200. birthday of

Ludwig Traube

(12th January 1818 - 11th April 1876)

by

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fig. 1: Ludwig Traube
Curriculum vitae

Ludwig Traube (fig. 1) was born 1818 as the son of a silesian winedealer. After secondary school exams in Ratibor (Silesia) 1835 he studied in Breslau and Berlin and stayed a close friend of his fellow students Robert Remak (1815-1865), Arnold Mendelssohn (1817-1854), Emil du Bois Reymond (1818-1896), Salomon Neumann (1819-1918), Benno Reinhard (1819-1852), Joseph Meyer (1818-1887), Rudolf Lebuscher (1821-1861) and Rudolf Virchow (1821-1902). Because of restrictions in clinical teaching for civil students in the (at that time: predominantly military) hospital Charité in Berlin the group studied French journals in private rooms, especially of the Paris school of Medicine (manuscripts of François Magendie, René Théophile Hyacinthe Laënnec, Xavier Bichat, Achille Longet and Claude Bernard).

Following theoretical studies they started with experiments on vagus lesions and developed a model of aspiration pneumonia. Traube founded the “Hospital of Propaedeutics” in Berlin, although its inclusion in the 2nd Medical clinic in the Charité Hospital was successful years later only and under the direction of Ernst von Leyden. It is not well known that Ludwig Traube was a cofounder of experimental pathology together with Rudolf Virchow and the first and for more than 70 years singular jewish director in the Charité hospital in Berlin. He married his wife Cora Marckwaldt in 1850 and had 5 children, their oldest sun died in the age of 5 on diphtheria. Traube refused from calls to Zurich and Heidelberg. Ludwig Traube died 1876 and was buried at the jewish cemetery in Berlin, Schönhauser Allee (fig. 2). The Charité hospital honoured his work with a bronze bust in 1895 left-sided to the entrance of the 2nd Medical clinic. It was removed at the night from Saturday 27th to Sunday 28th July, 1940 together with the busts of further jewish professors Eduard Heinrich Henoch (1820-1910), Otto Lubarsch (1860-1933) and Carl Friedrich Otto Westphal (1833-1890) in the Charité campus on antisemitic reasons after a letter of complaint of Georg Bessau (1884-1944), director of the Pediatric clinic, sended to the administration manager of the Charité hospital. Traubes bust, created by Martin Wolff (1852-1919) and ceremoniously elected 1895 is missed since 1942. The Mexican painter Diego Rivera (1886-1957) included the face of Ludwig Traube in his painting “History of Cardiology II” in the Cardiologic Institute of Mexico (fig. 3).
Scientific work

After a 9-month visit in Vienna in the institutes of Joseph von Skoda (1805-1881) and Carl von Rokitansky (1804-1878) he returned to Berlin, where he investigated the effect of digitalis and observed changes in blood pressure, described later as “Traube-Hering-waves” and explained as a result of vagal nerve stimulation. In addition, he described the “Traube’s double tone” on peripheral arteries in aortic regurgitation 1867 (14), the “pulsus alternans” in digitalis intoxication 1872 and “Traube-Hering-Mayer waves” of changes in blood pressure. He developed a mechanical stethoscope (fig. 4). Ludwig Traube published the auricular gallop in right heart failure, the so called as “Traube bruit” (15) and the “Traube space” of tympanitic sound in left-sided pleural effusion. He published several manuscripts and chapters on pulmonary, renal and cardiac diseases (fig. 5). Traube founded together with Benno Reinhardt and Rudolf Virchow the journal Beiträge zur experimentellen Pathologie und Physiologie 1846 and published in the first issue: “Experiments have their basis on hypotheses, should offer significant results and should be reproducible”. The first temperature curves for patients were proposed by him. He had several scientifically well-known students and friends: Theodor Billroth (1829-1894), Albrecht von Graefe (1828-1885), Richard von Volkmann (1830-1889) and Ernst von Leyden (1832-1910). Several of Ludwig Traube’s contributions to the clinical investigation of patients with heart diseases are actual in clinical investigation up to our days. He described different types of insiratoric dyspnea (“Traube’s dyspnea”), “Traube’s cork” in bronchiectases and dysmorphic hypochrome erythrocytes (“Traube’s corpuscula”). He is one of the founders of cardiology, who is honoured by several contributions in journals (fig. 6).
Selected Publications of Ludwig Traube


- Beitrag zur Lehre von den Erstickungerscheinungen am Respirationsapparat. Beiträge zur experimentellen Pathologie. 1846 and 1847.


fig. 2: Gravestone of Ludwig Traube, 
Jewish cemetery, Berlin, Schönhauser Allee
fig. 3: Diego Rivera: Historia cardiologiae II
Cardiologic Institute, Mexico
(Ludwig Traube is marked by two arrows)
fig. 4: Stethoscope, developed by Ludwig Traube
fig. 5: Connections between heart and renal diseases

Berlin 1856
The half century mark after the death of Ludwig Traube (1836—3, 1906) gives a fitting occasion to recall the role he played in the development of internal medicine to its present scientific status. His service to medicine was several fold. At the beginning of his career, a little before the middle of the last century, he was the moving spirit in a group of young German physicians, among whom Remak, Wunderlich, Holzholz, and Virehoffer, all pupils of Johannes Müller, who had set themselves to raise the medicine of their country out of its state of barrenness. The period of remarkable medical progress that followed speaks well for this common effort. Besides this, Traube had to fight his own battle as a Jew. In spite of all obstacles he reached the height of the forensic clinics of his day and became a teacher of rare ability, through whose efforts the methods and influence of Auerbruegger and Lusser were introduced into Germany. His greatest contribution, however, the one which will perpetuate his memory, is his introduction of the method of physiological experimentations in pathology and clinical medicine. For this he has been named the founder of experimental pathology in Germany.

At the time Traube entered upon his medical career in 1856 Paris was the great medical centre. The famous pathologist-anatomist school of French clinicians, of which Lusser and

*Read in a meeting of the Turkish Medical History Club, March 22, 1917.

fig. 6: Manuscript on life and scientific impact of Ludwig Traube