

## Exploring Armand Spitz's Love for Stars

Mark E. Dixon March 27, 2014

The stars are eternal, but the reasons we study them come and go. Navigators have used stars to guide ships, astrologers to predict human events, NASA to search for extraterrestrial life. Standing at night on the deck of a Paris-bound freighter, Haverford's Armand Neustadter Spitz was awestruck. His interest eventually led to an affordable planetarium that democratized the indoor sky-watching experience.



Later, during the Cold War, national defense became the most pressing reason to study the heavens, and Spitz was pushed out of his own company. “Spitz’s accomplishment enacted the single greatest transformation of the American planetarium community,” wrote astronomy historian Jordan Marché.

Rather than confine the experience to a few big-city planetaria controlled by an academic elite, “Spitz pursued a sharply different vision,” Marché continued. “That of a much larger, pluralistic community of smaller institutions that could present the basics of astronomy to children and adults alike.”

Born in West Philadelphia, Spitz was the son of a physician, graduating from public school and attending the universities of Pennsylvania and Cincinnati without receiving a degree from either. Instead, he went to work as a reporter for the *Camden Courier* in 1926.

“He enjoyed gathering news, and later recounted, ‘I acquired a sneaking desire to have a newspaper of my own,’” wrote Brent P. Abbatantuono, a writer for *Planetarian*, the official journal of the International Planetarium Society.

In 1928, Spitz joined the weekly *Haverford Township News* as its editor. Within three months, he’d bought it. Spitz also continued as a correspondent for the *Bulletin* into the 1930s. Being editor, publisher and owner of a community newspaper gave Spitz some clout in Haverford, and he used it. He served as president of the Haverford Township Free Library and helped found the township chamber of commerce. Spitz also stuck out his neck politically. During the election campaign of 1932, he endorsed several candidates from the “wrong” party—probably Democrats. “Some residents burned him in effigy,” wrote Abbatantuono.

It all ended in the Depression. Spitz offered advertisers credit and even allowed them to barter goods for space. But the *News* still closed in 1932. With no money, no job or a wife to say no, Armand decided on a change of scenery. He headed to Paris with designs on writing or, perhaps, working as a foreign correspondent for U.S. newspapers. In the early 1930s, Paris was full of American writers—F. Scott Fitzgerald, Henry Miller and, of course, Ernest Hemingway.

Stories of the expat life filtered back to scribes at home, and prompted many to dream. “Unable to pay for the trip, Spitz took a dishwashing job on a freighter,” Abbatantuono explained. While crossing the Atlantic, a friendly ship’s officer introduced him to celestial navigation using a sextant, which enables mariners to determine the position of ships at sea. Spitz was fascinated by the stars and intrigued by the sextant. But he saw the latter’s cost as an obstacle. So he built his own crude sextant with a water-filled dishpan, a board and a toothpick, quickly realizing that studying the stars needn’t be expensive.

The Paris venture went nowhere, and Spitz was soon back home, where he continued to freelance for the *Bulletin*. In 1935, with no formal training in astronomy, he began an eight-year relationship with Haverford College, where he worked as an assistant astronomer and astronomy lecturer. The job had a significant perk: He was allowed to use the college’s 10-inch refracting telescope.

As a visual aid for his lectures, Spitz built a four-foot paper-mache moon in his Lansdowne kitchen. Its purpose was to show audiences how the moon looked through a telescope and, when illuminated, this large hemisphere showed detailed craters, fissures and lunar seas. It cost only \$15 to make and was light enough that Spitz could easily carry it along when he visited classrooms, auditoriums and museums.

Gluing it together “made the house smell like a fishery for weeks,” recalled Spitz’s wife, Vera. Even so, he seems to have done a good job. His moon was eventually donated to the Philadelphia Academy of Natural Sciences, where it remains on permanent display.

