STRASBOURG OBSERVATORY:

A Multinational History

The Strasbourg Astronomical Observatory is more than a famous center for astronomy—it is also an interesting place for historians.

by André Heck

Strasbourg Astronomical Observatory has a fascinating history. Indeed, several changes of nationality since its founding in the late 19th century, high-profile scientists in residence, and big projects born (e.g., HIPPARCOS) or maintained (e.g., CDS) in the Observatory give it a unique place in the international astronomical community.

At the end of the Franco-Prussian war of 1870-1, France lost Alsace (minus Belfort and a small territory around it), as well as a part of Lorraine including Metz. That region, Alsace-Moselle, was improperly named *Elsaß-Lothringen* [Alsace-Lorraine] by the German empire—an incorrect denomination that is still found today in many books including tourist guides.

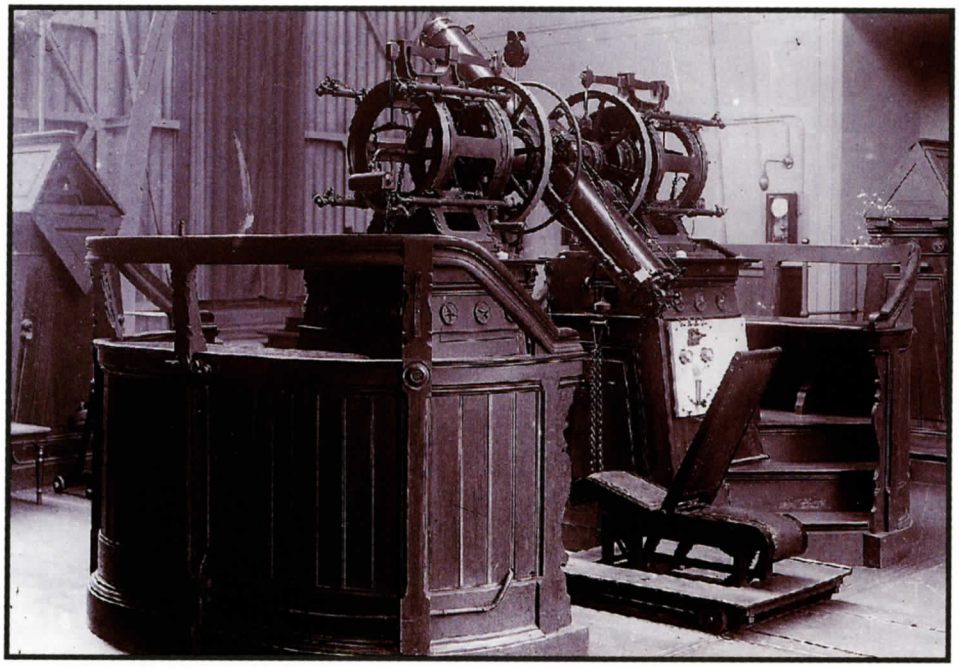
The Large Refractor, a 487-mm telescope built in 1877 by Merz, seen here in the 1920s. The movable stairs visible on the left still exist. The central part can be raised and lowered to the best position for the observer. Photo courtesy of and © Obs. Astron. Strasbourg.

As so often in the course of history, the new authorities decided to make a showcase out of the newly acquired region and Strasbourg, in particular. New spacious and structured quarters were built, roughly east of the old town. The new city extension included what one would call today a university campus with an astronomical observatory. At the end of World War I in 1918, the city, as well as the whole of Alsace-Moselle, again became French. With the outbreak of World War II, the area was annexed in 1940 by the Nazi regime. The French university had already been moved to Clermont-Ferrand in central France, and German staff ran the activities in Strasbourg during the conflict. The area returned to France in 1945, but, still today, the region obeys rules different from the rest of France with a so-called *Local Law*—priests and other cult ministers are paid by the State, different payrolls for civil servants, trains running on the right like in Germany, etc.

