

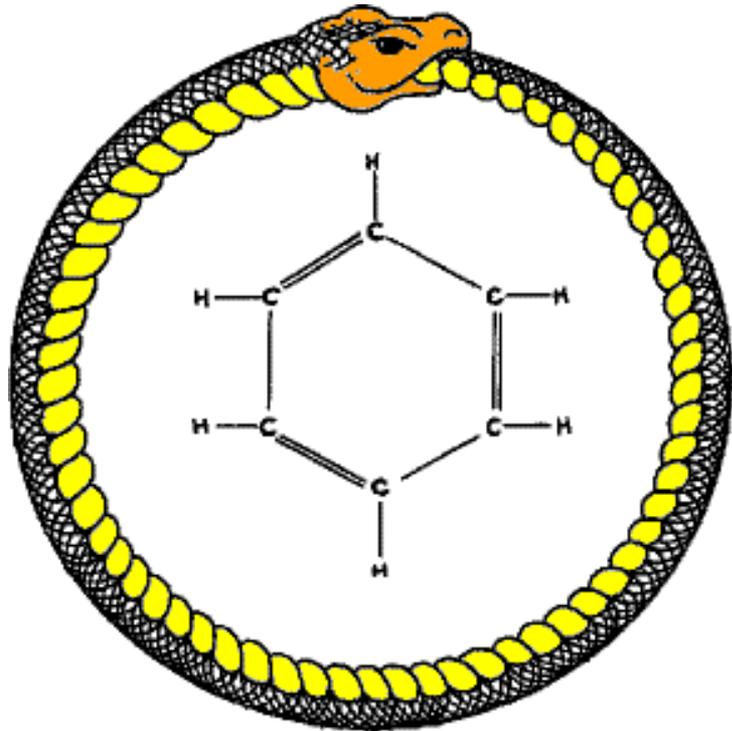
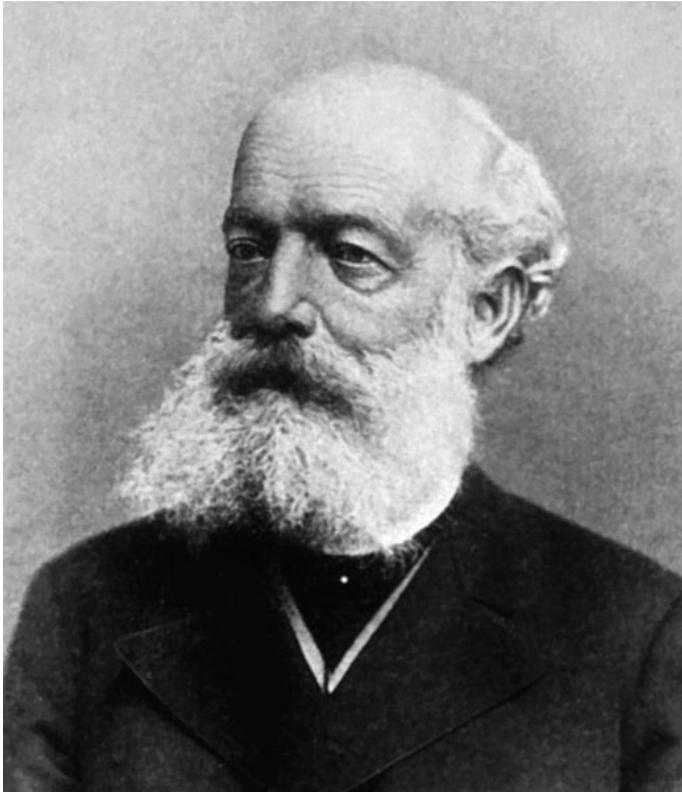


