



# An American in Paris:

## A Recollection of Exhibition Development

by Alan J. Friedman

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Paris, 1981. The French government had decided to build a contemporary science museum. Not just another museum, but *the* national science center, with a building of a million square feet, and a budget over a half billion dollars. There had been hands-on exhibitions at existing museums in Europe, but nothing on this scale, so some exhibition people from other countries were asked to help develop exhibitions for the new museum, which eventually became known as the Cité des Sciences et de l'Industrie (Center of Science and Industry).

I was lucky enough to have been one of the people invited to help plan the exhibitions for the new museum, along with a small number of museum staff from other countries, including the United States, Germany, England, and Canada. My title was Conseiller Scientifique et Muséologique, and my job was to offer a U.S. perspective on the development of science museums and especially the process for creating exhibitions. Some of the other people involved will be familiar today to readers of *Exhibitionist*, including Goéry Delacôte (currently director of Explore@Bristol and before that of the Exploratorium) who was then director of the department of exhibitions at the new museum. He hired most of us. Other visiting colleagues were Gillian Thomas (currently director of the Miami Science Museum) and Bernie Zubrowski (The Children's Museum, Boston). There were over 600 French employees, including architects, scientists, teachers, engineers, contractors, and designers.

My French needed a lot of improvement, but I gathered from conversations and articles about the project that the goal of the Cité was

nothing less than transforming the self-image of the French people from being a nation which led primarily in wine, food, and fashion, to a nation which was also a leader in science and technology. The Exocet missile and the Concorde airplane were making that point as well, and indeed the Cité became universally known in France as an iconic place. What was particularly interesting to me was to see two very different styles of exhibition development come together for the first time in this well-financed, time-limited, and high-stakes effort.

### The Value of Planning

The first thing I learned was how exquisitely carefully and fully the French intended to plan the dozens of major exhibitions and thousands of individual exhibit units. Before anything was built, there had to be a complete plan showing how every exhibition related to every other and to a grand plan to present the vital aspects of science and technology. There were 20 pre-determined themes covering everything in science and technology, including sound, light, space, astronomy, and so on, with 20 team leaders each charged with developing one theme and coordinating with all the others. About the time I arrived it had been decided to create a 21<sup>st</sup> theme, a children's area, and an ex-patriot American, Adele Robert, had been hired to plan it. Elaborate charts showed how each idea in theme interacted with everything else in the museum plan.

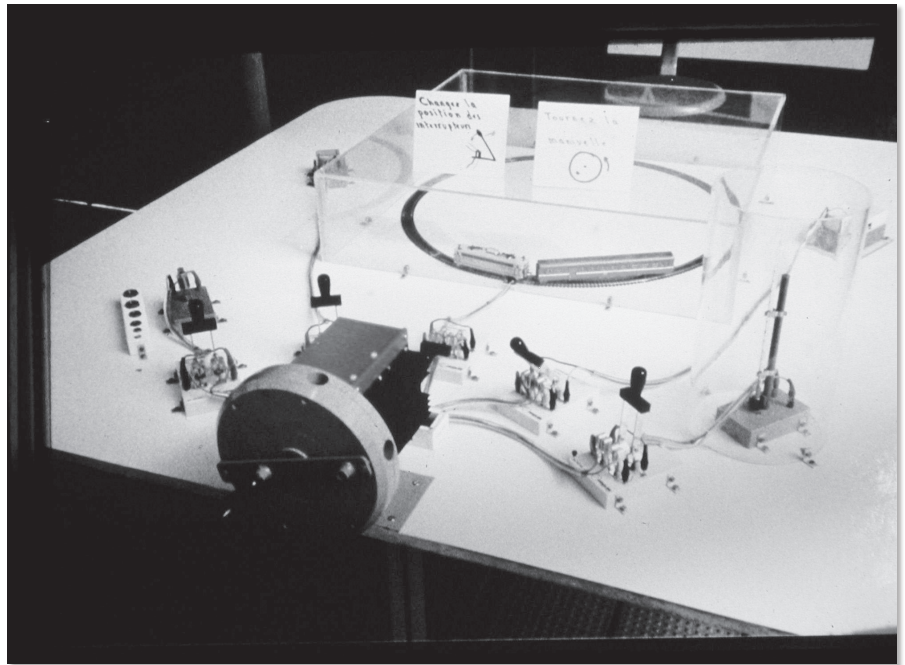
As an American, the whole process seemed much too theoretical for me. Surely some of themes and concepts would not be suitable for the exhibition format, and should be omitted or presented by media (there was another whole set of departments around theaters and other program spaces). I was

eager to start building prototypes, discovering how French children and adults reacted to different interactive strategies, and learning the capabilities of the team in various areas. Looking at my intentions, the French concluded that Americans were hands-on, all right, to the extreme of doing everything by trial and error, while a little bit (or a lot of bit) of careful thinking beforehand could save us a lot of needless fiddling about.

