 – 10:00 a.m.
Right-Sizing Your Museum Expansion
Chair: Peter Kuttner, Cambridge Seven Associates, Inc., Cambridge, MA
Embarking on an expansion can be daunting to museum directors, boards, and staff members. The speakers at this session will describe how they balanced several components as they managed their expansion projects to meet attendance goals, revenue goals, and mission-related goals. Two museum directors will be joined by an architect and an economist, who will explain the relevance of an economic-feasibility study and market study as well as how a museum’s mission and program goals can be reflected in the physical design of a right-sized expansion.
The Secrets of Success - Piecing Together The Process Puzzle
Chair: Leslie Cohen, Experience Designer, Leslie Cohen & Associates, Voorhees, NJ
There is a strong trend within the museum community to formalize an Exhibition Development Process. Success delivers great rewards but when business slows, attendance slips, expenses exceed income, or donor contributions fall short, 'process' is often targeted and held responsible. What went wrong? Who will fix it? What is our competition doing? Join four panelists as they argue ideas, present strategies and suggest policy changes that will help you solve your process puzzle. Working from various perspectives the session will focus on issues of efficiency, audience evaluation, systemization and customization while defining various methods of accountability.

12:00 – 1:30 p.m.
NAME Issues Luncheon
We are all, at best, temporarily "able-bodied." At some time or another, it is likely that each of us will become ill, injured, lost, and maybe - old. The infirmity may be short-lived or permanent. The built environment can make matters better or worse. Michael Sand of Rare Media Well Done, Inc. will try to provoke some consideration of the role Design can play in accommodating special needs.

1:45 – 4:30 p.m.
Exhibition Excellence: The 14th & 15th Annual Exhibition Competition
The annual awards presentation for the best entries in museum exhibitions showcases excellence and innovation in the production of museum exhibitions. Competition judges will discuss their professional evaluations and jury discussions leading to their final decisions; representatives from the winning institutions will present their award-winning exhibitions.

3:15 – 4:30 p.m.
Too Hot to Handle? Why Libraries Will Touch What Museums Will Not
Chair: Paul Gabriel, Exhibits Director, Gay, Lesbian, Bisexual, Transgender Historical Society of Northern California, San Francisco, CA
This forum tackles what is perhaps the most controversial exhibition subject-explicitly queer-themed history that is not a story primarily about AIDS or a monographic exhibit about artists who happen to be queer. Given the recent trend toward museum-library cooperation (IMLS, 1996), will museums now be more open to public accountability on queer topics, and does collaboration in this sphere have implications for how libraries and museums could collaborate on exhibitions that address other tough topics? Panelists representing two major urban public libraries and community groups to whom they have given high-profile exhibition space will discuss: why libraries, not museums, are the beachhead public space; differences and similarities in their missions and constituencies; successes and lessons learned when completing their programs/exhibitions; and whether the library and community groups had to strike an uneasy peace.

Who's Setting the Agenda? Program Driven Institutions
Chair: Anne El-Omami, Director, Graduate Program in Museum Education, University of the Arts, Philadelphia, PA
During the last three decades, there has been an increase in museum programming-both integral to and separate from collections and exhibitions-based on the need for increased income. As museum professionals turned to government sources, grants form corporations, foundations, and state and federal agencies for funding, they found that most sources had developed new initiatives and stringent criteria for projects they would fund, so rather than undertake significant efforts to increase endowment revenue, earned income, and private donations to support central missions and activities, museums began to increase and manipulate their programming to meet the criteria of funding initiatives. In this session, directors, exhibition planners/designers, educators, and cultural-policy officers will explore these issues addressing institutional approaches to programming and funding that support exhibitions and permanent collections.

Make Sure to Visit the NAME Booth in the MuseumExpo!!
Wednesday, May 21

7:30 – 8:30 a.m.
NAME Business Breakfast
Join the N.A.M.E. Board for a hot cup of coffee and fresh pastries. Learn about upcoming N.A.M.E. events, programs, and activities. Meet new members, visit with old friends, and find out what's new in the field.

7:30 – 8:45 a.m.
At LEAST You Should Know This About Exhibit Development: A Primer for Beginners
Chair: Scott Donaldson, Manager of Exhibit Design, The Tech Museum of Innovation, San Jose, CA
This session targets new developers to the exhibit field and those working in small museums. A panel of four seasoned professionals will share their experiences in developing exhibits using case studies to demonstrate how they have succeeded and reflect on what might have helped them when they started out.

9:00 – 10:15 a.m.
A Framework for Assessing Exhibitions from a Visitor Perspective
Chair: Beverly Serrell, Director, Serrell & Associates, Chicago, IL
In April 2002, NSF awarded a Small grant for Exploratory Research to develop a set of criteria for judging the major characteristics of museum exhibitions that promote positive learning experiences. These criteria help museum professionals talk about excellence in exhibitions according to shared definitions and provide feedback to practitioners about ways to improve exhibition. Members of the grant team will present a brief overview of the framework and how it evolved and responded to criticism. They will give examples of how it has been useful to facilitate discussion among in-house staff, museum practitioners at large, and museum-studies programs for teaching new professionals.

2:00 – 3:15 p.m.
Embracing the Audience: The Shift to a Guest-Focused Culture in Museums
Chair: Lawrence Fisher, President and CEO, Circus World Museum, Baraboo, WI
This panel discussion is designed to encourage museum professionals to embrace the concept of creating overall experiences in response to the needs of the audience and the community. Topics will include leading change to a guest-focused culture at Circus World Museum and changing the process of new-product development by shifting to an audience-focused culture at the Henry Ford Museum. A panelist from Poole Resources in Ridgefield, CT, will discuss the process and implementation of cultural change in our institutions.

