

Was famed German chemist a fraud?

BY MICHAEL LE GAULT
SPECIAL TO THE STAR

Most charges of scientific misconduct are levelled at living scientists. But in a weird new twist, a paper presented at a recent American Chemical Society meeting accuses German chemist August Kekule, dead for almost 100 years, of fraud and francophobia.

Kekule (pronounced kay-kuh-lay), one of the most renowned figures in the history of chemistry, was charged with inventing the dream he claimed inspired him to discover the ring-like structure of benzene. His finding paved the way for the development of modern organic (carbon) chemistry, and all the good (antibiotics) and bad (smog) it has given us.

The Kekule dream anecdote is familiar to virtually every science or engineering major who has ever taken an organic chemistry class. Scientists had known for some time that carbon atoms could form long straight chains, a configuration that benzene's properties didn't seem to fit. Kekule, up late one night working on the problem, took to brandy (according to my professor's

version) and soon fell asleep in his armchair.

Then, in Kekule's words, "I saw atoms gamboling before my eyes ... in snakelike motion. But look! One of the snakes has seized hold of its tail." Awaking, he wrote down a ring composed of six carbon atoms and alternating bond types — the forerunner to the accepted modern model.

Kekule's accusers, chemistry professor John Wotiz of Southern Illinois University and research technologist Susanna Rudofsky of the University of Chicago, claim the dream was fabricated by Kekule to avoid giving proper credit to the work of researchers preceding him.

As Wotiz writes: "The dream itself was very clever misconduct... By claiming that he conceived (benzene's structure) in a dream, Kekule had no need to cite prior work because dreams come without footnotes and reference citations." Citing one of Kekule's personal letters, his detractors also claim that the German Kekule was motivated by an anti-foreign bias, especially against the French.

Alan Rocke, history of science professor at Case Western University, counter-accuses Wotiz and Rudofsky of wilful manipulation and misinterpretation of the evidence. In an article in the *Bulletin for the History of Chemistry*, Rocke states that there is strong historical evidence that Kekule had such a dream. Kekule also cited the work of others in his earliest papers, says Rocke. As for his alleged slur on the French, Rocke points out it was written during the Franco-Prussian War, a time when intense feelings of nationalism would have been natural.

Kekule fudged no data. He performed no shady experiments. At worst, he appears to have had something of the modern knack for self-promotion.

And Kekule's dream seems plausible. The role played by the intuitive and subconscious in creative or scientific breakthroughs is well documented today. As Kekule had been working obsessively on the problem of benzene's structure for years, it does not seem far-fetched to suppose his mind would continue mulling the conundrum while



AUGUST KEKULE: Had a dream.

he dozed.

Kekule hammered out the structure and tested it experimentally in the clear light of day. The evidence verifies his contribution. Why, then, knock a dead man when he's down?

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