Both styles of exhibition planning had a lot of power, of course. Some U.S.-style prototyping did eventually change the French plans for the better. But I also saw how incredibly careful advanced planning allowed a record number of beautiful exhibitions to be produced in record time. One aspect of French planning which has certainly taken hold around the world was the extensive pre-design audience studies—what are called “front-end evaluation” studies now. I had never seen or heard of anything as extensive in the U.S. before I went to Paris.

### Front-End Analysis

A striking example was the front-end analysis for the astronomy area. The original plan called for a historical timeline. Astronomy and astrology would be presented together, until they diverged in the 18<sup>th</sup> century. From then on, the science of astronomy would dominate. Sounded good to me, and to the team of scientists preparing the astronomy theme. Astrology once had a role, but now is a pseudo-science. But then a firm was hired to conduct front-end focus group interviews. Small groups of different ages were assembled, and asked for their comments on theme areas, including astronomy. What were their interests, and their pleasant or unpleasant associations with the subject? After these initial discussions, the



*Author's prototype of a conservation of energy exhibit. Formative evaluation showed this version, with one crank, had too many variables. It became a series of hand-cranked generators, each connected permanently to various types of energy transforming devices. Courtesy of the author.*

groups were shown drawings and plans for exhibits in the subject areas, and were asked to discuss their reactions and suggestions about what they had heard and been shown.

The results of the careful front-end analysis, performed by Martine Thiesse of Société des Etudes Commerciales et Documentaires demonstrated that simply placing astrology in a historic context would not make the scientists' views clear at all. The outcome of the focus group interviews was that astronomy and astrology were regarded by many potential museum visitors as equally contemporary disciplines, different but both valid treatments of the same subject. The groups noted that astronomy and astrology today shared common history, common physical data (facts about stars and planets), and common tools (computers, complex and mysterious terminology and calculations). Astronomy today, according to the sample public, deals with the creation of theories and the impact of stars and planets on the physical universe. Astrology today deals with the application of these same facts and theories to human culture

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One of Bernie Zubrowski's prototypes in formative evaluation. Courtesy of the author.

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and individual human lives. Astrology was thus perceived as the artistic, interpretive side of the logical science of astronomy.

Given these conceptions, it was not surprising that the focus groups participants regarded the initial exhibition plan as short-changing astrology, by ceasing to cover the topic in contemporary times. Some discussants perceived the initial plans as one group (astronomers) pushing its work at the expense of less-well entrenched colleagues (astrologers).

As a result of this convincing (even devastating) front end analysis, it was decided that the original treatment proposed would probably fail to make the careful distinctions between astrology and astronomy that the exhibition scientists had hoped. A conference was held to review a number of techniques developed by museums around the world to deal with the historic and social aspects of science.

