What the Lebendige Kraft and Kellogg's sanatorium have in common is that they both were places where patients were trained to conduct a strict regime, constantly practicing self-control and focusing on the health of their body and mind. This phenomenon is still seen in today's wellness practices, where it is commonly described as 'healthism'. As today, Bircher-Benner's numerous patients were practicing healthism without any compulsion from outside but nevertheless influenced by the presence of a higher authority, personified in Dr. Senior, as Bircher-Benner was called inside the Lebendige Kraft. The French sociologist and philosopher Michel Foucault described this phenomenon as 'governmentality', and saw it as a crucial factor in making modern societies work.

**Medical in the Media Age**

To conclude: in which way did the Swiss physician Maximilian Bircher-Benner have an influence on medicine? It was not his somehow weird theory of nutritional energy from solar light, which had never been broadly accepted. Even if he promoted an ideal dietary plan that has some active and successful fields of medicine (lacking such tools as hormones, antibiotics and vitamins, internal medical treatments of the time were restricted to diet, bed rest and herbal remedies).

**Further Reading**


**Up to the 1870s operative surgery hardly existed and was, in most places, a dirty and brutal business. Infections were rife and septic bleeding common. But in Bern a Swiss surgeon was developing a careful, precise technique that would revolutionize operations forever.**

U. TRÖHLER

In 1899, the eminent Swiss surgeon Theodor Kocher delivered his lecture as that year's Nobel laureate in Medicine or Physiology. In his oration, he discussed the rapid progress made in previous years, saying: 'In the great majority of so-called internal diseases a surgical treatment crowned with the most splendid curative successes has been made possible. Within less than half a century, it has become possible to expose all organs of the body – brain and heart not excluded – without danger, and to carry out the necessary surgical interventions on them.'

Indeed, when Kocher had made his career choice in the middle of the 19th century, surgery was undergoing a radical and exciting period of change. In 1846 and 1847 inflammation with ether and chloroform, respectively, had started their triumphal march around the world. A decade later, Rudolf Virchow proposed the doctrine of the cellular origin of diseases, providing the theoretical basis for interventions in all bodily cavities, and in 1867 Joseph Lister first published on his antiseptic technique. Surgery was developing from a craft into a science and would, in the following decades, become one of the most active and successful fields of medicine (lacking such tools as hormones, antibiotics and vitamins, internal medical treatments of the time were restricted to diet, bed rest and herbal remedies).

**Early Years**

Theodor Kocher, the second of six children of an engineer father and a deeply religious mother, was born in Bern on August 18, 1841. He studied medicine in Bern and Zürich, where he was also taught by the surgeon Theodor Billroth. After his university studies, Kocher broadened his horizons by visiting leading surgical clinics throughout Europe. He visited Berlin and London, and – being fluent in German, French and English – was able to meet with such important figures as RudolphVirchow, the pathologist, and Thomas Spencer Wells. The latter he had witnessed performing Switzerland's first ovarectomy (oophorectomy) in Zürich. Kocher ended his tour in Paris where he was not impressed by the dirty surgery he saw. Upon his return to his hometown, he became resident in the department of surgery at the University of Bern. In 1872, at just 31 years of age, he was appointed Chair of Surgery. Deeply rooted in his native Bern, in later life he would turn down opportunities of chairmanships in major cities of German-speaking Europe, including Prague, Vienna and Berlin.

Kocher's meticulous nature and zeal for perfectionism were perfectly suited to the challenge of improving surgery. For one, despite the basic advances mentioned, hospital infections and septic bleeding were still commonplace. Unlike most surgeons of the time, who saw speed as a sign of operational finesse, Kocher developed a slow, methodical technique which precision was key. He saw painstaking hemostasis as of critical importance. Kocher rejected the then common technique of mass ligation of the arteries and developed 'Kocher clamps' for use as hemostats. 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. These are just two points of Kocher's system of 'safe' surgery, described in five increasingly voluminous German editions of a textbook on surgical operations (1892–1907), which was eventually translated into six languages.

Kocher's surgery, like that of most of his contemporaries, was initially based on pathological anatomy and aimed to simply remove diseased tissue. However, in his later period, he began to foster 'physiological' surgery, aiming not just to remove the diseased parts but, when doing so, attempting to preserve or to restore bodily functions.

In these buoying decades Kocher was able to contribute significantly to domains which have long since become specialties (see table). In addition to his work in general surgery, he also made advances in aneuploidy, anesthesiology, endocrinology, neurology and neururosurgery. He invented instruments, a high-pressure sterilization device, a mask for inhalation anesthesia, and, above all, many specific operative procedures that are still called by today's surgeons by his name.

Kocher's innovations and masterly technique turned his clinic in Bern into a world-renowned center of excellence. In himself he advances in surgical methods would have been enough to earn him name recognition from every student of surgery the world over, but Kocher will forever primarily be linked with his insights into a critical gland that, during his time, was so enigmatic that physiologists generally thought it had no function at all - the thyroid.

**The Thyroid**

From the 1830s onwards, surgeons and physiologists in many countries removed the thyroid gland from various species of animal to see what happened. The results were ambiguous: since neither antisepsis nor the existence of the parathyroid glands were known, it was not possible to know
Developed numerous surgical instruments. In addition to his clamp for medicine, counselled against washing hands in stagnant water. Described effects of total and partial thyroidectomy. Was able to 'measure' as did other surgeons, Kocher devised sequential chloroform-ether narcosis. Subtle Knife

Terrifying discovery: In 1883 Kocher realized that complete thyroidectomy could cause cretinism. In lectures he used this photo of two sisters, previously alike, to illustrate the 'complete and substantial change' after surgery on the older sister (on the right in a and left in b).
A Noble Prize Winner

Kocher’s greatest legacy will always be the countless lives that would have been lost or blighted on the operating table were it not for his methods. But he did not just leave the world novel surgical techniques and tools; he also adorned in books and mortar his pioneering spirit.

Using the money he received from his Nobel Prize, Kocher provided an endowment to finance and build a research institute at the University of Bern that still bears his name.

Today, the Theodor Kocher Institute focuses on immunity and inflammation, as well as vascular biology and the blood brain barrier. It benefits from live cell imaging equipment including in vivo time lapse videomicroscopy and two-photon microscopy, and forms part of the university’s Microscopy Imaging Center. The Institute is also a significant teaching facility for students of medicine and the life sciences.

Further Reading


Tröhler U: Toward endocrinology. Theodor Kocher’s 1883 account of the unexpected effects of total ablation of the thyroid. The James Lind Library, 2010. Available at: www.jameslindlibrary.org

Ulrich Tröhler
University of Bern

Prof Tröhler was founding president of the European Association for the History of Medicine and Health. He has written extensively on the history of regulation of animal and human experimentation, surgery and obstetrics. He is co-editor of the James Lind Library (www.jameslindlibrary.org).