The Observatory consisted from the start of several elements interconnected by covered corridors that allow the personnel to move between the buildings while being protected from the bad weather. The most emblematic, cross-shaped building is the Big Dome (at the top of top right illustration on p. 36). The other original elements are a residential building (the South Building) for the Director plus some offices and an observational unit located east of the previous ones and including two smaller domes (at the bottom of top right illustration on p. 36) and two meridian rooms. The lower photograph on this page offers a current panoramic view of the site. The Eastern Building, added in 1933 during the first French period and heightened in 1958, is visible at the upper right in the continuation of the meridian building.

Among the innovations due to the first Director August Winnecke (1835-1897), the isolation of instrument pillars from the building foundations deserves a special mention, as well as the separation of the various areas of activities (lodging, observing, working). These novel design elements influenced subsequent observatory building around the world. Strasbourg Observatory became a model illustrated in the reference encyclopaedias of the time.

"Some of the Observatory's novel design elements influenced observatory-building around the world."



166-mm meridian instrument bought from Repsold in 1876, seen here in the 1920s. Photo courtesy of and © Obs. Astron. Strasbourg.

People and Projects

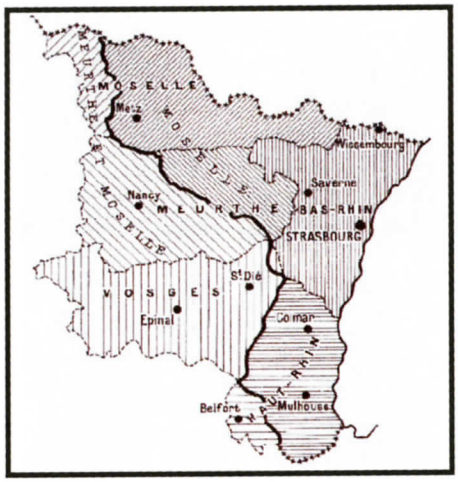
The by-laws regulating French research institutions—such as the observatories—have undergone several changes through the years, especially after the 1968 events that rocked European universities. Consider the Table listing the Observatory's directors (p. 36). After events of the late 1960s, directors were no longer given their appointments for life, but were elected for limited terms. This explains the high turnover of directors in the last decades. Lacroute (whose directorship was the longest one, spanning thirty years) went in fact through the post-1968 transition and was re-elected until his retirement. Becker's directorship ranks second with 22 years. Also, given the way scientific activities are organized and financed nowadays, both nationally and internationally, people currently in charge of observatories are more administrators than directors.

Winnecke was appointed Director for Strasbourg Observatory in 1872. He had been earlier at Pulkovo Observatory, where he became Deputy Director in 1865. In 1869, Winnecke was elected Secretary of the *Astronomische Gesellschaft* (AG), a position he held for a dozen years, until September 1881 when Strasbourg Observatory was inaugurated with an AG meeting. The AG, founded in 1863, was then playing the *de facto* role of an "international astronomical union" (set up officially only after WWI in 1919).

The successive German directors conducted various astrometric surveys including precise determinations of positions of nebulae, double stars, and circumpolar stars. They had also to undertake, at the request of the government, campaigns of relative gravity measurements in Alsace-Moselle. Astronomical observations were carried out using a Merz Large Refractor (487 mm), a Cauchoix passage instrument (132 mm), a Repsold meridian instrument (160 mm), and a Merz & Repsold altazimuthal refractor (136 mm) for the circumpolar stars.