2:00 – 4:45 p.m.
Critiquing Museum Exhibitions XIV: Bridging Disciplines
Chair: James Sims, Principal, Threshold Studio, Alexandria, VA
This forum on excellence in exhibitions is part of an ongoing discourse at the Annual Meeting. In this double session we will critique the exhibitions in the Turbine Hall in the context of the total visitor experience at the Oregon Museum of Science and Industry. Bridging disciplinary boundaries among science, technology, art, and history, OMSI is a rich resource for thinking about exhibitions and other interpretive media in the twenty-first century. Panelists from the museum will examine ways in which the exhibitions attempt to bridge those disciplinary and experiential boundaries: between science and culture, between art and technology, and among individual curiosities, professional discoveries, and community values. At the first session, members of the exhibition team will present the institutional mission, their specific task assignments, and the process for realizing their vision. In the second session, three museum professional colleagues will present their critiques of the exhibition. The audience will have time for questions at the end of each session; lively debate will be encouraged at the end of the whole.

3:30 – 4:45 p.m.
Weaving a Community: Strategies for Museum Outreach and Inclusion
Chair: Clay Gish, Director of Writing & Research, ESI Design, New York, NY
This panel discussion will address the role of the museum within the larger context of the community it serves. Panelists will share some successful strategies for nurturing an ongoing relationship between the museum and its various constituencies. Speakers will discuss experiments initiated by various institutions, such as: integrating the onsite and online visitor experience; offering a venue for community members to present and share their creative work; extending museum programs into local neighborhoods through the use of mobile units; and providing essential information to support community activism.
The International Council on Museums (ICOM) and the American Association of Museums (AAM) international and national committees ICEE & NAME, are teaming up in New York City to offer an international forum for dialogue on Exhibitions, Exchanges and Communities.

In the last few years, many events have heightened our awareness of our interconnectivity and thrust us into the realm of social responsibility and community relevance. ICEE 2003, as a symposium for advancing the exhibition medium, will explore the role of the exhibitions and their reach into communities. We'll examine how museums face the challenge of collecting, exhibiting and interpreting contemporary issues. We will discuss how the exhibition can be a catalyst for contemplation over the past and the future and a vehicle for cultural exchange. We will reflect on how the exhibition could be an instrument that captures the collective consciousness and imagination, and exchange ideas on what ways the exhibition acts as sources of knowledge in relation to the historic past.

For more information visit: www.cee.ca/icee

New York
In the last issue of Exhibitionist, Fall 2002, Jay Rounds asked the question "Given the choice between visiting The Museum of Plumbing or the Museum of Poetry, where would you go?" I chose The Museum of Plumbing, which attests to the fact I am a practical person and that the restoration and rehabilitation of my 175 year old house has become all consuming! I like to deal with the practical realm of life. I like to fix things, make things, to bring things under control.

As President of NAME, I have indeed focused on the operational aspects of the organization and the bottom-line; but I was able to due so because as editor of Exhibitionist, Jay focused on interpretation and finding meaning -- the poetry. Thank you for serving for four-years as editor, Jay!

The Council of Standing Professional Committees met on November 4, 2002, at the AAM Headquarters in Washington, DC. (The Council is one of three liaison groups that work closely with AAM. NAME is among the twelve standing professional committees, which make up the Council. As the Chair of NAME, I occupy a seat on the Council.) At the meeting, the SPC Chairs finalized the operating guidelines for the Council of Standing Professional Committees. The guidelines will be presented to the AAM Board of Directors at their May meeting for ratification.

Despite a winter storm and close to two feet of snow, the NAME Board convened at the AAM Headquarters on December 6 and 7, 2002, to discuss the work accomplished since the last Board meeting (May 2002) and to develop plans for the upcoming year. Plans for 2003 include new activities and goals as well as some items from 2002 that have not quite reached fruition. We will be conducting a membership drive, developing new partnerships and alliances with sister organizations, and continuing to diversify and increase our revenue streams. Many of you have probably heard about AAM's sizable deficit for FY 2002 and their anticipated (projected) deficit for FY 2003. While this does not directly affect NAME, it has made the Board more aware of NAME's financial health. Currently, NAME generates enough revenue though membership dues, publication sales, and ad sales to cover basic operating expenses. However, if NAME is to flourish it will need the appropriate financial resources. We will be sending out appeal letters this summer asking for your support.

On February 21st and 22nd, Libby Lewis (NAME Board Member at Large) and I met with representative of the International Committee for Exhibition Exchange in New York City. NAME and ICEE are teaming up to offer an international forum for dialog on Exhibitions, Exchanges and Communities.

The forum will take place October 25-28th in New York City. There will be sessions, evening events, and special behind-the-scenes tours of area museums.

Thank-you to the members who took the time to answer the NAME members survey (sent electronically with the winter issue of Newsflasher). Your opinions and feelings about NAME are important, the Board will use the data collected to improve NAME. We will be presenting the survey results at the NAME Business Breakfast Meeting. Make sure to sign-up for this NAME event as well as the Issues Luncheon and Exhibitionist's Ball. For a detailed listing of NAME sponsored sessions, as well as NAME events at the AAM Annual Meeting in Portland, see the insert in this issue.

WORDS FROM THE PRESIDENT

I would also like to take a moment to thank the individuals, organizations, and companies who have given, time, expertise, and financial support to ensure the success of the upcoming NAME National Seminar, Designing for Conservation, scheduled for May 17, 2003, at the Portland Art Museum.

