Tuttlingen - world center of medical technology - a somewhat different viewpoint

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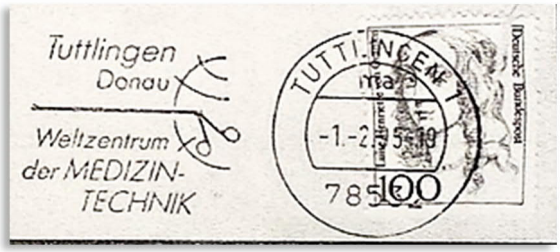
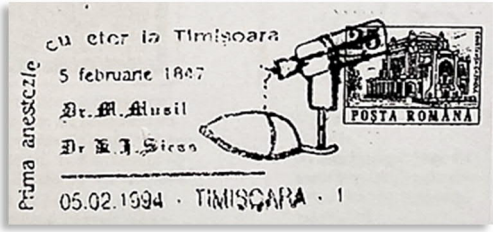


Postmark of the city of Tuttlingen: World center of medical technology, shown is a classic laparoscopic instrument

For the outside observer, the question almost always arises at first - how was it possible for the greater Tuttlingen area to develop at all into the current density and dominance in the field of medical supplies? More than 300 companies of various sizes are involved in the manufacture and further development of surgical equipment and instruments. However, if you superimpose the advances in surgical medicine with the industrial development and expansion of the Tuttlingen region, you can quickly see unmistakable parallels. From today's perspective, one can also deduce a certain dependency or rather an extraordinary symbiosis between science and industry.

The actual starting signal probably came in 1846, when the first operation under anesthesia was performed at Massachusetts General Hospital in Boston. A milestone and the unprecedented beginning of modern surgery. A decisive prerequisite for surgical procedures of all kinds, which had been unthinkable without the exclusion of surgical pain, had been fulfilled. Anesthetic apparatuses from the early days can be found in the first catalogs of suppliers of surgical instruments.



Anesthetic mask according to Schimmelbusch for ether vaporization

Josef Lister (1827-1912) - Professor of Surgery in Edinburgh is considered the founder of asepsis in surgery. He used carbolic acid to disinfect the skin, instruments and suture material, as well as dressings. Entire operating rooms were wetted with carbolic spray. The universally known bandage scissors according to Lister (Pakistan brand on the far right) are also still in widespread use today. (Great Britain 1965, Benin 1977, Pakistan 2003)

A second decisive advance was the use of carbolic spray for disinfection developed by Joseph Lister (1827-1912), the beginning of modern sterilization procedures. Gangrene still undid the progress made by anesthesia. Gangrene caused at least as many human casualties in warlike conflicts of the time compared to casualties from combat.

In addition to the surgical linen, Lister also soaked the instruments he used generously in carbolic solutions. This effort made him the laughing stock of his colleagues for a long time. His real breakthrough came not in his native Great Britain, but in Germany. Here, surgeons such as Karl von Graefe (1787-1840) and especially Bernhard von Langenbeck (1810-1887) had achieved world renown and made the Charité in Berlin the undisputed center of surgery in Europe.

X-ray diagnostics, named after the physicist Wilhelm Conrad Röntgen (1845-1923), can be seen as the third cornerstone. X-ray images were the first to reveal anomalies in the body, which, as an important building block, enabled a well-founded diagnosis. It is hard to imagine the development of today's orthopedics without X-ray technology.

For the interested philatelist, the most important stages of development in the entire breadth of medical history are commemorated or commemorated worldwide by a variety of stamp issues. In addition to issues for the

corresponding group of people, there are also versatile stamps and stamp impressions for the required instruments and equipment.

The general operational "explosion" required corresponding "working equipment". Due to the increasing number of surgical interventions and the associated growing demands of the operators, instrument production was permanently faced with new challenges. In the early days, the innovative operators had to turn to local gunsmiths or cutlers for help. In this way, an instrument set was created that was individually tailored to the client and could always be associated with his name, a process that has remained recognizable to this day. One does not speak of a retractor but of a hook according to Langenbeck, not of an arterial clamp but of a Kocher clamp always true to the authors.

On Dec. 22, 1895, W.C. Roentgen (1845-1923) took a picture of the ringed hand of his wife Bertha, a picture that went around the world (Antigua and Barbuda 1998 from a block)

The elaborate surgical instruments made of wood and ivory (Iran 1992) could not be sterilized, but those made of metal could. Thus began the age of the "forge" in instrument making - also in Tuttlingen.

The first manufacturers were formed in France in the 17th to 19th centuries. Here, the "art of surgery" was leading and there was a correspondingly increased demand for surgical instruments. Modern surgeons actually built on the experience and knowledge of antiquity and used knives, forceps, lancets or tweezers. The increasing individual demands and needs of modern times expanded the range of instruments bit by bit.

Sophisticated surgical instruments already existed in the 17th and 18th centuries (shown here, GDR 1981). Their constant further development transformed the Tuttlingen region from the former focus of cutlers to a worldwide center for the manufacture of surgical instruments.

Anyone interested in the manufacture of modern instruments had to go to France for training and further education. A large number of Tuttlingen cutlers recognized the steadily increasing demand and thus the possibility of escaping the constantly growing competitive pressure in knife manufacturing. Returning home, they concentrated on the new products and looked for their own production niches in order to maintain their independence, an important concern of the Tuttlinger to this day. The breakthrough to today's center of medical technology can be described in a very abbreviated way as follows:

The cutlery trade offered the best conditions for the transition to instrument manufacturing. The Franco-Prussian War (1871-1872) created a huge demand for surgical instruments, for which the people of Tuttlingen were well prepared. The founder of Aesculap AG produced large quantities of commonly used instruments at an early stage and thus achieved an excellent readiness to deliver which the domestic and foreign competition could do little to counter. The Tuttlingen-based company knew how to stay one step ahead of the competition through constant innovations in both production and quality. All in all, the pioneering steps to the "world center of medical technology".