

Johann Andreas Stein's 1781 Claviorganum
and the Construction of Art
in Eighteenth-Century Augsburg

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Johann Andreas Stein's 1781 Claviorganum
and the Construction of Art
in Eighteenth-Century Augsburg

Robin Blanton



UNIVERSITY OF GOTHENBURG

For Susan, Kelley, Erin, and Nicholas

Doctoral dissertation in musicology, University of Gothenburg

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Abstract

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The latter half of the eighteenth century saw the piano's rise in popularity in Europe, and alongside it many one-of-a-kind keyboard instruments that used the new technology of the hammer action in innovative ways. Recent scholarship revises the older view of these inventions as bizarre "dead ends," suggesting that like the piano, they filled contemporary musical needs. The conditions that shaped keyboard innovation during this period, however, have not been completely explored.

Johann Andreas Stein of Augsburg (1728-1792) invented a number of instruments that his contemporaries called "works of art." These included an organ-piano (claviorganum) from 1781, first owned by Patrick Alströmer of Gothenburg and now held by the Gothenburg City Museum. This dissertation explores how Stein's claviorganum functioned in its role as a "work of art." It juxtaposes the physical material of the claviorganum with descriptions of Stein's other inventions, and places instrument and texts in the context of the conversations and institutions that defined "art" in Augsburg during Stein's lifetime.

Writings by Stein's contemporary, the Augsburg historian Paul von Stetten the Younger, evidence an ideologically charged concept of art that preserved the word's older meaning of skilled craft, while encompassing newer ideas about the nature and privileged position of the recently described group of the fine arts. That idea of art, and the local political and social structures that supported it, conditioned both the form and the reception of Stein's claviorganum.

Like Stein's other inventions, the claviorganum was probably conceived and understood as a rationally worked-out, useful improvement. Its utility, however, consisted in an aesthetic affordance: it was designed, by supporting *empfindsam* musical behaviors, to allow musicians and listeners to practice

music as a fine art. Many of Stein's inventions were publicly exhibited in Augsburg; like them, the claviorganum provided an object for the critical gaze of the newly emerging public, the most important arbiter of art. These results situate the invention of Stein's claviorganum in a historically specific set of economic, cultural, and social circumstances. In doing so they also suggest new ways to understand both unusual and mainstream musical instrument technologies during this period.

Keywords: art, Patrick Alströmer, Augsburg, Carl Philip Emanuel Bach, claviorgan, eighteenth century, *Empfindsamkeit*, fine arts, fortepiano, Gothenburg, mechanical arts, music aesthetics, *Prellzungenmechanik*, public sphere, Christian Friedrich Daniel Schubart, Johann Andreas Stein, Paul von Stetten the Younger

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Chapter 1

Introduction

1.1 Background

Among the musical instrument holdings of the Gothenburg City Museum is a beautiful, unusual keyboard instrument from the late eighteenth century: a short-scaled grand piano combined with a one-register organ. Acquired by the museum in 1906, the little organ-piano was built in 1781 by the keyboard instrument maker Johann Andreas Stein of Augsburg, Germany. During the 1780s, it was owned by the Gothenburg businessman and music patron Patrick Alströmer, who documented his acquisition and use of the instrument in his engagement diary.

The Gothenburg organ-piano is an example of a genre of keyboard instruments known as claviorgans, or claviorgana—in such instruments, an organ is combined with a stringed keyboard instrument, such as a clavichord, a harpsichord, or a piano. The Gothenburg claviorganum, as it has usually been called, is one of only a few surviving organ-piano combinations from the eighteenth century. In fact, it was among the first organ-pianos ever built, during a period when the piano was just beginning to gain widespread popularity in Europe. It is also one of a handful of unusual musical inventions for which Johann Andreas Stein was widely known during his lifetime.

One of the few contemporary reports to mention the Gothenburg claviorganum was set down in 1788 by an Augsburg historian who knew Stein and his instruments when they were new. The report describes the claviorganum, along with other inventions by Stein, as a *Kunstarbeit*—a “work of art.” The meaning of the word “art” has shifted since Stein’s and Stetten’s time, but the category itself was then, as it is now, both complex and contested.

This dissertation investigates the relationship between notions of art and developments in keyboard instrument building during the late eighteenth century, using the Gothenburg clavichord as a case study. If the clavichord could be identified as a “work of art” when it was built, what does that identification say about why it was made, how it was used, and the meaning that it held for the people who encountered it?

Johann Andreas Stein and the Gothenburg Clavichord

Johann Andreas Stein (1728-1792) was among the most acclaimed keyboard instrument makers of the eighteenth century. An organ builder by training, Stein was much admired by his contemporaries for his efforts to—as they often wrote—“perfect” the piano, still a new instrument during his lifetime. He is credited with inventing one of the most widely used types of early piano actions: the so-called German action, or *Prellzungenmechanik*. Mozart and the young Beethoven played on pianos with actions of this type, and Viennese piano builders continued to use a variant of the *Prellzungenmechanik* throughout the nineteenth century.

Stein was also renowned in his own time as a prolific inventor of new kinds and combinations of instruments, which commanded enormous attention from the musical public. These included several harpsichord-piano combinations, one of which he named a *Poly-Tono-Clavichordium*, while the others were called *Vis-à-vis* instruments, made for two keyboardists to play at once; the *Melodica*, an organ that responded dynamically to the pressure of the finger; a *Saitenharmonika*, which combined a hammer action with a plucked action on one manual; and an organ-piano, the Gothenburg clavichord, or as it was called at the time, a *Clavecin organisé*.

The Gothenburg clavichord (Figure 1.1) contains Stein’s earliest preserved German action. The instrument is well-preserved, although not in playing condition. The piano is short-scaled in the bass with a compass of five octaves, from *FF-f*³. The organ contains a single register of stopped wooden pipes at 8’ pitch that extend from *C* to *f*³. The piano and organ each have their own manual, and the two instruments can be played either separately or coupled together.

New Kinds of Keyboard Instruments in the Late Eighteenth Century

Scholars trace the lineage of the modern piano to a type of hammer action instrument invented by Bartolomeo Cristofori in Florence at the end of the seventeenth century, described at the time as a “harpsichord with *piano* and



Figure 1.1: Johann Andreas Stein's 1781 claviorganum, held by the Gothenburg City Museum (*Göteborgs stadsmuseum*, GM4478). Photograph courtesy of Jan Ling.

forte.” The name communicated the essential new musical feature of these instruments. Unlike harpsichords, which produced sound with a plucking mechanism, pianos, in which sound was produced by hammers striking against strings, offered players control over the dynamic level of individual notes, and the ability to dynamically shape musical phrases.

Hammered keyboard instruments increased in popularity throughout the eighteenth century, as observers lauded their ability to produce effects of musical light and shadow, an analogy that reflected an emerging understanding of music as fundamentally akin to painting, poetry, and the other members of a newly defined group of “fine arts.” Stein, like many other keyboard builders of his day, was encouraged to experiment with the new sound of the hammer action and the notion of a dynamically capable keyboard instrument, creating instruments that offered new qualities of touch and new ways to combine and modulate both familiar and more novel sounds. The result was a multitude of what have aptly been described as “instruments with funny names”¹—new, often one-of-a-kind instrument types upon which their makers bestowed fanciful new monikers.

In the historiography of later centuries, these mid-eighteenth-century keyboard inventions have usually been regarded as evolutionary “dead ends”: exotic, short-lived offshoots from the main developmental trunk of the more successful piano. That point of view has tended to obscure both the extent to which the inventions in fact filled a rather mainstream musical function, and the fact that the piano itself remained fairly exotic until very late in the century. In some ways, inventions and ordinary pianos served much the same purpose. Both provided new musical capabilities that supported new ways of making and listening to music. It is even possible to argue that there is a sense in which many of the instruments that appear bizarre today were once hardly perceived as different from “regular” pianos at all.² To mid-eighteenth-century listeners, they could all be tools for creating, and appreciating, musical light and shadow.

At the same time, documents from the period bear witness to the fact that musical inventions also, inarguably, made up a group of their own—united, paradoxically, by the very fact of their uniqueness. Inventions were exceptional, and expensive. They were put on public display; they were written up in long, newsy articles printed in an ever-expanding sea of journals and daily papers, where their funny names made eye-catching headlines; later,

¹Emily I. Dolan, “The Origins of the Orchestra Machine,” *Current Musicology* 76 (2003): 8.

