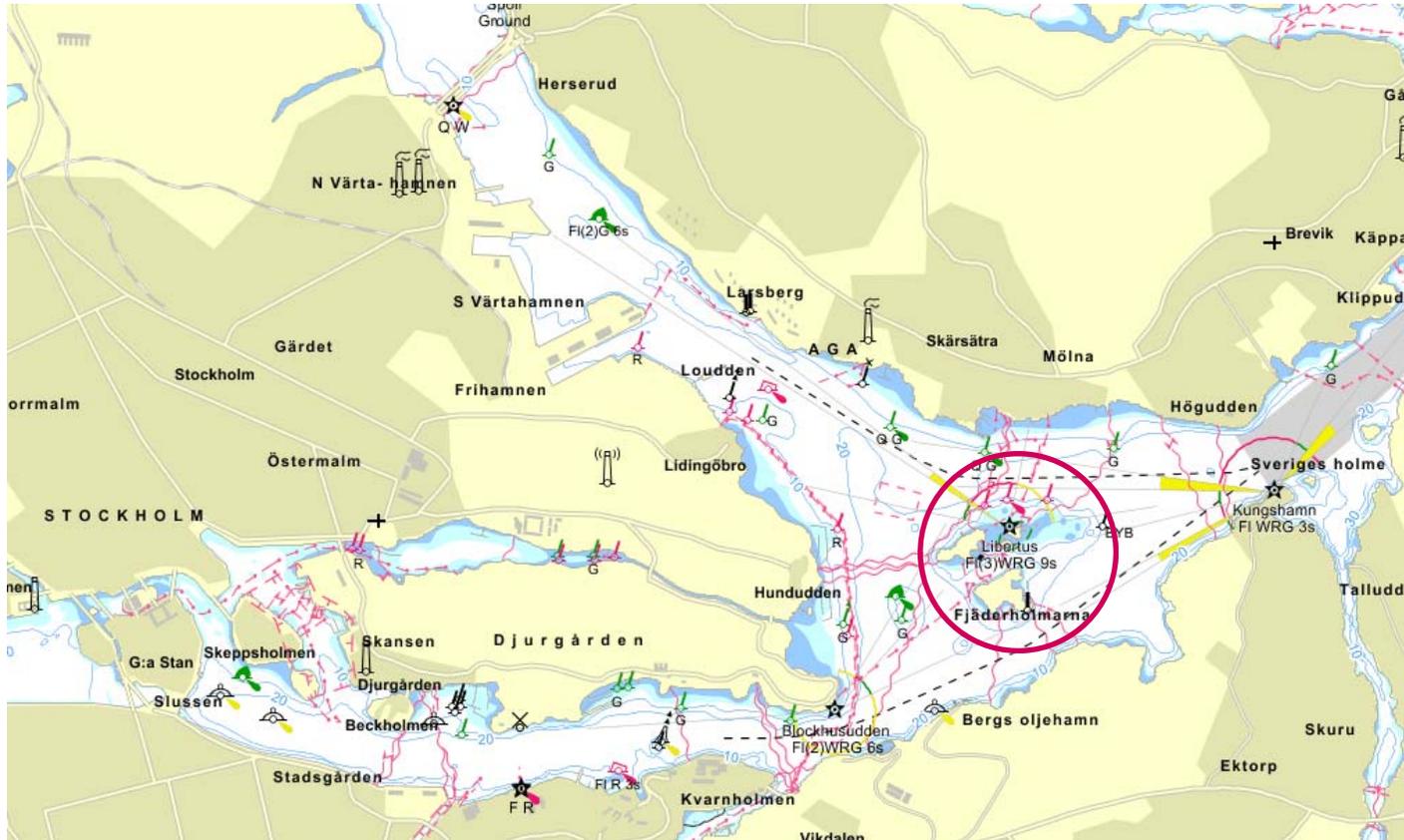


The lighthouse Libertas and Gustaf Dalén 150 year

Mats Ekman, Projects manager
Ports of Stockholm



Lighthouse Libertas in Stockholm's harbour entrance



Libertas becomes a listed building 1995

- Libertas was built in 1930
- When other lighthouses got their gas replaced by electricity, in the early 1990s, Libertas had to maintain gas operation
- By 2010, the gas cost had become too high and the lighthouse was supplemented by a led-light
- In 2019, Ports of Stockholm are renovating the lighthouse and making gas operations safer



