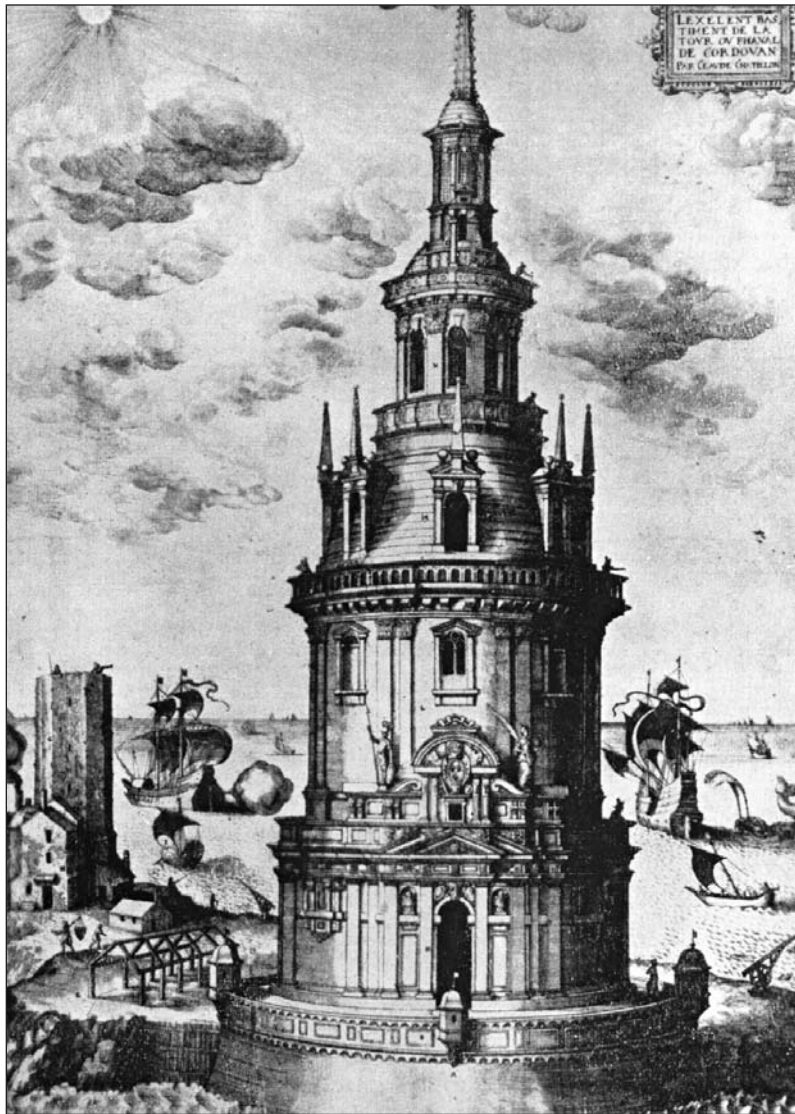


The Most Beautiful Lighthouse in the World



By George
Worthylake and
Leslie Blanchard

Chatillon's drawing (circa 1612) of the Cordouan Lighthouse showing the original tower with timber piling around the base to prevent erosion. A "donut" structure was constructed to surround the tower at a later date.

"The Gulf of Gascony, from Cordouan to Biarritz, is a sea of contradictions; an enigma of a strife and struggle. As it stretches southward it suddenly acquires an extraordinary depth and becomes an abyss in which the waters are swallowed up. An ingenious naturalist has compared it to a gigantic funnel, which abruptly absorbs all that pours into it. The flood, escaping from it under an awful pressure, [mounts] to a height of which our seas afford no other example."

— Jules Michelet
French historian (1798 -1874)



Michelet's description, highly colored as it is, does not exaggerate the chaotic fury of this 120-mile-stretch of sea-coast between the Spanish border and the great estuary of the Gironde River. The entrance of this waterway to Bordeaux is flanked by two narrow channels bristling with hidden reefs and an outcropping known as the Island of Cordouan. Approximately 3,000 feet long and 1,500 feet wide, this rocky

ledge is completely submerged at high tide. But, as recently as the 15th century it was an island connected by a narrow peninsula to the Medoc coast. And, in fact, was an island when the present lighthouse was begun at the end of the 16th century.