Toby Raphael, NAME Conservation Advisor
Leslie Cohen, NAME 1st VP
Cathy Blackburn, Beth Redmond-Jones & Associates, Oliver Hirsch & Associates, University Products, Portland Art Museum

2003 promises to be a busy year for NAME, and it looks like we are of to a good start!

I look forward to seeing all of you at AAM Annual Meeting-Portland,

Kristine Hastreiter
As the new editor of the Exhibitionist, but a very old member of NAME, I would like to introduce myself and the focus of this issue.

In this issue, 'Dilemmas of Interpretation,' Brooklyn develops a major new exhibit reflecting its population, anatomy excites a European public, Einstein becomes understandable, access is discussed in multiple forms - language (bilingualism) and physical needs, and a huge exhibit on evolution faces a redo after a very short life.

To introduce myself: After years spent planning and designing exhibits, primarily in science-related institutions, I became the founding director of the Graduate Program in Museum Exhibition Planning and Design (MEPD) at The University of the Arts, an old and distinguished school in Philadelphia. Museum studies were an old idea at the University - we established a course in "Curatorship" in 1908, possibly the first in the United States; but the idea of 'exhibition planning and design' was new. It fell upon my shoulders to develop a complete curriculum, as the discipline was young and the literature thin. This led me to read everything I could get my hands on about exhibitions. In the 'News' section, I have listed several fairly recent books that I believe will be of interest to our readers. For future issues of Exhibitionist, what new (or old) books, journals and articles have you found of particular interest, and why?

The literature has blossomed in recent years, but a lot of vital information about our discipline is still passed by the oldest method - practitioners getting together at places like the AAM's annual meeting to discuss what they are doing, and why. I believe that the Exhibitionist serves a dual function, informing its readers as to what is being done, how, and why, and keeping open the channels of discussion so that the field of museum exhibition can philosophically develop and change to both reflect the times and to lead.

To be truly professional, exhibition planners and designers must be fully conscious of what they are doing, and what constitutes good professional practice.

As a planner/designer, I often wished I knew more about my work's effect on its audience. Now, my wish has become a reality. Our efforts to listen to our audience and our communities have resulted in a changed world of exhibitions, some of which is reflected in these pages. Every wish carries a threat - it may come true. We can no longer avoid listening to others, and we must create exhibits based on our new understandings, reflecting the audience and the communities we serve. This mandate has proved more difficult to carry out, in many cases, than we anticipated.

No art museums are represented in this issue, and I am sorry. Art museums are both fundamentally different from all other museums in some ways, and clearly the same in others. In art museums, we assumed, objects do 'speak for themselves' - even though we no longer think this is the case for historic artifacts or natural specimens. But is it true? Art museums have also understood (but sometimes forgotten) something that many other institutions have only recently learned, that the whole environment of an exhibition is crucial to its effectiveness. We are not dealing simply with objects, or interpretive materials, or furniture - the whole ambience of an exhibit is critical. It is no accident that many of the most significant professionals in the field of exhibitions have come from theater, where the 'mis en scene' is one of the most important elements of success.

Incidentally, Art museums have also been in the forefront of using new media effectively, often with great simplicity.

This brings me to the subject of the next issue of the Exhibitionist. 'Technology Comes of Age' is the working title, with all that implies. And it does not necessarily imply 'leading edge' technology. Many of the most successful uses of technology of which I have recently become aware are relatively 'low tech.' Old wisdom tells us to use the simplest tool that will work, and many of the best new digital applications in exhibits are relatively simple technologically. New technology can also solve some old problems (see Steve Tokar's article in this issue of Exhibitionist). Many museum web sites have finally become truly entertaining and informative, and the very nature of the web offers us a wonderful range of new opportunities, both within the museum and for our outreach efforts.

In future issues, we plan to look at the world of exhibit practice beyond the borders of the US, and to help define the understandings and skills that our profession requires.

This issue has been put together with the assistance of my peers in the Museum Studies Department at The University of the Arts, and our students. Two of the exhibition reviews, Einstein and Body Worlds, were written by MEPD students on assignment, and the design of this issue was by MEPD student Joshua Whitehead. Our NAME Vice President, Leslie Cohen (an MEPD graduate) has ably assisted me in the mammoth task of actually producing it.

Jane Bedno
EXHIBITIONIST NEWS

From Phyllis Rabineau
Dear Colleagues,

I'm writing to you from the depths of a stratigraphy comprised of feathers, wool, Polarfleece and other colorful yet practical materials, carefully constructed to protect me, like most midwesterners, from the nastiest winter in a generation. So nasty, in fact, that mind and body require serious assistance to overcome the glacially-induced inertia that set in shortly after the new year, and that lingers despite the calendar's assertion of spring. We're so out of it that neither I nor the usual cadre of Newsline correspondents have enough reporting to create one of our usual columns filled with thoughtful commentary. Perhaps you are relieved by this respite from our rants. We do intend, however, to resume filling column inches in the very next issue of The Exhibitionist, and we need your help to do it. Send your comments, your recommendations, your news of exhibits you have seen and want to share, and we will publish your comments here. You can even tell us about your own work. (A sweet deal!) Drop me a line at rabineau@chicago-history.org, or Phyllis Rabineau, Chicago Historical Society, Clark St. at North Ave., Chicago, IL 60614. 'Til next time!