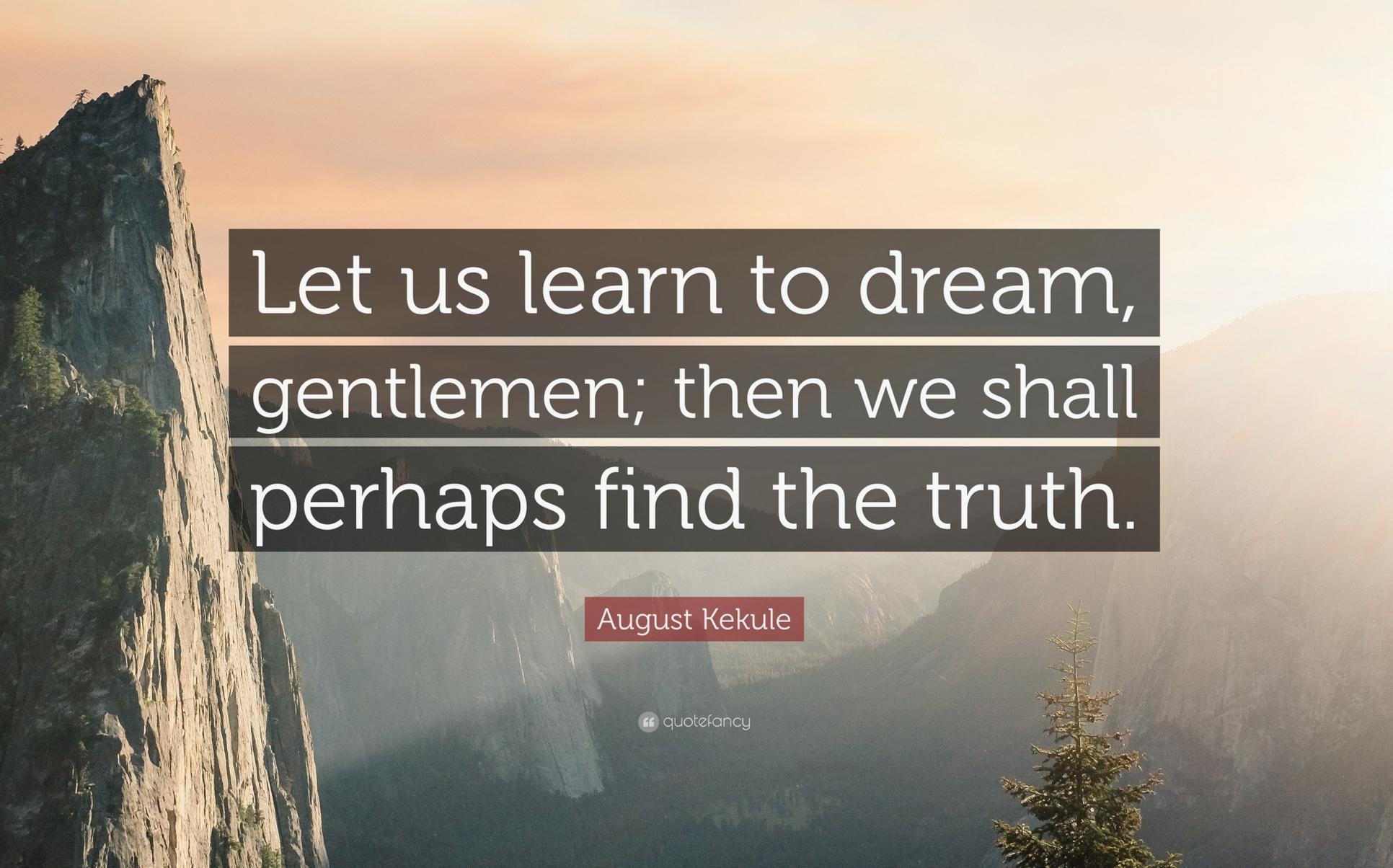
[WWW.CHEMSHEETS.CO.UK](http://WWW.CHEMSHEETS.CO.UK)

# THE STRUCTURE OF BENZENE

**Benzene = C<sub>6</sub>H<sub>6</sub>**

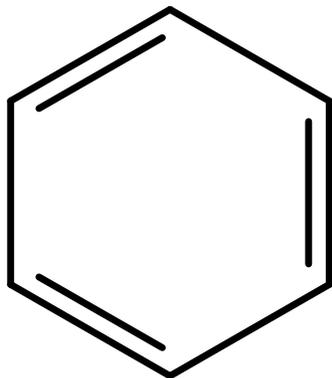
**Its structure was a mystery for many years - until Kekule's dream**





