

## LILLE OBSERVATORY: A UNIVERSITY HERITAGE

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**Abstract.** Lille observatory was a private research structure from 1909 to 1933, but it was declared "Observatory of Lille University" in 1912. So from the beginning, the actions of the observatory were linked to research observations (measurements of double stars) and to pedagogic activities with students. In 1933, all the astronomical instruments (including the 32.5 cm telescope with a focal length of 6 m) were transferred in Lille and the new observatory became a public structure incorporated into the university. Nowadays, the scientists of Lille observatory are a team of the CNRS/UMR8028 (IMCCE, Paris Observatory, Lille 1, Paris 6), and still use the telescope for science and teaching purposes. In 2009, within the framework of the centenary of the telescope, Lille university leads several actions to promote its heritage (including restorations of the dome and the offices).

### 1 Introduction

The Observatory of Lille university houses a group of lecturers and researchers in celestial mechanics. They take part in computing the national ephemerids which, according to the law of *7 messidor an III* (25th June 1795), are the liability of the "Bureau des Longitudes". The history of this observatory is complex but strongly related to that of Lille university. The observatory exists since 1909, and has been declared *Observatoire de l'Université de Lille* according to the ministerial decree of the 6th July 1912, but the scientific instruments has been owned by the university in 1933 when it has been transferred from Hem to Lille. I present here its history since its foundation until its present activities in order to understand its place in the regional and university scene.

### 2 The foundation of the Observatory

One hundred years ago, Robert Jonckheere, the son of a rich manufacturer in Roubaix built an astronomical observatory to satisfy his passion. The building, set in a small hill of Hem, was worthy of national observatories at this epoch: a refracting telescope of 325 mm of aperture and of 6 m of focal. We could find there a library, some offices, a meteorologic station and a house.

Rapidly, contacts are established between Hem observatory, the North department and Lille university. Daily meteorologic bulletins were established there. The observatory took part also into the times service and gave some lectures (including the use of the refractor) for students of the university. Then, the 26th June 1912, the council of the university voted that the observatory of Hem is an attached unit. In July, from a ministerial decree, it was the "Observatory of the Lille university". Robert Jonckheere lived in his observatory where four persons were working. He continued to measure the double stars (Jonckheere 1911). With these studies, R. Jonckheere became internationally famous (Jonckheere 1962).

Nevertheless, after the first world war and the following economic difficulties, Robert Jonckheere was not able to finance the running and the maintenance of his observatory. After several years of negotiations, he sold his scientific instruments to Lille university in 1929.



**Fig. 1.** Observatory of Lille university (photo: Obs. Lille)

### 3 The Observatory of Lille university ... in Lille

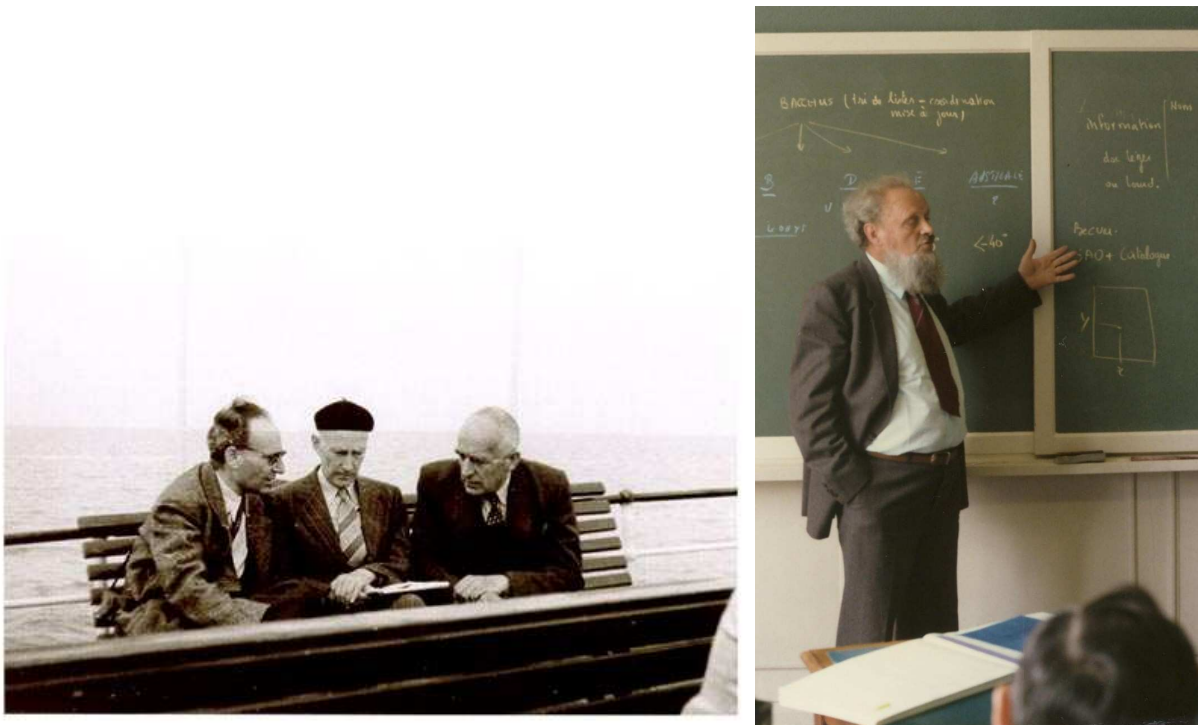
Around 1930, under the influence of Roger Salengro, the Mayor of Lille, the district *Lille-Moulins* had been restored. The project corresponded to a social politic and a scientific orientation. Hence, the fluid mechanics institute, the Denis Diderot institute, the open-air school, the botanical garden and the Lille Observatory were built. The latest received all the instruments of the Hem observatory, including the telescope. Lille observatory was inaugurated the 8th December 1934.

