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SUMMARY

* The ICHA includes IAU Commission 41 (History of Astronomy), all of whose members are, *ipso facto*, members of the ICHA.

A. Strasbourg's First Astronomical Observatories - From Prestige to Real Science

Summary

The turret lantern located at the top of Strasbourg Hospital Gate is generally considered as the first astronomical observatory of the city dating back to the second half of the 17th century, built merely for the prestige of the city and the notoriety of the university. This facility did not leave any trace in the progress of astronomical

knowledge. During the early 19th-century, attempts were made to establish an actual observatory equipped with genuine instrumentation on the roof of the *Académie* building housing the French university. But the succession of political regimes in France and the continual local bidding for moving the university elsewhere, together with the faltering of later scholars, torpedoed any sound scientific usage of the place. At the outcome of the Franco-Prussian war in 1870-1871, Strasbourg became German and the new authorities decided to make a showcase of the city, including by establishing a modern university campus with an astronomical observatory operating a flotilla of excellent instruments.

The Hospital Gate

Strasbourg's Hospital Gate (Fig. 1) is one of the very few remnants from the old city walls. The tower features at its top a *lanternon* (turret lantern), identified as the first astronomical observatory of the city, built in the second half of the 17th century. If popular writings are correct to trace back the turret lantern to Julius Reichelt (1637-1717), a local mathematician, they remain short of detailing that gentleman's real impact, the *lanternon* background and the circumstances of its edification. We therefore decided to investigate all this in the historical context of the time and from the point of view of a professional astronomer. We went back to the original documents in various archive vaults (Heck 2011a).

After having reviewed tens of documents related to Julius Reichelt, it remains difficult to figure out the exact personality of that gentleman who has been an obviously gifted student. But the evolution of astronomy and of the instrumentation of his time seem to have flown well over his head. No significant advance nor inventive initiative seems to be credited to him. He indulged himself in a traditional teaching, not echoing the progress he could witness or hear of.

Shortly after his graduation in 1660, Reichelt lobbied to secure funding for a study trip in Northern Europe from both academic and city authorities: the former ones seeing in Reichelt the possible next occupant of a chair of mathematics vacant since the death of Jakob Bartsch (1600-1633), the latter ones evaluating the gain in military expertise (fortifications) the erudite could bring back from such a trip.

According to his obituary, the regions visited by Reichelt were Holland, Holstein, Jutland, Denmark and Prussia. Very few documents remain from that trip, but a couple of them could be usefully exploited for our purpose. Thus Reichelt was recorded clearing Copenhagen's *toldbod* (customs) on 12 August 1666 coming from Gdańsk where, according to some letters, he had been in contact with Johannes Hevelius (1611-1687). However no trace of Reichelt could be found in Hevelius publications and letters, nor in Gdańsk archives.

Interestingly, Reichelt arrived in Copenhagen roughly a quarter of century after the completion of the *Rundetårn* (Round Tower). Built between 1637 and 1642, the observatory at the top of the Round Tower was used by the University of Copenhagen until 1861. It is the oldest European observatory still operational (nowadays only for non-professional observing). It underwent several mutations over

the centuries (Gykdenkerne & Barnes Darnell 1990) and all configurations benefited from the large terrace allowing to observe the whole sky and to accommodate large instruments. In Gdańsk, Reichelt must have also seen the large instruments developed by Hevelius.

After his return from Northern Europe, Reichelt requested (May-July 1672) a covered observatory on top of one of the city towers for attracting students (with a repeated emphasis on the pennies coming along with them) by contributing to the reputation of the city and to the notoriety of the university. The ensuing decision was taken rapidly while scaling down the initial project. The renown of the city and the reputation of the university were safe since they had an observatory, but with no terrace, a fixed roof and small windows. At no moment, the scientific interest of the observatory has been raised, nor what could be done there, neither what could be its instrumental endowment.

Later on, nothing seems to have been recorded about this observatory, except here and there an indication in the maintenance registers. The Hospital Gate is absent from compilations of astronomical contributions in the references works of the time. The History of astronomy does not mention in those times anything else for Strasbourg than records of celestial phenomena visible from all (comets, etc.). Our conclusion is that the top of the Hospital Gate was used only for rudimentary locating of bright celestial objects or phenomena, relatively low on the horizon.

