Neuroanniversary 2017

Paul Eling

Donders Institute for Brain, Cognition and Behaviour, Radboud University Nijmegen, Nijmegen, the Netherlands

1967

Jean-Alexandre Barré (1880–1967) died 50 years ago. He studied in Paris with the neurologist Joseph Babinski (1857–1932). In World War I, he became assistant to Georges Charles Guillaum (1876–1961) and, in 1919, he was appointed Professor of Neurology in Strasbourg. His name is related to a few phenomena, among these Barré’s test, a clinical sign of a pyramidal disturbance and the Guillan-Barré-Strohl syndrome, a common form of neuropathy, beginning with progressive muscular weakness of extremities.

Ragnar Arthur Granit (1900–1991), Halden Keffer Hartline (1903–1983), and George Wald (1906–1997) jointly received the Nobel Prize for Medicine or Physiology in 1967 for their work on the mechanisms of vision. George Wald was a professor of Biology at the Chicago University and he focused on Vitamin A in the eye. He showed that light decomposed rhodopsin to retinol and opsin. He argued that “vitamin A is the precursor of visual purple (rhodopsin) as well as the product of its decomposition; the visual processes therefore constitute a cycle” (Wald, 1935). Halden Keffer Hartline was Professor of Biophysics at Johns Hopkins University. He studied the electrical signals coming from the retina, in particular in the horseshoe crab, Limulus. He discovered the mechanism of lateral inhibition in the visual cortex, relevant for enhancing the contrast in light patterns and sharpening the perception of shapes. Ragnar A. Granit was born in Helsinki, Finland. In 1940, he was appointed professor of neurophysiology at the Karolinska Institute in Stockholm. He studied the wavelength discrimination capacity of the eye. He formulated the “dominator-modulator” theory of color vision, stating that in addition to the three kinds of photosensitive cones some optic nerve fibers (dominators) are sensitive to the whole spectrum while others (modulators) respond to a narrow band of light wavelengths and are thus color specific.

The French psychiatrist and neurosurgeon Jean Talairach (1911–2007) and the Hungarian-French neurosurgeon Gabor Szikla (1928–1983) published the Talairach Atlas in 1967, providing coordinates for brain mapping. This atlas was based on single postmortem dissection of a human brain.

1917

The French neurologist Joseph Jules Dejerine (1849–1917) died 100 years ago. He showed that pure alexia may occur as the result of lesions of the supramarginal and angular gyri.
He also studied the pathology of thalamic syndrome, describing the thalamic pain syndrome in 1906, also known as Dejerine–Roussy syndrome.

Sir Andrew Fielding Huxley (1917–2012) was born in 1917. He was a physiologist and biophysicist and collaborated with Alan Lloyd Hodgkin (1914–1998) in Cambridge in studies on the nerve impulse. Their discovery of the basis for propagation of nerve impulses, called an action potential, earned them the Nobel Prize in Physiology or Medicine in 1963, sharing the prize with John Eccles (1903–1997).

In 1917, an important paper was published in the journal *Brain* titled “Dissociation of Visual Perceptions Due to Occipital Injuries” with especial reference to appreciation of movement. It was written by George Riddoch (1888–1947), then active as a neurologist in the Royal Army Medical Corps. Riddoch found that some patients with striate lesions can perceive moving stimuli while appearing blind to static stimuli, an early description of what was later called “blindsight.”


The Austrian physician Julius Wagner-von Jauregg (1857–1940) published in 1917 his findings that malarial pyrotherapy was successful for general paresis of the insane. He was awarded the Nobel Prize in Physiology or Medicine in 1927 for this work on pyrotherapy.

1867

The French internist Armand Trousseau (1801–1867) died 150 years ago. He assumed the chair of therapy and pharmacology at the Paris medical faculty in 1839 and of clinical medicine in 1850, while also working at the Hôtel Dieu. He became a member of the French Academy of Medicine in 1856. Generally regarded as an outstanding clinician, Trousseau is, perhaps, best remembered for introducing the term “aphasia” and for Trousseau’s phenomenon of carpal spasms and paraesthesia from which he suffered.

The French physiologist Marie-Jean-Pierre Flourens (1794–1867) died in 1867. He is regarded as the founder of experimental brain sciences and a pioneer in anesthesia. Flourens performed systematic ablation studies on living pigeons and rabbits. He concluded that the cerebral hemispheres as a unit are responsible for higher cognitive functions, that the cerebellum regulates and integrates movements, and that the medulla controls vital functions, such as circulation and respiration. He opposed Gall’s theory of localization of cortical functions. In 1847, Flourens drew the attention of the Academy of Sciences to the anesthetic effect of chloroform on animals.

