

KARTE VON OST-PREUSSEN NEBST PREUSSISCH LITTHAUEN UND WEST-PREUSSEN NEBST DEM NETZDISTRICT.

Author: Friedrich Leopold von SCHRÖTTER (1743-1815) & Friedrich Bernhard ENGELHARDT (1768-1754).

Place and Year: Berlin: Schropp & Co., 1802-1810.

Technique: Copper engraving with original outline colour, in 25 separate sections mounted on original linen, together forming a map of irregular shape, 200 x 310 cm, housed in original card box.

This gargantuan and extraordinary map is one of the most important and impressive monuments in the cartographic history of Germany, Poland and Lithuania. Known as the 'Die Schroettersche Landesaufnahme' (Schrötter's Topographic Surveys), the map represents one of the greatest technical achievements of empirical surveying of the Enlightenment Era conducted anywhere in Europe. It is also a highly sophisticated economic map, as well as an important work of military cartography from the era of the Napoleonic Wars. The map also had important symbolic significance with respect to the Prussian annexation of the territory concerned, as well as having great utility for civil administrative purposes.

The map embraces a sizeable area that includes most of today's Northern Poland, all of the Russian enclave of the Kaliningrad Oblast, as well as the maritime region of Lithuania. The map was commissioned in 1795 in order to depict the Polish territories newly-acquired by the Kingdom of Prussia, namely West Prussia and New East Prussia, as well as to show the traditional Prussian region of East Prussia and parts of Pomerania. These areas shown feature, amongst others, the cities of Danzig (Gdańsk, Poland), Königsberg (Kaliningrad, Russia), Memel (Klaipėda, Lithuania), Marienburg (Malbork, Poland) and Kulm (Chełmno, Poland) and Elbing (Elbląg, Poland).

A Polish government website overlays the sheets of the Schrötter-Englehardt map onto a modern projection, from which are linked actual images of the map sections, please see link:

<http://igrek.amzp.pl/mapindex.php?cat=SCHROETTOWPR150>

The present example is especially fine instance of the map, being a complete set of all 25 sheets that were compiled and uniformly coloured and boxed up at the establishment of the publisher Simon Schropp in Berlin in 1810-11. In addition to the fine condition of the sections, their uniform appearance is quite remarkable given the bizarre and dramatic circumstances under which the map was published (more to follow).

Section II of the map features the 'Eklaerung der Zeichen', an extremely detailed key to symbols, representing cities, towns and villages of various sizes; the locations of churches and cloisters; various types of waterways; battlefields; land use conventions, such as those for fields, forests and pasture land; post offices, stations and stages for changing post riders' horses; as well as types of roads of various importance.

The composition is also a highly sophisticated economic map, labeling numerous facilities for industrial production, including windmills, paper mills, foundries, textile mills and chalk ovens, amongst others.

In addition to the main map, the margins feature several interesting and important embellishments and cartographic insets. Section I, which includes the main title, is surmounted by a fine stipple-engraved portrait of King Friedrich Wilhelm III, executed by Meno Haas. Section XXIV features the 'General-Tableau', the key map of the entire area shown on the detailed map sections. Interestingly, it is traversed by Friedrich Bernhard Engelhardt's main triangulation lines, lending an insight into the process of the epic surveys.

Section XXIII features the 'Grundriss der Haupt und Residenz Stadt Königsberg...1809' (measuring 29 x 31.5 cm), an especially fine and detailed plan of the historic capital of Prussia (now known as Kaliningrad, Russia). As a curious aside, the depiction of the city is true to the form it maintained during the time of Leonard Euler (1707-83), who proposed the 'The Seven Bridges of Königsberg', an important mathematical resolution that was foundational in the field of graph theory. As shown, Königsberg was situated on two islands that were connected to each other and the mainland by seven bridges.

Euler's matter concerned solving the question of whether one could find a way to walk through the city that would cross each bridge once and only once. Critically, the islands could not be reached by any route other than the bridges, and every bridge must be crossed completely; one could not walk halfway onto the bridge and then turn around and later cross the other half from the other side (the walk need not commence and end at the same spot). Euler proved that the problem has no solution. There could be no non-retracing the bridges. His findings were later backed up by mathematicians using complex mathematical calculations.