In his yard, Spitz erected a telescope on an equatorial pier. The semi-permanent setup allowed the instrument attached to it to stay fixed on any regularly rotating object in the sky. To construct this sort of a base, Spitz likely had to dig a sizable hole and fill it with concrete. He painted the living room and covered the ceiling with an elaborate representation of the planets revolving among the zodiac.

Spitz also went knocking on the door of the Franklin Institute, volunteering to write publicity for programs at its just-opened Fels Planetarium. It took a year, but the institute did call, hiring Spitz in 1936 for a special three-week show. “He proved so suited to this position that he remained on the institute’s staff for nearly 20 years,” wrote Abbatantuono.

During that time, Spitz was editor of the *Institute News*, founder and director of the department of meteorology, assistant director of public relations, director of education and planetarium lecturer. It’s highly likely that Spitz was in the audience at the 1933 dedication of Fels, when astronomer Heber D. Curtis lamented that he didn’t have a small planetarium next to his classroom to help explain the heavens to his students.

In the early 20th century, a planetarium was a major undertaking. It required a specially constructed domed theater with hundreds of seats, an expensive German-made Zeiss projector with which to show the stars, planets and other celestial objects, and a trained professional staff.

In light of the cost, planetariums were a big-city experience. Chicago’s Adler Planetarium was the first in the United States, opened in 1930. Fels—named for donor and soap manufacturer Samuel S. Fels—was the second. Others would follow, but most Americans would still be left out.

Spitz pushed to lecture at Fels, but he was rebuffed by director James Stokley for his lack of formal training. For this, Spitz never apologized. “I am not very much of a scientist,” he once said. “You can call me an interpreter of science if you want to.”

So he did what writers do: He wrote a book. Published in 1940, *The Pinpoint Planetarium* focused on astronomy basics and included star charts and instructions for a do-it-yourself planetarium. Readers could remove the charts, punch holes in marked locations, glue it all together to form a dome, and put a light inside.

Marian Lockwood, director of New York’s Hayden Planetarium, judged the effort “original and novel.” Spitz was encouraged and announced plans to build a simple, low-cost projector. But after Stokley criticized anything non-Zeiss, Spitz kept his project to himself.

To fund a prototype, Spitz relied on modest support—probably less than \$1,000—from a local philanthropist. Another loan paid for a lathe and drill press, which he set up in his basement. What emerged was a metal sphere, perforated with perhaps 1,000 holes. Those were far fewer stars than a Zeiss could project. But, of course, it also cost far less.

The sphere worked well enough in Spitz’s lectures, but he soon realized he needed an easier shape. Through his work at the institute, he knew Albert Einstein, who’d lived in Princeton, N.J., since 1933. Einstein listened to Spitz’s problem and suggested a dodecahedron with 12 flat sides. “This idea proved quite workable,” wrote Abbatantuono. “After another four months of work laying out the new star maps onto plastic dodecahedral plates, Spitz had solved his problem.”

The “Model A” projector debuted in October 1947 at a meeting of astronomers at the Harvard College Observatory. The response was quite positive, which went a long way in quelling fears at Fels that Spitz was trying to “hoodwink the public.”

In November, Spitz delivered his first Model A to Eastern Mennonite College at Harrisonburg, Va. He then left the institute in 1951 to devote his full attention to the company. By the end of 1953, he’d sold 100 projectors worldwide.

Opposition continued from some astronomers, who dismissed Spitz’s device for taking advantage of the uneducated with mere spectacle. But a new era arrived in 1957, with the Soviet Union’s launch of its Sputnik satellite. Congress’ panicked response was the National Defense Education Act, which militarized the nation’s educational system to produce sufficient mathematicians, engineers and other technicians.

For Spitz Laboratories, that meant increased demand for services (design, professional installation) the company had once left to the customer. “Nothing of this sort could be left to chance in the Space Age,” wrote Marché.

In 1959, Spitz was replaced by an MIT grad more attuned to this new world. Apparently, his view of the stars was no longer enough.