# Sun Worship in Cambridge

*Architectural researchers at MIT found a solar alignment that has enjoyed decades of popularity.* | **By Stuart J. Goldman**

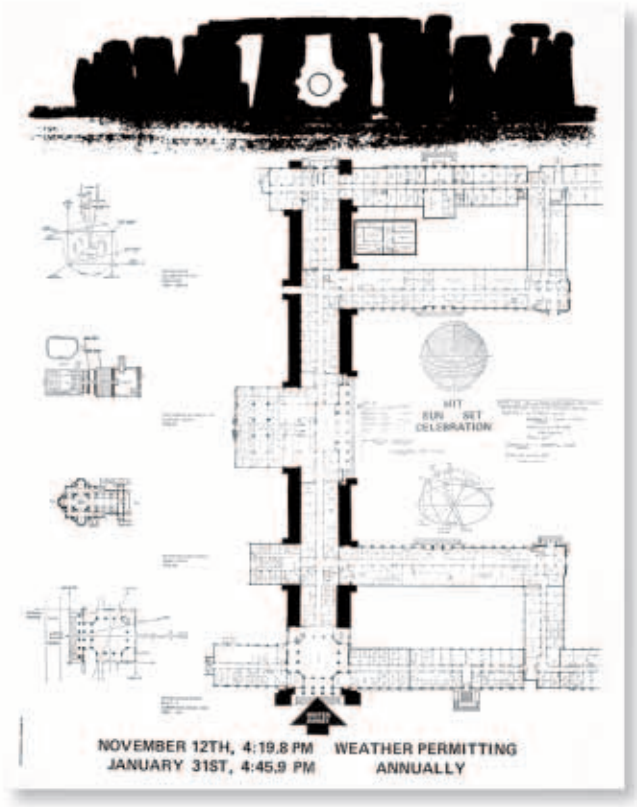
For much of the day (and night) the hallways of the Massachusetts Institute of Technology bustle with students, instructors, and researchers. But on a few late afternoons in January and November, one particularly long thoroughfare seemingly empties. Its inhabitants pause and part like the Red Sea as others gather near a stairwell at the eastern end of the corridor.

If the weather cooperates these lucky people see the Sun shine through a window barely visible in the distance. Like ancient priests gathered to behold the rising Sun at the solstice, MIT's academic elite bear witness as a few seconds of sunset-reddened light stream hundreds of feet down to the hall's end. Should some unfortunate souls unknowingly blunder into the passageway, the crowd impatiently shouts, "Get down!" The astronomical alignment has been compared to England's famed Stonehenge (see page 78) so many times that the solar phenomenon has earned the name MIThenge.

The hall down which the channeled sunlight streams is no ordinary passageway; it is nicknamed the Infinite Corridor for good reason. It runs approximately east-west for 251 meters (825 feet) paralleling the Charles River through five buildings beginning at 77 Massachusetts Avenue. There are actually three never-ending corridors — one in each of the first three floors of the structure. The most-utilized first-floor hall has been the subject of many student pranks — called hacks — such as turning it into a version of the Massachusetts Turnpike (complete with a car in a lobby). Prime viewing of MIThenge occurs on the third floor.

You might expect that an MIT astronomer deduced the times of the solar alignment. However, it was members of the architecture department who determined the circumstances nearly 30 years ago.

**Behold "MIThenge." On a few days of the year, direct sunlight enters windows and reaches all the way down this 825-foot-long hallway. Photograph by Joseph "Jofish" Kaye.**




**In 1975 Thomas K. Norton *(above)* created a poster *(left)* that described the solar alignment each January and November known today as MIThenge. His design included the handwritten, supporting calculations done by MIT students. *Sky & Telescope* photograph by Stuart J. Goldman.**

