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Declaration of interest

None.

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Psychiatry in history

The Fairy Tale King and his royal psychiatrist: the contribution to neuroscience of Dr Johann Bernhard Aloys von Gudden, psychiatrist to King Ludwig II

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During a recent trip to Munich when I passed Starnberg Lake, my mind was transported back to June 1886, when a great tragedy struck a doctor and patient, both found drowned in mysterious circumstances. The patient was a king and the doctor was his psychiatrist. A small wooden signboard is the only reminder of this tragedy where the King of Bavaria Ludwig II and his psychiatrist Dr Johann Bernhard Aloys von Gudden lost their lives. This incident largely eclipses Gudden's immense contributions to cognitive neurosciences, which is tragic in itself.

In 1843 Gudden had entered the University of Bonn to study philosophy, subsequently changing to medicine and continuing in the Universities of Bonn, Halle and Berlin. He obtained his medical degree with distinction in 1848. For his doctoral dissertation, he studied torsional eye movement. He joined the Rhineland Mental Asylum in Siegburg as an assistant to eminent psychiatrist Carl Wigand Jacobi. From 1870, he was the co-editor of the journal *Archiv für Psychiatrie und Nervenkrankheiten*, with Theodor Meynert, who discovered the nucleus basalis of Meynert, and Karl Westphal, famous for his contribution to the study of the accessory nucleus of the third cranial nerve. Gudden was appointed Director of the District Mental Hospital in Werneck in 1855 and in 1869 he was appointed Professor of Psychiatry at the University of Zurich. Wilhelm Griesinger, head of the Zurich Mental Asylum, had a big influence on him in treating patients with respect, dignity and without coercion when 'human rights' were non-existent. In 1872, Gudden took over as Director of the District Mental Institution in Munich, and subsequently became a full professor of psychiatry at the University of Munich, where Emil Kraepelin, Franz Nissl and Auguste-Henri Forel were his students. He developed the Gudden's microtome, for sectioning the human brain, and his work on neurodegeneration predates Arnold Pick and Alois Alzheimer. He was one of the joint discoverers of retrograde degeneration, also known as Wallerian degeneration, along with Bartolomeo Panizza and Augustus Volney Waller. He pioneered removal of sense organs and cranial nerves in young animals and found that this led to secondary atrophy. His other important findings include the fact that destruction of certain areas of the cerebral cortex causes atrophy of specific thalamic nuclei, which gives us an understanding today of how cortical and subcortical networks interact and an insight into how long-distance neural networks become dysfunctional. His observation that lesions in the cortex do not cause atrophy in the peripheral nervous system has been named Gudden's law. He discovered the inferior commissure, the connecting tract between the medial geniculate bodies. He described the tegmental nuclei known today as the dorsal and ventral tegmental nuclei of Gudden. Recognition of the role of these tegmental nuclei in cognitive function is gaining momentum as new research findings highlight the critical importance of several extra-hippocampal structures, including the tegmental nuclei of Gudden, in cognitive functions, which resonates with new research findings that the dorsal tegmental nucleus has head-direction cells. This is a big move away from the hippocampus-centric view of amnesia to a more distributed cognitive functional circuit model. It led him to suggest a new subject, *Nervenheilkunde* (neuropsychiatry).

Just before the tragedy at Starnberg Lake Dr Gudden had diagnosed King Ludwig II with an advanced state of paranoia. Interestingly, he also considered a diagnosis of 'Caesarean madness', made famous by Ludwig Quidde in a psychological study of the Roman emperor Caligula, who was presented as a megalomaniac, corrupted by the conditions of monarchist rule. Gudden's obituary, written for the *BMJ* by Dr Charles Workman, described him as a kindly man, much liked and respected by his patients.

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