From Jane Bedno
Exhibitionist readers should make themselves aware of the Dibner Award, a major international award given each year to exhibits featuring the history of science/technology:

Dibner Award for Excellence in Museum Exhibits, established in 1985 to recognize excellence in museums and museum exhibits that interpret the history of technology, industry, and engineering to the general public, is given each year, with a deadline for submissions in February. "Winning exhibits, in addition to being well designed and produced, should raise pertinent historical issues. Artifacts and images should be used in a manner that interests, teaches, and stimulates both the general public and historians. This year's winners will be announced at the Society's Annual Meeting in Atlanta, Georgia, USA October 16-19, 2003. The Award consists of a plaque and up to $1000.00 to cover expenses for a member of the design team to accept the award at the SHOT awards banquet. The Society especially encourages nominations from local and regional historical societies. "Virtual" exhibits are not eligible for the award." (see http://shot.jhu.edu/awards/dibner.htm for further information)


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Exhibition Developer
Department: Exhibitions
1 Full Time Position (35 hrs/wk)
"The Field Museum is seeking an experienced exhibition developer to play a major role in the revitalization of the 25,000-square-foot Life Over Time halls. The Developer will work with: curators and other subject matter specialists, to develop the exhibition's content; target audiences, to better understand public knowledge and expectations regarding the topics; and other exhibition team members, to develop effective methods of interpretation ...

(Excerpt - position posted by The Field Museum on March 17, 2003)

The job description pulled me towards that rarest of all opportunities, a second chance! As an original member of the exhibit development team that designed Life Over Time, I thought, "I know what needs to be done, I'd love the chance to try it again, but, as Life Over Time winds through revision, youth and fresh perspectives will transform it.

I enjoy browsing the classifieds, engaging them as tiny narratives. Like little peepholes, they're so useful for confirming gossip or picking up critical insights regarding the state of mind or level of energy at work behind all those secured doors marked 'Staff Only'.

The Field Museum's job description suggests that, for the theory of evolution 'the Devil' lurks not in the details but in the demographics in the uphill battle of repackaging its Darwin and Dinosaurs show
The Origin of Species represents one of the greatest and most influential scientific breakthroughs. The work is authoritative and utterly convincing. Darwin's arguments and remarks have served scholars for one hundred years, fueling rigorous debate and providing real insights into the scientific method. It represents one of most stunning and intuitive insights ever made.

And yet...

Where's the Buzz?

Anecdotal evidence suggests that we spend very little time pondering with evolutionary theory. The average passerby has encountered the word 'evolution'. A few people can link it to Darwin and even fewer will make the connection between evolution, biology and human beings. Very few will link the theory to the existence of all life on earth, past, present and future.

Museums with large stakes in science, biology and natural history content to feel pressured by this lack of public understanding to push evolution as a requisite subject matter for exhibition.

Museums are active but also a bit worried and fussy about their attempts to present evolutionary theory to a brown-bag audience. At first blush, some institutions admitted to being apprehensive about staging the topic because evolutionary theory is often perceived as a controversial subject matter replete with protests and boycotts. But the predicted disruptions never materialized. Today, an honest assessment might reveal that museums have actually discovered or admitted that evolution is a really tough subject to distill and deliver according to standardized formats for 3D public display.

Evolutionary theory carries the punch and capacity to fully test and ultimately stretch the art of museum exhibition, bringing it close to the limits of its capacities.

So why then do we push this topic so hard? Is there any hard evidence to suggest that we'll reach a wide-ranging audience? Perhaps the upcoming work on Life Over Time will provide the industry with some answers -- or more questions.

Many museum educators are willing to confess that evolutionary theory takes time to sink in. But they also report, correctly, that once some effort is applied, the work pays off. Evolution must be positioned as an essential foundation and critical component of modern scientific thought, providing context for a wide spectrum of critical science education benchmarks and relating to a lot of the content that one encounters in modern science-based museums.

In exhibitions, evolutionary content is often overplayed and thus conveyed to museum audiences in an uneven and counterintuitive manner. Awkwardness is occasionally unavoidable, as evolutionary study requires the application of equivocal and specialized vocabularies. Access to the finer aspects of the theory are not simply inhibited by the use of scientific language but also by the regular use of common words that assume more specific meanings within discussions of evolutionally theory. Mosaics of jargon alongside seemingly familiar terms like adaptation, descent, modification and extinction are all part of a specialized and precise language with specific and fixed meanings, especially when organized within the context of technical conversations or (more importantly for purposes of this discussion) museum exhibit labels and graphic panels.

Words are an essential component of content delivery in museum exhibitions on evolution. After the opening of Life Over Time, Steve Borysewicz, the insightful developer and team label writer found time to joke (and even provoke The Field Museum Curatorial staff) by remarking that the exhibition had more panels, paragraphs and individual words per linear foot than all other exhibitions in the building. It seemed funny at the time but Steve checked this fact by word count and tape measure. And although his chiding was always
pleasant, it was intended as editorial commentary. Language is the glue that binds Life Over Time together in its current configuration. I think that revisions to the existing exhibition are likely to focus as much on rewriting as redesign. Despite the great challenges, museum educators remain committed to the pursuit and delivery of content on evolution. Many institutions believe that a solid baseline of comprehension on the topic remains essential if people are to ever sympathize with our human position and role on earth as a species. Insight into basic evolutionary theory is also seen as fundamental to an appreciation of related fields including ecology, environmental study and earth history. The Field Museum of Natural History in Chicago opened Life Over Time a decade ago. A groundbreaking interactive exhibition that spills out across three halls and is the largest thematic exhibition at the institution. Up Life Over Time represented the culmination of an intense period of transformation at The Field, during which 65 percent of all public programming space was redeveloped, redesigned and rebuilt from scratch. Led by museum president Sandy Boyd, the entire effort was guided by Michael Spock, as vice president for Public Programs. Spock, in turn, brought on Janet Kamien, who forged a huge and intensely innovative exhibition department, over 125 employees, working in exhibit development, project management, design, multi-media and film, and production. This gave the exhibition department a degree of autonomy. Its great size, unlimited energy and concentration led to a vast and sometimes unregulated output. The result was a museum show that is simultaneously successful, flawed, and positively captivating. Everything about the Life Over Time experience was big, from the 25,000 square feet of floor space, to the budget, to the powerful egos that powered the tremendous levels of creative energy. Nothing was left in the tank. Everything was leveraged in a consolidated effort to push the envelope as far as it could go. It is unlikely that any institution will ever again invest, indulge or bear witness to the combination of excess and superhuman effort that delivered Life Over Time to the public ten years ago.

