

Overview of the German 1832 Study

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The study was carried out in America in 1828 and 1829 and published in Berlin in 1832. The study was at the expense of the Ministry of the Interior, Trade, and Architecture of the Prussian (now German) government. We have translated the Introduction and Chapter Headings of the 100 page study. From the few pages translated and other relevant sources, the following background has been prepared.

The government of Germany recognized the profitability of the substantial flour trade of North America (US) with the West Indies and South America and that this profitably was based on the significantly greater efficiency of US flour manufacturing. Successful competition can only take place with large technically advanced mills based on the American model. It was concluded that it was “desirable to obtain complete knowledge not only of the technical installations of the North Americas, but also of their millwork by working millers”.

The Chapter Headings of the study are:

- * Preface and Travel Report
- I. The Equipment of American Mills
- II. The Arrangement of the Machines in an American Mill
- III. Application of the Machinery in American Mills during Flour Production
- IV. Evaluation and Inspection of the Flour
- V. Types of Grain

Voltaire once said that “Prussia is not a country with an Army but an Army with a country.” Prussia’s military prowess was established during the Seven Years' War when it held off the united forces of Austria, France and Russia. Despite suffering a humiliating defeat at the hands of Napoleon at Jena in 1807, Prussia emerged from the Napoleonic Wars as the dominant power in Europe. This included their long-time rival Austria. Still, the war exposed Prussia’s weaknesses. Government insiders called for reform. They sought nothing less than total modernization of the Prussian state, society, and economy.

In contrast to the United States, industrialization in Prussia would be a government-run operation. From the Department of Industry & Trade within the Ministry of Finance, Peter Beuth directed the industrial side of Prussia’s modernization from 1818-1845. Beuth was committed to two things: rapid technological advance and state aid. Dedicated to raising the standard of industrial efficiency in Prussia, Beuth fully embraced the machine age. He believed that a shift from small-scale craft production that then dominated Prussia to large-scale industry would raise the living standards for all and increase the wealth and power of Prussia on

the world stage. To realize his vision for a modern, industrial Prussia, equal or greater than the modern, industrial England, Beuth created three programs. First, to promote innovation and the spread of technical information Beuth reorganized the Technical Commission created in 1810. The Commission oversaw patent law and published textbooks on science and technology. Second, to foster the exchange of knowledge Beuth organized the Association for the Promotion of Technical Knowledge in 1820. The Association met on Sunday afternoons at Beuth's house in Berlin. The Association maintained a library of books, periodicals, engravings and collection of machines/models and also published their own transactions concerning advances in technology at home and abroad. Third, to develop homegrown expertise Beuth created the Technical Institute in 1821 where boys 12-16 years old took a two-year training course in Berlin. Students came from throughout the provinces and were given grants to cover living expenses. The number of students rose from 13 the first year to 101 in 1845. Many of Prussia's leading engineers, including the builder of Prussia's first locomotive, were graduates of the Institute. Institute graduates often entered government service within the Department of Industry or went into business with established Prussian firms.

Under Beuth's leadership the Department of Industry & Trade spent much of their resources on acquiring new technologies abroad and distributing those machines and methods throughout Prussia. Beuth believed that the best method for technological advance were tours of inspection. Since not just anyone could be a useful industrial spy, Beuth encouraged members of the Technical Commission and graduates of the Technical Institute to travel to foreign factories and snoop around. As part of this larger scheme for technology transfer Beuth dispatched Friedrich Wulff and Carl Friedrich Ganzel, both graduates of the Institute, to the United States in the mid-1820s to examine advances in flour-milling machinery. The Prussians had already spied on English flour millers, snooping around the Murray mill at Leeds and adapting what they called the English model to Prussian mills in Madgeburg, Berlin, Guben and Hamburg. In addition to their larger scale, the English flourmill model was useful for the methods of cleaning and sifting flour. Though England was the leader of the industrial revolution, America was the world's leading flour producer. American inventor Oliver Evans took flour milling to the next level by creating a continuous (or nearly so) process of manufacturing. It was the secrets of Evans' "automatic mill" and American domination in general that Beuth and the Department of Industry & Trade were after. Ultimately, Beuth wanted to use America's technology and trade secrets to seize control of the Caribbean/South American markets for Prussia.

After a tour of European industrial sites in Prussia, Holland and France, the two Prussians boarded a vessel at Havre de Grace headed for New York in the fall of 1827. Their journey took them south to Philadelphia, Wilmington, Baltimore, and Washington D.C. where they separated for a time with Wulff heading west for Cincinnati, Pittsburgh and Buffalo and Ganzel traveling through Virginia before heading north to America's newest milling center at Buffalo/Rochester. The two reunited along the Hudson for a trip through New England including a stop at the textile mills in Lowell. They departed from New York in the spring of 1829 for Liverpool which they toured before returning to Berlin. The Department of Industry & Trade published their report in 1832. The report included travel summaries by both Wulff and Ganzel, five chapters relating to specific aspects of milling and a series of engravings.

Another Technical Institute graduate, Kessel, built the first American-style mill in Prussia at Dranienburg (Oranienburg located on the banks of the Havel River now part of the growing Berlin metropolitan area). However, as a reward for their service both Ganzel and Wulff were granted rights to build their own state-of-the-art flour mills. Ganzel was granted the rights to construct a mill in Ohlau, a town on the Oder River in Silesia (located near Cracow). Records indicate that there was a major flour mill there in the 1840s. Wulff accepted the privilege to build a mill near his home of Danzig, a lucrative place for a flour mill. Located on the Baltic, Danzig was one of the greatest grain ports in Europe. The grain was stored in hundreds of warehouses on an island in the middle of the Vistula River where light was forbidden to prevent fire. The grain was purchased from large landholders in the interior by middlemen who then sold the grain to export merchants in Danzig who shipped the product to markets around the globe. Danzig not only had easy access to Poland's heartland but also to Europe's finest and whitest wheat grown in the Russian Volhynian valley.