The swift, ever-shifting and unpredictable ocean currents rage with special violence around the mouth of the Gironde. The entire area is strewn with sunken rocks and shifting sandbanks menacing the ships attempting to thread their way through the obstruction enroute to the ancient port city of Bordeaux.

As early as the reign of Charlemagne various beacons have been erected near the mouth of the river, assisting mariners who navigated the area. Legend has it that in 880 AD, Charlemagne, or his successor, constructed a chapel on the island with a provision for sounding trumpets to warn sailors away from the island during reduced visibility.

The medieval chronicles of Matthew of Paris record that commercial relations were established between the Gascon region and the city of Cordouan in the 13th century. Ships transporting leathers from the south to Bordeaux passed vessels sailing downriver with wine from Bordeaux. As shipping increased so did the number of vessels lost at the dangerous mouth of the Gironde River. The need for a navigation beacon on Cordouan Island became imperative. However, there is no record of anything being established prior to 1370.

Edward, the Black Prince, administrator of the English Province of Guienne (now France) was responsible for the first seamark on Cordouan. A charter from 1409 states that a chapel and a tower containing equipment 'necessary for the safety of ships' had been erected in 1370 and that a religious hermit named Gaspardus de Lasparre was made keeper. He was given authority to collect eight pence from all passing ships. This is the first known instance of the collection of lighthouse dues.

A 15th century engraving depicts the lighthouse as a 48-foot-tall octagonal tower. A wooden fire was lit on the top of the stone

lighthouse each night. Also on the small island were a chapel – where prayers were offered for seamen – and a few homes of pilots and local fishermen. The tower seems to have fallen into disrepair soon after completion and was the source of increasing complaints from the mariners who plied the local waters.



Cordouan Lighthouse as depicted on a 1570 chart.

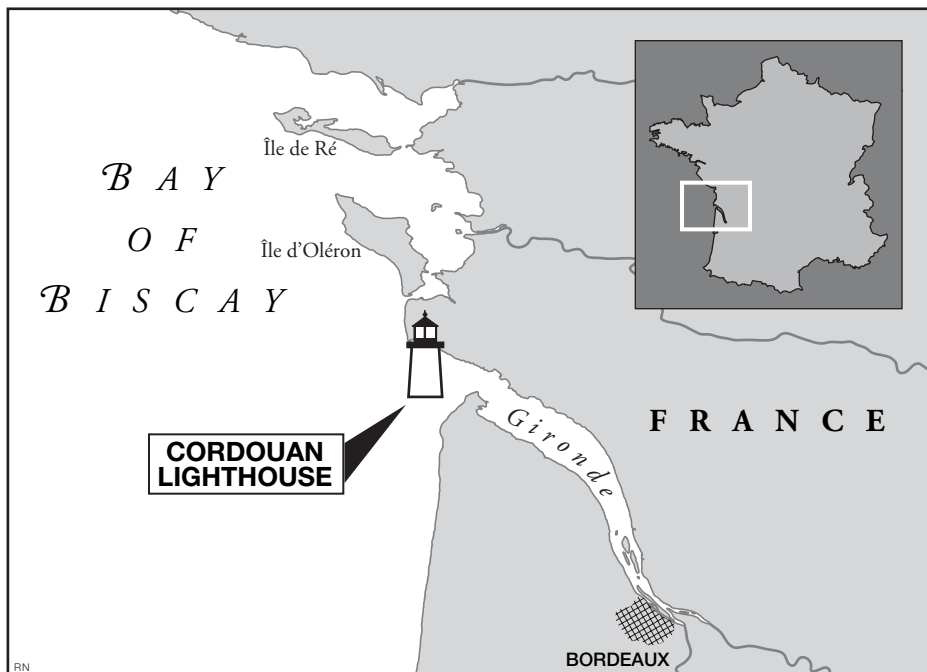
In 1581, it came to the attention of King Henri III that the lighthouse on Cordouan required repairs. He instructed the engineer-architect Louis de Foix to visit the lighthouse and report on the situation. De Foix estimated the cost of repairing the tower at 50,000 ecus-sols (\$1,800,000 in today's money). As this was far more than the king expected he considered alternatives, finally deciding on constructing a significant lighthouse to replace the aging and inadequate tower. He approved de Foix's design and contract (estimated to cost \$1,400,000 in today's money) in March

of 1584 and gave him two years to complete the project.