1. The top of Strasbourg Hospital Gate shortly before its covering by the turret lantern (1671 pen-and-ink sketch by Joh. Jacob Arhardt) and nowadays. The structure visible on the ancient terrace is likely a shelter. (© Cabinet des Estampes, reproduced with permission, & A. Heck)

The Academy Observatory

After the turmoil of the French Revolution, the Napoleonic re-organization of the country restructured the higher education nation-wide. Our investigations (Heck 2011b) were then directed towards another observatory said to have been erected on the roof of a building nicknamed *Académie* (formerly an orphanage – Fig. 2) and housing the university faculties from 1828 onwards.

One of the first gold nuggets found in the local archives confirmed our own conclusions on the Hospital Gate observatory: "The old tower, established over one of the city gates that, during three centuries, did not provide any acceptable observation, must be counted as zero in the current state of astronomy" – an excerpt from a letter dated May 1810 by Chrétien Charles Kramp (1760-1826), Dean of the Faculty of Sciences since July 1809. With his local authority and good connections in Paris, Kramp lobbied for a really operating observatory on top of the Academy building, equipped with a terrace, an opening roof and good instruments, the jewel of which was going to be a 132mm meridian refractor by Cauchoix.

But Kramp died before seeing it operational. He was replaced by a chemist as Dean and by Ambroise Nicolas Sorlin (1773-1849) as Professor of applied mathematics in charge of astronomy. Sorlin is harshly judged by historians of the French university (Livet 1996), basing their opinion on a comment by Rector Cottard: "Sorlin's retirement [in 1847] was a blessing for science." But Sorlin is seen through the archives as quite active in his first years, getting the meridian refractor operational, filing requests, complaining about damages to the observatory and trying to improve the overall situation. He fell ill later on and asked for replacement and early retirement. Sorlin was succeeded by Pierre Joseph Étienne Finck (1797-1870), apparently more oriented towards mathematics and intellectually diminished in his later career.

In parallel to all this, the archives reveal continual attempts to move the university to some other places: professors unhappy of the Academy location, just outside the city walls, but too far away for them; city authorities wanting to recover the building for other purposes; and the military (especially the cavalry) having an eye on it because of the vast nearby training grounds. Thus a permanent cloud of uncertainty hovered over the Academy observatory.

The *coup de grâce* came from Xavier-Dagobert Bach (1813-1885), a mathematician taking over as Dean of the Faculty of Sciences in 1866. In a report dated from November 1867 on a possible transfer, he wrote: "I am not requesting a new observatory, which would be quite expensive, but a terrace where portable instruments could be installed when some interesting celestial phenomenon could be observed" – in other terms, back to the situation a century earlier. But European war games would quickly change the local context.

2. The faculties of the 19th-century French university were housed in this building nicknamed the *Académie* (formerly an orphanage). The tip of the observatory is visible on the roof behind the central fronton. The German university also used this building during roughly a decade (1871-1881), until the completion of the new Wilhelminian university. (© *Cabinet des Estampes,* reproduced with permission)

The Wilhelminian Observatory

At the outcome of the Franco-Prussian war of 1870-1871, France lost Alsace and Moselle. As often in the course of History, the new German authorities decided to make a showcase of the newly acquired region and in particular of its capital Strasbourg. New spacious and structured quarters were built, still called today the *Wilhelminian Quarters* from the name of the new masters, the Emperors Wilhelm I (1797-1888) and Wilhelm II (1859-1941) who ruled until the end of World War I.

The new city expansion included a modern university campus with an astronomical observatory. The construction of the latter took place between 1877 and 1880, with an inauguration in September 1881 celebrated with a General Assembly of the Astronomische Gesellschaft. August Winnecke (1835-1897), the first Director of the Wilhelminian observatory, was also Secretary of the German professional society.

From the start, the observatory consisted of several elements connected by covered corridors (Fig. 3). The most emblematic building, the Big Dome, was positioned at the end of a double line of university institutes. It was completed by a residential building for the Director, including offices, and an observational unit with two smaller domes and two meridian rooms.

