

May 30, 2011. Visit to l'Observatoire de Paris. (E. Malamud)

The Paris Observatory is generally closed to the public except for organized school groups. However, for some time I've been eager to see it. I had to pull some strings to get in. I wrote to Rocky Kolb, a well-known cosmologist. Rocky is the Arthur Holly Compton Distinguished Service Professor of Astronomy & Astrophysics and the Chair of the Department of Astronomy and Astrophysics at the University of Chicago. For many years Rocky was at Fermilab so I know him from there. Also his wife Adrienne is the Fermilab archivist and I've worked with her on the early history of the lab. So Rocky wrote to Professor Norma Sanchez, the Director of the Paris Observatory who extended a very warm invitation to me for a tour.

In her invitation she explained how to get in and cc'd Professor Hector de Vega, whose office was just across the hall from hers so when I arrived she motioned for him to join us. Later we were joined by a third man, whose name I didn't catch (most of our conversation was in French), the leader of the group responsible for the display and preservation of their historic artifacts and also of the telescope.

For the first half-hour she (and Hector when he could get a word in edgewise) talked my ear off about her work – WIMPs, black holes, what might or might not be found at LHC, all pertaining to dark matter. Norma is a specialist in dark matter and has an extensive publication list. She also is Director of the École Internationale Daniel Chalong and in that position is chairing the 15th Paris Cosmology Colloquium July 20-22. Norma is also Director of their museum.

The Cosmology Colloquium will draw 50 or so international experts including Nobel Laureates to discuss "From cold dark matter to warm dark matter in the standard model of the universe: theory and observations." It's an open meeting; I could attend but it's too specialized for me. However, Norma did invite me (and spouse!) most warmly to attend the closing tour and reception on July 22.

I gave her and Hector copies of my DPB brochure. She leafed through it, really liked it, and was eager to get a bunch more to give out to teachers and kids for their tours. So I arranged for a box of 130 brochures to be air freighted from Fermilab. Being able to give them something in return made me feel better about the time they spent with me (nearly two hours) on what turned out to be a "VIP" tour.

The Paris Observatory was created in 1666 through efforts of Louis XIV and Colbert and completed in 1671, thus predating by a few years the Royal Greenwich Observatory. For nearly 350 years it housed scientific instruments used in astronomical research. There are many painting on the walls of the exhibit rooms tracing that fascinating history. It is the foremost observatory of France, and one of the largest astronomical centers in the world. Its historic main building is in central Paris. Here is a picture from Wikipedia.



We walked through the garden (it's a regular campus with graduate education and a PhD program) to the historic building to see their wonderful display of historic artifacts. On their web page they call them "The Treasures of the Paris Observatory."

Some of the treasures: portraits and displays of Le Verrier (he discovered Neptune), globes of the earth and the skies constructed in the 17th century (fascinating to see the geography of the earth as it was known in the 1600s). Lavoisier worked there so there were displays about him, Napoleon's telescope was there (that he used to see England), Foucault built his first pendulum there and there were displays showing the first attempts to silver a glass mirror.

The first telescopes had bronze mirrors, did not reflect much light and tarnished quickly. Newton had already thought of replacing the bronze with glass, but glass reflects light poorly. In the middle of the 19th century, silvering techniques were invented and Foucault began the silvering of glass mirrors. On display were several bronze and early silvered mirrors and telescopes built by Foucault. Also on display were some of the optical tests invented by Foucault that are still used today.

In addition, Foucault, having found that mirrors deform under their own weight, anticipated active optics of the future with the idea of using an airbag behind the mirror to correct for errors.

The building was aligned with the Paris meridian and that is a prominent architectural feature of the building. We spent quite a bit of time in the spectacular Meridian Room (or Cassini Room). The Paris Meridian is traced on the floor. The room will be set up for their conference. Here is a picture from Wikipedia.



We then climbed many stairs up to the roof. From the roof one gets a great 360 degree view of Paris -- they were eager to point out the many different churches and monuments.

We then went into the dome. They energized the dome and opened one of the windows in it. In it is the telescope built by Arago (who became Director in 1834), 38 cm in diameter and 9 m focal length, still in use for training students. In 1846 Arago began the construction of the large dome and telescope but unfortunately died before it was completed. To allow a stable base, the telescope rests on a metal frame, sort of a spider web, and we went downstairs underneath the floor to see it. In fact the whole structure supporting the telescope goes down through the whole building all the way to bedrock (about 30 meters below ground!). This telescope remained the largest until 1888.

