A Note from History:
Rudolph Virchow, Pathologist, Armed Revolutionist, Politician, and Anthropologist

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Pathologists from the times of Antonio Benivieni (1443–1502), Théophile Bonet (1620–1689), Giovanni Morgagni (1682–1771), Matthew Baillie (1760–1823), Marie Francois Xavier Bichat (1771–1802), and Carl Rokitansky (1804–1878) acquired their knowledge about gross pathology mainly by postmortem examinations. After Theodor Schwann (1810–1882) and Matthias Schleiden (1804–1881) described normal human cells, Johannes Müller (1801–1858) and his students in Berlin begin to accumulate knowledge about the microscopic pathology of cells. One of Müller’s most notable students was Rudolf Virchow (1821–1902).

Virchow was born in the year that Napoleon (1769–1821) died. He studied medicine at the Army Medical School in Berlin with the intention to become an army physician. However, after graduation in 1843, he changed his mind and accepted an appointment at the largest hospital in Berlin, the Charité. He was an unpaid prosector, supported by his parents, with access to the physiology, anatomy, and embryology laboratories of Johannes Müller. Müller liked Virchow’s boundless energy and encouraged him to study the pathologic alterations of cells in tissues removed from patients. During his years at Charité Hospital, Virchow wrote his first scientific papers. In 1845, when he was two years out of medical school, he described leukocytosis and coined the term leukemia [1]. A year later, he introduced the terms thrombosis and embolism [2]. Concerned that it took too long to publish his scientific papers, and with the support of friends, Virchow established his own journal, The Virchow’s Archiv [3], to expedite publication.

1848 was a year of revolutions throughout Europe. The movement for social and democratic reforms and freedom spread from Paris to the major European cities, including Berlin. Virchow promptly joined the movement. Armed with a pistol that he was given by a friend’s father, Virchow took his place on the barricades in Berlin. He considered
medicine to be a social science and believed that physicians should care about people’s well-being, working conditions, housing, and freedom from oppression [4]. Virchow was elected vice-president of the Berlin Revolutionary Committee (Fig. 1). He called for a constitutional government, freedom of the press, and universal health care for workers [5].

In the summer of 1848, after the short-lived revolution in Berlin had collapsed, Virchow’s position and duties at the Charité Hospital were terminated and he was banished from Berlin. His mentor, Johannes Müller, then rector of the University, an opponent of the revolution, was unwilling to help Virchow. In 1849, Virchow accepted a pathology professorship at Würzburg in Bavaria.

The revolutions of 1848 were all crushed by monarchists and 1849 became a year of retribution. Richard Wagner (1813–1883) was forced to flee Germany and Feodor Dostoevsky (1821–1881) was sentenced to death in Russia. When Virchow was asked whether he had used his pistol during the revolution, he said, “No, because the soldiers shot at us from a great distance, out of range for a pistol” [5]. As an aside, in 1848 the Communist Manifesto was published by the German political philosopher, Karl Marx (1818–1883).

In Würzburg, far away from Berlin and its politics, Virchow devoted much time and energy to his scientific obsession, studying cells in pathologically altered tissues. He became recognized by his peers as the foremost cellular pathologist. In 1858, Virchow was recalled to Berlin, where he was appointed professor and chairman of pathological anatomy (a new position created for him) and director of the new Institute of Pathology (that carries his name today).

Everything Virchow knew about cells he included in his famous monograph, Cellular Pathology [6], published in 1858, the year his former mentor, Johannes Müller committed suicide. At the funeral, it was Virchow’s honor, as Müller’s most celebrated pupil, to deliver the eulogy. During 1863 to 1867, Virchow (Fig. 2) published his second landmark monograph, this time on cancer [7]. Virchow’s contributions to medicine and pathology were many. In his books [6,7] and articles [8] he introduced the terms chromatin, agenesis, heterotopia, parenchyma, osteoid, ochronosis, leukemia, thrombus, and embolus. He gave the first description of microinvasion by carcinoma, amyloid degeneration of the kidney, myelin, neurologia, melanoma of the meninges, congenital encephalitis, spina bifida, leontiasis ossea, strawberry gallbladder, teratomatous (dermoid) cyst of the ovary, and the part of the brain known as the Virchow-Robin space. He was also a student of chemistry and he identified leucine and tyrosine in the pancreas removed postmortem.

During the last 35 years of his life, Virchow’s inquisitive mind, indefatigable energy, and scientific and political convictions took him into various fields besides pathology (Fig. 3). In politics, Virchow was a founder and leader of the German Progressive Party and served for 13 years as a member of the German Reichstag. As a liberal politician he initiated several public health measures. He designed, for example, Berlin’s sewage system and water supply. He
introduced periodic medical examinations for school children and he established hospitals and clinics for those unable to afford medical care [9]. Virchow was a co-founder of the German Anthropology Association and served as its president for a number of years. He undertook cranial measurement (anthropometry) of German children [10] and in 1892 he wrote a 59-page monograph on ancient skulls recovered from the Columbia River Valley of Oregon in the United States [11].

Virchow possessed a powerful personality. He was dogmatic and tenacious about his opinions. He could be easily triggered by opponents to be arrogant and he had no humor. He was a lifetime opponent of Bismarck (1815–1898), the German Chancellor, who challenged Virchow to a duel in 1865. Virchow declined the lure. He did not like bacteriology and he disagreed with Robert Koch (1843–1910), who was his contemporary in Berlin. Virchow completely ignored the Hungarian Ignac Semmelweis (1818–1865) and his work to prevent puerperal fever [12].

In 1901, Virchow’s eightieth birthday was celebrated as a national holiday in Germany. He died a year later, in 1902. Virchow is best remembered for his revolutionary scientific announcement, “Omnis Cellula e Cellula” (All Cells Arise from Cells) [6]. He is far less known for his activities as a social revolutionist, liberal politician, advocate of public health care, anthropologist, and champion of freedom and elective representation of the German people. No wonder that Virchow’s non-medical writings were condemned in Nazi Germany.

References