

FAMOUS FIGURES

Ernst Von Bergmann

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This remarkable man's story illustrates the high level of surgery the German Army enjoyed in the later 19th century. Ernst von Bergmann was from a family of solid Prussian lineage going back to the late 17th century,

and ennobled by Joseph II for their service. He was born, not in Prussia, but in Riga in Latvia, on 16th December, 1836 – Latvia being then controlled by the Czar of Russia. His family were both scientists and staunch Lutherans, and his father, Richard, was pastor of Rujen while his mother, Bertha, was a herbalist.

The young Ernst began his medical studies at the Russian University of Dorpat at the age of 18, in 1854. His father only reluctantly gave his permission for his choice. In 1864 he became assistant professor of surgery. Two years later, in 1866, Prussia and Austria fought a short, but bloody war, on German soil. Ernst volunteered at once, but because he had been born outside Prussia, his loyalty when he volunteered was questioned, and he needed special permission with an oath of allegiance, before being allowed to join. Remarkably, as well as being a young surgeon, Ernst worked as a reporter for a Dorpat newspaper. It was also said that he joined 'because he thought his career would be enhanced by some military service'.

Despite the use of anaesthesia, military surgery in this war was primitive. Bergmann quickly discovered what became his life-long interest in the cause and control of surgical infection. He learned quickly. Common sense, rapidly increasing practical experience, and his insistence on Listerian principles of wound care, gave him a sound reputation and his good results were applauded by his seniors. His skill as a correspondent perhaps increased the clarity of his written conclusions: 'One can call every war an epidemic of trauma. In reality, there never was an epidemic that saw so many fall to the sword of death as fell in the forests of Vonachtec. It is in another sense that war proximates to an epidemic....like cholera, every gunshot wound becomes a source of poison for the organism that receives this wound. The body

then becomes a workshop for this frightful poison or germ, that is then able to spread itself throughout the entire organism...it is nevertheless a fact that good care can eliminate the contagion of poison...good care consists in keeping the sick person in an airy room with clean surroundings and careful bandaging....on the other hand, if you put many patients together in tight conditions, then it is almost certain that you will get typhus in the wounds, hospital sores, and fevers with pus and the condition of the wounded will quickly go downhill'(1).

His letters detailed the need for triage, efficient hospital organisation, and rapid removal of the wounded away from the battle zone. In 1867 he returned to his hospital clinic in Dorpat. Sadly, in the following year, his young wife died from cardiac disease, leaving him alone with a young daughter to look after.

And soon, in 1870, there was another war to be fought – the Franco-Prussian war. Again the Prussian Army was reluctant to employ aliens, and Von Bergmann had to get an appeal from the Czar's personal physician to allow him to enlist. Now he would join two more famous names, Volkman and Billroth in the hospital at Mannheim. Again, his accounts of the equivalent of a CCS had the dramatic language of the journalist: 'We bring the wagons close to where they can help. We take the hospital provisions from them and then get to work, the bandages, the scissors, the bindings, the scalpels. Above us blows the white flag with the red cross. First we must put a little plaster-of-paris bandage on the upper arm as it is fractured. The assistant doctor yells "Where do I get the time for it? Don't you see the man next to him is bleeding to death". Even before we can get his uniform unbuttoned to help him, he has spent his last drop of blood. Another doctor calls "Professor, what am I to do with this one here. Both his upper legs are smashed." I reply "Don't tend those type of wounds now, we have a priority and this man needs tourniquets urgently." The confusion and chaos of a hospital can be hardly less than that of the soldiers in the battle'(2).

Now more senior and experienced, Bergmann could push harder for a system of triage, antiseptic measures, and correct wound care. His measures mirror those seen in our own better surgeons of the same time. And yet, he remained a 'visiting surgeon' rather than a military medical officer. When this war ended, he returned as a civil

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surgeon to Dorpat and did not remain in army uniform. Now he had a new wife, a hospital supply manager called Pauline von Probeck. Her presence near the front line showed how the German Army employed women in their medical care system many years before the same thing happened in our Army.

Von Bergmann returned to Dorpat with his new wife and began to apply what he had learned in war. His research concentrated on nature of infection, antiseptic compounds, and neurophysiology. He searched for a specific toxin which produced infection, and for an antiseptic surgical dressing by using various concentrations of carbolic acid. He had learned in war to wash his hands before operating, and his civilian infection rates diminished at once. But the work he did in neurosurgery was his most important, and led to his major reputation. He did work on intracranial pressure, and was the first to measure intracerebral venous pressure through the jugular bulb and transverse sinus. He drew on his military experience, developing strict techniques for the débridement of head wounds, either with primary closure or secondary drainage with iodoform gauze and dural closure. He recognised basilar skull fractures with otorrhoea or rhinorrhoea. His book, *Instructions Concerning Head Injuries*, published in 1880, gave him an international reputation(3). The sophistication and precision of his surgical concepts showed just how far neurological surgery had progressed since the American Civil war of two decades before.

And then Von Bergmann was back to being a military surgeon once more, in the Russo-Turkish war of 1877. Now he held the equivalent of general's rank as consulting surgeon to the Army of the Danube. At first, he was head of a mobile hospital, but as the Russian army advanced, he moved to a major base hospital at Piaetra. Here he taught the German and Russian surgeons his techniques, and for them the antiseptic treatment of wounds, and especially of gunshot wounds of joints, was a novelty. His Russian colleagues did not use Listerian management, so he proposed a clinical trial in two groups of similar wounds. The Russians were unconvinced until Von Bergmann saved the life of the popular general, Dragomirow, who had one such wound of his knee.

Lastly, he returned to civilian life, first at the University of Würzburg, and then, after the retrieval of Bernard von Langenbeck, was promoted over the head of Bilothe as professor. Volkmann was also a candidate, but declined on account of illness. On the 8th of August, 1882, the Kaiser appointed Bergmann Head Professor of Surgery and Director of the Clinical Institute of the University of Berlin, General Medical

Consultant, and a member of the Scientific Academy of the German Government. Now it was as a neurosurgeon that he worked, liaising with McEwen in Glasgow and Fenger in Chicago. His career was the antithesis of military surgeons in Britain, in that he was a civilian who went to wars and then left and went back to civilian practice as soon as the fighting was over. It was, however, war surgery which taught him civilian surgery. He died in 1907.

He had one final suggestion to make to his regular Army compatriots – that Germany must establish a full-time medical organisation for its growing Armed Forces under the control of medical officers and not of non-medical officers. His advice was accepted, at least in part, by the German General Staff during the years up to the first World War.

But the story does not end there. It was Bergmann who diagnosed the laryngeal carcinoma of Crown Prince Friedrich, but on the pressure of Bismark and of Princess Victoria his wife and daughter of Queen Victoria, the opinion of McKenzie, the English surgeon was sought and the lesion left untreated owing to McKenzie's error. Had Bergmann been allowed to operate and the modest and popular Prince Friedrich succeeded instead of Wilhelm, the history of later European history might have been very different.

Acknowledgement

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