

Neuroanniversary 2018

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1968

Sir Henry Hallett Dale (1875–1968) was an English pharmacologist and physiologist. For his study of acetylcholine as agent in the chemical transmission of nerve impulses, he shared the 1936 Nobel Prize in Physiology or Medicine with Otto Loewi (1873–1961).

The Swiss ophthalmologist Adolphe Franceschetti (1896–1968) died in 1968. He was professor and director of the University Eye Clinic in Geneva. His name is associated with several syndromes—notably, Naegeli–Franceschetti–Jadassohn syndrome, Franceschetti–Zwahlen–Klein syndrome, and Franceschetti–Klein–Wildervanck syndrome.

The Russian biochemist Lina Stern (1878–1968) also died in 1968. She described the brain-blood barrier, or *hemato-encephalic barrier*, as she called it.

Edwin Clarke (1919–1996) and George Charles Donald O’Malley (1907–1970) published their valuable *The Human Brain and Spinal Cord* in 1968, which provides many crucial excerpts in English from writings that are landmarks in the evolution of our knowledge of the anatomy and physiology of the nervous system.

The concept of brain death was formulated in 1968 in the landmark report titled, “A Definition of Irreversible Coma,” by the of the Ad Hoc Committee of the Harvard Medical School to Examine the Definition of Brain Death, published in the *Journal of the American Medical Association*.

1918

Korbinian Brodmann (1868–1918) was born 150 years ago, in Liggersdorf, Germany, and died 100 years ago. In 1901, he joined Oskar Vogt (1870–1959), who stimulated him to study cortical cells, resulting in a series of articles on the cytoarchitectonic structure of the cortex, with his famous book appearing in 1909: *Vergleichende Lokalisationslehre der Grosshirnrinde in ihren Prinzipien dargestellt auf Grund des Zellen Baues*.

In 1918 Ludwig Edinger (1855–1918) passed away. He was an influential German anatomist and neurologist and cofounder of the University of Frankfurt. In 1914 he was appointed the first German professor of neurology. He coined the terms *gnosis* and *praxis*, and was the first to describe the ventral and dorsal spinocerebellar tracts and to distinguish the paleocerebellum from the neocerebellum.

German zoologist and evolutionary biologist Richard Semon (1859–1918) died in 1918. He believed in the inheritance of acquired characters and applied this to social

evolution. He introduced the notion of *mneme*, similar to what we currently refer to as *engram*.

Adolf Baginsky (1843–1918) was a Jewish German professor of diseases of children at Berlin University. He was director of the *Kaiser und Kaiserin Friedrich Kinderkrankenhaus*, which he founded in Berlin. Before Wernicke, in 1871, he used a diagram to illustrate functional pathways and language centers involved in language processing in the brain.

Ewald Hering (1834–1918) was a prolific researcher in color vision, binocular perception, and eye movements. His book on binocular vision, *Die Lehre Vom Binocularen Sehen*, was published in 1868.

The well-known neuropsychologist Brenda Milner (b. 1918) was born in Manchester, England, and emigrated after World War II to Montreal in Canada to work with Wilder Penfield (1891–1976) and Donald Hebb (1904–1985). She is best known for her work with the amnesic patient H. M. (Henry Molaison; 1926–2008).

The American neurosurgeon Walter Edward Dandy (1866–1946) is considered one of the founding fathers of neurosurgery. In 1918 he introduced ventriculography and the associated technique of pneumoencephalography one year later.

Gordon Holmes (1876–1965) was a very productive British neurologist, best known for his pioneering research into the cerebellum and the visual cortex. He published two important articles about disturbances of vision in the *British Journal of Ophthalmology* in 1918 based on his study of World War I soldiers with brain injuries. “Disturbances of Vision by Cerebral Lesions” appeared in July and presented what became known as Holmes’s cortical retina, a complete topographical mapping of the visual field in the primary cortical vision center. “Disturbances of Visual Orientation” appeared in September and described visuospatial deficits following occipito-parietal lesions.

German pediatrician Ernst Moro (1874–1951) described in 1918 a defensive reflex in babies under six months hearing a loud noise; it was later called the Moro reflex.

1868

The German neurologist and psychiatrist Wilhelm Griesinger (1817–1868) died in 1868. He founded the *Berliner Medicinisch-psychologische Gesellschaft*, and established the influential psychiatric journal, *Archiv für Psychiatrie und Nervenkrankheiten*. In the preface to the first issue in 1868, he convincingly argued that “patients with so-called ‘mental illnesses’ are really individuals with illnesses of the nerves and brain.”

William Thomas Green Morton (1819–1868), a dentist, and surgeon John Collins Warren (1778–1856) “publicly” demonstrated the effects of ether before a stunned audience at the Massachusetts General Hospital on October 16, 1846, when Warren operated on an anesthetized patient.

