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Von Monakow and Diaschisis

For much of the 19th century, clinical localisation rested on the belief that geometric localisation produced signs dependent on functions derived from that focal area. In 1967 Geschwind's "disconnection syndromes" highlighted the phenomenology of dysfunction at a distance. Geschwind's notions, now accepted, hark back to the work of Constantin Von Monakow (1853-1930).¹ He introduced the word "diaschisis" to indicate loss of function and signs, anatomically removed from the lesion—the equivalent of Geschwind's disconnection. Von Gudden had shown him atrophy of the superior colliculus in a rabbit after removal of the contralateral eye at birth. In 1879 he removed the occipital lobes in two newborn rabbits and one year later noticed complete degeneration of the lateral geniculate nuclei.

Von Monakow described *diaschisis cortico-spinalis*—impaired function of spinal motor neurons due to cortical motor lesions; *diaschisis associativa*—cortical dysfunction due to lesions of connected areas within one hemisphere, and *diaschisis commissuralis*—cortical dysfunction due to lesions of the interconnected contralateral hemisphere.

He refuted the purist's notions of localisation:

The generally accepted theory according to which aphasia, agnosia, apraxia etc. are due to destruction of narrowly circumscribed appropriate praxia, gnosia, and phasia centres, must be finally discarded on the basis of more recent clinical and anatomical studies. It is just in the case of these focal symptoms that the concept of complicated

dynamic disorders in the whole cortex becomes indispensable.

The verification of Von Monakow's postulates has been achieved by oxygen and glucose uptake studies, and by disordered blood flow and electrophysiology in distant sites.

The syndrome of anterior choroidal thrombosis causing contralateral hemiplegia, hemianaesthesia, and hemianopia is referred to as Von Monakow's syndrome. He also wrote extensively on the cortex, microcephaly, anencephaly, and aneurysm of the vertebral artery.

Born the son of a Russian nobleman, his family fled the Franco-Prussian war, settling in Dresden, then Paris, and Zurich where they were naturalised in 1869. A huge, bearded figure with a shrill voice, he was noted, in youth, for his boisterous, eccentric behaviour. Later, he eschewed faculty meetings, and was devoted to his family and books. His famous *Gehirmpathologie* contained over 3000 references that he had collected personally. In later life he published three lectures, entitled: *Emotions, morality and the brain*. He died of "retention-uraemia" aged 77 while writing on "The value of life".

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