Before arriving in Strasbourg, Winnecke had already discovered ten comets. Quite naturally then, a Merz comet seeker (162mm)

Current aerial view of Strasbourg Observatory. The Eastern building, added in 1933 and heightened in 1958, is visible at the upper right in the continuation of the meridian building. (Phot. J. Marcout, © Obs. Astron. Strasbourg)

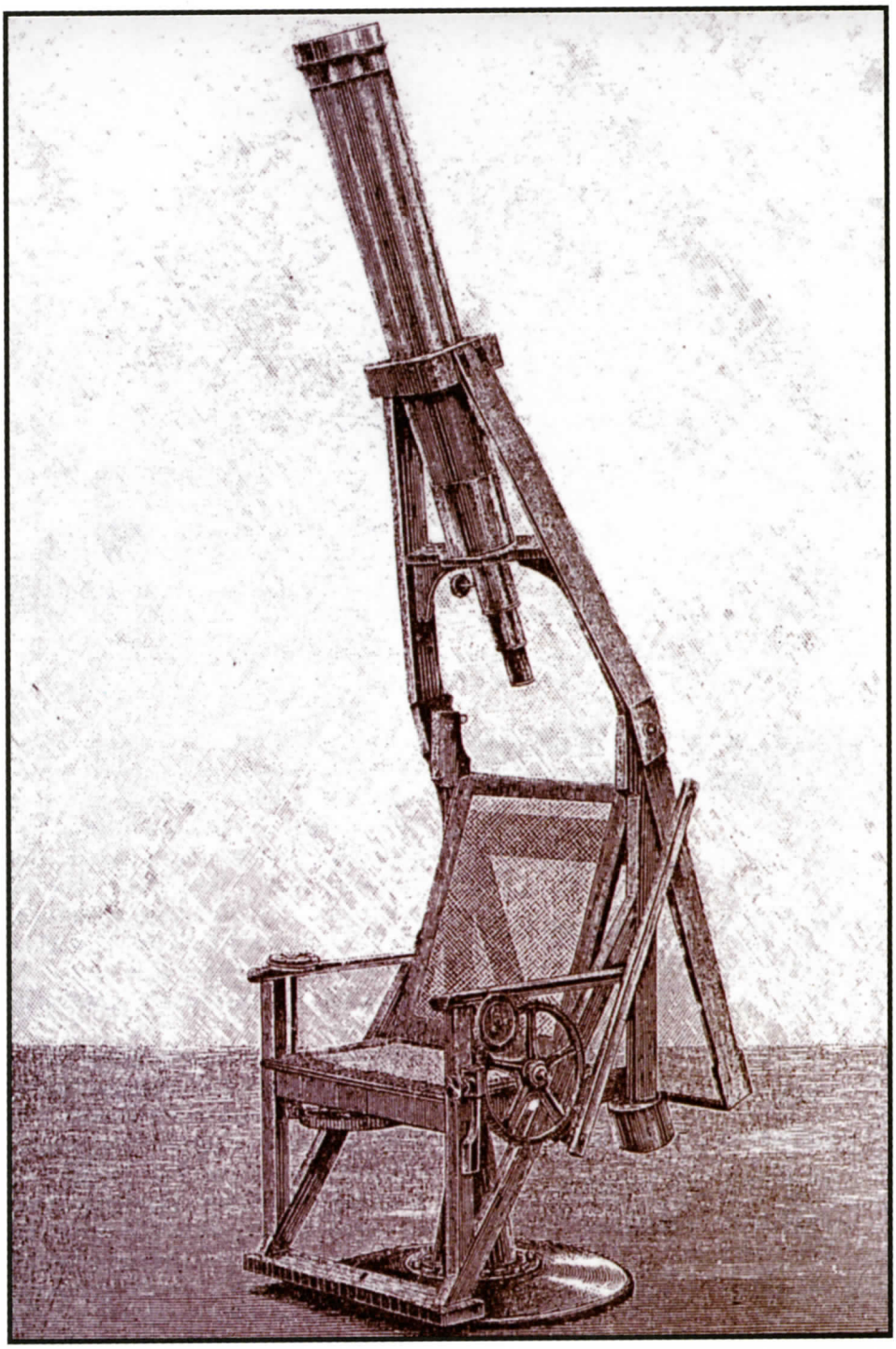


The annexed Alsace-Moselle area (with narrow hachures), east of the new border after the Franco-Prussian war of 1870-1871. Illustration courtesy of the author.

with an altazimuthal mounting was set on a mobile chair on the Big Dome terrace. A venerable traveler deserves also to be mentioned: an Utzschneider & Fraunhofer heliometer (76mm) that, before joining Strasbourg, had been part of an expedition to the Kerguelen Islands in 1874 for the transit of Venus. For the 1882 transit, it was sent to Bahia Blanca (Argentina), this time with Strasbourg staff.

