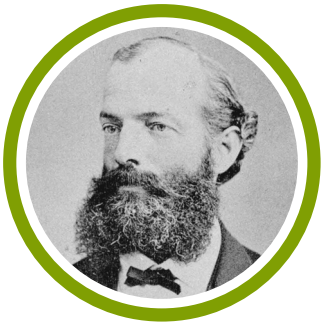
Today in Chemistry History

COMPOUND INTEREST

7th September – August Kekulé's birthday (1829) and benzene



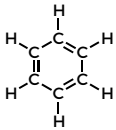
August Kekulé

Born

7 September 1829

Died

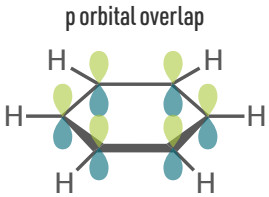
13 July 1896



Kekulé is best known for his work on the structure of benzene. He claimed he deciphered its ring-shaped structure after a daydream about a snake eating its own tail.

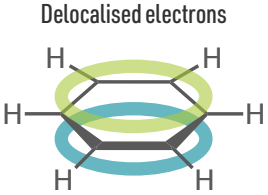
The chemical structure of the benzene ring

Kekulé's structure (1865)



Kekulé's structure depicted the benzene ring as a flat molecule, having alternating single and double bonds between carbon atoms. However, his original structure would have been an irregular hexagon with different bond lengths between the carbon atoms, which we now know isn't the case. Also, his structure didn't fully explain benzene's reactivity and stability.

Lonsdale's structure (1929)



In 1929, Kathleen Lonsdale used X-ray crystallography to show that all of the carbon-carbon bonds in a benzene ring are the same length. This is because the electrons are delocalised over the ring, shown by the circle drawn inside the hexagon above. This delocalised structure of benzene explains its additional stability. Lonsdale also proved it was a flat molecule, something chemists had argued over.