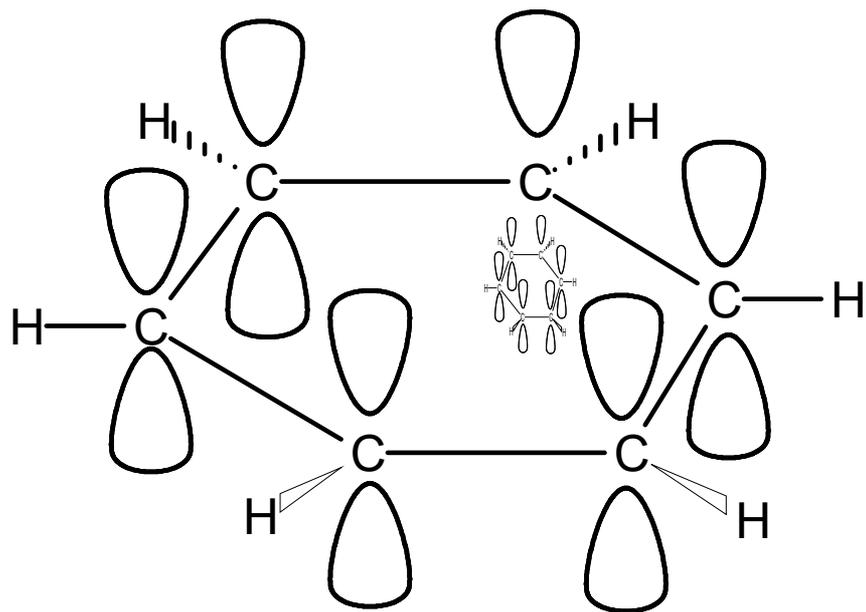
Let us learn to dream,  
gentlemen; then we shall  
perhaps find the truth.

August Kekule

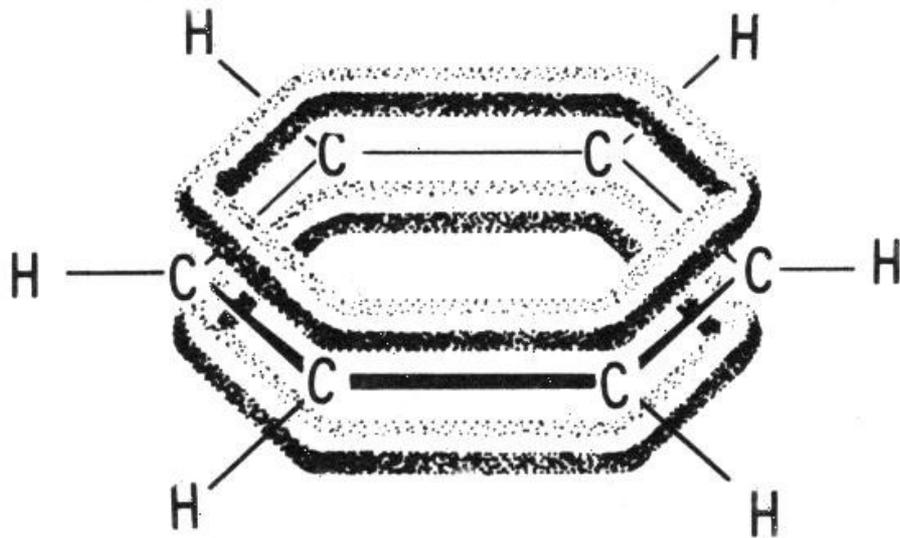


## Kekule's structure – problems

- 1) Benzene's C-C bonds are all the same length (between C-C and C=C length)
- 2) Benzene does not undergo addition reactions readily (e.g. with bromine water)
- 3)  $\Delta H$  hydrogenation about  $152 \text{ kJ mol}^{-1}$  less exothermic than expected



**electron ring**  
(delocalised electrons)



# electron ring (delocalised electrons)