To be quite accurate, Life Over Time did emerge from an integrated strategic plan that called for the development and design of original and permanent experiences for audiences of all ages. The goal was to build and sustain brand new exhibit environments that inspired inquiry, facilitated audience interaction and nurtured fulfilling and intuitive connections between visitor and venue by drawing on content inherent to the museum's mission. It is important to note that content at The Field Museum is generated by a staff of over one hundred full and part time scientists. Researchers work two broad areas, evolutionary and environmental biology, including zoology, botany and geology, and cultural understanding and change, supporting anthropology and archaeology. Life Over Time was engineered as the cornerstone of public programming for the museum in the area of evolutionary study. From the very beginning, Life Over Time was organized around the idea that The Field Museum could, would and should move forward and explain, in detail, most of the fundamental aspects of Darwinian evolutionary theory. Life Over Time was envisioned as a sort of corporate campus for the study of 'evolution' with 'exhibit' departments arranged in a mall-like fashion to present adaptation, bio-diversity, fossil study, speciation, extinction and human evolution within discreet lab-like settings.

This regimented traffic flow pattern and overall design was not actually determined by an exhibit development process but it was reinforced by one. Over the last 100 years, The Field Museum's scientific division has matured, growing more muscular with age and evolving as a somewhat independent body within the organization. Concurrently, scientists began to imagine new ways they might leverage public communication more effectively, hoping to underscore the importance of their basic research mission. Field scientists instinctively wished to connect with the ever-expanding audience the public venue seemed to be reaching, specifically with regard to the impact of scientific research and object-based investigation and its relevance to museum education.

After considerable internal debate the science staff agreed that a museum-style exhibition might meet their goals. Exhibitions were known to infuse object displays with meaning, thereby providing an audience with a unique and exciting real-time experience. The Curatorial staff seemed prepared to believe that visitors might be able to 'learn' about evolutionary biology by viewing a museum exhibition, and joined with the 'public museum' to plan Life Over Time.

Everyone attached to the project approached their job with a possibly naive confidence that evolutionary biology could be delivered to museum visitors through the medium of exhibition. An almost universal sense of commitment was linked directly to an unbiased allegiance and spiritual support for certain critical aspects of the informal learning development.
process. The marching orders for Life Over Time included a heavy reliance on visitor research, the consistent introduction of useful interactivity and a careful juxtaposition of specimens and artifacts coupled with conversational explanations formatted into pleasant, highly graphic label panels. Photography, illustration, film and computer media were all evenly distributed throughout the exhibit spaces and all content sections were organized and produced to reflect various 'grade' levels and degrees of complexity and accessibility.

The team was guided through a process that embraced and emphasized a collaborative working style and a sassy aesthetic that encouraged playfulness, theatricality and most importantly humor. Life Over Time, like most modern museum exhibitions does not deliver on one hundred percent of its intended obligation to inform the visitor. But Life Over Time engages and serves the museum visitor throughout every curve and cutback in the display. This fact alone marks a breakthrough and remains a powerful reason for respecting and studying this milestone achievement.

The entire Life Over Time saga took another interesting turn in the late 90's with the purchase of SUE Tyrannosaurus rex. SUE 'the world's greatest dinosaur' has been a boom for the museum and 'she' has firmly established the institution as Dinosaur Central in the hearts and minds of most Midwesterners. Unfortunately, this arrangement hasn't perked up Life Over Time very much or added any luster to the show or to its ability to deliver the goods and educate the general public on evolutionary theory.

Since the debut of Tyrannosaurs blockbuster, times have gotten even tougher for Life Over Time and its evolutionary message. Dinosaurs are a big and sexy chapter in earth history. However biologists love to point out that one of the coolest things about dinosaurs is that they are entirely extinct. An evolutionary dead-end. Unfortunately that's not the sort of thing PR departments want to highlight in their marketing plans and press releases! Especially when so many people are dedicated to the idea of making dinosaur displays appear more 'lifelike'. On average, two million people a year move through The Field Museum and almost every one of them will pay a reverent visit to SUE followed by an obligatory shuffle through Life Over Time to reach the Hall of Dinosaurs.

All of these circumstances raise interesting issues and I hope they will prod each of us to ponder whether museums can juggle every agenda and still convey complicated material like Darwinian evolutionary theory within the contexts of traditional exhibitions? Does every show need to be successful and meaningful? Some basic questions about method and practice will arise from tangential discussions. For instance is it wise or even good business to tie our biggest attractions to our toughest subject matters?

Museum quality exhibitions do feature an inherent ability to excite the viewer and move them emotionally. The best presentations offer novel perspectives, new information and fresh ideas and thus may carry the potential and maybe even the means for inspiring reflection, transforming visitors intellectually and even spiritually. Life Over Time was envisioned as a transformational experience designed to bridge the gap and connect with evolutionary theory, leading to an understanding of its relevance for all life on earth.