De Foix's spectacular design was in accord with French tradition at that time, that a public building should be a credit to the period of the construction and 'excite the admiration of posterity.' But de Foix grossly underestimated the difficulty and cost of constructing a lighthouse at so remote and inaccessible a location. By the time he began his work the peninsula to the coast had disappeared. The isolated rock was surrounded by jagged wave-lashed stones. It was accessible only by a small shingle beach and then only by small boat and at low tide. By the end of the first year de Foix had a crew of 80 men working on the lighthouse. Seven horses moved cut stones from the stone yard to the pier. Six boats manned by 27 sailors transported supplies and stone out to the island. Hampered by difficulties of weather, transportation, landing on the island and escalating expenses – that immediately started running above the original cost estimate – the work proceeded very slowly.



Cordouan Lighthouse shown on a 1650 chart.



A wall and parapet was begun in 1595 to circle the developing tower and protect it from the encroaching sea. The tower was far from complete when the designer and builder mysteriously disappeared in 1602, 18 years after the project was started. De Foix had met political and religious difficulties, was in debt, was imprisoned for a spell and had made many enemies. De Foix's son, Pierre took over the project, but he too abandoned the work in 1606 when the ever-mounting costs depleted his funds. The estimated completion cost was now triple the contract price.

Finally, Pierre's foreman, Francois Beusher, took over the project (under a new contract) and finished the tower in 1610 or 11. During the quarter of a century that it took to com-



Cordouan Lighthouse in 2000 during the Society's first French Tour. Photo by Ainsley Dixon.

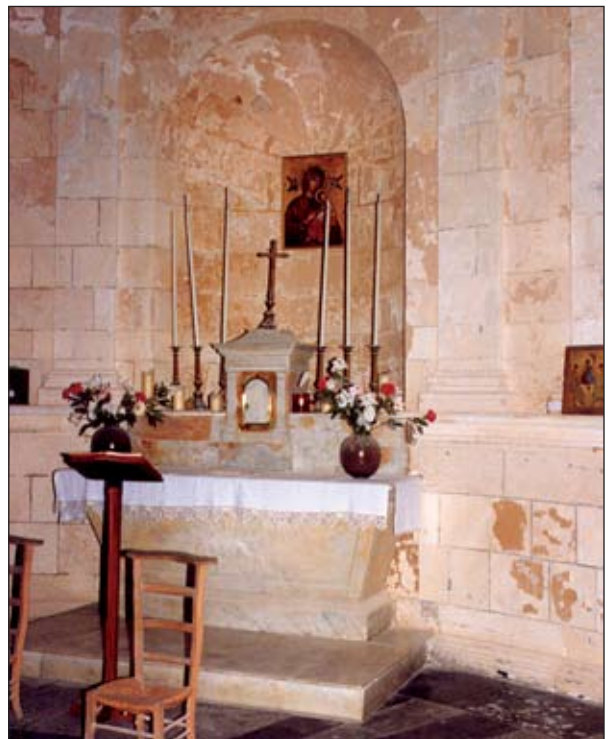


Above – Two of the four stained glass windows in the chapel of the lighthouse.

Below – The altar of the chapel usually has fresh flowers. Both photos courtesy of member Egbert Koch, Hamburg, Germany.



The two-room apartment in the outer ring of the lighthouse. The walnut paneled sitting room with fireplace was intended for the King's assistant, should he ever visit. In actuality it was used by the French lighthouse inspector. The bedroom is through the far door. Photo by Ainsley Dixon.



