ROYAL ACADEMY OF SCIENCES AND ARTS OF BARCELONA

In 1764 (almost 250 years ago), a group of educated citizen of Barcelona decided to organize a "Physico-Mathematical Conference" to follow the progress of science and technology. Several years earlier, in 1717, and as a consequence of the Catalonia's stance against King Philip V at the beginning of the 18th century, the Catalan universities (including the University of Barcelona) were moved to Cervera, a town in the interior of Catalonia, where they remained until 1842.

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◂ P. 27: Façade of the Royal Academy of Sciences and Arts at the Rambles, Barcelona

Then, some institutions were created in order to substitute the academic, scientific and technical role of the University of Barcelona. A few years later, the "Conference" was recognized as an Academy by King Charles III, with a name very similar to the present one. Thus, the Royal Academy of Sciences and Arts of Barcelona (RACAB, www.racab.es) is one of the oldest academies in Spain.

The present site of the Academy is on Barcelona's popular central avenue, the Rambles, and was built between 1883 and 1894. It is a pre-modernistic building designed by the architect and academician Josep Domènech i Estapà and is crowned with two domed towers. The paintings in the main hall, representing allegories of the scientific sections of the Academy, are works of the well known painter Fèlix Mestres. In the entrance hall, called the Hall of Clocks, there is an exceptional collection of clocks. Apart from those associated with the normal Hourly Service, there is a monumental astronomical clock built by Billeter (1869) that displays the relative positions of the Sun, the Earth, the Moon – as well as the planets – together with the sunrise and sunset times. It also has local time dials for 24 cities around the world and a perpetual calendar.

Throughout its life, the Academy has gathered an exceptional selection of ancient instruments. Among the collection of astrolabes, the most interesting is the Azarquiel (Ibn al-Zarqalluh) assafea (11th century). Other instruments included a Daguerre camera (1839) constructed by Alphonse Giroud (father in law of Daguerre), a dilatometer (ca.1768), some microscopes from the 18th century; and some ancient telescopes.

The Archive and the Library of the Academy have a documentary collection spanning nearly three centuries which is of great historical value. The Library, with more than a hundred thousand documents, is one of the most important in Spain concerning the second half of the 19th century. Access is especially organized for those involved in studying the History of Science and Technology. The catalogue is accessible on the Academy's web site.

At present the Academy has a maximum of 75 co-opted members distributed in seven sections: Mathematics and Astronomy; Physics; Chemistry; Science of the Earth; Biology; Technology; and Applied Arts. In addition it has some 30 Spanish and 30 foreigner corresponding members.

The Academy plays a crucial role in the study and spreading of science and its application to technology and applied arts. It is particularly active with issues that are vital to scientific progress and is taking an increasingly prominent position in furthering the role of science, engineering and technology in society. An example is the conference held in the Academy auditorium by Albert Einstein en 1923. Einstein was elected a corresponding member, as were Nobel Price winners Santiago Ramón y Cajal and Severo Ochoa. The Academy is committed to collaborate with other institutions and agents involved in policy-making on science related issues.

The Academy hosts scientific sessions on a regular basis in which its members present and discuss their research and their work. It also produces authoritative statements and reports that provide insightful advice to governments, institutions and corporations on key scientific

▾ FIG. 1: Overview of Barcelona with the Fabra Observatory

and technological issues. It organizes series of lectures and exhibits that are aimed at both specialists and non-specialists. Sessions and lectures are usually published in the Proceedings [*Memòries*] of the Academy.

From its early years, the Academy has been especially active in Astronomy. One of the promoters of the Academy, the Jesuit Tomas Cerdà was the first person lecturing on the new Newtonian theories in Catalonia and Spain. At the end of the 19th century, activity in Meteorology and Astronomy induced the creation of an astronomical observatory in order to follow the activity that its first Director Josep Comas i Solà, had developed with a telescope installed at home.

In 1886, in order to standardize the local time and disseminate it throughout the city of Barcelona, the Academy accepted the mission to define the time in Barcelona and in 1891 that time was declared the *official time* for the City. In 1895, the City Council declared the Academy also responsible of the accuracy of the clocks of the Cathedral and the City Hall and, later on, other clocks around the city. The time was set by means of astronomical observations until 1926 from a meridian telescope installed in one of the domes of the Academy at the Rambles.

In order to improve the astronomical activity of the Academy in 1902 and thanks to a donation from Camil Fabra i Fontanills - the first Marquis of Alella - the Academy decided to construct the Fabra Observatory. It was finished in 1904 and inaugurated by King Alfonso XIII. The building is also a pre-modernistic building designed by Josep Domènech i Estapà and an intrinsic part of the skyline of Barcelona. The equipment was a donation from the Barcelona City Council and the *"Diputació"* of Barcelona. The Fabra Observatory has run without interruption since its inauguration. The observation of the new meridian telescope replaced the role of the one at the Rambles until the official time was established by means of broadcast signals.

One of the important achievements of the Fabra Observatory has been the discovery by its first Director of small celestial bodies. Comas discovered eleven small planets, which were given names such as Barcelona, Gothlandia (allegorical for Catalonia), Hispania… and two comets, one of which, the Comas Solà, is periodical. One crater on the Moon and another on Mars are named by Comas also. Furthermore, Comas was the first person to observe and describe the presence of an atmosphere on Titan, the largest satellite of Saturn, on the night of August 13th 1907. The result was published in *Astronomische Nachrichten* and it took forty years to be confirmed by spectroscopic methods.

The Observatory has three sections. The Astronomical Section, which is devoted to astrometry – position setting – of small planets and comets. The Meteorological Section which collaborates with the Catalan Meteorological Service and the Spanish Meteorological Institute. Its observational series, taken at the same place which has suffered little changes in the surroundings, are particularly important because it spans a period of 100 years without interruptions. The Seismological Section, devoted to regional seismology, can record the largest earthquakes around the world. It also collaborates with the Catalan Institute of Cartography and has a second station at some 60 kilometres from Barcelona with a third site planned in order to improve the observations.

Recently, in order to avoid the luminosity of the city of Barcelona the Academy has installed a new robotic telescope in the Pre-Pyrenees. It is in cooperation with the Royal Observatory of the Spanish Army (ROA) in San Fernando (Cádiz). The Telescope Fabra Roa at Montsec (TFRM) is a refurbished NASA Baker-Nunn camera which is an excellent instrument for many different kinds of observations. ■

▲ **FIG. 2:** Entrance to the Fabra Observatory

Ramon Pascual,
- **Professor of Theoretical Physics at Universitat Autonoma de Barcelona**
- **Chairman of the EC of ALBA-CELLS Synchrotron**
- **President of the RACAB (Reial Acadèmia de Ciències i Arts e Barcelona)**
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The Royal Academy of Sciences and Arts of Barcelona (SP) has kindly welcomed the EPS Executive Committee meeting early this year in its somptuous house. Its long and brilliant history through many centuries deserves to be known and Europhysics News is grateful to its President for his contribution.