Section VIII features the 'Grundriss der Stadt Danzig' (measuring 21.5 x 26.5 cm), a fine plan of Danzig (today's Gdańsk). Danzig was by far the greatest port in the region and for centuries had been Poland's (and by this time Prussia's) main gateway to the World.

Section XIX contains the 'Statistisch-Topgraphische Tabelle', a detailed table featured the latest statistics with regards the region's physical geography, economy and demographics.

Section XXV features the 'Profil von dem Bromberger Kanal', a profile elevation of the Bromberg Canal (today known as the Bydgoszcz Canal). This channel, located in central West Prussia, was built between 1773 and 1775 in order to connect the Vistula and Oder River basins. Considered at the time to be a great engineering marvel, it was subsequently improved by David von Gilly, the celebrated engineer, architect and cartographer.

The Story behind the Creation of the Schrötter-Engelhardt Map

The 'Die Schroettersche Landesaufnahme', even compared to the other the other great contemporary mapping programmes, stood out for the almost obsessive level of perfectionism and the astounding resources that were directed to its creation. For these reasons, it is widely

considered to be the most technically advanced and impressive of all of the great Prussian Enlightenment maps.

The Schrötter-Englehardt map is also one of the era's three great maps of Poland based on scientific surveys, along with David von Gilly's *Special Karte von Suedpreussen* (Berlin, 1802-3) and Antonio Rizzi-Zannoni's *Carte de la Pologne divisé par Provinces et Palatinats et subdivisée par districts* (Paris, 1772).

It also represented both the apogee and conclusion of one of the greatest achievements of scientific surveying of the Enlightenment era – the endeavor to create an accurate, large-scale survey of all Prussian lands. On the orders of Frederick II “The Great”, the Prussian government worked to map the entire nation to the remarkably large scale of 1:50,000. From 1760 to 1790, led first by General Friedrich Carl von Schmettau and latterly by F.W. von Schulenburg-Kehner, a massive team of surveyors and draftsman created the ‘Cabinet Map’ (*Kabinettskarte preussischen Provinzen*). While the endeavor was never completed in its entirety, much of the project was realized, resulting in 940 maps, 25 manuscripts, 15 indexes and 2 descriptions. The Cabinet map ensured that Prussia was mapped, through advance triangulated surveys, in greater detail than any other nation. The map was highly valued for both its military and civilian utility.

Presaging the Schrötter-Englehardt map was the acquisition of the territory that became the new Province of West Prussia following the First Partition of Poland (1772). Prussia gained 36,300 sq. km (14,000 sq. miles) of what was traditionally called Royal Prussia, which critically bridged the hitherto discontinuous parts of the Prussian kingdom (Brandenburg and Pomerania in the west with East Prussia in the east), thus forming a large geographically coherent state. During the Third Partition (1795), Prussia further gained control of the great port of Danzig (Gdańsk), which was incorporated into West Prussia, making the new realm a truly valuable prize.

The economic development of the new provinces of West Prussia, New East Prussia and South Prussia was held as a top priority by the government in Berlin. The mapping of these territories was a necessary prerequisite to its designs and a natural corollary to the ‘Cabinet Map’. Thus, the government commissioned the surveys that resulted in the creation of the Schrötter-Englehardt map, David Gilly's *Special Karte von Suedpreussen* (Berlin, 1802-3) and Johann Christoph von Textor's *Topographisch Militaerische Karte vom vormaligen Neu Ostpreussen* (Berlin, 1808).

Enter Friedrich Leopold Freiherr von Schrötter (1743 – 1815), a Junker (member of the landed nobility) and senior Prussian government official. He was an ‘Ostlander’, who was born just outside of Königsberg. He joined the military and served with valour in several key battles of the Seven Years’ War (1756-63). He became a close friend of the Crown Prince (later king) Friedrich Wilhelm II and his competence and connections ensured that during the 1780s he was charged with reorganizing the Prussian War College, an endeavour which was hailed as a great success. From that point onwards, Schrötter was given increasingly senior government posts.