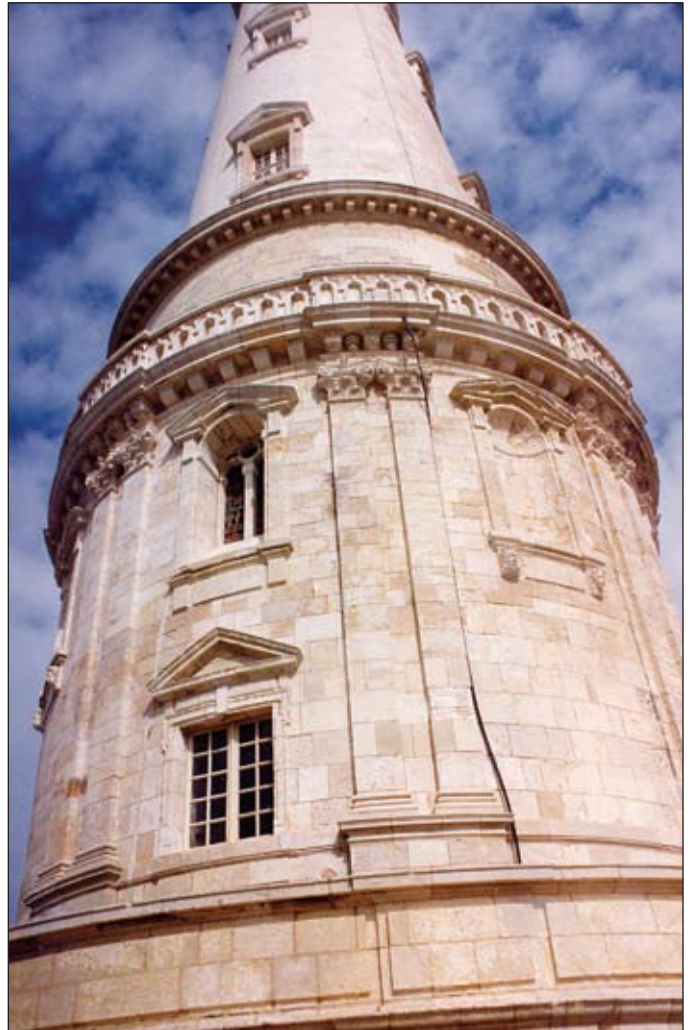


Far left – Two French keepers of the Cordouan Lighthouse in the fixed 1st order Fresnel lens which was installed in 1854.

Left – The walnut paneled bedroom for the on-duty keeper. It's located directly below the lantern room. Doors in the wall open to reveal a bed.

Below – Detail of the lower, original portion of the tower. The "new" part of the tower extends up from the first decorative ring.

Below left – Entrance to the tower. All photos this page courtesy of Egbert Koch, 1966.