In the final analysis we may agree that some topics are too complicated or that visitors are too easily distracted. Maybe it's only a small matter of Darwin and Dinosaurs not making good bedfellows. I'm willing to pitch a heretical view and question whether certain content lies entirely beyond the scope of our current exhibit development too kit. But in the meantime Life Over Time deserves a chance at redemption through revision. And it waits ready and willing to serve and reward every dedicated visitor, student and teacher ready to roll up their sleeves and have a go at Darwin and those dinosaurs.

"The fundamental things apply as time goes by"

Rich Faron is a creative and charismatic individual with over two decades of experience in museum planning, project management, exhibit design and development. He worked at The Field Museum of Natural History, serving there as preparator, exhibit developer, designer and finally as Director of Exhibitions and Exhibit Development, before establishing his own firm. His website is www.museumexplorer.com

The Field Museum's website (without Life Over Time) may be found at http://www.fmnh.org/
Keeping All Visitors In Mind: Universal Design at the Museum of Science

by STEVE TOKAR

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UNIVERSAL DESIGN

In the late 1980s, the Museum of Science (MOS) in Boston, Massachusetts reinstated New England Lifezone Hall, its collection of classic wildlife dioramas. The dioramas were left intact; but to make them more accessible to visitors with vision, hearing, mobility and other impairments, the museum added audio and tactile interpretive elements, smell boxes, and high-contrast labels with large type. Labels and controls were set at heights and angles convenient to children and people in wheelchairs. Stools were brought in so visitors could sit when they wished to.

To the museum's delight, summative evaluation revealed that the new Hall was more universally accessible than anyone had dreamed. As a direct result of using the new multisensory, ergonomic exhibit elements, virtually all visitors of all ages and abilities spent more time with more exhibits, learned more from those exhibits, and enjoyed them more compared with visitors to the old Hall. More people visited the Hall overall as well. It was a vivid demonstration of a maxim of universal design (UD): If a design works better for people with disabilities, it works better for

ABOVE ‘A Bird’s Word’ kiosk, with touch screen, inset navigation controls, and audio text button at lower left. A laminated bird ID card rests atop the kiosk.
everyone.
In the summer and fall of 2002, I conducted the first comprehensive survey and analysis of universal design in North American hands-on science museums, surveying 158 institutions and speaking in-depth with exhibit staff at seven. I found that many of the techniques and approaches pioneered at MOS are used today successfully in museums of all sizes across the continent. As part of my research, I conducted an on-site case study at MOS; this article summarizes many of my findings.

Universal Design Goes Beyond Design for Access. The term "universal design" is sometimes taken to mean "design that gives access to people with disabilities." Although the two concepts are related, they are not the same. An exhibit with a Braille label accommodates totally blind visitors who know how to read Braille (not all do); this is design for access. An exhibit with an audio component accommodates visitors who are blind, but also visitors with low vision, poor English reading skills (including young children), or simply a preference for listening rather than reading. This is universal design. At its best, UD is transparent; in contrast to design for access, it does not draw attention to itself, nor does it require the user to acknowledge a disability, even to herself. Open versus closed video captioning illustrates the difference. Christine Reich, an MOS exhibit planner, says, "Someone who is deaf will look for [closed] captioning and look for a button to turn on captioning. Someone who is losing their hearing with age might not even recognize that they have a hearing impairment. But if captioning is just there and open, they will take advantage of it."

Low-Cost Universal Exhibit Design for Every Museum. Ever since the success of New England Lifezone Hall, the Museum of Science has been officially committed to incorporating universal design into its exhibits. Over the years, exhibit planners and designers there have arrived at a number of low-cost, easy-to-use universal design solutions that can be adapted to the audience needs and budgets of almost any institution:

**Stools.** Light, portable, sturdy, modular, easy to pick up, and easy to kick aside, wooden stools accommodate a huge variety of visitors. They give kids access to exhibits, parents a place to sit down, and tired people a chance to get off their feet rather than leave the exhibition (or the museum altogether). They permit tall visitors to sit instead of stooping, and visitors with low vision or upper-limb mobility impairment to get comfortably close to exhibit elements in order to read or manipulate them. "Stools cost 40 bucks," says Andrea Durham, MOS Manager of Exhibit Projects. "Don't tell me you can't afford them."

**High contrast, large-type labels.** An easy-to-read typeface on a contrasting background costs no more than a label that is hard to read. Increased type size adds minimal cost. "You can spend ten percent more and make the label twice as big," observes Durham.
Screen angle. A computer screen can be made more or less accessible to visitors of a variety of heights depending upon the angle at which it is set into an exhibit. "The angle of the screen costs you nothing.

Multisensory elements. MOS exhibit planner Betty Davidson notes that smell boxes cost very little—"el cheapo"—as do the microchips used in audio components. For audio interfaces, the museum often uses Headphones, a particularly sturdy brand of monaural earphone that comes available with an armored payphone-style cable.

A Bird's World. "A Bird's World," a permanent exhibition that opened at MOS in May 2002, both incorporates established UD practices and attempts to break new ground. Like New England Lifezone Hall, "A Bird's World" is built around an old collection—"the dead stuffed birds of New England," in the words of lead exhibit planner Maureen McConnell—reinterpreted for a new purpose: in this case, to teach visitors that birds in the wild can serve as "predator detectors," alerting the watchful observer to the presence of other animals through their behavior and vocalizations. The collection is arranged in glass cases by habitat—waterfowl, inland forest birds and the like—the better to be useful to the practical birder. The cases have no labels; instead, visitors can learn the name of each bird by touching its picture on the touch screen in the kiosk in front of each case. (There is a laminated ID card for each case as well.) Visitors who wish to learn more about a bird's habitat, natural history, vocalizations, and other characteristics can touch a series of icons at the bottom of the screen.