Blockhusudden and Kungshamn

- Blockhusudden was early to get a Dalen flasher, 1906
- Blockhusudden was also equipped with a Sun valve
- For a long time this equipment has been removed and the lighthouse has only electric lighting
- Kungshamn got electricity as early as the 1950s



Gustaf Dalén (1869-1937)

- During his lifetime, Gustaf Dalén took no less than 99 patents. His energy and will were unbearable and he continued his work even after a severe accident that made him blind.
- Gustaf Dalén invented a revolutionary lighting system and created the company AGA.
- In 1912 he was awarded the Nobel Prize in physics.
- There is a museum in his honor in his birthplace Stenstorp. <https://www.dalenmuseet.se/>
- This spring, a radio program was broadcast about his life (in swedish) <https://sverigesradio.se/sida/avsnitt/1274143?programid=412>
- It has also been produced cinema films (Segel i mörker 1954) and children's books about his life
- This presentation focuses on the three inventions that have had the greatest impact on shipping. Dalén flasher, Sun valve and AGA-mass

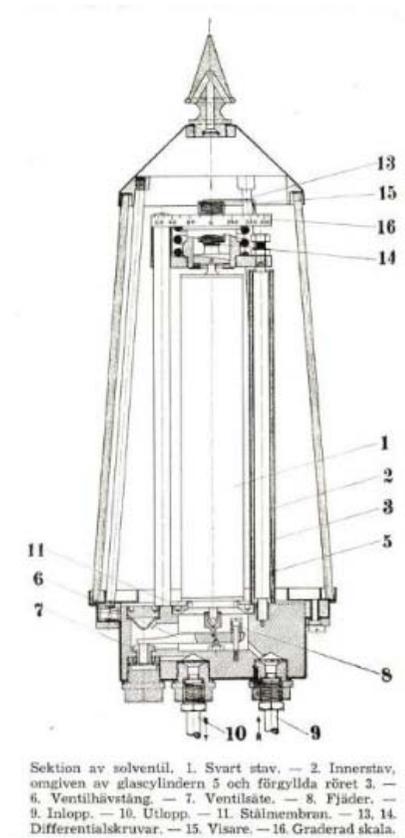


Dalén flasher



The Sun valve

- The Sun valve was the primary reason for the Nobel Prize in 1912
- When the sun fell on them and thereby strangling the gas supply to a small eternity flame
- The sun valve saved another 40% gas, a total of 94%



AGA-mass and the accident

- Agamassan is a porous substrate used to safely absorb acetylene and thus allow the transport, storage and commercial use of the otherwise unstable gas
- On Friday, September 27, 1912, a explosion occurred which almost cost the Dalén life
- Some sources say there were tests on how the gas cylinders could handle the heat in Panamas jungle, which led to the explosion.
- Other sources say it was tests to show for the railroad company that the gas cylinders withstand both heat and shock, which led to the explosion
- AGA mass made the gas safer, but there was a limit and Dalén found out where it was



Historical summary

- A half year after the accident, Dalén was awarded the Nobel Prize in physics.
- After illuminated the Panama Canal, Dalén flasher and Sun valve ended up on lighthouses all over the world
- In 2019 renovation is underway in Libertas, Stockholm. One of the few lighthouses with the Dalen flasher remaining. On Dalén's 150th birthday, shall we proudly light the flash again. Now in a safer way



*Bringer of Light.
Inventor of beacons to illuminate man's progress,
he walked in darkness himself*

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