

# Meynert and the biological German psychiatry

## Meynert e psiquiatria biológica alemã

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### ABSTRACT

Theodor Hermann Meynert (1833–1892), a German-Austrian neuropathologist and anatomist, is known as one of the founders of the Brain Psychiatry. He was the most arduous defender of the bridge between psychological and neurophysiological events, both dependent on specific neuroanatomical structures. Juliano Moreira (1873–1933), the founder of the Brazilian scientific psychiatry, is also mentioned, as well as the influence he received from the German psychiatry, mainly Emil Kraepelin's (1856–1926). Finally, the rapprochement of Psychiatry and Neurology is considered mostly in common areas as Neuropsychiatry.

**Key words:** neurology, psychiatry, neuropsychiatry.

### RESUMO

Theodor Hermann Meynert (1833–1892), neuropatologista e anatomista alemão-austríaco, é conhecido como um dos fundadores da Psiquiatria Cerebral. Ele foi o defensor mais veemente do vínculo entre eventos psicológicos e neurofisiológicos, ambos dependentes de estruturas neuroanatômicas específicas. Juliano Moreira (1873–1933), o fundador da Psiquiatria científica brasileira, também é mencionado, bem como a influência que recebeu da Psiquiatria alemã, principalmente por meio de Emil Kraepelin (1856–1926). Finalmente, considera-se a aproximação de Psiquiatria e Neurologia, mormente em áreas comuns, como a Neuropsiquiatria.

**Palavras-Chave:** neurologia, psiquiatria, neuropsiquiatria.

The late 19<sup>th</sup> century was a golden period of the Brain Psychiatry, with its German movement and influent members, such as Wilhelm Griesinger (1817–1868), and Theodor Hermann Meynert (1833–1892), as seen in Fig 1, who was the most arduous defender of a strong organic basis for Psychiatry<sup>1</sup>. Griesinger asserted in his 1845 “*Pathologie und Therapie der psychischen Krankheiten*” the primacy of brain over mind for Psychopathology<sup>2</sup>.

### MEYNERT AND HIS SCHOOL

Meynert was born in Dresden, but moved to Vienna at age of eight where he received his MD (1861). He was appointed Professor of Nervous Diseases (1873–1892) and Director of the Psychiatric Clinic associated with the University of Vienna, and started a neurological outpatient clinic in 1887<sup>3</sup>. From the parents and environment he inherited the love for language, literature, and philosophy, which were background of his scientific rationality<sup>4</sup>. He was influent, but considered a poor teacher, and his department was disorderly and filthy



Fig 1. Theodor Hermann Meynert (1833–1892).

according to Auguste-Henri Forel (1848–1931). In addition, his writing skills were also criticized<sup>1,3</sup>. He was a small melancholic man, and with colleagues, he was brusque and, at

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times, dismissive, according to reports<sup>1,3</sup>. Anyway, Meynert was well-known for his solid neurohistological work.

Among his pupils were Sergei Korsakoff (1854–1900), Karl Wernicke (1848–1905), Forel, Paul Emil Flechsig (1847–1929), and Sigmund Freud (1856–1939), and for some, he had a major influence<sup>1,3</sup>. Freud, who was also a student of Jean-Martin Charcot (1825–1893), was interested in hysteria, which he ascribed as a neurological problem, and in the therapeutic uses of hypnosis.

## MEYNERT, THE ANATOMIST

Meynert sought to establish that psychological events were epiphenomena of neurophysiological ones, both fundamentally dependent on specific neuroanatomical structures. He was the first scientist to perceive that study on the brain was an interdisciplinary research project bringing together anatomy and physiology<sup>1,4</sup>. This is the counterpart of Rokitsansky's new approach to Medicine<sup>4</sup>.

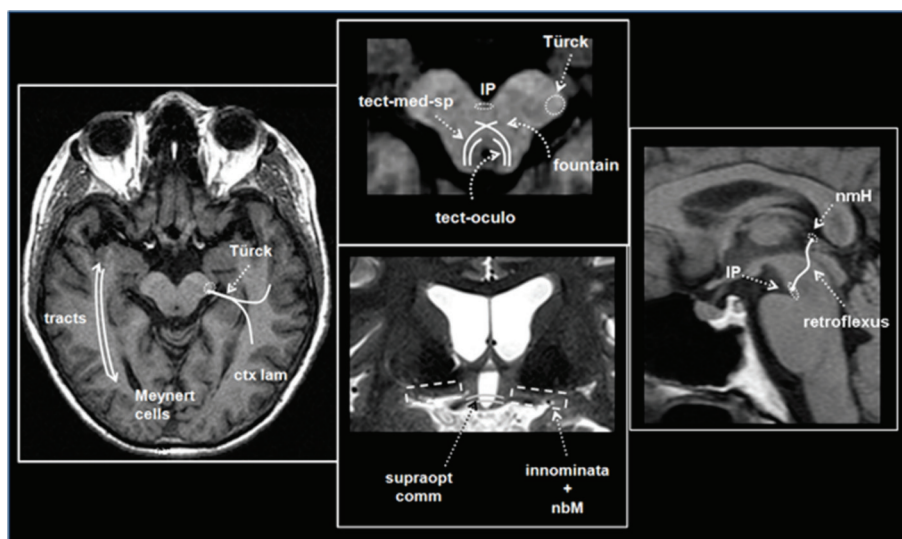
Several nervous structures were described by him, and some came to bear his name including (Fig 2): habenular-interpeduncular tract (retroflexus fascicle), from the medial habenular to the interpeduncular nucleus; dorsal tegmental decussation (fountain decussation) of the tectospinal and tectobulbar tracts (1869); dorsal supraoptic commissure; fibers from the superior colliculi to the oculomotor nuclei, solitary pyramidal neurons located in the cerebral cortex near the calcarine fissure (Meynert cells), substantia innominata, and nucleus basalis (1872)<sup>3-5</sup>. The latter, more than a century later, was shown to provide diffuse cholinergic input to the neocortex, where loss of neurons represents an anatomical correlate of the cholinergic derangement in Alzheimer's disease and in other dementias<sup>1,4</sup>.