Set below the screen are a set of navigation buttons—forward, back, play and stop—that provide alternate touch screen controls for mobility-impaired visitors and are designed to work with audio text, which is intended to give access to blind and low-vision visitors. When a button to the left of the navigation buttons is pressed, a voice issuing from the kiosk's speakers announces that audio text is on, then gives instructions for its use, followed by linear navigation menus that are arranged hierarchically: first by case, then alphabetically by bird, then attribute by attribute in the same order as the screen icons. McConnell admits
The centerpiece of "A Bird's World" is the Sneaking Corridor, an exhibit designed to train visitors to move slowly and carefully so that birds do not identify them as predators. The goal is to get from one end of a partially enclosed corridor to the other without "alarming" the bird on the video monitor at the end of the corridor; if the visitor succeeds, she is rewarded at the very end with the sight of a deer on another monitor, hidden from the entrance. If she alarms the bird, it flies off and the deer disappears into the trees, "startled" in its turn by the bird's behavior. The visitor tracks her own progress on a "sneakiness graph," which gives an immediate graphic representation of her movements and provides a feedback loop for modifying behavior.

The Sneaking Corridor has become one of the most popular exhibits in the Museum of Science. Christine Reich is struck by the way that kids in school groups, who often run through the museum at top speed and top volume, will slow down and become quiet in order to be rewarded by the sight of the deer. As an exhibit that requires whole-body movement, the Sneaking Corridor engages visitors' kinesthetic sense. And, since a group outside the exhibit can witness the entire interaction between a visitor and the animals on the monitors, it encourages social learning as well.

The Sneaking Corridor is fully accessible to visitors in wheelchairs and on scooters. However, it has no particular accommodation for blind or low-vision visitors, a lack dictated by a limited development timeline and budget. In the end, the exhibit team decided to make other "Bird's World" exhibits, such as the kiosks, accessible to blind and low-vision visitors. This holistic approach is shared by exhibit staff at other institutions I studied. Realizing that very few individual exhibits can be made completely accessible to every type of visitor, they instead set a goal of universal access over the range of an entire exhibition or gallery.

Conclusion

"A Bird's World" makes for a good case study of universal design not because it epitomizes the state of UD in hands-on science museums—it does not—but because of the way it combines established practices with innovation under the dual constraints of a limited timeline and relatively small budget. Multisensory exhibits, a universally accessible kiosk design, plentiful stools, and a holistic approach to UD balance an absence of conventional labels and an experimental use of button navigation and audio text. During development, the exhibit team took care to design universal elements in from the start rather than attempt to retrofit access at the end, which saved money and made for more elegant design. Above all, they tried to keep in mind the basic, inclusive principle of universal exhibit design: if it works better for visitors with disabilities, it works better for all visitors.

Resources for Universal Exhibit Design:


Einstein once asked the New York Times during an interview in 1944, "Why is it that no one understands me, yet everyone likes me?" The American Museum of Natural History opened a retrospective exhibition in November that responds to his question by auspiciously asking the public to look beyond the wild white hair, and begin to understand not only some of the science behind Einstein's famous theories, but also to recognize he was both a humanist and a major political figure of the 20th century. The result allows an already admiring public to emerge with a more concrete grasp of both the theories and character of the man Time Magazine awarded the title "Person of the Century."

The challenge facing the exhibition team was clear: If anyone was asked why Einstein became famous, the reply would probably include something about $e=mc^2$. Yet very few have a clear idea of the equation's significance. How does one present intangible theories, which took genius to discover, to the general public? The museum's design team managed a dynamic and entertaining solution. Through the use of kinetic sculpture, video interactives and artifacts they provide a context for looking at Einstein's ideas and create a place for them in our everyday lives. The organization of the exhibition alternated between science and biography (even a little gossip) and merged the two at times. It addresses Einstein's character and his science to show why he was an indispensable part of the last century.

A visitor to the exhibition is immediately projected into Einstein's world. The visitor's own distorted image appears on video demonstrating Einstein's concept of gravity by showing how a black hole
The exhibit element "Time Machines" asks:

"What time is it?
That depends on how fast you're traveling.

Thanks to Einstein, we know that the faster you go, the slower time passes, so a very fast spaceship is a time machine to the future. Five years on a ship traveling at 99 percent the speed of light (2.5 years out and 2.5 years back) corresponds to roughly 36 years on Earth. When the spaceship returned to Earth, the people onboard would come back 31 years in their future, but they would be only five years older than when they left. Indeed, Einstein himself could be alive today! If he could have hopped aboard a spaceship traveling at 99 percent the speed of light in 1879, the year of his birth, he would be only 17 years old upon his return to Earth today.

The clocks show how much time has passed at different speeds, as percentages of the speed of light. The exhibit asks you to: "Imagine that each of the clocks at right started measuring time on the day Einstein was born: March 14, 1879. Five of the clocks were placed in spaceships while one remains on Earth. Each spaceship travels at a different speed and as a result, time has been progressing at different rates on each spaceship. The faster the rate of travel, the more slowly time elapses."

The caption at bottom right reads: "CLOCK 6: 99.99999999% speed of light, Speed (relative to Earth): 99.99999999% the speed of light (299,792.457 km/sec or 185,999.98 miles/sec)
Length of second (relative to Earth): 19.6 hours

Einstein is one day old."
Theoretical warps space and time. Thrust into Einstein's world, where his imagination conjured up such possibilities as riding on a beam of light, the audience is similarly challenged to relinquish ideas of the world which they have always assumed to be true, and to share Einstein's perceptions.