Carl Wirtz (1876-1939) was definitely the most active and the most productive astronomer at Strasbourg during the German times. He observed primarily nebulae and double stars with the Large Refractor, but his measurement of Neptune's diameter in 1903 remained the accepted value for decades. His work was critically disturbed by WWI, and, subsequently, his personal life was also seriously hampered by the rise of national-socialism. Wirtz has been occasionally called the *Hubble without a telescope* with reference to the lack of support and means he experienced for his research. He studied various relationships between the physical parameters of "nebulae," but, as other early cosmologists, he remained largely ignored in the time.

Ernst Becker (1843-1912) initiated the series of Observatory *Annalen* [Annals] that would be continued by the French after WWI. The inventory of the Kaiserliche *Universitäts-Sternwarte Straßburg* [Strasbourg Imperial Observatory], initiated in 1886, displays a moving continuation of entries until the end of the 1930s, switching from German to French at the end of WWI. The inventory is not complete for the French years, but entries have been logged until the end of the 1930s. This can be understood in light of the fact that, at the return of Alsace-Moselle to France, people quite naturally continued using German material available in the area.



Strasbourg Observatory comet seeker (162mm), built by Merz in 1876, as illustrated in Krisch's (1901) *Astronomisches Lexikon*. Photo courtesy of and © Obs.Astron.Strasbourg.

Contrary to what many people tend to believe today, extensive bibliographic sources were not born with computers. Beyond a few undertakings dating from the end of the 17th century, Walter Wislicenus (1859-1905) initiated in Strasbourg an exhaustive compilation that lasted one century. Under AG patronage, he published, from 1899 and until his death, the *Astronomischer Jahresbericht* (AJB), an

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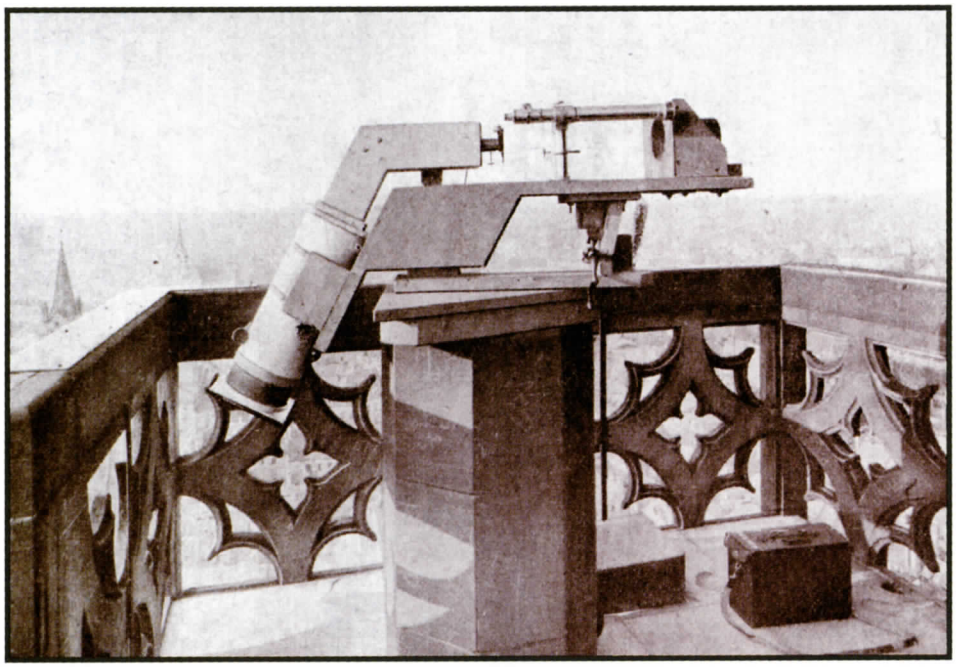
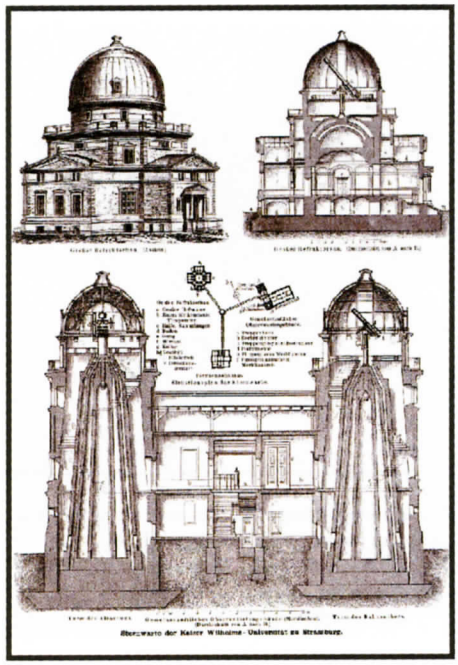


