

## Tröhler U (2010). Emil Theodor Kocher (1841-1917)

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Theodor Kocher, the second of six children of an engineer father and a Pietist mother, was born in Bern, Switzerland, on 25 August, 1841. He studied medicine in Bern and Zurich. Having come into contact with Theodor Billroth and witnessed Thomas Spencer Wells performing Switzerland's first oophorectomy, he decided to become a surgeon.

He met Bernhard von Langenbeck while on a study trip (1865-66), and volunteered to work in Rudolf Virchow's laboratory in Berlin. In London, he observed Spencer Wells paving the way for surgical intervention in the abdominal cavity, previously avoided for fear of lethal infections. Wells's "cleanliness-and-cold-water" surgery and frank statistics contrasted sharply with the "dirty" surgery Kocher saw in Paris, where professors did not inform students about the fate of operated patients.

After graduation, Kocher became the sole assistant in the Bern Surgical University Clinic (1866-69) and applied Lister's anti-septic methods successfully (1867), as confirmed by the clinic's decreasing mortality rate. Forced to open a private practice because of his marriage (to a wealthy girl), Kocher studied haemostasis privately in animals. In cadaver experiments, he also invented a method for reducing shoulder subluxations. Kocher was the first Swiss to hold a surgical chair, when succeeding his former chief in Bern, Albert Lücke, as professor of surgery (1872). Despite attempts to persuade him to move to Prague, Vienna and Berlin, Kocher remained there, and was active, until his death on 27 July 1917.

Kocher's surgery was initially based on pathological anatomy, and aimed to remove diseased tissue. The discovery that his complete removal of goitrous thyroids had led to the development of cretinism in some patients ([Kocher 1883](#)) confronted him with the ethical imperative of avoiding harm. Kocher attempted to master the resulting conflicts scientifically, by promoting research, and morally, by falling back on his Christian faith. He resumed physiological research (publishing the first complete chart of human dermatomes (1896)), and explored functional aspects of surgical therapy. These interests have led him to become recognized as a pioneer of organ transplantation. From 1883, he implanted human thyroid tissue, attempting to correct the loss of postulated thyroid functions (which he later assessed with a blood test). As a surgeon, he was exceptional in approaching an understanding of thyroid function using chemistry in an attempt to isolate, albeit in vain, an active principle from the gland.

He was awarded the 1909 Nobel Prize in Medicine for his contributions to physiology, pathology and surgery of the thyroid, and thus for initiating endocrinology in practice.

Kocher's slow, 'physiological' operating techniques and painstaking haemostasis (using 'Kocher clamps') were adopted by his younger American friend, William Halsted. From the mid-1880s, based on animal experiments by the Bern physiologist Hugo Kronecker, Kocher combated 'shock' during surgery by administering warm 'physiological' saline intravenously. This approach was later taken up by George Crile, another of his American visitors. He also wrote a monograph on brain surgery (1901) using results of experiments on endocranial pressure performed in Bern by Halsted's pupil, Harvey Cushing, who was also impressed by his host's intra-operative blood-pressure measurements. Kocher created his own "system of safe surgery", described in five increasingly voluminous German editions of a textbook on surgical operations (1892-1907), which was translated into six languages. A world leader in the 'golden age of modern surgery', he was elected first president of the International Society of Surgery, which was founded in 1903.

Kocher donated his Nobel Prize money for a research institute, which, together with a street, still bears his name in Bern. Further details of this life are available in Tröhler (1984; 1992) and Boschung (1991).

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