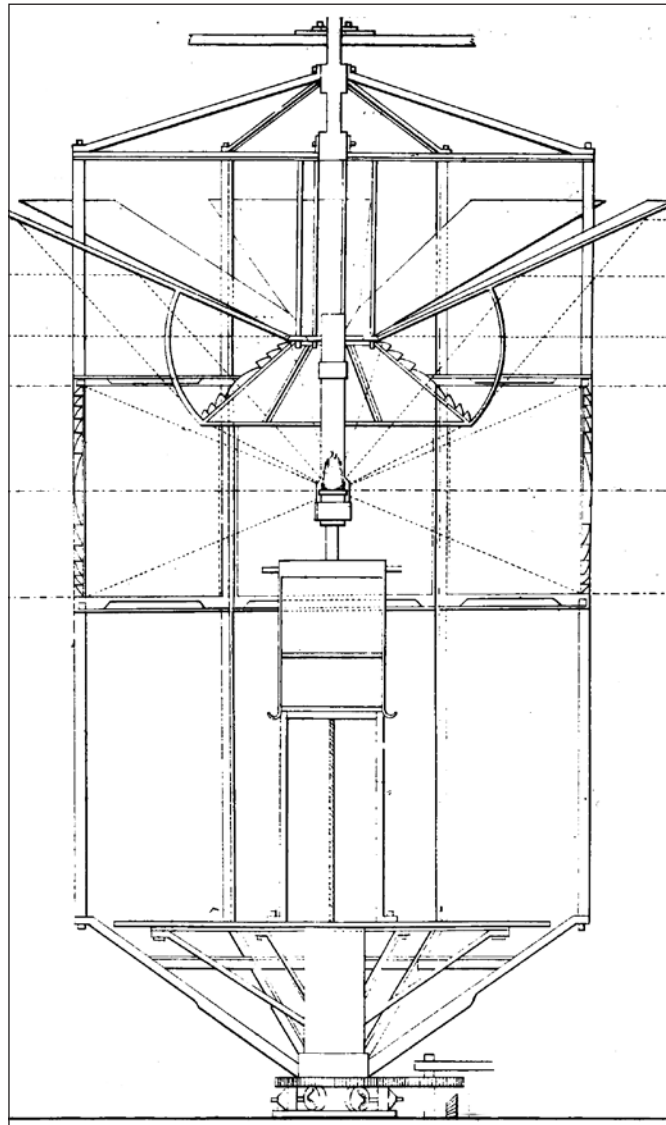


plete the structure the sea had been eating away at the island. By the time the lighthouse was completed little remained of the island. Beusher constructed a timber barrier to stem erosion from the sea, but by 1665 nothing remained but the lighthouse.

The completed tower is a marvel of decoration and ostentation. The donut shaped protection wall surrounding the lighthouse contains quarters for the keepers and storage, with a two room apartment for the King's valet (this was later used by visiting lighthouse inspectors). The base of the lighthouse has a large, grand entrance hall 52 feet in diameter. There are two water fountains on either side of the entrance door. Near the entrance are two staircases leading to the cellars and a water cistern. On either side of the entrance to the entrance hall, prior to the revolution, were busts of Henry III and Henry IV. Wide granite stairs lead to the next level. Over the entrance to this level the words 'The King's Chamber' are inscribed, leading to a room as large as the vestibule, with two fireplaces. The third level contains the chapel replete with an altar and four stained glass windows. Above this was a level with an open domed area where wood fires were kindled each night. A spiral access staircase was located in its own tower alongside the main structure. This enabled the keepers to carry wood, and later coal, up to the top without sullyng the interior of the lighthouse.

The burning of wood since 1612 gradually injured the stone work of the tower to the extent that the upper portions of the tower had to be removed in 1717 and rebuilt with a fire grate at a lower level. Mariners complained that lowering the 'light' reduced the geographical range. At this time coal replaced wood as the illuminate. In September 1724, Boucher, supervisor of lighthouses at Bordeaux, wrote to the British Admiralty requesting the design plan of coal grates used in England and information on the types of coal burned.

In 1727, an iron lantern, with pillars thinner than the bulky stone pillars of the earlier dome, was placed over the grate somewhat protecting the burning coal from the weather. The light-



Fresnel's first 1st order lens installed in the Cordouan Lighthouse. The lower portion is surrounded by prisms, the upper detail is of mirrors to reflect light to the horizon.

house engineers also tried to improve the intensity of the light by placing an inverted cone of shiny metal over the fire in an attempt to reflect light out to the mariner, but this proved futile as soot from the flame quickly sullied the metal.

Transporting and, more importantly, landing supplies of coal at Cordouan was an expensive and difficult proposition. In 1782 the open fire was replaced by an array of oil lamps backed by spherical reflector. The mariners complained and the Ministry of Marine sent engineer Joseph Teulere from Paris to study the problem. He found that the keepers weren't properly cleaning the reflectors and that they were too small. Larger reflectors were installed, but the mariners kept complaining and demanded a return to a coal fire. However, the reflector system would

remain until 1790. Teulere realized that the light was too low to provide the necessary range and recommend that the light be elevated. In 1788, he had everything above the chapel level removed and constructed a simpler design for the upper portion, but a style that blends in with the original, lower portion. The interior of the new tower is open to the level below the lantern. A circular staircase spirals around the side of the open tower's interior. The level below the lantern is a walnut-paneled bedroom for the keeper on watch. The new 12-sided lantern was 10 feet in diameter with windows glazed 15 feet high, quite unusual for that era. The lantern contained a revolving light consisting of a triangular frame, rotated by clock works, and carrying on each face four parabolic reflectors, 30 inches in diameter. The new light was put in service on August 29, 1790 and had a range of 20 miles on a clear night. Mariners were advised that the characteristic would be a flash every minute. However, seamen condemned it immediately. An inspection of the apparatus revealed that the reflectors were out of adjustment. Even corrected, the mariners continued to write the Ministry requesting a return to a coal fire. But Teulere's apparatus remained in place, with some modifications until 1823 when the first Fresnel lens was installed.