Spectrograph installed in 1920 by Danjon and Rougier on the platform of Strasbourg Cathedral (66 m elevation to ground) to study the green flash. Photo courtesy of and © Obs. Astron. Strasbourg.



Sketch of Strasbourg Observatory reproduced from F. Küstner's article in the renowned Meyers *Konversations-Lexikon* (1888). Center: the Observatory ground layout. Top: the Big Dome. Bottom: the two smaller domes next to the meridian rooms.

Strasbourg Directors

(colors show different historical periods)

1872-1886	A. Winnecke
1882-1886	W. Schur*
1886-1887	H. Kobold*
1887-1909	E. Becker
1909-1918	J. Bauschinger
1918-1919	M. Baldit*
1919-1929	E. Esclangon
1929-1945 (Clermont-Ferrand)	A. Danjon
1941-1944 (Strasbourg)	J. Hellerich
1946-1976	P. Lacroute
1976-1987	A. Florsch
1987-1988	D. Egret*
1988-1990	A. Heck
1990-1995	M. Crézé
1995-2000	D. Egret
2000-	J.M. Hameury

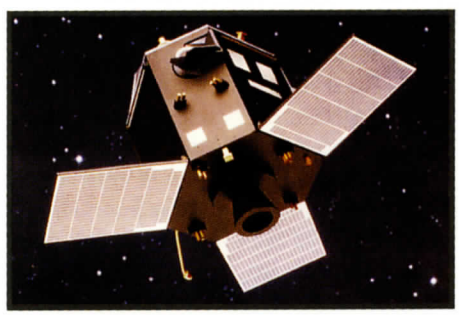
*ad interim

annual bibliographical compendium that survived him. The 68th and last volume under that name was published in 1969 by the Astronomisches Rechen-Institut in Heidelberg. But the series went on under the title *Astronomy and Astrophysics Abstracts* (A&AA) until 2001 when it was discontinued indefinitely. It was difficult for the publication to compete with resources such as the Astrophysics Data System (ADS) available on the Internet.