Bartolomeo Panizza (1785–1867) was an Italian Professor of Anatomy at the University of Pavia. He was the first physician to attribute the vision function to the posterior cortex. He published his findings in an 1855 treatise titled *Osservazioni sul nervo ottico* [Observations on the Optic Nerve].

Born in 1867 was the Scottish pathologist William Ford Robertson (1867–1923); he was the first to describe neuroglia cells in 1899.

The German physician and physicist Hermann von Helmholtz (1821–1894) completed his *Handbuch der physiologischen Optik* [Handbook of Physiological Optics] in 1867. In the final part, he described the importance of unconscious inferences for perception. He is also known
for measuring the speed at which the signal is carried along a nerve fiber (1849) and inventing the ophthalmoscope (1852).

The British psychiatrist Henry Maudsley (1835–1918) published *The Physiology and Pathology of Mind* in 1867. Maudsley developed ideas of heredity derived from Darwin and argued strongly for the physical basis of mental illness. This ambitious 1867 book was very well received; by 1883, two further expanded English editions had appeared, as well as German and French translations.

**1817**

Alexander Monro Secundus (1737–1817), a Scottish anatomist and physician, died in 1817. He was the third son of Alexander Monro Primus, who saw in him his successor in Edinburgh. In 1783, he published his *Observations on the Structure and Functions of the Nervous System* containing the description of the communication between the lateral ventricles of the brain that bears his name, the foramen of Monro, which he first described in a paper read before the Philosophical Society of Edinburgh in 1764.

Wilhelm Griesinger (1817–1868) was born in 1817 (see Fig. 1). He was an influential German psychiatrist. He was a strong advocate of reforms in medicine in Germany and demanded a strong physiological basis, resulting in what is sometimes called the first period of biological psychiatry. In 1864, he accepted the Chair of Psychiatry in Berlin and one year later he founded the *Archiv für Psychiatry und Nervenkrankheiten* [Archive for Psychiatry and Nervous Disorders].

*Figure 1.* Wilhelm Griesinger (1817–1868).
Also born in 1817 was Albert von Kölliker (born Rudolf Albert Kölliker, 1817–1905; see Fig. 2). He was a Swiss anatomist, physiologist, and histologist. He was a pupil of noted physiologists Johannes Müller (1801–1858) and of Jakob Henle (1809–1885). In 1847, the German University of Würzburg offered him the Chair of Physiology and Microscopical and Comparative Anatomy. He made numerous contributions, in particular to histology. As early as 1845, while still at Zürich, he supplied the proof that nerve fibers are continuous with nerve cells.

Charles-Edouard Brown-Séquard (1817–1894) was born on Mauritius. Having no luck as a playwright in Paris, he studied medicine, also working with Armand Trousseau (1813–1878). He preferred a research career in physiology to practicing clinical medicine. In order to find a decent job, he travelled to America and back to France and he also worked in London. He was founder and editor of the *Journal de la physiologie de l’homme et des animaux* [Journal of Human and Animal Physiology], the *Archives de physiologie normale et pathologique* [Archives of Normal and Pathological Physiology], and the *Archives of Scientific and Practical Medicine*. In neurology, he is best remembered for Brown-Séquard’s syndrome, also known as Brown-Séquard’s hemiplegia or Brown-Séquard’s paralysis, referring to a hemisection of the spinal cord with neurological changes.

In 1817, James Parkinson (1755–1824), a London surgeon, published *An Essay on the Shaking Palsy*, which, perhaps, is one of the best known neurological books on the subject.

**Figure 2.** Albert von Kölliker (1817–1905).
It contained a description of typical patterns of movement and posture of six patients with paralysis agitans.

As early as 1817, the Swedish chemist Jöns Jacob Berzelius (1779–1848) suggested that the electric eel’s current was elicited by an organic chemical process, an important step in understanding the chemical basis of the electrical signal in the nerves.

1667

Thomas Willis (1621–1675) published in 1667 his *Pathologicae Cerebri, et nervosi generis specimen* [An Essay of the Pathology of the Brain and Nervous Stock], an important work on the pathology and neurophysiology of the brain. In it he develops a new theory of the cause of epilepsy and other convulsive diseases. He based his analysis of convulsive diseases upon the belief that muscle contraction results from the explosive mixing of two types of particles: saline-spirituous particles from the nerves and nitrosulfurous particles from arterial blood. The book also contains a number of contributions to psychiatry.

Acknowledgment

I thank Wayne Lazar for helpful suggestions.

Reference