After the initial video interactive, the exhibit presents an overview of Einstein's "Life and Times." Presented in typical casework and panels are artifacts and text including a report card, letters, and his Nobel prize, which all invite the visitor to begin a more personal and comprehensive look at his life. The visitor sees how Einstein's scientific career blossomed out of his fascination with a compass his father gave him as a child, through his path to Princeton, NJ where he ended up working at the Institute for Advanced Study. As the exhibit then turns towards addressing Einstein's theories, which are visited in sections: Light, Time, Energy, and Gravity.

The challenge the design team faced is clear: a potentially disbelieving audience is asked to embrace the seemingly impossible notion that time as we know it does not exist. When you are trying to convince a visitor who relies on their timepiece to tell them when to wake up, eat lunch, and watch their favorite TV program that their notion of time is relative, the visitor faces a cognitive impasse. In this exhibit, the patient visitor walks away having understood this concept within minutes. The problem was solved through the combined use of practical and recognizable examples and the audience's willing suspension of disbelief. Through the use of a demonstrative computer model, the audience is guided through a visual explanation of how a stationary clock and a moving clock record time at two different speeds. They also see that the path a basketball travels when dribbled varies depending on you frame of reference. From this, we learn that the speed you are traveling determines how quickly your time passes, and time is indeed relative. This concept, only demonstrable at high speeds, is more clearly illustrated by a towering display of digital clocks. Each of the clocks represents a different traveling speed as a percentage of the speed of light. This display shows clearly, using the familiar way of measuring time, that the faster you are moving, the less time will be passing. All this theory is then even more practically understood when we learn that a Soviet astronaut who spent 748 days on the space station Mir is one fiftieth a second younger than he would have been if he had stayed on earth as a result of moving quicker that the earth was rotating. Beginning with the complicated principle that time is relative, the exhibition's components use objects we already understand to show us new ways of looking at them, sharing Einstein's extraordinary way of thinking.

The rest of the exhibition enthusiastically approaches Einstein's views of gravity and black holes, and his theory of relativity and energy, again effectively communicating these ideas by combining the use of practical examples and interactive process and challenging the audience to rethink their understanding of how the world works. We anticipate uncovering another mystery of the world, courtesy of Einstein's mind. In the middle of all of this, a great appreciation for the man himself emerges -- he is no longer just an inventor of alphabetical equations. At this point, the exhibition turns its cultural and personal focus on Einstein. Once the science is understood to some degree, the original pages of Einstein's handwritten copy of his Special Theory of Relativity become as significant and sentimental to the viewer as one of Emily Dickinson's original handwritten poems, or a Van Gogh painting. By exploring Einstein's public role in the 20th century, we are in awe of his accomplishments. Einstein used his fame to speak out against segregation, anti-Semitism, and McCarthyism, and championed the causes of human rights -- and the preservation of the Jewish culture. He played a crucial role in beginning the nuclear arms race. That he is one of the most influential men of the 20th century is confirmed in an effective kiosk which appears is the end of the exhibition. The unit plays videotape of scientists explaining Einstein's monumental impact on modern science, while its angular shape and mirrored surface reflect the visitors, and we
are reminded of Einstein's dedication to his work and social causes, and his ability to 'think outside the box.'

Einstein means us to understand both the man and his science. Visitors passed quietly through the exhibition -- the atmosphere was like that of a library or classroom. Visitors stood in front of the interactives, participating with a kind of awe. Whispers could be heard, but there seemed to be an unwritten rule of silence. When David Harvey, Director of Exhibitions, was asked whether this type of atmosphere was intended, he said it was. Environmental elements such as lighting, floor coverings, sound, and color have been manipulated in order to produce a contemplative environment. Overall, the exhibition was dim except for the spots and fiber optics which lit the text and artifacts. The room which held the pages and facsimiles of Einstein's Special Theory of Relativity, had the feeling of an art gallery. With wood floors, soft lighting, and spare use of space, the environment invites closer examination. The exhibition even provides an alcove with an oversize bronze statue of Einstein, allowing the viewer to take a seat next to him in a moment of reflection.

The exhibition reaches beyond its physical boundaries through its web site. Photographs of many of the artifacts, identical videos and digital interactives, and much of the text of the exhibition appear on the web, giving the public an excellent alternative when a visit to the museum is impossible.

The design team saw this as a unique challenge. Harvey explains that the project was approached by understanding it as three different kinds of exhibitions. By combining the elements of an art show, a science exhibition, and a historical retrospective to overcome the challenge, the exhibition effectively offers a cohesive and comprehensive presentation of this complicated man.

Holtz's evocative Symphony of the Planets is played at both the beginning and end of the exhibition, and the initial video interactive and the kiosk which appears at the end of the exhibit take on a symbolic roles, which reveal the inner mystery of this exhibit. Mirroring the balanced workings of Einstein's mind and his world, this exhibition has created a framework within which the visitor is first thrown off balance, then enabled to rebalance. Upon entering, visitors are presented with a distorted image of themselves. In effect, what they come in knowing as the absolute truth is immediately distorted as they are invited to see the world through Einstein's eyes. Reaching the end of the exhibition, confronted with their image once again, their image is now undistorted - all is clear.

(Einstein continues through August 10th at the American Museum of Natural History in New York, NY. Call 212-769-5200 or visit www.amnh.org for reservations and additional information.)
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