²This is Michael Latham’s argument in, for example, “The Apotheosis of Merlin,” in *Music of the Past—Instruments and Imagination*, ed. Michael Latham (Bern: Peter Lang, 2006), 271-298.

those names headed entries in dictionaries and encyclopedias of music and technology.

Because they commanded so much attention, and inspired so much written conversation, inventions such as the Gothenburg claviorganum make especially good objects of study. Such instruments hold together unusually complex constellations of ideas about music and musical behaviors, and they leave extraordinary traces in the historical record that make it possible to study those constellations more easily than is the case with more conventional instruments.

The Gothenburg Claviorganum as a Work of Art

In 1788, the Augsburg patrician and historian Paul von Stetten the Younger, who was a contemporary and acquaintance of Johann Andreas Stein, published a description of several of Stein's musical inventions, including the Gothenburg claviorganum. In this description, which appeared in the second volume of a monumental history of the arts, crafts, and trades in Augsburg, Stetten communicated the special nature of these inventions to his readers by calling them all *Kunstarbeiten*: literally translated, "works of art."³

The German word *Kunst* derives from the verb *können*, "to be able to do." Like the English word "art," it referred originally to something that was made or done, as opposed to a natural object or process. Medieval systems of the arts, simply meaning human activities and occupations, commonly distinguished between liberal and illiberal, or mechanical arts—the latter roughly corresponding to what we today call crafts. In the eighteenth century, the word *Kunst* was often used in a general sense to refer to a skilled craft, as opposed to unskilled labor, or *Handwerk*.

In the second half of the eighteenth century, the so-called fine arts—poetry, painting, music, and others—crystallized as a coherent group that transcended the old division between the liberal and mechanical arts: music, for instance, had been a liberal art, while sculpture had been a mechanical art. The fine arts were defined at first as those arts that sought to imitate beautiful nature, and whose object was pleasure, not utility. By the end of the century, the word "art" had largely been appropriated to refer to the fine arts specifically. At the same time, art began to be understood in something closer to its modern sense, as a creative, expressive activity, rather than as the skilled work of the hands.

³Paul von Stetten, *Kunst- Gewerb- und Handwerks-Geschichte der Reichs-Stadt Augsburg: Zweiter Theil oder Nachtrag* (Augsburg: Conrad Heinrich Stage, 1788), 56, http://www.bibliothek.uni-augsburg.de/de/dda/urn/urn_uba000200-uba000399/uba000210/.

Paul von Stetten wrote prolifically about the arts in Augsburg, and his writings illustrate both the complexity of the category of art, and its significance. For Stetten, as for his contemporaries, *Kunst* denoted skilled work, and was associated with intangible qualities such as invention, industry, understanding, progress, and honor. Stetten recognized the group of the fine arts as distinct from, and more prestigious than, the mechanical arts, although both groups were fundamentally similar, in the sense that they both encompassed various types of skilled work. At the same time, however, Stetten also reserved the category of *Kunst* for work of particular merit: thus painters and musicians, smiths and carpenters could all be either *Künstler* or mere *Handwerker*.

Art was, moreover, as much a social category as a philosophical one. Stetten's writings on art were part of a larger project to promote the status of artists in Augsburg, as a means to increase the city's prosperity and reputation. He established an art academy in Augsburg, for example, and as a powerful member of Augsburg's ruling class, he also worked to secure special privileges for artists within the city's social hierarchy. Identifying a musical instrument as a work of art, therefore, invoked a rich field of cultural meanings and associations; it also had real social and economic implications for the artist, and for society as a whole.

1.2 Purpose of the Study

The purpose of this study is to investigate why Paul von Stetten identified Johann Andreas Stein's clavichord as a work of art. What did Stetten, Stein, and their contemporaries understand a work of art to be, and to do? In what ways did the clavichord fulfill that function for them?

To answer the question of what Stetten and Stein understood an artwork to be, I have turned to Paul von Stetten's many writings about art, texts that are simultaneously biographical, historical, and pedagogical, and that make frequent reference to Stein himself and his instruments. About the clavichord itself, only a few words were ever written when it was new. There do exist, however, many contemporary descriptions of Stein's other "instruments with funny names": or as Stetten would have termed them, his other "works of art." These descriptions record details about the design and construction of Stein's inventions, but they also situate them within a framework of contemporary ideas about music and art. In doing so, they illustrate various ways in which Stein's inventions did, in fact, function as artworks when they were new, just as Stetten indicates. I have used these texts, together with a study of the physical material of the clavichord

itself, to show how the clavichord may have functioned in the same way.

Documents and instrument together make up a historically coherent set of materials that all originate in a common time, place, and conversation. My investigation is a case study, but it is also a kind of field study, dedicated to observing and describing a specific historical milieu. At its most successful, this approach makes it possible to trace the path of an idea from text to person to instrument, and back again. It offers a satisfying way to describe a musical instrument in society: to trace the reciprocal influence between the design of a musical instrument and the users for whom it was designed.

The scope of the investigation is thus narrowly described. I would like to suggest, however, that its results have broad implications for our understanding of keyboard instrument building and use during the eighteenth century. As I hope to show, art was a category of singular importance that managed a large complex of ideas and behaviors. To understand how musical instruments could be considered “works of art,” therefore, is to understand a large part of their contemporary meaning, and helps to explain both why they were made and what they were used for.

First and foremost, then, this study explores the contemporary significance of Stein’s 1781 clavichord, one of the earliest known organ-pianos, and situates it for the first time in the context of his more famous musical inventions. In doing so, however, it also offers new ways of understanding all of Stein’s inventions, as well as a new perspective on the many other keyboard experiments that figured so prominently in the musical discourse of the period. Most broadly, the study indicates tight connections between changing ideas about art and the development of new musical instrument technologies during the eighteenth century that are relevant to the history of more mainstream instruments as well, including the piano itself.

1.3 Previous Research

The history of stringed keyboard instruments in the eighteenth century—a history that is seen as largely synonymous with the early development of the piano—has been much studied, by organologists and instrument makers as well as musicians and music historians. The impetus for much of this scholarship has been an interest in historically informed performance practice, and in particular questions about the music of canonical composers such as Mozart and Beethoven: how to perform it, what instruments to play it on, and how to build them. Thus, restored and newly built instruments and musical recordings exist alongside an extensive literature that traces

the lineages of the various types of hammered instruments built during the eighteenth century and their builders.

The history of the piano is popularly portrayed as representing a more or less inevitable trajectory, from Cristofori to the modern concert grand. As builders struggled to meet pre-existing musical demands for dynamic flexibility and increasing volume, the piano is supposed to have finally out-competed the harpsichord in a Darwinian struggle, while the myriad of instrument types that were produced along the way assume the role of less fit, and therefore sterile, evolutionary dead ends.⁴ Recent scholarship, however, while still relying on the evolutionary metaphor, has largely revised the traditional narrative. New attention has been focused on one-of-a-kind musical oddities, where scholars have preferred to interpret these instruments not as failed pianos, but as sophisticated and successful adaptations to contemporary musical culture in their own right.

Just as the piano is one of the most studied of musical instruments, Johann Andreas Stein has been one of the most studied of early piano builders. This circumstance is due in part to his historical position as the probable inventor of the German action, and in part as well to his celebrated association with the Mozart family: the Mozarts owned a clavichord by Stein, and Wolfgang Mozart praised Stein's pianos in correspondence with his father Leopold.⁵ Stein was a prolific builder of excellent instruments, and the number of his extant instruments is sufficient (in addition to instruments by builders of his school) to enable fruitful study of his building style. Moreover, because he was famous in his own time, considerable documentary evidence about his instruments also survives. As a result, Stein and his instruments have been an object of particular interest to music historians, musicians, builders, and organologists, from nineteenth-century lexicographers to modern-day performance practice specialists.

The existing body of research on Stein, his instruments, and the history of the piano in the eighteenth century thus provides both a broad and a solid foundation for this study. Here, I review the most important studies on Stein's life and work, but with a particular focus on his musical inventions and the ways in which scholars have most often described and explained these instruments.

⁴Howard Schott, for example, distinguishes between "mainstream instruments and interesting but sterile sports" (although he also posits a "peaceful coexistence of the various stringed keyboard instruments during the entire 18th century"): "From Harpsichord to Pianoforte: A Chronology and Commentary," *Early Music* 13, no. 1 (1985): 28, 29.