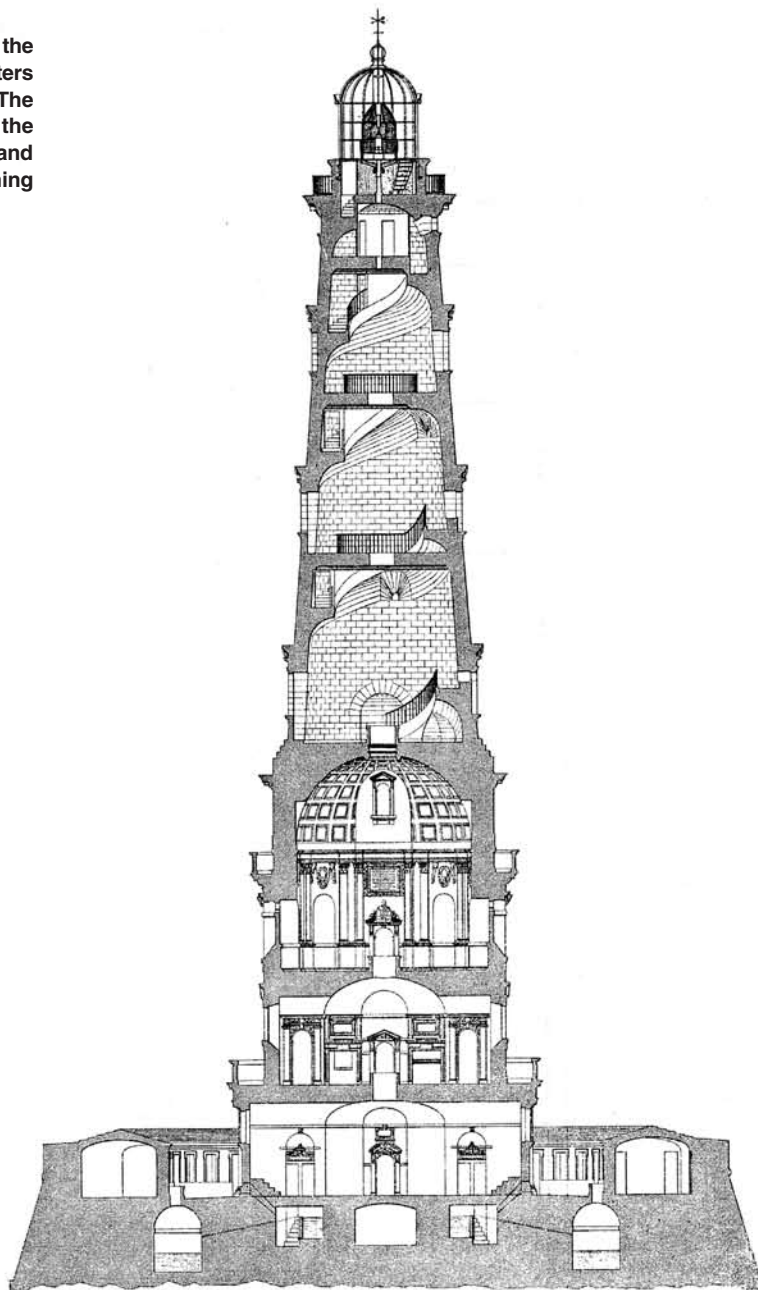
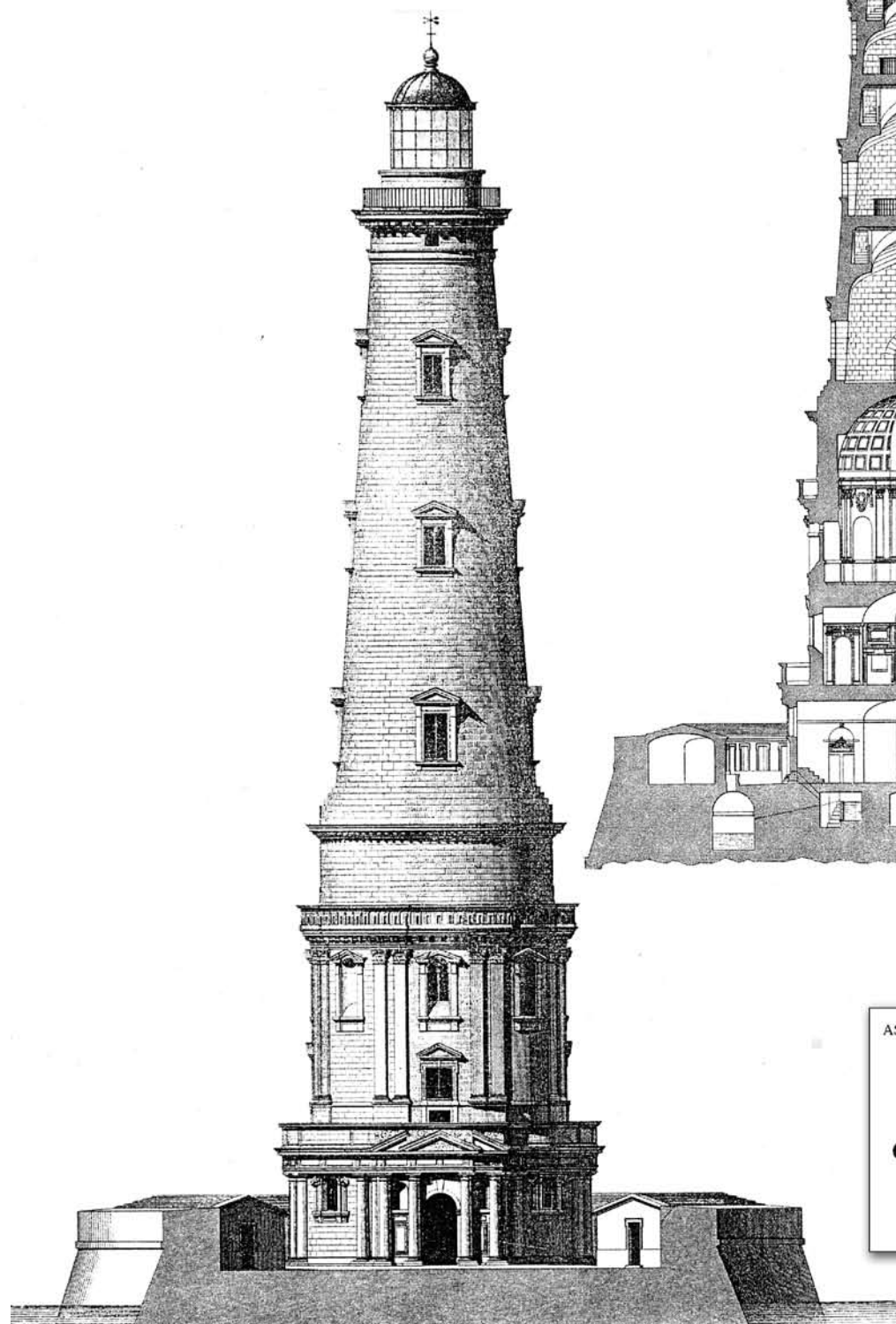
After four years of work, Augustin Fresnel ushered in a new era of lighthouse illumination. His 1st order diop-

tric lens with an oil-pumping lamp of concentric wicks was installed in the lantern room of the Cordouan Lighthouse. This lens produced an intensity of light far surpassing anything seen before. This was a revolutionary invention which spread throughout the world.

In 1854, Fresnel's first lens was removed and a more modern revolving 1st order lens was installed. It produced a flashing red and white characteristic with a range of 27 miles. That lens is still in use today.

In 1862, the Cordouan Lighthouse became one of the first buildings in France to be classified a historic monument, along with the cathedral of Notre Dame in Paris.

The Cordouan Lighthouse as it is configured today. The ring around the base contains the inspector's two room apartment (page 4), quarters for the modern keepers, equipment spaces and storage rooms. The first floor of the tower is the entrance lobby, the second floor is the King's apartment (containing two fireplaces and busts of Fresnel and other lighthouse engineers), the third floor is the chapel. Everything above the chapel is the 1788 addition.



ASSOCIATION POUR LA SAUVEGARDE
DU PHARE DE CORDOUAN

**Visite
du Phare**

N° 042525

Imp. Méditerranée - Soubise

Prix : 15 F.