## A Murky History Clears

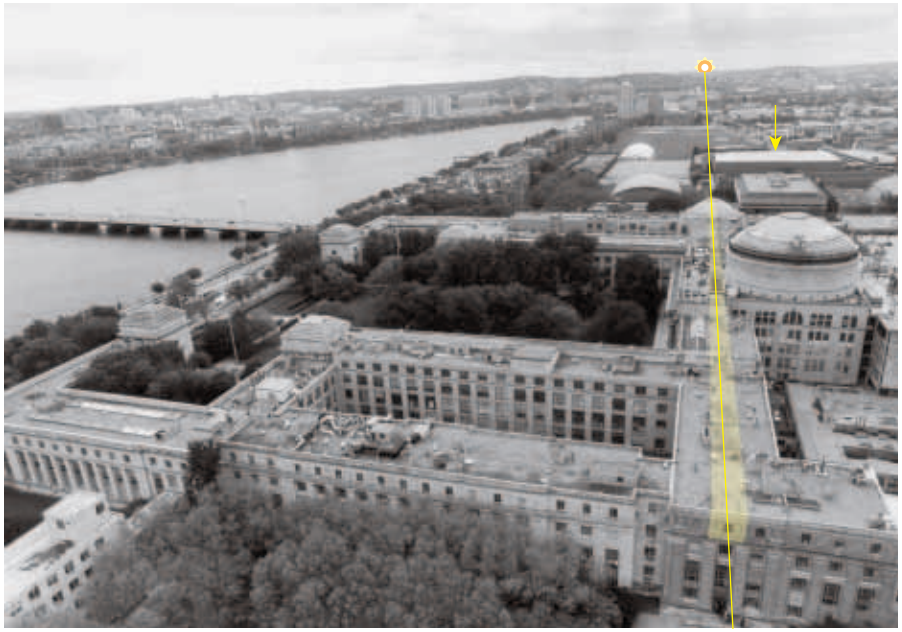
For years the solar alignment had gained popularity primarily because of a poster displayed on campus announcing the "MIT Sun Set Celebration" on November 12th and January 31st every year. It featured a floor plan of MIT's main building, diagrams of several famous astronomically oriented structures (including Stonehenge), and some handwritten calculations for 1975. The sign appears around campus occasionally, but its origin had been long forgotten after 25-plus years of cap-and-gown ceremonies. The only clue to its inception was a small design credit for Tom Norton.

After some Internet sleuthing, I found Norton still living in Cambridge, about a mile from MIThenge. He fondly remembers the poster and its origins.

Norton attended MIT in the 1970s as a research affiliate in architecture. Today he's a freelance designer who produces a special ink and a drawing tool for artists. While at the university he had free reign to talk to professors or researchers in any department. Norton explains that during visits to the Infinite Corridor, "by coincidence, several people mentioned how surprised they were that you could still see sunlight despite being so far down the corridor." Norton wondered how far sunlight could go, and whether it could ever reach the stairwell at the far end. So he asked two other MIT architecture colleagues, Timothy E. Johnson and Sean Wellesley-Miller, if they could do calculations to check his hypothesis. Norton recalls that Wellesley-Miller made it a class project and several students came up with consistent results making a solar sighting possible on two days of the year.

When Norton learned that there was indeed a solar alignment, and after witnessing it himself in November 1975, he decided to make a poster to publicize it. He collected various diagrams, including the students' work and a silhouette of Stonehenge taken by photographic pioneer and fellow MIT researcher Harold "Doc" Edgerton. He then put up his creation all over campus as the next day of alignment approached in January 1976. "Most of them were stolen," he says.

Johnson, who retired from MIT in 1994 and now runs his own design business in Newton, Massachusetts, still remembers the scene as people were at the dark stairwell, with their eyes down near



**MIT's celebrated Infinite Corridor (highlighted) runs through five buildings, collectively known as MIT's main building. The view here looks to the west-southwest, where the Sun can shine completely down the hall. The Zesiger Sports and Fitness Center that opened in 2002 (arrowed) lies just clear of the alignment. Courtesy Donna Coveney, MIT News Office.**

floor level to catch the fleeting sunlight. "The Sun glinted off their eyes, making them glow like those of wild animals."