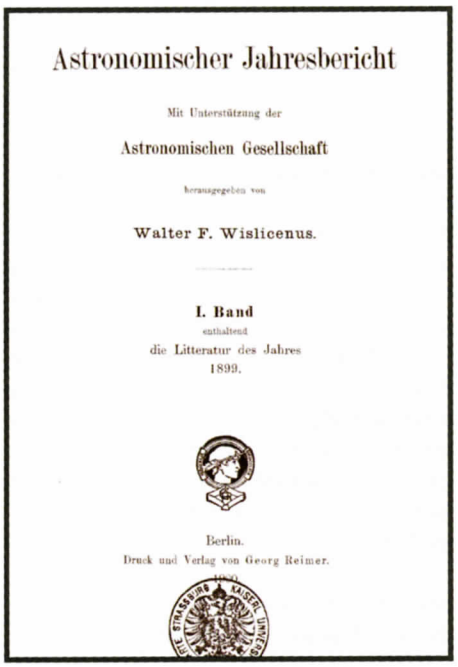
The first French Director, Ernest Esclangon (1876-1954), had to restore the Observatory and the German instrumentation after WWI. Esclangon equipped the buildings with the first sets of dual clocks providing the mean and sidereal times. He became Director of Paris Observatory in 1929; while he is mainly remembered for fathering the first talking clock, he always encouraged instrumental development. He was succeeded as Director in Strasbourg by André Danjon (1890-1967) whom Esclangon had enrolled as assistant astronomer in 1919. Danjon had been extremely creative in designing all kinds of instruments and novelties—from passage telescopes and astrolabes to cat-eye photometers and micrometers.

With Gilbert Rougier (1886-1947), later Director of Bordeaux Observatory, Danjon carried out the first spectrographic observations of the green flash from the terrace of Strasbourg Cathedral. With André Lallemand (1904-1978), developer of electronic cameras bearing his name, Rougier was part of an expedition to observe a total solar eclipse on the Grande Condore Island (Poulo Condore archipelago), not far from an infamous penitentiary. Lallemand took then the first infrared photographs of the corona, which he correctly interpreted as a plasma. With André Couder (1897-1979), who remained known as a world-class optician, Danjon wrote what has been a reference for many, the book *Lunettes et Télescopes*.

The nearing of WWII induced the transfer of Strasbourg University and its personnel to Clermont-Ferrand in 1939, a move that was actively managed by Danjon, who had become Dean in 1935. German authorities intended, however, to repopulate the Alsatian institution. Thus, on 28 August 1941, Johannes Hellerich (1888-1963) was nominated Professor of Astronomy and put in charge of the Observatory. Hellerich instituted several courses (also in nearby Freiburg im



The HIPPARCOS satellite, born in Strasbourg. Illustration courtesy of ESA.



Astronomischer Jahresbericht

Mit Unterstützung der

Astronomischen Gesellschaft

herausgegeben von

Walter F. Wislicenus.

I. Band

enthaltend

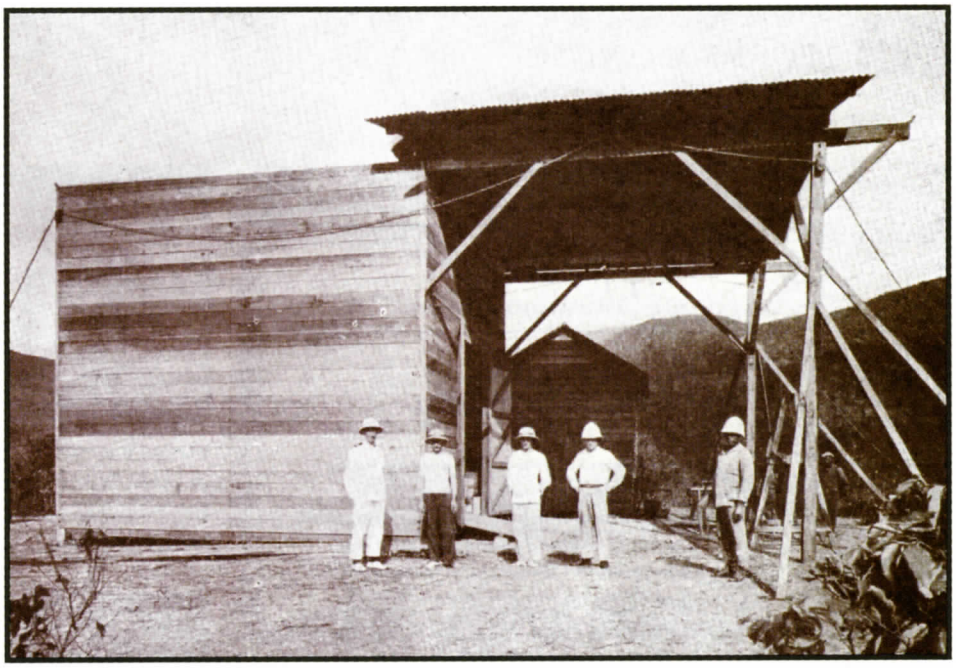
die Litteratur des Jahres

1899.