⁵Richard Maunder explores the significance of Stein's instruments for Wolfgang Mozart, for example, in "Mozart's Keyboard Instruments," *Early Music* 20, no. 2 (1992): 207-19.

Johann Andreas Stein

The key primary sources for Stein's life and work are two biographical reports by Paul von Stetten⁶, the handful of descriptions of Stein's instruments published in periodicals during his lifetime, and, to a lesser extent, the entire series of letters by Wolfgang Mozart describing his visit to Augsburg in October of 1777.⁷ Details from all of these documents were transmitted, with varying degrees of accuracy, by numerous encyclopedists throughout the nineteenth century. The first scholarly biographies of Stein appeared in the 1930s and used a broader range of published and archival documents to extend and correct earlier accounts. In recent decades, scholars have integrated these biographies with substantial organological work.

Biographical studies

The earliest detailed, accurate account of Stein's life and work is a long article by Karl August Fischer published in a local history periodical, the *Zeitschrift des Historischen Vereins für Schwaben und Neuburg*, in 1932. As Fischer points out, the only previous scholarly studies on Stein of any length contained numerous inaccuracies, both biographical and organological.⁸ Fischer complements the well-known primary sources—Stetten, the Mozart letters, and the instrument descriptions—with numerous briefer published reports, as well as unpublished church records and documents from the archive of the Wallerstein court near Augsburg, ordering them all into a coherent chronological account. Fischer also draws up the Stein family tree and reports for the first time on the organ building activity of a branch of the Stein family in Durlach.⁹ Fischer naturally takes up Stein's

⁶In *Kunst- Gewerb- und Handwerks-Geschichte der Reichs-Stadt Augsburg* (Augsburg: Conrad Heinrich Stage, 1779), 160-62, http://www.bibliothek.uni-augsburg.de/de/dda/urn/urn_uba000200-uba000399/uba000209/; and in the supplement to that volume, *Kunst-Geschichte* 1788, 56.

⁷Transcribed in *Mozart: Briefe und Aufzeichnungen; Gesamtausgabe*, ed. Ulrich Konrad (Munich: Deutscher Taschenbuch Verlag, 2005), 2:54-85.

⁸"Johann Andreas Stein, der Augsburger Orgel- und Klavierbauer," *Zeitschrift des Historischen Vereins für Schwaben und Neuburg* 50 (1932): 149-77. Fischer cites the *Allgemeine deutsche Biographie*, vol. 35 (Leipzig: Historische Commission bei der Königl. Akademie der Wissenschaften, 1893), s.v. "Stein: Joh. Andreas St." (by Hans Michael Schletterer); see also, for example, the short biography in Georg Kinsky, *Katalog des Musikhistorischen Museums von Wilhelm Heyer in Cöln*, vol. 1 (Leipzig: Kommissions-Verlag von Breitkopf & Härtel, 1910).

⁹A more recent study of the Durlach Steins is Martin Kölle, "Die Orgelbauerfamilie Stein: Leben und Wirken einer badischen Instrumentenmacherfamilie über drei Generationen," in *Die Orgelstadt Karlsruhe innerhalb der Orgellandschaft am Oberrhein*, ed. Michael Gerhard Kaufmann and Martin Kares (Karlsruhe: Selbstverlag der Badischen

invention of the German action and describes the contemporary reception of Stein's instruments, but he does not undertake any study of the instruments themselves. (Indeed, he would have been hampered in doing so by the fact that fewer instruments by Stein were known and correctly dated at that time.)

A 1937 doctoral dissertation by Eva Hertz is the most complete biography of Stein to date and has provided the foundation for most, if not all, subsequent scholarship on Stein and his instruments.¹⁰ Hertz draws on new archival documents to provide more details about Stein's journeyman years and his first years in Augsburg; these include records from the archives of the Silbermann family of organbuilders, with whom Stein worked during 1748-49; an unpublished notebook which Stein began to keep in 1749; records of Stein's application for citizenship in Augsburg; and Stein's negotiations with Augsburg churches for building and maintaining their organs.¹¹ She also discusses musical life in Augsburg in detail, especially during Stein's years there, describing Stein's own participation in a local musical culture heavily influenced by the musical style of Carl Philip Emanuel Bach. Hertz's study, like Fischer's, is not organological. She makes a fundamental contribution to Stein scholarship, however, by connecting her description of eighteenth-century musical culture to contemporary descriptions of the instruments, arguing that both Stein's fortepianos and his experimental instruments were different approaches to the same goal: building the perfect expressive keyboard instrument. Hertz's interpretation of Stein's work is still accepted by scholars, as I will discuss further below.

Landesbibliothek, 2001); I thank Göran Grahn for bringing this article to my attention. Descriptions of two extant organs by a cousin, Johann Andreas Stein of Pernau, in Khielkonna and Käsmu in Estonia, appear in Anna Frisk, Sverker Jullander, and Andrew McCrea, eds., *The Nordic-Baltic Organ Book: History and Culture* (Gothenburg: Göteborg Organ Art Center, 2003), 137-139, 147-149.

¹⁰Eva Hertz, "Johann Andreas Stein (1728-1792): eine Beitrag zur Geschichte des Klavierbaus" (PhD diss., Albert-Ludwigs Universität zu Freiburg, 1937).

¹¹Documents pertaining to the building of the Barfüßer organ, including contract negotiations between Stein and the church, are transcribed in "Die Orgel in der Kirche zu den Barfüßern in Augsburg, ein Meisterwerk des berühmten Klavier- und Orgelbauers Johann Andreas Stein," pts. 1-4, *Zeitschrift für Instrumentenbau* 23, nos. 6-9 (1902), 133-37, 163-67, 187-93, 298, http://daten.digitale-sammlungen.de/bsb00004249/image_1.

The most complete summary of Stein's organ building career is Hermann Meyer, "Orgeln und Orgelbauer in Oberschwaben," *Zeitschrift des Historischen Vereins für Schwaben* 54 (1941): 308ff. Meyer provides some new details about contract negotiations between Stein and several churches in the late 1770s, including the Benedictine monastery in Neresheim, where Stein proposed to build a three-manual organ with a *Melodica* on the third manual.

Organological studies

More recent scholarship has juxtaposed the biography established by Fischer and Hertz with organological analyses of Stein's instruments, especially his pianos and combination instruments. Michael Latcham has produced the most extensive body of work on Stein's instruments, with a focus on forging connections between the construction of the instruments and contemporary music-making. The first comprehensive organological presentation of Stein's pianos and combination instruments is Latcham's 1998 article, "Mozart and the Pianos of Johann Andreas Stein."¹² Using Wolfgang Mozart's well-known praise of Stein's instruments as a point of departure,¹³ Latcham argues here for increased attention to Stein's pianos for the performance of Mozart's keyboard music. He re-dates a number of Stein's surviving instruments—including the Gothenburg claviorganum—based on dated signatures inside the instrument that contradict the soundboard labels (the latter evidently falsified). Based on the chronology he establishes, Latcham distinguishes three phases or types represented in Stein's building output, and these have been generally accepted and used by other scholars in subsequent work.

Latcham's phase I is represented by only one extant instrument: one of Stein's *Vis-à-vis* instruments, a harpsichord-piano combination, now in Verona, to which Latcham assigns the date of 1777.¹⁴ The Verona instrument has a nearly unique kind of hammer action, a so-called *Zugmechanik*

¹²Michael Latcham, "Mozart and the Pianos of Johann Andreas Stein," *The Galpin Society Journal* 51 (1998): 114-53. An earlier version of the article appeared as "The Pianos of Johann Andreas Stein," in *Zur Geschichte des Hammerklaviers*, ed. Monika Lustig, Michaelsteiner Konferenzberichte (Michaelstein: Institut für Aufführungspraxis, 1996), 15-49. The 1998 study develops ideas presented in earlier articles, for example "The Check in Some Early Pianos and the Development of Piano Technique Around the Turn of the 18th Century," *Early Music* 21, no. 1 (1993): 29-43; and "The Sound of Some Late Eighteenth Century Keyboard Instruments," *Jaarboek Haags Gemeentemuseum*, 1993: 30-41. Latcham suggests that Stein's pianos may be even more relevant for the music of Mozart than the pianos of Anton Walter, well-known as the builder of an extant piano owned by Mozart, in a consideration of Walter's surviving instruments: "Mozart and the Pianos of Gabriel Anton Walter," *Early Music* 15, no. 3 (1997): 383-400. He summarizes some of the main conclusions of the 1998 study in *Grove Music Online*, s.v. "Stein, Johann Andreas," <http://www.oxfordmusiconline.com> (accessed November 22, 2005). Most recently, Latcham has summed up much of his scholarship about Stein and his instruments in "Johann Andreas Stein and the Search for the Expressive Clavier," in *Bowed and Keyboard Instruments in the Age of Mozart*, ed. Thomas Steiner (Bern: Peter Lang, 2010), 133-216.

