

ARGENTUM VIVUM
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SOLUTIONS



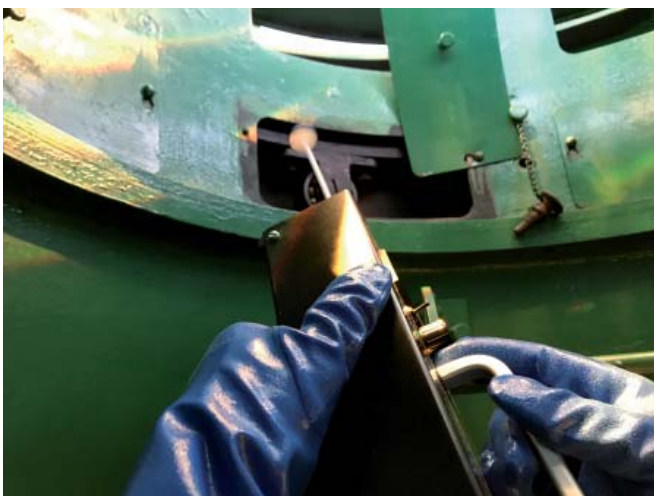
Mercury from The Light on The Horizon

For more than two milleniums lighthouses have been stationed on the coast of the world's oceans.

“The lighthouse as the carrier of the light marking the coast stands for the safety of shipping, serving as a beacon and guidepost to the seafaring man.” Contemporary lighthouse technology especially aims at creating flashing lights that carry far; these can least be confused with the lights of ships or houses on the coast, thus aiding sailors in determining the location of a ship relative to the near coast.

The director of French coast lighting services, Bourdelles, has rendered outstanding services in the development of flashing lights for lighthouses; consequentially the situation and furnishing of French lighthouses has been considered an example for other countries during the past decades. Bourdelles was the first to make optical beacon installations operating at high rotational speed, creating very strong light flashes of 1/10 second in duration.

To ensure smooth rotation of the heavy optical instrument and reduce the burden on the pivot pin, a ring-shaped float (in the shape of an air-filled box) is installed below the rotating disc of the instrument. The float dips into a trough filled with mercury. Float and trough are made of cast iron and precisely fit one into the other; only 5 mm clearance remain between their walls. Thus, only a small amount of mercury is required to fill the trough. **Meyers Großes Konversations-Lexikon, Volume 12, Leipzig 1908, p. 474-477.**



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Today, more than 100 years later, this technology involving a liquid bearing based on mercury is still in use. It achieves a low-friction stable bearing. In numerous lighthouses around the globe this technology is still functioning smoothly. A few tens to some hundred kilograms of mercury may be contained in such a bearing.

Seven kilometres south-east of the city of Arendal in southern Norway one such lighthouse is located on Store Torungen island. The lighthouse was completed in 1844.



The height and cramped work conditions in the more than one hundred years old lighthouse presented a special challenge. Unfortunately, the lighthouse did not have any heating. And the climatic conditions in Norway in December generally will not invite anyone to stay outdoors for a long time.

The technical challenge was to remove the mercury from the rotary mechanism, on which the optical lens rests – weighing several tons. Weeks before, the job had been planned on the basis of old technical documents. The building and the technical equipment are historical monuments under special protection. And the lighthouse was to continue operating afterwards.



"To the Lighthouse"

In the early morning on a Tuesday in December 2017 we were crossing the sea on a boat to the Store Torungen lighthouse. Preparations had begun weeks before.



The task was to plan and document occupational health measures, immission and environmental protection, while duly considering the sensitive marine environment. Packing in agreement with existing regulations and proper transport of the hazardous mercury over land and sea were part of the project ordered by Kystverket (the Norwegian coast administration).

The lighthouse has been operating since 1844 and has seen many technical novelties in course of the last century. However, in December 2017 the era of the technology developed by Léon Bourdelles and others came to its end on Store Torungen.

Store Torungen keeps beaconing and providing orientation to sailors at night time.



KYSTVERKET