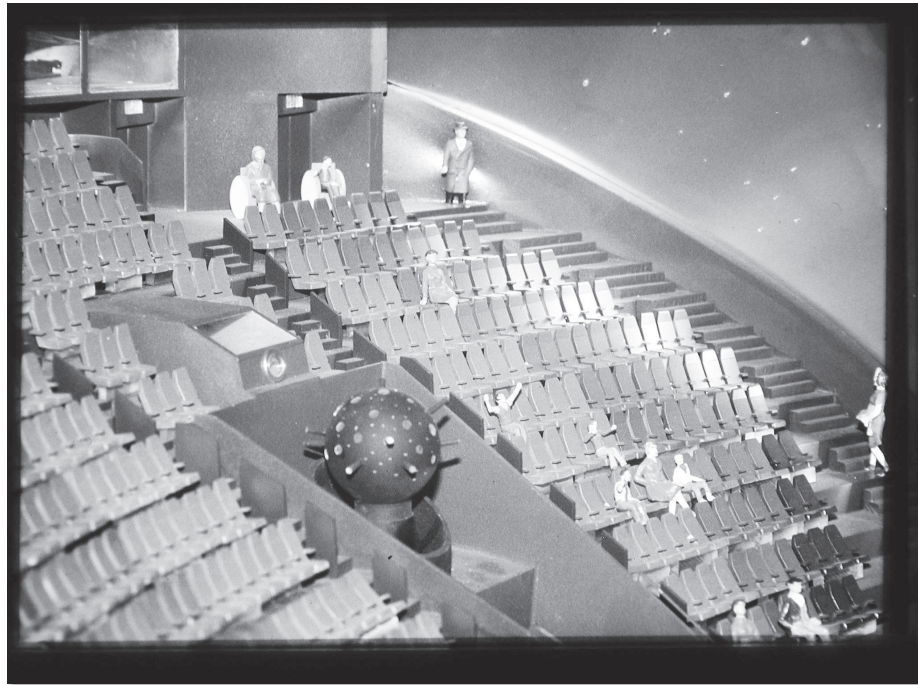


Model of La Géode. Courtesy of the author.

The use of theatrical presentations, among other techniques, emerged as potentially more effective ways than exhibits to deal with such potent topics as astrology vs. astronomy. In hindsight, I think if I had had the same space and funding in the US, I would have gone ahead with the original plan, doing lots of testing of the interactives, but missing entirely the confusion that would have resulted in the roles of astronomy and astrology today. Score one for French theory and planning.

### Prototyping

Getting the team to try formative evaluation was difficult at first. Dr. Eric Rogers, a distinguished retired physics educator from England who was living in Princeton, dropped



*Detail of the model of La Géode. Courtesy of the author.*

in and volunteered to help with the project. Eric's French was much better than mine, and he was more resourceful and fearless than I. So when our colleagues balked at doing prototypes, Eric made friends in the maintenance shop, bought his own supplies at hardware stores, and just began building prototypes of interactives that would fit the various themes. He would then invite staff in to try his prototypes, often with delightful and surprising results. The small prism spectrosopes which had been planned paled in comparison to the enormous prism spectra Eric projected over an entire wall.

Soon Bernie Zubrowski joined as and began doing the same kind of thing. Bernie's French was even less developed than mine, so rather than try to explain his views on what would work and what would not, he just made his own prototypes and sat back while people discovered them. I remember a large water-wheel he built out of plywood, paper cups, nuts, and bolts. Everybody came over to tinker with it and play. Four years later, spiffy versions of Bernie's water-wheels were among the great hits of the new museum, in the children's area. The children's area, which Gillian,

Eric, Bernie and I and helped Adele plan, was so popular that the whole children's section was soon doubled in size, taking over space from one of the original themes which never did work as well as expected.

#### **More Planning**

But the French passion for meticulous planning had other benefits we discovered. Once the ideas were in order, designers sketched out shapes, sizes, and arrangements for the exhibit units. Then models were built of each theme, and each space in the museum. And what models! Everything was detailed. The most elaborate model was of La Géode, a domed theater (then called Omnimax) with a planetarium projector as well, in a giant, polished sphere. The model was about a cubic meter in size, and had every seat, every doorway, and every service area. As I remember it, there was a snack bar with tables, chairs, utensils, sandwiches, and patrons. There was a bar with glasses, wine bottles, and a bartender. The toilets were detailed to the point of a tiny person sitting in a stall and reading a newspaper. The planetarium projector actually projected a dozen stars on the dome. I'm sure that model cost more than a small real

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planetarium. (In the end, La Géode became a pure hemispheric theater, and a separate large planetarium was built in the astronomy area inside the main building).

The models undoubtedly had marketing value, but they were also serious planning tools. Using a snorkel camera the designers produced “walk-through” videos, showing what the visitor would see moving through every space in this enormous museum. The final design was, for me, astonishingly well organized. I never felt

I attribute this to the careful model-making and the power of those video walk-throughs. Today one would do the same thing with computer-assisted design and 3D modeling, but all of the fundamental techniques required were clearly in place and in use in France before those computers and their software existed.