¹³Especially in the letter from Wolfgang Mozart to Leopold Mozart, Augsburg, October 17, 1777, in *Mozart: Briefe*, 2:68-71.

¹⁴A recent recording of the restored instrument is Andreas Staier and Christine Schornsheim, *Mozart am Stein Vis-a-vis*, Harmonia Mundi HMC 901941, 2005.

in which the escapement hopper, mounted on the key, pulls down, as the key is pressed, on the beak of the hammer, mounted on a separate rail, to flip the hammer against the strings. Latcham has interpreted the *Zugmechanik* as an intermediate step between the Cristofori-type action built by the Silbermann family in Strasbourg, where Stein trained, and the German action for which Stein later became famous.

The Gothenburg clavivorganum from 1781, which is the first extant instrument by Stein after the Verona *Vis-à-vis*, marks the beginning of Latcham's phase II. These instruments have Stein's German action (*Prellzungenmechanik*), in which the escapement hopper, mounted on a separate rail behind the key, engages the beak of the hammer, mounted on the key, and flips it up as the key is pressed.

Finally, Latcham identifies a shift to a third phase during 1783, a year from which five pianos by Stein are preserved, some of which he assigns to phase II and some to phase III. Phase III instruments have a German action similar to that of the clavivorganum. New features include the adoption of solid wooden hammer heads, a new shape for the hammer beaks, the abandonment of phase II's triple-stringing in the treble end of the compass, and the addition of a gap spacer. Latcham points out that Stein's daughter, Nannette Streicher, who took over the workshop after Stein's death in 1792, continued to build phase III-type pianos for more than a decade; she made no major changes to her father's design until 1805.

Latcham's large study *The Stringing, Scaling and Pitch of Hammerflügel Built In the Southern German and Viennese Traditions 1700-1820* is the most important reference for organological data about Stein's pianos.¹⁵ Using measurements of string gauges and string lengths as well as analyses of many other aspects of the instruments—for example, compass, backpinning, number of choirs, case bracing, soundboard layout, and string tension—Latcham draws conclusions about such topics as the scaling design, case design, and intended pitch of many South German and Viennese grand pianos. The study covers all seventeen grand pianos by Stein, including the piano in the clavivorganum, and presents many of the conclusions from the 1998 article in the context of work by other builders of around the same period.

Latcham's organological analyses in these and other, more broadly focused articles¹⁶ substantially develop and extend Hertz's argument that

¹⁵Michael Latcham, *The Stringing, Scaling and Pitch of Hammerflügel Built In the Southern German and Viennese Traditions 1780-1820*, 2 vols. (Munich: Katzbichler, 2000).

¹⁶For example: "The Apotheosis"; and "Pianos and Harpsichords for Their Majesties," *Early Music* 36, no. 3 (2008): 359-96.

Stein's output represents a series of attempts to create the perfect expressive keyboard instrument, by explaining precisely how particular features of Stein's instruments and hammer actions created an expressive sound. In Latcham's analysis, Stein's instruments embody a specifically late-eighteenth-century musical ideal that prized dynamic flexibility, but also sweet, soft playing, and experimentation with timbre. In spite of the developments he traces in Stein's construction techniques, Latcham argues that Stein's musical ideals remained conservative throughout his career. None of the changes Stein made, Latcham suggests, were aimed at building louder, more powerful instruments; rather, Stein remained most interested in exploring the soft side of the dynamic spectrum. The next generation of piano builders would be more concerned with building louder instruments, and would adapt the German action accordingly.¹⁷

Other organologists have documented individual instruments by Stein in greater detail in a number of smaller studies. John Rice has argued that a second extant *Vis-à-vis* instrument, preserved in Naples and dated 1783, is the same as a *Vis-à-vis* instrument by Stein described in 1789 by an Austrian diplomat and amateur musician in Naples, Norbert Hadrava.¹⁸ Hadrava's account provides a rare glimpse into the reception and use of Stein's musical inventions. Rice's analysis juxtaposes the description with an examination of the surviving instrument.

John Koster describes a 1783 Stein grand piano held by the Boston Museum of Fine Arts and suggests that the instrument was originally one of Stein's famous inventions, a *Saitenharmonika*.¹⁹ According to contemporary descriptions, the *Saitenharmonika* had the appearance and action of a grand piano, but it also incorporated an extra choir of strings that were probably plucked, not struck, by a register of jacks with plectra made from an unidentified, elastic material. Koster argues, based on the Boston pi-

¹⁷Latcham advances this thesis in an early article, "The Check in Some Early Pianos," but without the explicit connection to the musical ideals of the mid- and late-eighteenth century that is developed in the studies reviewed here. In *Stringing, Scaling and Pitch*, 10-11, for example, he writes: "Walter's action. . . prepared the way for the nineteenth-century developments. These were characterized by a search for a single ideal timbre and a demand for ever more volume," while "Stein's ingenuity in general and the invention of his piano action in particular place him at the end of the eighteenth-century tradition of keyboard instrument making. This tradition was characterized by an exploration of different timbres and by an interest in dynamic shading, often with the emphasis on soft playing."

¹⁸John A. Rice, "Stein's 'Favorite Instrument': A *Vis-à-Vis* Piano-Harpsichord in Naples," *Journal of the American Musical Instrument Society* 21 (1995): 30-64.

¹⁹John Koster, "Grand Piano (Originally *Saitenharmonika*?), Johann Andreas Stein, Augsburg, 1783," in *Keyboard Musical Instruments in the Museum of Fine Arts, Boston* (Boston: Museum of Fine Arts, 1994).

ano's triple-stringing throughout as well as evidence of alterations to the instrument, that the instrument once had an extra register like the one described for the *Saitenharmonika*. Koster's article also includes a good, concise summary of Stein's life and work.

A large study by Sabine Klaus on the history of keyboard instrument building from the fourteenth to the eighteenth centuries includes a thorough documentation of a 1790 grand piano by Stein held by the Munich City Museum, comparing it with other pianos of the south German and Viennese schools.²⁰ Klaus' study also includes a concise biography of Stein, largely based on Hertz' work and Stein's unpublished notebook, but with new details about Stein's late organ building work, and, drawing on records in the Augsburg city archives, his apprentices and journeymen and his membership in the Augsburg carpenters' guild.²¹ The Munich piano is also described in a report by Sabine Matzenauer that discusses the cracked wrestplanks found in several of Stein's extant pianos, and identifies five different kinds of dampers used by Stein in his pianos.²²

Two clavichords by Stein survive: a small travel clavichord sold by Stein to Leopold Mozart in 1763, and used by Wolfgang Mozart as a practice instrument; and a single-strung clavichord dated 1787, now in the Gemeentemuseum in the Hague.²³ The travel clavichord, now in the Budapest National Museum, has been the subject of several published studies.²⁴ The most detailed organological study is Alfons Huber's analysis of the design

²⁰Sabine K. Klaus, *Studien zur Entwicklungsgeschichte besaiteter Tasteninstrumente bis etwa 1830: Unter besonderer Berücksichtigung der Instrumente im Musikinstrumentenmuseum im Münchner Stadtmuseum*, 2 vols. (Tutzing: Hans Schneider, 1997). The instrument is in the Munich City Museum (Stadtmuseum), Inv. Nr. 88-13.

²¹*Ibid.*, 1:379-383.

²²"Zur Restaurierung eines Piano-Fortes von J.A. Stein: erhaltene Instrumente im Vergleich," in *Zur Geschichte des Hammerklaviers*, ed. Monika Lustig, Michaelsteiner Konferenzberichte (Michaelstein: Institut für Aufführungspraxis, 1996), 50-57. An earlier version of this article is Sabine Matzenauer and Günther Joppig, "Johann Andreas Steins Hammerflügel im Münchner Stadtmuseum," *Das Musikinstrument* 7 (1992): 4-14. The earlier article also includes a short account of Stein's life and other instruments. There is an error regarding the date of the Gothenburg claviorganum; both of the dates written on the instrument are recognized (1770 on the soundboard label; 1781 inside the instrument), but they are reversed, and probably for this reason, the article asserts that Stein began to make his *Prellzungenmechanik* around 1770 (pp. 6, 9).