## Checking Your Work

Unbeknownst to Norton and the other originators, interest in MIThenge persevered. Ken Olum, now a cosmologist at Tufts University, conducted what may be the first accurate analysis of the alignment. As he worked toward his doctorate at MIT in the mid-1990s, he happened upon the poster. Intrigued, Olum examined the calculations and found a problem. He explains that the poster analyzed the circumstances incorrectly "by rounding the azimuth to the nearest degree and having the corridor slant upward an unrealistic amount." Furthermore, he also determined that sunlight should reach the end of the corridor on *several* days each during January and November, not just one.

Olum took it upon himself to recalculate the times of MIThenge using a standard set of software tools for professional astronomers and the best information he could find on the azimuth of the building. "The fact that the computations were wrong before caused an error in listing the day of the event, which enabled me to see it without hundreds of other people jockeying for a viewing spot." This inspiring view led him to dig a little deeper. He posted his finding on the Internet in 1997, including times for the next 100 years and some caveats about the uncertainty of his calculations. But in recent years Olum hasn't had the chance to enjoy the fruits of his labors. He laments that he hasn't attempted to see the phenomenon since January 2001. Because of this Internet posting, "no one can get a good view anymore because of crowding."

Olum explains that the biggest problem was determining the azimuth of the hallway. MIT's main building at 77 Massachusetts Avenue was completed in 1890 and wasn't designed with astronomy in mind; it was positioned to look out over the Charles River to Boston. Consequently, the Infinite Corridor is not aligned due east-west. Michael K. Owu, of MIT's now-defunct Planning Office, had determined that the azimuth of the hallway should be parallel to the property line; thus the azimuth of the setting Sun is toward the west-southwest, at 245° 28′ 26″.

Much of Olum's information is the basis for the current MIThenge Web page (http://web.mit.edu/mithenge), now maintained by Gayle C. Willman of MIT's Academic Media Production Services.

**Solar Crossings at MIThenge**

| Date | Time (EST) | Sun's altitude |
|---|---|---|
| Nov. 11, 2003 | 4:18:28 p.m. | 57′ |
| Nov. 12, 2003 | 4:19:43 p.m. | 37′ |
| Nov. 13, 2003 | 4:20:59 p.m. | 18′ |
| Nov. 14, 2003 | 4:22:14 p.m. | 0′ |
| Jan. 28, 2004 | 4:50:18 p.m. | 7′ |
| Jan. 29, 2004 | 4:49:22 p.m. | 26′ |
| Jan. 30, 2004 | 4:48:23 p.m. | 45′ |
| Nov. 11, 2004 | 4:19:27 p.m. | 42′ |
| Nov. 12, 2004 | 4:20:42 p.m. | 23′ |
| Nov. 13, 2004 | 4:21:58 p.m. | 4′ |

For other years, see http://web.mit.edu/mithenge/mithenge-data.text.

## Alignment for the Ages?

While there's no grander meaning to the accidental alignment of MIThenge akin to the Egyptian and Maya tombs and temples, the event has nevertheless garnered some nearly religious fervor. People line the halls of all three floors in hopes of seeing the phenomenon.

Will the Sun sightings survive continued development of the university? "We were concerned when they built the new athletic center," Willman says, "but it doesn't block the view." She also notes that everyone was robbed of views during November 2001 and January 2002 as construction in the Building 7 lobby blocked the sightline.

If you want to battle the crowds to see it, check out the latest information at the MIThenge Web site and take the viewing warnings and suggestions seriously. The alignment lasts less than two minutes, so Olum recommends, "Once you have seen, get out of the way and let others look."

Olum has one more trick up his sleeve, however. "An interesting fact is that there are Infinite Corridor moonsets," he says. "They come at irregular intervals a few times a year. I've never actually seen one — the one time I tried the weather was bad — but presumably they are easier to see and photograph than sunsets because there's not so much contrast in brightness." They sometimes occur during daylight. He's got it all figured out, but he's keeping it to himself for now.

*Although he wasn't accepted to MIT in 1981, associate editor* Stuart Goldman *holds no grudges.*