In 1791, the king appointed Schrötter to become the President of War and Domain Chamber of West & East Prussia. He quickly established himself as one of the leading “reformers”, an

informal group of enlightened officials who were determined to modernize Prussia's institutions and overhaul its antiquated economic policies. He also developed a reputation for mastering highly complicated briefs and for being an astute manager of personnel. While being a "reformer" made him many enemies in conservative circles, Schrötter was supported by the king and, in 1795, was appointed Finance Minister of both West and East Prussia. With this he possessed the platform to initiate bold policy reforms with respect to taxation, land management, as well as to oversee infrastructure projects and colonization schemes that would effectively integrate West Prussia and New East into a united state.

However, Schrötter, who acquired a sophisticated appreciation for cartography while serving in the army, soon realized that West and East Prussia were, in many respects, very poorly mapped. Even the basic geodetic location of the region was severely misunderstood. As the 'Die Schroettersche Landesaufnahme' would later reveal, the best maps available in 1795 incorrectly showed West and East Prussia to be located 47 km too far to the north and 23 km too far to the east of their true positions! While the Rizzi-Zannoni map of Poland (1772) was an improvement over earlier maps, it featured many technical inaccuracies and was of too small a scale to be useful for many administrative purposes. Frighteningly, East Prussia had not been surveyed as whole since Caspar Henneberg's mapping conducted during the 1570s. Schrötter realized that the deficiency in geographic knowledge of the East and West Prussia was so serious that his policy designs would be stalled unless a new highly accurate survey was conducted without delay.

In 1796, Schrötter organized one of the finest teams of surveyors assembled anywhere during the Enlightenment era. He himself would act as the 'CEO' of the project, frequently leaving the comfort of Königsberg to oversee operations in the field. The survey would be executed by the most advanced and exacting standards of trigonometric practices, anchored by astronomical observations. As a template for organizing the surveys, Schrötter adopted the advice of David von Gilly (1748-1808), the celebrated architect who was concurrently leading his own surveys of South Prussia that led to the publication of the masterly *Special Karte von Suedpreussen* (1802-3).

The 'Chief Operating Officer' of the project was Friedrich Bernhardt Engelhardt (1768-1854), a military surveyor, who although only 27 years old, has already impressed Schrötter with his extraordinary technical and organizational abilities. Engelhardt would go on to conduct dozens of important surveys over his long career, resulting in numerous important maps, including *Karte vom Herzogthum Warschau* (Berlin, 1812) and the *General-Karte von dem Preussischen Staate* (Berlin, 1829).

Astronomical observations were overseen by artillery Lieutenant **Johann Christoph von Textor, who went on to make his own important map of New East Prussia (the new Prussian province that consisted of parts of Lithuania and what is now extreme northeastern Poland), *Topographisch Militaerische Karte vom vormaligen Neu Ostpreussen oder dem jetziger Nördlichen Theil des Herzogthums Warschau* (Berlin, 1807). The surveyors' calculations were rechecked by the esteemed engineer and mathematician Johann Albert Eytelwein (1764-1848).**

The surveying operations began in earnest in East Prussia in 1796 and proceeded without interruption for almost 6 years. Following Gilly's recommended organizational framework, the survey was conducted by 20 highly trained engineers, each of whom led separate field teams of assistants.

Due to Schrötter's almost fanatical dedication to accuracy, every element was surveyed at least three times, with all data carefully compared for consistency. While this caused the project to take somewhat longer than it would otherwise, it ensured that the survey was amazingly accurate, so preventing innumerable problems going forward.

After almost six years of surveying, the field operations were completed in 1802. The survey proved to be one of the most expensive in the history of Prussia and, in real terms, one of the most expensive in Enlightenment Era Europe. The total cost for the surveying operations only was 50,000 Prussian Thalers, which was equivalent to 1% of the annual budget of the entire kingdom (with the cost albeit spread over a six year period).

The Manuscript Survey

From the various field surveys a monumental, exactly drafted and beautifully coloured manuscript map was completed in the summer of 1803, executed to the large scale of 1:50,000, comprising 141 individual sections.

However, even before it was completed, the manuscript was met with controversy. The detail was so great, especially with respect to military installations and topographical features useful to an army on the move, that the Prussian Army strongly opposed its dissemination. They feared that any printed map bearing the same level of accuracy and detail could be used as a weapon by their enemies, notably France and the Russia. These fears were well founded, as Napoleon Bonaparte was known to personally hunt down and consult groundbreaking maps of enemy states. It was thus decided that the Schrötter-Engelhardt map could be published, but only to a smaller scale and only if it omitted certain militarily sensitive features. The manuscript survey, however, would be considered by the Prussian (later the German) General Staff to be so sensitive that it was kept under lock and key as 'Top Secret' until 1925!