Despite his requests, Robert Jonckheere could not access to a research position in this new institution because of a lack of university degree. Then he left Lille and lived in Marseille where he had several jobs. During the second world war he made him know at Marseille observatory where he became a professional astronomer in CNRS (*Centre National de la Recherche Scientifique*). He kept on with his studies and his discovers of double stars. He became editor-in-chief of the *Journal des Observateurs*. At the end of his career, he had obtained several important scientific prizes. He retired in 1962 and died the 27th June 1974.

So, the existence of an astronomical observatory at the north of Paris is due to the will of both the city council and the university of Lille. It is due also to the opportunity to obtain a scientific material built at the beginning of the century by an enthusiast astronomer. At the university, this will was carried in particular by mathematicians: Albert Châtelet, Joseph Kampé de Fériet and the first director of Lille observatory, Charles Galissot (from 1934 to 1951). We know very few about him and even about this epoch. The group *Association Jonckheere Les Amis de l'Observatoire de Lille* leads research in this way. Later, from 1952 to 1962, the director was Vladimir Kourganoff. He was born in Moscow in 1912, he had brilliant studies in France and abroad (Berkeley, Oslo, ...). His research concerned as well the study of the interior of stars and cosmological theories. Then Pierre Bacchus has been the director from 1962 to 1986. Before arriving in Lille, he was professor at Strasbourg observatory where, with the professor Lacroute, he had the idea to use a satellite in space in order to measure precisely the positions and the motions of stars (Bacchus & Lacroute 1974). This idea was at the origin of the international astrometric project Hipparcos. He handed, by its personality and its very clear pedagogy, the taste of astronomical computations. The reader can see on the website of the "association Jonckheere", the homage paid by his former student Luc Duriez who was in charge of the Observatory between 1986 to 1989. Irne Stellmacher took then the direction until 2003. Coming from the Computations Department of the Bureau des Longitudes, known nowadays as IMCCE (*Institut de Mécanique Céleste et de Calcul des Ephémérides*), she has worked on the administrative link between Lille observatory to this department. This link has been made very naturally because the astronomers of the observatory already worked to make ephemeris (Duriez 1982; Vienne & Duriez 1992).

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**Fig. 2.** Left : V. Kourganoff, J.H. Oort and H. Spencer in 1953 (photo: ESO). Right: Pierre Bacchus in 1986 (Photo: SAF).

#### 4 Science, students and observations

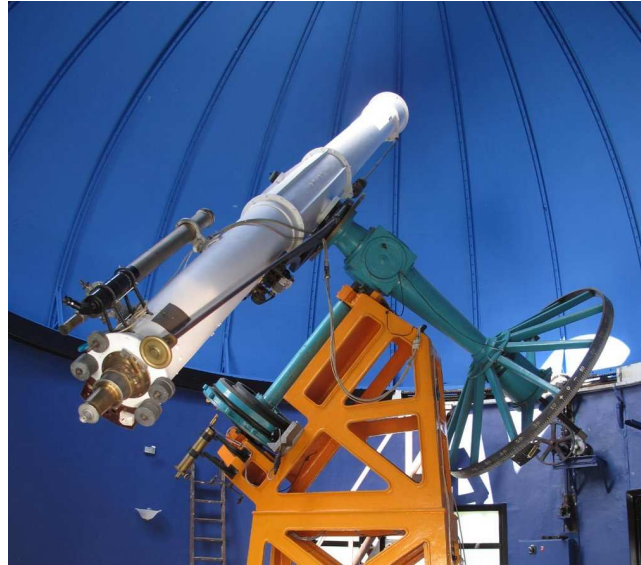
Then, the astronomers of Lille observatory built general theories of motion of the planets of the solar system (that is, theories with a lower precision than the ones published but, on the other hand, valid over several million years), theories of motion of natural satellites which orbit around Jupiter and Saturn. More generally, their research concerns dynamics of the gravitational systems and dynamical planetology : search for scenario of formation of resonance, study of tides in the considered bodies (and then linked with their internal structure such as the possibility of an ocean inside Enceladus), long term dynamics of comets, capture of satellites ...

The refractor of 35 cm is sometimes used for scientific purposes but it is especially used for pedagogical activities. Astronomical lectures are given to students preparing their License in mathematics or physics. When the sky is clear, practical works are organized in order to familiarize these students to observe stars with the telescope. Since 1999, an agreement between the planetarium of Villeneuve d'Ascq (near the campus) and Lille 1, allows amateur astronomers to use the refractor for their own observations. At last, the group Jonckheere association follows a scientific program of observations of double stars, just as Robert Jonckheere began one hundred years ago!

#### 5 Conclusion

We can summarize the hundred years of Lille by these main following points:

- It has been a private structure from 1909 to 1933.
- But it was named "Observatory of Lille university" since 1912.
- It was transferred to Lille city and managed by the university in 1933.
- Since, it is a university laboratory with about 3 or 4 lecturers researchers.



**Fig. 3.** The 32.5cm telescope with a focal length of 6 m of Lille observatory (photo: Asso. Jonckheere).

- It is a team of the IMCCE (a laboratory labeled by CNRS) since 1998. IMCCE is managed by Paris observatory and secondary by the university of Paris 6 and the university of Lille 1. 20 researchers and 20 technicians or engineer work there.

In 2009, for the centenary, of the telescope, the new presidency of Lille university undertakes to restore the dome, the offices, the patrimonial space, ... Then it is show that Lille university want to take advantage of the existence of an instrument liked by students and, more generally, by many people.

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