²³Clemens von Gleich, *A Checklist of Harpsichords, Clavichords, Organs, Harmoniums*, vol. 3, *Checklists of the Musical Instrument Collection of the Haags Gemeentemuseum* (The Hague: Haags Gemeentemuseum, 1989), 54-55.

²⁴The provenance of the instrument is established by György Gábry, "Das Reiseklavichord W.A. Mozarts," *Studia musicologica Academiae Scientiarum Hungaricae* 10 (1968): 153-62. Some details of Gábry's account are corrected in Eszter Fontana, "Mozarts 'Reiseclavier'," in *Die Klangwelt Mozarts*, exhibition catalog, ed. Gerhard Stradner (Vienna: Kunsthistorisches Museum Wien, 1991), 73-78.

of the clavichord's case dimensions and string scaling; Huber argues that Stein measured his instrument and determined the length of the strings using an Augsburg foot as the fundamental unit of measure.²⁵

Stein's design practice was also analyzed in a recent pair of articles by Stephen Birkett and William Jurgenson that examine historical design procedures in stringed keyboard instrument making. Birkett and Jurgenson consider the design of two grand pianos by Stein.²⁶ They argue that he, like other builders of the period, laid out his pianos using a series of geometrical constructions, and beginning with a single reference dimension that was directly related to the width of the string band and, thus, the keyboard compass. They also suggest that Stein, again like other builders, also constructed some aspects of his instruments using a "workshop inch" which was not necessarily related to any local unit of measure, and which can be derived by analyzing the string band spacing.

In addition to these narrowly-focused studies, a number of recent reference works contain short, accurate summaries of Stein's life and work, based largely on the sources used by Hertz, with occasional minor additions.²⁷

The Gothenburg Claviorganum

The Gothenburg claviorganum is, of course, mentioned frequently in research on Stein and his instruments, but no studies dedicated specifically to the instrument have appeared. Hertz describes it only briefly and does not incorporate it into her broad analysis of Stein's building practice.²⁸ Some information about the claviorganum, especially the piano it contains, has been published by Michael Latcham.²⁹ Latcham's 1998 study includes

²⁵Alfons Huber, "Mozart's Reiseclavier," in *De Clavicordio V*, Proceedings of the V International Clavichord Symposium (Magnano: Musica Antiqua a Magnano, 2002), 25-38.

²⁶Stephen Birkett and William Jurgenson, "Geometrical Methods in Stringed Keyboard Instrument Design and Construction," *The Galpin Society Journal* 14 (2001): 242-84; Stephen Birkett and William Jurgenson, "Why Didn't Historical Makers Need Drawings? Part II - Modular Dimensions and the Builder's Werkzoll," *The Galpin Society Journal* 15 (2002):183-239. The pianos in question are the Stuttgart and Boston instruments, both dated 1783.

²⁷For example, Donald H. Boalch, *Makers of the Harpsichord and Clavichord 1440-1840*, 2 ed. (Oxford: Clarendon Press, 1974), 170-173; and Martha Novak Clinkscale, *Makers of the Piano 1700-1820* (Oxford: Oxford University Press, 1993).

²⁸Hertz, "Johann Andreas Stein," 52. Her description suggests that the organ has more than one stop; in fact, what look like organ stop knobs control the dampers and the moderator for the piano.

²⁹Latcham also prepared a documentation report for the Gothenburg City Museum, which has not been published. The report focuses mainly on the claviorganum's piano.

a brief description of the claviorganum as a whole,³⁰ and the 2000 study provides some measurements of the piano and its strings, as well as descriptions of some aspects of the case construction. Due to the comparative nature of the latter study, the measurements and descriptions are spread throughout the work. Latcham's analyses have chiefly considered details of the construction of the piano of claviorganum in comparison to Stein's other pianos, in support of a portrayal of how Stein's piano design changed throughout his career.

Something of the early provenance of the Gothenburg claviorganum is known as well. Several studies by Jan Ling have proposed that Stein's claviorganum is identical to a "Fortepiano organisé" owned by the Gothenburg businessman Patrick Alströmer from 1781 to 1791.³¹ Alströmer was an accomplished amateur musician and an enthusiastic music patron. Entries in Alströmer's engagement diary document his use of the claviorganum, and list the visitors who played and listened to it on a number of occasions. With the diary as their basis, Ling's studies place Alströmer's use of the claviorganum in the context of his engagement in musical culture in Gothenburg during the late eighteenth century.

Studies of Claviorgana

Unlike Stein's *Poly-Tono-Clavichordium*, *Melodica*, *Vis-à-vis* instruments, and *Saitenharmonica*, the Gothenburg claviorganum belongs to an instrument genre with a long, if disjunct, history. The combination of organ and stringed keyboard instrument is special, but not unique, and it is perhaps partly for this reason that the Gothenburg claviorganum has attracted less attention from scholars than Stein's other instruments.

A general history of the claviorgan has yet to be written, although a number of small studies have been done, either of individual instruments or overviews of known or surviving claviorgana.³² However, organologists have generally agreed that the most important musical reason for building

³⁰An error in the description of the organ pipes that appears in that article is corrected in subsequent publications by Latcham: the organ pipes are wood, not metal, in the treble.

³¹Jan Ling, "Apollo Gothenburgensis: Patrick Alströmer och Göteborgs musikliv vid 1700-talets slut," *Svensk tidskrift för musikforskning* 81 (1999): 53-94; Jan Ling, "En akademibroder musicerar: Något om Patrik Alströmer och svenskt musikliv vid 1700-talets slut," in *Kungliga vitterhets historie och antikvitets akademiens årsbok* (Stockholm: Almqvist & Wiksell International, 2001), 88-105; Jan Ling, "1700-talets musik i Patrick Alströmers öron," in *Ekonomi och musik i 1700-talets Göteborg: En tidspegel utifrån en samtida dagbok* (Gothenburg: Göteborgs Stadsmuseum, 2005), 96-147.

³²A new doctoral thesis promises to fill this gap: Eleanor Smith, "The History and Use of the Claviorgan" (PhD diss., University of Edinburgh, forthcoming). Meanwhile, brief

claviorgana throughout the centuries was to exploit the organ to sustain the quickly decaying notes of a stringed keyboard instrument, of whatever type. Conversely, it is sometimes pointed out, the more percussive attack of the stringed keyboard instrument helped to define the beginning of the organ tone, with its softer speech.³³ Scholars have also noted that the possibility to play the two parts of a claviorgan separately made it a practical continuo instrument. Frances Palmer points out that the claviorgan's different possibilities expand not only its repertory but also its social function: "The [claviorgan] concept is an inviting one both musically and socially. . . In a social context the instrument could combine, for private use, Sunday-evening psalm singing with mid-week concerts, while it was also useful in the theatre; Handel's oratorios specify a harpsichord for the accompaniment of recitatives and arias, and an organ for the chorus parts."³⁴ Organologists have generally also agreed that claviorgana have always been unusual and expensive instruments, and had an important extra-musical function as showpieces and status symbols.

In spite of the fact that certain organological and musical features are common to all claviorgana, however, the group remains diverse in form and function. As Edwin Ripin notes, the history of the claviorgan is "neither continuous nor connected, but comprises a series of important types. . . There

surveys include Peter Williams, "The Earl of Wemyss' Claviorgan and its Context in Eighteenth-Century England," in *Keyboard Instruments: Studies in Keyboard Organology, 1500-1800*, ed. Edwin Ripin (New York: Dover Publications, Inc., 1977), 77-87; Stephen Wessel, "The Claviorganum in England," *The English Harpsichord Magazine* 1, no. 8 (1977); and Edwin Ripin et al, "The Claviorgan," in *Early Keyboard Instruments*, The New Grove Musical Instrument Series (London: Macmillan, 1989), 185-88. Two in-depth studies of a single instrument are Wilson Barry, "The Lodewyk Theewes Claviorganum and its Position in the History of Keyboard Instruments," *Journal of the American Musical Instrument Society* 16 (1990): 5-41; and Malcolm Rose, "The History and Significance of the Lodewijk Theewes Claviorgan," *Early Music* 23, no. 4 (2004): 577-93. The organ-piano in the late eighteenth century is addressed by Michael Cole, "Organized Pianos," in *The Pianoforte in the Classical Era* (Oxford: Clarendon Press, 1998), 250-253; and Niclas Fredriksson, "Ein teilweise revidiertes und komplettes Bild von Georg Joseph Vogler und seine Bedeutung für den Orgelbau in Schweden," in *Georg Joseph Vogler: Umbrüche im Orgelbau*, vol. 2, ed. Uwe Pape (Berlin: Pape Verlag, 2007), 203-254.