The Dramatic & Bizarre Story of the Publication of the Map

The story of the printing of the Schrötter-Engelhardt map is one of the most bizarre, complicated and unlikely of any map project. Production of the printed map was entrusted to the preeminent Berlin firm of Simon Schropp & Co. It was decided that the map would be published to a scale of 1:150,000 (approximately 2.37 miles to an inch), which is over four times larger than the scale of the Rizzi-Zannoni map of Poland (approximately 10.9 miles to an inch), but three times smaller than the survey manuscript. This scale was still quite large and it afforded more than sufficient detail to enable the map's civilian applications, and supposedly enough to permit a 'safe' level of military utility. Moreover, this scale was viewed as more practical than the unwieldy 1:50,000 and it had the advantage of corresponding exactly to the scale its sister map, Gilly's map of South Prussia, which was already in production.

The map was to be issued in 25 sections, to be released serially to subscribers (who had to pay for each upcoming section in advance), with the first section issued in 1802 (even before the survey manuscript was completed). Schropp assembled an all-star team of engravers and the quality of the production was much admired. Most of the composition would be engraved by Carl Jäck, who executed much of the general topography; Paulus Schmidt engraved the fine plans of Königsberg and Danzig; while Meno Haas rendered the stipple portrait of King Friedrich Wilhelm III on the tile sheet.

However, the lavish engraving came at great price, as each section cost 13 Thalers to produce, an astounding sum for the time. Indeed, government auditors complained about the production costs and subscribers were less than thrilled about the end-user price. In any event, owing to its importance and popular acclaim, the map sections sold quite well. Consequently, it was envisaged that 500 examples of the complete edition would be issued, although, as we shall see, this quantity was never anywhere near realized.

The production and issue of the first 14 sections proceeded uneventfully from 1802 to 1806. The Prussian military noted that it found the already completed sections to be indispensable in fighting the Saxons, Russians and most notably the French during the ongoing Napoleonic Wars.

However, on October 14, 1806, the French crushed the Prussians at the Battle of Jena-Auerstadt and shortly thereafter occupied Berlin. Napoleon and his officials at the *Dépôt de la Guerre* were well aware of the importance of the partially-printed Schrötter-Engelhardt map as well as certain other seminal recent works of Prussian cartography. They expended extraordinary efforts to track down any printed copies, manuscripts and copperplates. French soldiers raided Prussian ministries, academic institutions and dealers' shops, during which they located many examples of the yet completed printed Schrötter map sections. Meanwhile, the Prussians managed to spirit the original Schrötter-Engelhardt manuscript survey out of Berlin, along with the King's art collection, whereupon it travelled on a circuitous odyssey around the Baltic, narrowly avoiding capture by Napoleon's agents.

In Berlin, Schropp entrusted the existing 14 completed and the 4 uncompleted plates of the Schrötter-Engelhardt map to the Daniel Friedrich Sotzmann, the chief cartographer of the Prussian Academy of Science. He did this in the naïve hope that the French would consider it to be ungentlemanly to loot maps and plates from such an internationally respected mapmaker. In the early months of 1807, French officers seized the plates (and dozens of others) from Sotzmann and, on Napoleon's orders, sent them to Paris.

The experts at the *Dépôt de la Guerre in Paris* were so impressed with the Schrötter-Engelhardt map that they informed the emperor that it was "the only map" that could reliably be used by his army in regions concerned. Therefore, some pirate editions of the map were printed from the available plates in Paris for the use of the French army.

Meanwhile, Prussia had signed the Treaty of Tilsit (1807) with France and Russia, which ended hostilities in exchange for large Prussian territorial concessions. Prussia was compelled to cede all of South Prussia and Kulmerland (the south-central part West Prussia), as well as part of New East Prussia to the newly-created French puppet state of the Duchy of Warsaw (the rest of New

East Prussia was ceded to Russia), while Danzig was to become a “free city” under French influence. The same treaty stipulated that France was to return all property looted from Prussia during the occupation, including any map printing plates.