In addition, he was the first to describe and illustrate the presence of neurons in the subcortical white matter of the human brain (1867), and later commented on in his subsequent publications<sup>6</sup>. He also studied the cortex subdivisions, called by him organology<sup>1</sup>, and demonstrated the lamination of the cerebral cortex (1867)<sup>5</sup>. The researcher also helped to differentiate neocortex from allocortex, and basal ganglia from cortex<sup>1,4</sup>. He dissected, described, and classified the main cerebral tracts, and his idea of cortical interconnections, mainly of the arcuate fasciculus, influenced Karl Wernicke's theory on aphasia<sup>1</sup>. However, some authors report that Meynert himself noticed the importance of insular cortex lesions in aphasic symptoms<sup>4</sup>, and first described the syndrome of sensory aphasia associated with a lesion in the posterior part of the superior temporal gyrus and the planum temporale (1866), a report contested by Eling<sup>7</sup>. He also described fibers that were originated from the cortex of the occipital and temporal lobes and coursed to the outer part of the peduncular pes, which he named after Türk (Türk's bundle)<sup>8</sup>. He was especially interested in the interconnections between subcortical structures and the cerebral cortex<sup>1,4</sup>, in the global neuroanatomical organization of the brain, and in particular, the special role of the frontal lobes<sup>7</sup>.

In his 1868 book, he discussed the cerebral cortex, hippocampal formation, olfactory bulb, and visual radiation<sup>5</sup>. In that of 1884, "Diseases of the Forebrain", he wrote on insanity as being a disease of the forebrain<sup>5</sup>.

## BRAZILIAN SCIENTIFIC PSYCHIATRY FOUNDER

In Brazil, Juliano Moreira (1873–1933), "the founder of the Brazilian scientific Psychiatry", director of the Hospício



supraopt com: dorsal supraoptic commissure (M); innominata: substantia innominata (M); nbM: nucleus basalis (M); retroflexus: fasciculus retroflexus (M); Meynert cells: pyramidal neurons of occipital region, fountain: dorsal tegmental decussation (fountain decussation) (M); Türk: Türk's bundle; ctx lam: cortical lamination; tracts: dissection; description and classification of white matter tracts; tecto-oculo: superior colliculi-oculomotor fibers; tect-med-sp: optic tectum-medullary-spinal tract, nmH: nucleus medialis of the habenula; IP: interpeduncular nucleus.

Fig 2. Images of the nervous structures described by and/or named after Meynert (M), projected on magnetic resonance images.

Nacional dos Alienados (National Hospice for Insane), from 1903 to 1930, a *mestizo* of poor origin, can be mentioned among psychiatrists with organic formation<sup>9,10</sup>. Between 1895 and 1902, Moreira made a series of trips to Europe to treat his tuberculosis. He attended several courses on mental illness delivered, among others, by Paul Emil Flechsig (1847–1929) and Emil Kraepelin (1856–1926), a Freud's contemporaneous. As mentioned by Gach<sup>2</sup>, Kraepelin did not reject Griesinger's fundamental stress on the biological basis of insanity, but rather reworked it into a subtler and multistage model<sup>2</sup>. The founder also studied pathology with Rudolf Ludwig Karl Virchow (1821–1902) and visited the main European psychiatric clinics and mental hospitals<sup>9</sup>. Moreira was under the influence of the Psychiatry German School, on opposition to João Carlos Teixeira Brandão (1854–1921), diffuser of the French psychiatric thoughts in Brazil<sup>9</sup>. Brandão was the first professor of the newly created chair of Clinical Psychiatry and Nervous Diseases (1883) in Brazil, Rio de Janeiro, and director of Hospício Nacional dos Alienados (1887–1897).

We also mention Moreira's opposition to the idea of Raimundo Nina Rodrigues (1862–1906), a Brazilian corner, psychiatrist, teacher and anthropologist who defended racist thesis, considered scientific and modern at the time. He was strongly influenced by the ideas of the Italian criminologist Cesare Lombroso (1835–1909). Heredity became

crucial for the mid-19<sup>th</sup> century French school of Psychiatry, and Benedict-Augustin Morel (1809–1873) was an outstanding defender of these ideas. Therefore, he regarded degenerations, whether physical or mental, as pathological variations transmitted by heredity<sup>2</sup>. However, Moreira struggled against the idea of mental disease based on climates or race<sup>9</sup>.

## NEUROLOGY AND PSYCHIATRY RAPPROCHEMENT

The vast expansion of medical-scientific knowledge in the 19<sup>th</sup> century helped to define the contours of Psychiatry<sup>2</sup>. However, the failure to show behavioral disorders with demonstrable brain pathology led by the 1880s and 1890s to the formulation of functional concepts of mental disease, and psychological comprehension of the mental disorders<sup>2</sup>. Now, we can see Psychiatry, mainly in some domains, coming back towards neurological approaches by mid to late 20<sup>th</sup> century. More recently, several efforts at rapprochement between neurologists and psychiatrists were witnessed, specially at areas common to both — the Brain Psychiatry emphasis, forecasted by leaders such as Meynert. In Brazil, Moreira demonstrated the importance of the neuropsychiatry commonly seen in the past<sup>9</sup>, particularly with a psychiatric bias.

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