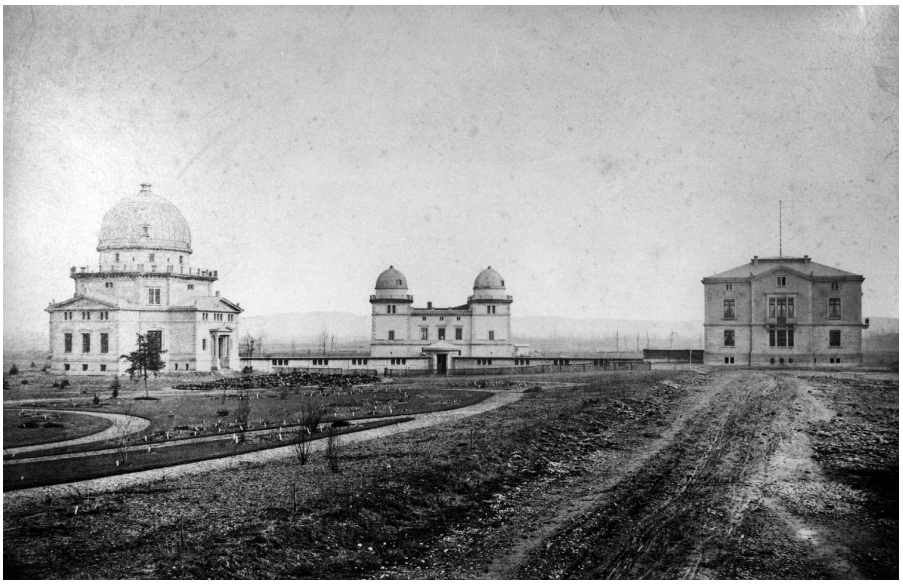
In the first volume of the *Annalen der Kaiserlichen Universitäts-Sternwarte in Strassburg* (1896), Ernst Becker (1843-1912), the second German Director, described the buildings and the instruments they were housing. The initial instrumentation included the 132mm Cauchoix passage instrument recovered from the French Academy observatory and put in the West meridian room. A 160mm meridian instrument was purchased from Repsold and assigned in 1880 to the East meridian room. A 76mm heliometer by Utzschneider & Fraunhofer was acquired in 1877 from the Ducal Observatory in Gotha. In 1874, it was part of an expedition to the

Kerguelen Islands for the transit of Venus with a team from Gotha. For the following transit in 1882, it went to Bahía Blanca (Argentina) with a team from Strasbourg.

The Large Refractor, a 487mm telescope, was built in 1877 by Merz (Munich) with a mounting manufactured by Repsold in 1880. The instrument was then the largest in Germany. The Northern smaller dome was equipped with a 136mm altazimutal refractor built by Merz & Repsold in 1879. As to the Southern dome, it was hosting a 162mm refracting telescope manufactured in 1876 by Reinfelder & Hertel (Munich).

The German *Inventar* of the observatory lists numerous other instruments among which a 162mm comet seeker built by Merz in 1876 with an altazimuthal mounting set on a mobile chair. Other comet seekers, small refractors and various instruments were part of the sizable equipment in those initial times. As to the astrophysical instrumentation (and to the exception of an astrophotometer from Gotha Observatory), it is essentially under Julius Bauschinger (1860-1934), the third German Director, that the observatory acquired spectroscopic, photographic and photometric devices.

The history of the Wilhelminian observatory and of its subsequent evolution (French in 1919, German during World War II, then French again) has been extensively described in an edited volume (Heck 2005). Interested readers are invited to refer to it as well as to the bibliographical pointers it offers.



3. View around 1880 of the *Kaiserliche Universitäts-Sternwarte Straßburg*, the Wilhelmian observatory, showing (left) the dome of the Large Refractor, (center) the two smaller domes on a building housing also two meridian rooms, and (right) the Director's residence. The covered corridors linking the buildings are also visible.A few pathes and young trees of the Botanic Garden are visible in the left foreground. The traces left by cartwheels on the right mark the future *Universitätsstraße*. The hills faintly distinguishable between the buildings are summits of the Black Forest, East of the Rhine. (© Strasbourg Obs.)

Epilogue

All the above will be developed and documented with excerpts of historical archives in a monograph in preparation (2012?). It is interesting to note that we are currently, like in the 19th century, in a phase where plans regularly pop up for moving Strasbourg Observatory elsewhere, i.e. out of the historical walls of the Wilhelminian observatory. To this day, the most serious project aims at the disappearance of the observatory as an administrative entity by merging it, at the end of 2012, within a larger unit involving other research groups (geophysicists, etc.) from the university.

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