### **Project Janus**

The two styles of exhibition development came together in one critical event, Project Janus. Janus consisted of the design and construction



*The probability theory prototype from Project Janus. Courtesy of the author.*

lost in this museum, even though it was many times larger than museums around the world which have intimidated and perplexed me. I have been in some other museums where I never found an exhibition I sought, or if I found it once, could never find it again. That didn't happen for me at the Cité.

of two dozen full-scale, full-finish prototypes of exhibit units from various areas of the museum. But this setup was not for testing with the public, at least not originally. It was designed for an audience of one: François Mitterrand, the President of the Republic. This project had started under President Mitterrand's

predecessor, and since it was funded by the national government, Mitterrand had to approve its continuation, by no means a done deal. This was early in my stay, and I was horrified that just a couple of weeks before the scheduled all-important visit, not a single piece was in place in the empty hall where Janus was to take place. There were a lot of drawings, a lot of words and specifications, and a model. But the empty hall (a former sheep pen) had no signage, no interactives, just empty space.

I remember telling my wife, Mickey, that we should be prepared to go back to California early, because the project was surely going to die. Nothing was ready, and without prototyping very little would work as intended. Yet my French colleagues assured me that all the drawings had been meticulously checked, discussed at length by committees, revised as needed, sent to contractors with firm deadlines, and everything was on schedule. Janus would be ready for the President's visit. And sure enough, a few days before the visit, trucks arrived, surrounded the building, and an army of installers, electricians, plumbers, and painters began transforming the cold, empty hall into Project Janus, complete with temporary heating, plumbing, lighting, and the exhibits.

It couldn't have been more than a couple of hours before the Presidential visit when the last of the workers left the building, sweeping the entrance as they departed. The majority of the exhibition staff got to go in just minutes before the Presidential motorcade arrived, although a few senior people had been there, and of course the French secret service had been scanning everything for many hours. I was amazed—it looked good! I tried a few things out, and



*The museum under construction reflected in the just-completed outer shell of La Géode.*

they worked! Some units quit working the next day, but by then Project Janus had served its primary purpose.

I was introduced to the President briefly, and I don't remember what I said to him, or he to me, if anything. He was smiling, but he went around Janus with his hands clasped behind his back. He too assumed everything would be working, I suppose. The staff dashed about demonstrating the interactives, pushing buttons, and answering questions. I think there were a few children in the party, and they were merrily trying everything. Two hours later the President left, and Project Janus was over.

### **More Prototyping**

Well, not quite. It stayed in place for a few weeks, and while some interactives broke quickly, or never worked properly, several held up and were used for focus groups and real formative evaluation. I remember hearing the report of one pretty spectacular item. It was from the math theme area, and consisted of a real Monte Carlo roulette wheel table, complete with velvet upholstered chairs.

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Prototyping with visitors showed that the exhibit, while it worked mechanically, was pedagogically a failure.

The idea was to present basic probability. It looked great, but you couldn't actually spin the wheel, which was under a Plexiglas dome. Instead, you placed bets on a flat-surface keyboard, and saw the results of your betting strategy displayed on computer screens overhead. Prototyping with visitors showed that the exhibit, while it worked mechanically, was pedagogically a failure. First, people really wanted the sensual pleasure of spinning that wheel and hearing the ball click from slot to slot. Second, whatever a person's theory of betting probability, who won and who lost the imaginary bets was all important. And since the process has a large random component, every theory, no matter how mathematically wrong, produced winners sometimes. One win was enough to convince proponents of a strategy that they were surely right. The mathematics of the design was correct, but the psychological factors of how humans perceive exhibit experiences trumped logic. Score one for prototyping and trial and error.

#### **View from a Quarter Century Later**

I left the Cité project near the end of the planning phase, in 1984, to become director of the New York Hall of Science. But I was invited back for the grand opening in 1986. It was breathtaking, and true to form, workers in hard hats were finishing up and exhibitions were being plugged in just hours

before the opening ceremony. Over the years since opening many things had to be changed or revised, but much worked and still works splendidly. The combination of exceptionally careful planning, front-end evaluation, and increasingly a healthy amount of prototyping, produced some extraordinary exhibits, in a remarkable space. I've tried to keep up with the progress of the Cité ever since, and am often amazed by the extent of innovation and audacity that continues. One of my favorite temporary exhibitions some years ago was *Emballage (Packaging)*. My first expectation was that I'd see egg cartons and tin cans. They were there. But so were birds' nests, and the human cranium. "Packages" were both literal and metaphoric, and a whole wealth of human experience was connected in surprising ways. Very French, very delightful.

Despite my struggles with the language, learning how to live and shop in a different culture, and trying to learn a new style of exhibit development while persuading colleagues to try a U.S. style, I look back on my experience as an invaluable component of my life and my career. Exhibition development is not just a technology, but can also be a style for life, thought, art, and science. The more we seek out and explore different styles, the better we can do everything. 