The Harvard Crimson

Harvard Celebrates Transit of Venus

In historic moment, groups observe as Venus passes across the sun

By Kenneth D. Schultz, CONTRIBUTING WRITER June 9, 2004

What could bring together a collection of faculty, historical scientific instruments, a band and a crowd of several hundred enthusiasts at 5 a.m.?

All participated in the Festival of the Transit of Venus, an event surrounding a rare astronomical occurrence that drew a community of astronomy fans to brave the early morning hours on Tuesday. Gathering at the Science Center, a diverse crowd observed the planet Venus traverse the disk of the Sun, and celebrated with a series of scientific and historical talks chronicling Harvard's role in significant observations reaching back hundreds of years.

Observers viewed the event through the original telescope of Harvard astronomer John Winthrop, whose observations of a Venus transit in 1769 from Harvard Yard helped determine the distance from the Earth to the Sun.

Groups ventured to the roof of the Science Center to witness the transit first-hand using an array of historic and modern telescopes and observing equipment after sunrise at 5:09 a.m. Downstairs in Lecture Hall B, attendees waiting to view listened to talks highlighting the science of transits, Winthrop's historic observations, and new applications of transits in cutting-edge research to detect extrasolar planets. Participants also watched a live projection from the roof of the transit-in-progress and live images from locations around the world. Some regions enjoyed more daylight hours for viewing.

The transits are highly rare events, occurring in pairs eight years apart with more than a century between the pairs. The most recent Venus transits occurred in 1761, 1769, 1874 and 1882. The next one will take place in 2012, again in the month of June.

The transit can be thought of as a mini-eclipse, with Venus appearing as a small black dot moving across the Sun's surface and blocking a small portion of the Sun.

A CELESTIAL "ROCK CONCERT"

Harvard's presentation was the brainchild of Sara J. Schechner '79, Wheatland Curator of Harvard's Collection of Scientific Instruments. Schechner, who has been studying Harvard's early work in the sciences since her undergraduate years, said she went back into the archives this year to learn more about Winthrop and his transit observations, and came up with the idea of using his original apparatus to view the phenomenon in our own time.

After the Boston Globe featured a story on Winthrop and Harvard's commemorations of his observations as the lead story in its science section last week, Sky and Telescope magazine and amateur telescope makers in Boston contacted Schechner to be part of the event.

"Suddenly I was looking at a very big event," Schechner said. She said that she spent a lot of energy on logistics, including arranging to open the Greenhouse Cafe early, recruiting volunteers to help and obtaining radios for communication.

"It was like organizing a rock concert," Schechner said.

In some ways, the comparison was literal.

An alum of the Harvard Band, Schechner asked the ensemble to play John Philip Sousa's little-known "Transit of Venus March," to add extra color to the scientific and historical aspects.

"It really was a wonderful team effort," she said.

For Harvard Band members, playing the Sousa march was an interesting change of pace, despite a busy Commencement week schedule.

“It was nice to get to play something a little different,” said trombonist Brett G.B. Wostzman ’06, adding that the band’s repertoire tends to be repetitive. “I thought it was a really interesting opportunity for a gig.”

A DIVERSE CROWD

Even at 5 a.m., a considerable crowd was on hand. Schechner said she was surprised to find that within the first 10 minutes, most of the 300 wristband passes for roof viewing had been handed out.

The activities at Harvard drew a wide range of people, from local families and alums attending reunions, to professional and amateur astronomers.

While most of the participants hailed from the Cambridge-Boston area, some amateur astronomers came in from as far away as Indiana or California.

For Elizabeth Murphy, the event was a family affair. She attended with her four daughters, ages 6 to 10. Murphy said she learned of the gathering through physics department Chair John Huth, who also brought his son and daughter.

Murphy said she believes her children benefitted from the day’s presentation, and were encouraged by its novelty.

“To get a real life example in astronomy, especially for girls, could make a big impression,” Murphy said.

Some Harvard students in the area for the summer—including Ashwin Kja ’07, Tiffany Chou ’07, Jacquelyn Chou ’07 and their friend Jeff Aung, a Columbia student—arrived around sunrise at 5:09 a.m, and got to the roof just before cloud cover settled over the Sun around 6:40 a.m.

The group saw Venus cross the sun’s disk briefly using special solar filter glasses before the sun moved behind the clouds for the remaining duration of the transit.

“It waited for us,” Kja quipped.

HANDS-ON ASTRONOMY

For professional astronomers, the Venus transit served as both an exciting observing opportunity and as a positive source of publicity for astronomy.

Paine Professor of Practical Astronomy Josh Grindlay, who gave one of the day’s lectures, said that focusing on the accomplishments of Harvard astronomers in making early distance measurements could draw attention to the efforts of current Harvard astronomers charting the dimensions of the universe on the largest scales.

The transit coincided as well with a meeting in Cambridge of the team for NASA’s Kepler mission, which aims to detect Earth-like extrasolar planets using transits.

The meeting was planned for Cambridge so team members could see the transit clearly—some flew in from the west coast where the transit was not visible.

Among the team members venturing to Cambridge was Jack Lissauer of NASA’s Ames Research Center, who said that the event could help publicize an endeavor which similarly relies on transits for its data.

“There’s something special about actually seeing it,” Lissauer said.

On a personal level, too, Schechner said that viewing the astronomical occurrence through Winthrop’s own instrument was a thrill.

“You really feel like you’re reaching back in time and linking the ages,” Schechner said. “It sounds poetic, but in an event like this, you really get that sense.”

She was pleased that so many people shared in her enthusiasm for astronomy and its history, and feels participants learned much from attending.

“It appealed to so many. It was wonderful to share that with the Harvard community, and the Boston community,” she said. “It all came together here in this one event.”