³³Wessell, for example, writes of the harpsichord-organ combination that "the exact length of notes and the way they are articulated are of paramount importance in early music, and whereas the organ with its infinite sustaining power is well suited to showing the duration of a note, it is not nearly so good as the harpsichord at giving the precise beginning. . . Thus in one sense at least the claviorganum may have been regarded as the ideal tool for the expression of keyboard music." Wessell, "Claviorganum in England."

³⁴"Merlin and Music," in *John Joseph Merlin: The Ingenious Mechanick*, exhibition catalog (London: Greater London Council, 1985), 105.

never was a specific claviorgan repertory.”³⁵ The musical effect and repertoire of any particular claviorgan would vary depending on the specification of the organ and the type of stringed instrument with which it was combined. What is more, although the musical effect of combining a percussive string sound with the soft sustained sound of the organ may have motivated the building of claviorgana in many different times and places, the musical significance of such an effect will not necessarily have always been the same.

Explaining Stein’s Musical Inventions

Considering the Gothenburg claviorganum as a claviorgan—that is, in the context of other instruments in that genre—provides a context for its particular musical capabilities. However, contemporary sources point to a kinship between the claviorganum and Stein’s other musical inventions that this perspective leaves unexplored. Therefore, in this study, I have proposed instead to consider the claviorganum first and foremost as a member of a different group, loosely defined by contemporary conversations: the group of one-of-a-kind musical instruments and inventions. This section reviews the ways that scholars have usually described and explained Stein’s musical inventions—although thus far, the Gothenburg claviorganum has not usually been considered in this way.

As I have mentioned, keyboard historians, focused primarily on the task of establishing the early history of “mainstream” instruments like the harpsichord and the piano, have sometimes relegated to the sidelines the numerous other instrument types and combinations built during the period when the piano was new.³⁶ These more unusual types may end up grouped together in a category which has no real name, and whose only defining characteristic is otherness—or more accurately, “not-piano-ness.” The tendency to narrate the history of the piano in evolutionary terms has also sometimes led scholars to interpret such instruments as “mere” curiosities, or simply unsuccessful duds.³⁷

Some recent studies have set out to revise this approach. Latham, for example, has argued that the boundaries between piano and harpsichord

³⁵Ripin, Edwin et al, *Early Keyboard Instruments*, The New Grove Musical Instrument Series (London: Macmillan, 1989), 186.

³⁶Cole, for example, writes about “mainstream piano history,” as distinct from the history of a related instrument, the *Pantolon*. Cole, “Pianoforte in the Classical Era,” 177.

³⁷The New Grove reference work *Early Keyboard Instruments*, for example, includes a catch-all chapter titled “Related Instruments” (among them claviorgana) and notes, “These instruments illustrate some of the by-ways and dead ends in instrument making.” Ripin, *Early Keyboard*, 172.

during the late eighteenth century were not nearly so clear-cut as the Darwinian struggle between the two instruments often depicted by modern scholarship would suggest.³⁸ Emily Dolan has argued at length that instrument types today dismissed as curiosities were in fact finely-tuned responses to the musical needs of the day, and can act as a window into unexplored aspects of contemporary aesthetics.³⁹

Even scholars interested in a new approach, however, tend to recognize a fundamental division between mainstream instruments and one-off-curiosities. Dolan, for example, refers to the “frenzied production” around the turn of the nineteenth century “of many novel and bizarre instruments”—the words frenzied and bizarre connoting irrationality and aberrance, even deviance.⁴⁰ I suggested above that this division is, in fact, a historically relevant one. Very unusual and unique keyboard instrument types were obviously considered special in their own time, and thus may well require special explanation today. Dolan’s lighthearted name for this hard-to-name group, “instruments with funny names,”⁴¹ agilely captures their defining qualities: the fanciful names given to newly invented instruments during this period drew attention to the fact of their newness, and marked them out as special. Precisely because the instruments had special names, moreover, they could be described, discussed and displayed in a way that ordinary instruments were not.

Stein’s biographers have offered two main explanations for his inventions. They are the same explanations that scholars have offered for musical inventions of the period more generally, and in fact they typify the reasoning that has classically been deployed by scholars to account for the very phenomenon of invention itself.⁴² The first explanation is cultural; the second psychological. The cultural explanation posits that musical instruments—unusual instruments no less than ordinary ones—are built as a response to the musical needs of their time. During Stein’s time, musicians needed most of all an expressive keyboard instrument; thus, his inventions are typically portrayed as part of a kind of expressive quest. The psychological explanation, meanwhile, ascribes the invention of new instrument types to the individual cognitive qualities of the builder, which, in turn, are often linked to a kind of inventive *Zeitgeist*.⁴³ Stein, then, is typically portrayed

³⁸Most notably, in Latcham, “Pianos and Harpsichords.”

³⁹Dolan, “Origins of the Orchestra Machine”; and “E. T. A. Hoffmann and the Ethereal Technologies of ‘Nature Music,’” *Eighteenth-Century Music* 5, no. 1 (2008), 17-26.

⁴⁰Dolan, “E. T. A. Hoffmann,” 7.

⁴¹Dolan, “Origins of the Orchestra Machine,” 8.

⁴²See David McGee, “Making Up Mind: The Early Sociology of Invention,” *Technology and Culture* 36 (1995): 773-801.

⁴³Dolan, for example, describes a “general fascination with musical inventions” around

as possessing an irrepressible mechanical creativity that set him apart from other builders.

Fischer's 1932 study exemplifies how the two explanations are typically deployed in tandem. In Fischer's portrayal, Stein appears as the quintessential inventor: creative, never satisfied, always seeking better solutions to musical problems, and inspired (though in a rather undefined way) by the spirit of the age. In a typical passage, describing the period after Stein completed the Barfüßer organ and received rights of citizenship in Augsburg, Fischer suggests, "Settling down. . . did not mean stagnation for him [Stein]; only now did he begin to stir his wings, in order to look around him with a restless mind and open eyes, to perfect himself, to break new ground."⁴⁴ Fischer refers to Stein's inventions as *Sonderinstrumente* and *Spezialinstrumente* (both perhaps best translated as "special instruments"). Discussing the genesis of the earliest of these, the *Poly-Tono-Clavichordium*, he writes, "It was the age in which instrument builders everywhere set out not only to perfect the existing, traditional instruments, but also to invent new musical instruments, and with their never-before heard, ethereal sounds, to make magic on earth. . . Stein, with his active inventor's spirit, eagerly absorbed the stimuli that flowed to him in Paris, and as soon as he returned to Augsburg, invented a new instrument"—that is, the *Poly-Tono-Clavichordium*.⁴⁵

Hertz, too, points to Stein's personal ingenuity as one reason for his many inventions.⁴⁶ She moves beyond Fischer, however, in connecting Stein's inventions to both a broad and a local musical culture that prized expressivity above all. Hertz argues that the ideal of the age was a perfectly expressive keyboard instrument, which should combine the strength of the harpsichord with the dynamic capability of the clavichord,⁴⁷ and that nearly the whole

the turn of the nineteenth century. "Origins of the Orchestra Machine," 8.

⁴⁴"Die Sefßhaftmachung aber bedeutete für ihn keinen Stillstand; er regte nun erst die Schwingen, um rastlosen Geistes, offenen Blickes sich umzutun, sich zu vervollkommen, neue Wege zu finden." Fischer, "Johann Andreas Stein," 157.

⁴⁵"Es war die Zeit, in der die Instrumentenbauer aller Orten darauf aus waren, nicht nur die vorhandenen, überkommenen Instrumente zu vervollkommen, sondern neue Musikinstrumente zu erfinden und vermittelst ihrer niegehörte Sphärenklänge auf die Erde zu zaubern. . . Stein, in seinem regen Erfindergeist, nahm die ihm in Paris zufließenden Anregungen begierig auf, und kaum nach Augsburg zurückgekehrt, arbeitete er ein neues Instrument aus." Ibid., 158.

