

Helgoland

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Helgoland Latest News

Physicists treat Helgoland as the birthplace of quantum theory.

About Helgoland

- **Location:** Helgoland is a speck of red-sandstone cliffs **lies in the German Bay** (Deutsche Bucht) of the **North Sea**.
- It is barely a square kilometre in area, it was once a naval fortress.
- Physicists today treat Helgoland as the **birthplace of quantum theory**.

Relevance of Helgoland

- In June 1925, **Werner Heisenberg**, 23 and tormented by hay fever in Göttingen, fled to Helgoland.
- He dropped the idea of electrons 'orbiting' an atom's nucleus in favour of only those facts that fit experimental data: the frequencies and strengths of the light atoms absorb or emit.
- To keep track of those numbers, he arranged them in grids called matrices.

- When he multiplied the grids, the order mattered: position times momentum was not equal to momentum times position.
- This detail produced equations that matched the **spectrum of hydrogen atoms** perfectly. Heisenberg had thus sketched the first complete version of **quantum mechanics, later called matrix mechanics**.

Source: TH

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