An understandably frustrated Schrötter personally appealed to Paris for the return of the plates to Berlin. Simon Schropp received the 18 plates from Paris, and promptly had the 4 unfinished plates completed by the engraver Carl Mare. The 7 remaining plates were likewise engraved, with final sections being issued in 1810. A small number of complete boxed sets (such as the present example) were compiled by Schropp and issued in 1810 and 1811.

Notably, Section XIV, which featured the ‘General Tableau’, or key sheet showing the overview of the region with the triangulated survey lines, featured some corrections that were not available on the detailed regional sections. Since the earlier sheets had been engraved, Prussian military engineers had been given access to groundbreaking new equipment that made the calculation of astronomical observations even more accurate. This allowed them to place the geodetic locations of certain places with even greater accuracy than was possible during the 1796-1802 surveys. On the ‘General Tableau’, the locations whose placement had been so corrected are underlined. While this did not dramatically effect the overall accuracy of the map, the inclusion of the corrections is further testament to the Schrötter-Engelhardt team’s commitment to precision.

Napoleon’s men had managed to acquire and compile several incomplete sets of the Schrötter map, however, in preparing the French invasion of Russia (which was to pass through the region), they ardently desired access to additional examples. In 1811, French agents offered Simon Schropp the outrageously large sum of 55,000 French Francs for all 25 plates. This offer was accepted and the plates were taken to Paris, where supposedly further pirate copies were issued. In 1812, every French general on the Russian Campaign was issued with an example of the Schrötter-Engelhardt map, which was considered indispensable in guiding the army.

Today the examples of the French pirated map sections are rare and are distinguishable from the Berlin editions for being printed hastily on lower quality paper. Moreover, the French sheets tend to be found as isolated sections, and not as composed complete sets.

Following Napoleon’s defeat and the Congress of Vienna (1815), all of the lands of West Prussia and New East Prussia were returned to Prussia, whereupon the Schrötter-Engelhardt map resumed its civilian utility; for land management, economic planning, taxation, infrastructure development and the settlement of Hauländers (German-speaking settlers). Moreover, as part of the final peace settlement, the French turned over many of the map printing plates acquired from Berlin, including the Schrötter-Engelhardt plates. The map continued to be the ultimate map of record of the area concerned for almost 50 years, a remarkable run in a region that placed a high priority on cartography.

The Fine Quality of the Present Example

The present example of the Schrötter-Engelhardt map is exceptional in that it is one of the few complete sets that were compiled at Schropp's premises in Berlin in 1810-11 and housed in a custom box. While the comprising sections were naturally printed over a period spanning from 1802 to 1806 and 1809 to 1810, they are all originally coloured and linen-backed in a matching fashion. Unlike almost all surviving examples, this particular example is untrimmed (all sections feature the full border panels), which are made to be folded and apposed for joining the entire map. The sections also survive in remarkably fine condition, with still fresh original outline colour. While the box is damaged, it is very rare for examples of the map to be found with their original casing.

Curiously many of the sections of the present set feature manuscript titles in either German or French. While this set was printed and compiled in Berlin, it is possible that it was subsequently acquired by a French officer who added some of his own verso annotations. The map was clearly used (albeit respectfully) and it is curious to speculate as to the role it may have played in military planning, perhaps during the Napoleon's invasion of Russia.

Notably, the title sheet of the Schrötter-Engelhardt map was issued in two states. Both states are quite similar overall, except that the title of the first state commences with the line 'Karte von Alt-Preussen', whereas the title of the second state commences by reading 'Karte von Ost-Preussen'. The present set features the second state of the title sheet. The first state title sheet is extremely rare, and no complete set of the map is known bearing the first state title sheet.

Complete examples of the Schrötter-Engelhardt map are today quite rare, and untrimmed examples in very fine condition with its original box are especially so. Almost all of the examples of which we are familiar have been trimmed, and many show heavy signs of use. As not uncommon with such maps, the scarcity of complete sets is also due to the unfortunate propensity of dealers, up until about 25 years ago, to break sets, selling individual sheets.

By Dr. Alexander Johnson of Antiquariat Dasa Pahor