⁴⁶For example, referring to Stein's innovations outside the realm of instrument making, she suggests that "he loved to occupy himself with mechanical problems." ("Er liebte es, sich mit Problemen der Mechanik zu beschäftigen, und von denen nicht alle unmittelbar mit seiner Tätigkeit als Orgel- und Klavierbauer in Zusammenhang standen.") Hertz, "Johann Andreas Stein," 37.

⁴⁷"Aus dieser Situation heraus ist allein die Unmenge von neuen 'Erfindungen' zu erklären, die im Laufe des Jahrhunderts auf dem Gebiete des Klavierbaus gemacht wurden.

of Stein's output may be interpreted as systematic experimentation toward that end.

Hertz suggests, moreover, that Stein's inventions represent two distinct approaches toward achieving his goal. The first approach involved the combination of piano and harpsichord (or struck and plucked) timbres, as Stein did in the *Poly-Tono-Clavichordium*, the *Vis-à-vis* instruments (Hertz treats only the Verona instrument), and the *Saitenharmonika*. In Hertz's analysis, these instruments also demonstrate Stein's gradual progression away from the harpsichord and toward the sound of the piano. The second approach, meanwhile, involved the invention of a completely new kind of instrument that could better imitate the desirable expressive qualities of melody instruments such as the violin and the flute, as in the *Melodica*, where the player could produce dynamic variation by varying the pressure of the finger on the organ key. Hertz concludes that Stein ultimately achieved his goal, however, not with any of these instruments but rather with his grand pianos, and in particular the invention of the *Prellzungenmechanik*, which brought greater dynamic refinement and expressive capabilities to those instruments.

Although Hertz mentions the claviorganum briefly, she does not place it among Stein's expressive experiments. Rather, she seems to attribute it more to a general increase in popularity of such instruments at that time.⁴⁸ She does argue, however, that during the course of his career Stein came to regard the organ, at least insofar as it was a church instrument, as an instrument irrelevant for expressive music-making, citing a comment by Stein, recorded by Wolfgang Mozart, that the organ had "no sweetness, no expression, no *piano*, no *forte*."⁴⁹

Hertz's interpretation has been generally accepted in subsequent scholarship. Michael Cole, for example, like Hertz, traces a line of development from the *Poly-Tono-Clavichordium* through the *Vis-à-vis* instruments to the *Saitenharmonika*. In Cole's analysis, however, this group represents not so much a quest for the perfectly expressive keyboard instrument as a succession of attempts to improve the fortepiano *per se*, by lending it some of the strength and crispness of the harpsichord.⁵⁰ Again like Hertz, Cole sees Stein's claviorganum as an example of the general popularity of that genre

Das Endziel aller war das gleiche: das tonstarke, expressive Melodieklavier." Ibid., 41.

⁴⁸"...Erwähnung finden muß hier noch das Clavecin organisé, ein Instrument, das gegen Ende des 18. Jahrhunderts eine neue Blütezeit erlebte; auch von Steins Hand ist uns ein solches Instrument erhalten." Ibid., 52.

⁴⁹"In späteren Jahren nämlich vertritt er die Ansicht, daß expressives Spiel sich für die Orgel und ihre Aufgaben im Gottesdienste nicht eigne, sondern in das Gebiet des Klavierspielers gehöre." Ibid., 21.

⁵⁰"Stein's pianoforte concept was constantly under review. The expressive but rather

of instrument at the time, which he suggests may have been motivated by the use of the organ to “sweeten and prolong” the piano sound, or perhaps to support the piano in the bass.⁵¹ Cole does not, however, link Stein’s instruments to a contemporary culture of musical expressivity as strongly as does Hertz; nor does he, as Hertz does, see Stein’s combined output as a unified striving toward a single goal. Ultimately, Cole seems to read Stein’s work as more disjunct: as he puts it, “an unrewarding series of combination instruments, marrying organs, pianos, and harpsichords in various exotic but short-lived experiments,” for which Stein’s “creative talents,” “lively personality,” “restless experimentation,” and “seemingly inexhaustible” ingenuity were in large part responsible.⁵²

In similar fashion, Koster’s analysis of Stein’s *Saitenharmonika* interprets the instrument as a mechanical oddity that nonetheless sprang directly from the prevailing musical culture of the day. Koster presents a technological analysis of the instrument, in which his aim is to trace specific elements of its mechanism to previous instruments and builders. He also proposes a musical justification for its invention. Here he adjusts Hertz’s suggestion that Stein consistently worked toward a keyboard instrument with a strong sound, arguing that the musical impetus for the *Saitenharmonika* was actually a widespread desire for a “super-piano” in the late eighteenth and early nineteenth centuries. Where Hertz links Stein’s work to the more conservative *empfindsamer Stil*, moreover, Koster suggests that the *Saitenharmonika* may be seen as “a perfect expression of the age of *Sturm und Drang*.”

Latcham follows and expands Hertz’s approach to understanding Stein’s work. Like Hertz, he sees Stein as occupied throughout his life with a quest for an expressive keyboard instrument. He suggests that for Stein, this ideally meant both dynamic variation and the ability to influence the sound of each note throughout its entire duration,⁵³ but like Koster, he argues that Stein remained most interested in developing the quiet end of the dynamic spectrum. Where Hertz traces specific connections between Stein and musical life in Augsburg, Latcham’s focus is wider. He sets Stein’s instruments among the whole great variety of contemporary keyboard instrument types,

quiet tone of the Silbermann model. . . was not suited to the sort of ensemble and concert uses in which the harpsichord had excelled. Stein’s first remedy was the blending of harpsichord and pianoforte tones in the *Poly-Toni-Clavichordium* [sic], and he persisted with this idea, but in modified terms, right up to 1790 with the *Saitenharmonika* [sic].” Cole, *Pianoforte in the Classical Era*, 247.

⁵¹Ibid., 250.

⁵²Ibid., 101, 182, 193, 192, 184.

⁵³Latcham, “Swirling,” 502-503.

and argues, again with reference to Stein's remark to Mozart, that "much of the inventiveness shown by the makers of the day appears to have been inspired by a desire to make a keyboard instrument that would allow the player to play expressively, with *douceur*, *forte* and *piano*."⁵⁴ He suggests, too, that the variation in musical timbre displayed by these instruments also served an expressive ideal specific to the eighteenth century, identifying an "18th-century delight in variety, in a plenitude of sounds and textures."

Most recently Latcham has argued that the common function of new instrument types in the eighteenth century as expressive instruments actually overrode the mechanical distinctions between the instruments in the minds of contemporary observers. Rather than discrete groups of harpsichords, pianos, and unusual hybrids between the two, he proposes, eighteenth-century users saw a single, heterogeneous class of instruments, that were simply expressive in different ways and to different degrees:

The instruments described... all illustrate an interest in different timbres and in dynamic variation. We might choose to strip the instruments of some of the possibilities they possess and simply call some pianos and others harpsichords. We might then proceed to oppose these two groups and establish a chronology for them in which one group supplanted the other. This then entails that the most exciting of such instruments are described as hybrids, *curiosa* or transitional. But rather than falling back on this interpretation of history it is at the least a salutary exercise to understand eighteenth-century keyboard instruments all as members of a single group. Some were designed to produce one or other timbre while others offered multiple timbres, some offered less possibilities for making dynamic variation, others offered more, some gave the player the possibility of altering the volume or timbre while playing, others did not. None of these parameters appears to have followed a single chronological development and none of them appears to have been exclusive to either of the instruments we define as the harpsichord and the piano.⁵⁵

⁵⁴Ibid., 502. The adjectives are taken from Stein's comment on the deficiencies of the organ as reported by Mozart, mentioned above.

⁵⁵Latcham, "The Apotheosis," 287. He develops the argument in "Harpsichords and Pianos," 2008, 362, suggesting that during the eighteenth century, grand pianos were often understood as a type of harpsichord rather than as a wholly different kind of instrument: a "harpsichord with hammers" rather than a "harpsichord with plectra." "Furthermore," he adds, "the consciousness of the different nature of the hammered harpsichord was not established once and for all at any single time or place. That consciousness, like the

Both the psychological and the cultural explanations for Stein's musical inventions have validity. I would like to suggest, however, that neither completely engages with these instruments' role and meaning in the time and place in which they were built. The invocation of Stein's ingenious personality is, at bottom, an ahistorical explanation that does not account for the particular characteristics of his work or lead to an understanding of how it was used in its particular historical setting. The argument that Stein's inventions were tailored to fit the musical needs of their day seems to have greater explanatory power. It has probably been most effectively deployed by Hertz, who has traced the most specific connections between Stein, contemporary musicians, and contemporary musical concepts and language. However, in suggesting that both Stein's inventions and his ordinary instruments were all built in pursuit of the same expressive quest, Hertz passes over any special meaning that the more unusual instruments may have had—the meaning, indeed, that they must have had.