Berlin.

Druck und Verlag von Georg Reimer.

Cover of the first volume (1899) of the *Astronomischer Jahresbericht (AJB)* edited by Wislicenus, with the stamp of Strasbourg Imperial Observatory. That bibliographical compendium lasted under that name until 1969 and was continued under the title *Astronomy and Astrophysics Abstracts* until Year 2001.



Strasbourg Observatory station at Poulo Condore for the total solar eclipse of 9 May 1929. Photo courtesy of and © Obs. Astron. Strasbourg.

Breisgau) and attempted to make best use of the observational equipment. At the end of WWII, he was interned at Saint-Sulpice-sur-Tarn and authorized to go back to Hamburg in February 1946. To the question that many certainly have, one can answer that Hellerich became a member of the national-socialist party in 1937—probably to ease his career—but that he was not a fanatic follower.

When Danjon was called to Paris at the end of WWII, Pierre Lacroute (1906-1993) was nominated Professor in Strasbourg, a position that led eventually to his being named Observatory Director. In spite of being a spectroscopist by training, Lacroute decided to continue the Observatory's astrometric tradition, and he modernized the meridian circle (chronograph, photography of the circles, etc.). He also directed the first University computing center.

"Lacroute understood the importance of artificial satellites... his idea for an astrometric spacecraft took shape in the HIPPARCOS satellite."

Lacroute quickly understood the importance of artificial satellites and the gain in precision that could be obtained from astrometric measurements collected outside Earth's atmosphere. His idea for an astrometric spacecraft took shape gradually in the form of the HIPPARCOS satellite, which was launched by the European Space Agency in 1989. Lacroute passed away in 1993 and could not see the enormous catalogue resulting from his brainchild.

It is also during Lacroute's directorship that CDS was installed at Strasbourg Observatory. Initially called Centre de Données Stellaires [Stellar Data Center], CDS would be subsequently known under its current and generalized name as Centre de Données astronomiques de Strasbourg [Strasbourg astronomical Data Center], taking into account the fact that it also handles non-stellar data.

One of the first tasks of the Center was to establish a huge table of correspondence between the various astronomical catalogues, which were then machine-readable. Thus, identification of an object permitted one access to all data available in the integrated catalogues. Bibliographical references including the objects were connected, too.

Such a work of modern Benedictines has been the basis of the database Simbad that made CDS a world-wide reference. Incidentally, the availability of such a tool avoids the recurrence of ludicrous situations in the past where two researchers studied the same star under different names without ever realizing it was the same object.

Nowadays the organization chart of Strasbourg Observatory is rather complex with people from various administrations. The current staff is varied and cosmopolitan, a sign of the times certainly, but also an indication that the institution succeeded in making itself attractive while reaching a world-class excellence in the course of its short history.

Further reading

All the points above are developed in a volume of contributions from French and German specialists: *The Multinational History of Strasbourg Astronomical Observatory*, ed. A. Heck, Springer (2005). m

ANDRÉ HECK is currently an astronomer at Strasbourg Observatory. He served as Observatory Director a couple of decades ago, following work in both theoretical and observational astrophysics at the Liège (Belgium) Institute of Astrophysics, Paris Observatory, and the European Space Agency IUE Observatory in Spain. After being for years the international traveling "salesman" for the astronomical Strasbourg Data Center (CDS), he is now involved in historical and socio-strategic studies, producing the series "Organizations and Strategies in Astronomy (OSA)" in line with his set of organizational databases StarPages. He also has a comet bearing his name (1973a).