Ludwig Türck (1810–1868) was an Austrian neurologist/otolaryngologist and a full professor at the University of Vienna from 1864 on. He is remembered for his pioneer investigations of the central nervous system, particularly his studies involving nerve fiber localization, direction and degeneration. The terms *Türck’s bundle*, *Türck’s column*, and *Türck’s tract* refer to the anterior corticospinal tract.

Karl Bonhoeffer (1868–1948), born in 1868, became professor of psychiatry and neurology at the Friedrich-Wilhelms-University in Berlin. He first worked under Carl

Wernicke (1848–1905) at the Psychiatric Clinic in Breslau, examining alcoholic patients, and in 1901 he applied the term *confabulation* to what he referred to as “out-of-embarrassment” statements of patients with severe memory problems.

Also born in 1868 was Australia’s first neurologist, Alfred Walter Campbell (1868–1937). He studied and worked between 1885 and 1905 in England. His research there combined clinical observations with microscopic studies of rare completeness. In 1900–1903 he completed an intensive study of the histological structure of the human cerebral cortex that defined the functional areas of the brain. His 1905 monograph, *Histological Studies on the Localisation of Cerebral Function*, was hailed as a landmark; it was partly illustrated with his own clear drawings.

In 1868 Jean Louis Prévost (1838–1927) formulated in his dissertation, titled *De la déviation conjuguée des yeux et de la rotation de la tête dans certains cas d’hémiplégie* and supervised by Edmé-Félix Alfred Vulpian (1826–1887), the so-called *Vulpian-Prévost law*: Following a unilateral cortical lesion, the head is rotated toward the affected hemisphere.

The German physiologist Julius Bernstein (1839–1917) described the characteristics of the action potential in the first volume of *Pflügers Archiv* in 1868. For that purpose he designed a new instrument, a differential rheotome or “current slicer,” that allowed him to resolve the time course of electrical activity in nerve and in muscle.

In 1868, general practitioner John Martyn Harlow (1819–1907) published his retrospective paper on the railroad construction foreman Phineas Gage (1823–1860), who sustained a frontal lobe injury from an iron rod, with the famous words, “He was no longer Gage.” Harlow subsequently donated Gage’s skull and the rod to the Warren Anatomical Museum of the Harvard Medical School.

1818

Frans Cornelius Donders (1818–1889) was professor of physiology in Utrecht and one of the founders of the scientific approach to ophthalmology. He also introduced, in 1868, the measurement of the speed of mental processes, the basis of reaction time measurement, and, indirectly, the subtraction procedure for functional Magnetic Resonance Imaging.

Jean Martin Charcot (1825–1893) described in his article “Histologie de la sclérose en plaques,” appearing in 1868 in *Gazette des Hôpitaux*, three characteristic symptoms of multiple sclerosis, also referred to as Charcot’s triad: nystagmus, intention tremor, and telegraphic speech (scanning speech).

Cheyne-Stokes respiration, a common and remarkable breathing pattern characterized by alternating periods of apnea and hyperpnea, was first described by the Scottish physician John Cheyne (177–1836) in 1818 in his *Dublin Hospital Reports* paper, “A Case of Apoplexy in Which the Fleshy Part of the Heart is Converted into Fat.” The Irish surgeon William Stokes (1804–1878) described the condition in 1854 in “Fatty Degeneration of the Heart” published in the medical textbook *Diseases of the Heart and Aorta*.

1668 and before

Born in 1668 was Herman Boerhaave (1668–1738), Dutch botanist, chemist, Christian humanist, and physician of European fame. He is regarded as the founder of bedside teaching and of the modern academic hospital, and is sometimes referred to as “the father

of physiology.” He introduced the quantitative approach into medicine, along with his pupil Albrecht von Haller (1708–1777). He is best known for demonstrating the relation of symptoms to lesions, and he was the first to isolate the chemical urea from urine. He was the first physician to put thermometer measurements to clinical practice. His *Praelectiones de morbis nervorum*, based on the notes of one of his students, was published posthumously in 1761 and deals extensively with epilepsy.

Abbé Edmé Mariotte (1620–1684), a Roman Catholic priest and founding member of the Académie des sciences de Paris in 1666, discovered the “blind spot,” also known as Mariotte’s spot, in 1668.

Niels Stensen (1638–1686; latinized to Nicolaus Stenonis or Nicolaus Stenonius but best known as Steno), a pioneer in both anatomy and geology and a Catholic bishop in his later years, published in 1668 his *Discours de Monsieur Stenon sur l’Anatomie du Cerveau* (translated as *A Dissertation on the Anatomy of the Brain*). He argued, among other things, that the brain should be dissected from the bottom upward, not from the top downward.

Italian physician Jacopo Berengario da Carpi (c. 1460–c. 1530), perhaps the most important anatomist before Andreas Vesalius (1514–1564), published in 1518 *Tractatus de fractura calve sive cranei* dealing with various aspects of cranial trauma.

Acknowledgment

I thank Wayne Lazar for his helpful comments and suggestions.