Latcham deploys Hertz's interpretation—that Stein's entire output pursued the same expressive goal—even more powerfully when he challenges the idea that any functional difference between mainstream instruments and “curiosa” existed at all. By questioning the division between the two groups, so often taken for granted in modern histories, Latcham offers a strong and useful revision of the traditional evolutionary narrative that dismisses unusual instruments as misfits. Once again, however, it seems clear that the uncertain but undeniably special treatment accorded to these instruments by most modern scholars does reflect a historical reality. Gathering them too strongly into the fold of the mainstream, therefore, risks obscuring aspects of their historical meaning and importance.

Musical Instrument Building and Art

This study aims to discover something of that meaning by investigating how new and unusual instruments could function as “works of art.” It was common for writers of the period to refer to instrument builders as artists, and to at least some instruments as works of art, but the relationship between art and keyboard instrument building during this period has been little explored. Paul von Stetten's commentary on art and artists, in particular, has not been considered in connection to instrument building or to Johann Andreas Stein.

One partial exception is Hertz's preface to her biography of Stein, which consists of a short essay in which she analyzes the nature of the keyboard in-

piano itself, came and went according to the circumstances.”

strument builder's profession in both modern and historical terms.⁵⁶ Here, Hertz mostly considers how that profession stands in relationship to the modern categories of *Kunst* and *Handwerk*, finding that it has elements of both but belongs properly to neither. In Hertz's analysis, instrument building is strongly allied to the crafts by the nature of the work and its materials, and it cannot truly be considered an art (not even an applied art, or *Kunsth Handwerk*), since a musical instrument generally offers only a mediated, not an immediate, aesthetic experience. On the other hand, instrument building does require a knowledge of music that elevates it above other crafts and therefore, depending upon the individual skills and proclivities of the builder, the profession may sometimes "enter into a closer relationship" with the world of the arts. Hertz also finds strong similarities between instrument building and applied science and engineering (*Technik*), because instrument building requires scientific knowledge, and because its products are tools that serve a need. She suggests, therefore, that the most appropriate term for an "ideal" instrument builder—one who possesses both craft skills and theoretical knowledge as well as "artistic intuition"—might be a "technical artist" ("technischer Künstler"): an artist who expresses himself through the medium of technology.⁵⁷

Hertz does briefly consider the fact that organ builders (who usually also built other kinds of keyboard instruments) were historically called artists, citing references by Johann Caspar Trost (1677) and Jakob Adlung (1768) to the *Orgelmacher-Kunst*, the "organ builder's art." Hertz points out that to Trost and Adlung, the word "art" did not carry its modern meaning; rather, she argues that they, and Paul von Stetten after them, used the word in the old sense of *ars*, meaning a discipline or pursuit more generally. The various disciplines that an organ builder must master, according to Trost and Adlung, Hertz notes, are all to be found within the medieval *artes liberales* and *artes mechanicae*, the liberal and mechanical arts. Thus, for Hertz, the eighteenth-century concept of an instrument builder as an artist largely corresponds to the category of "technical artist" that she has already proposed: instrument builders were educated craftsmen whose medium was machines.

⁵⁶Hertz, "Johann Andreas Stein," iii-ix.

⁵⁷"Ebenso wie in der Bildhauerei eine individuelle Steigerung. . . möglich ist, kann auch der Instrumentenbau je nach der persönlichen Fähigkeit der Meister entweder biederes Handwerk, Kunsthandwerk, auf Theorie und Experiment aufgebaute Technik oder der reinen Kunst kongeniale Gestaltung sein. . . Unter seinen Händen wird das Gewerbe mehr als Handwerk und Kunsthandwerk, mehr auch als ingenüöse Technik und nähert sich der bildenden Kunst, indem er ein von künstlerischem Intuition getragenes **Ausdrucksmittel** schafft. Er ist in diesem Fall nicht 'Kunsthandwerker' sondern 'technischer Künstler.'" Ibid., v.

Hertz's identification of ideas about art as significant for an understanding of historical keyboard instruments and instrument building invites a deeper exploration of that connection. As she points out, the modern idea of art as a free creative activity did not fully emerge until after Stein's day. Still, ideas about art during the second half of the eighteenth century were perhaps more complex than she suggests. Stetten's writings, for example, as I will show, evidence a multipartite concept of art in which the older meaning of skilled craft is indeed retained, but is layered over with a new aesthetic awareness and associated with culturally specific ideologies. Hertz's analysis, moreover, is primarily ontological. She is mostly concerned with defining the boundaries of categories, rather than their import: what they are, rather than what they mean, or meant.

Summary of Previous Research

A substantial body of scholarship, then, exists about Johann Andreas Stein and his instruments. The facts of Stein's biography and the prevailing interpretation of his work as representing a quest, systematically pursued, for an expressive keyboard instrument were established in the 1930s. More recently, organological research has tied Stein's instruments more firmly to their historical musical context through closer studies of their technologies.

Stein's clavichord has received less attention in the literature than his other combination instruments and inventions. The early provenance of the instrument has been established, however, and the piano of the clavichord has been studied in relationship to Stein's other grand pianos. The organ has been little studied, and the instrument as a whole has not been much considered in the context of Stein's overall output.

Scholars have agreed in explaining Stein's musical inventions as products of an innate ingenuity, molded by a musical culture that placed a premium on expressivity. Recent studies on Stein and on musical inventions during his time, moreover, have rejected the notion that unusual or one-of-a-kind instruments should be regarded as failures, arguing that these instruments were as finely tuned to the musical needs of their day as the ultimately more successful ordinary piano.

I have suggested that even as these approaches aim to account for Stein's instruments as products of their historical context, they nevertheless fail to capture some aspects of the instruments' contemporary significance. The invocation of Stein's ingenious character, for example, is historically non-specific; it also offers little insight into the structures or pathways that might have supported or enabled his work as an inventor, or the meanings that inventions carried in his day. Portrayals of Stein's output as an expres-

sive quest, meanwhile, have sometimes skated over the specific topography of the musical discourse in which he participated—in which, for example, as I address below, *Empfindsamkeit* was more relevant than “expression.” The question of how the two proposed explanations—psychological and cultural—operated together, moreover, remains open.

1.4 Methodology and Methods

The New Organology: Inside and Outside

The questions I pose in this study belong to a fairly new direction in historical organology: an increasingly prevalent concern with situating the instruments being studied in a cultural context. As recently as 1997, Paul Théberge described the field of organology, or musical instrument studies, as “usually restricted to the simple classification of musical instruments, histories of instrument building, and accounts of the development of playing technique.” “The broader cultural significance of any given instrument or family of instruments,” Théberge thought, “generally lies outside the scope of this discipline.”⁵⁸

Questions about cultural significance have, however, become more and more common in the field. Ardal Powell, for example, has remarked on this development within flute studies. “Previous histories,” he writes, “asked only rather limited questions about earlier forms of the flute: who developed this or that mechanical ‘improvement’? When? How did it ‘advance’ the mechanism, fingering, and acoustics of the flute?” Today, however, Powell suggests, “our better understanding of the relationship between instruments and music now compels us to ask more practical and more interesting questions about each earlier flute type: What did it sound like? What kinds of people played it, what music did they play, how did they learn, and make a living? Who listened? What did these listeners hear and feel?”⁵⁹

As Gunnar Ternhag points out in a recent pair of articles reviewing the state of the field, these new kinds of questions reflect the strong influence on organology by fields such as ethnography, anthropology, and especially cultural studies.⁶⁰ Ternhag points out, too, that the new interest in contex-

⁵⁸Paul Théberge, *Any Sound You Can Imagine: Making Music/Consuming Technology* (Middletown: Wesleyan University Press, 1997), 6.

⁵⁹Ardal Powell, *The Flute*, Yale Musical Instrument Series (New Haven: Yale University Press, 2002), 4.

⁶⁰Gunnar Ternhag, “Organologi: Systematik, morfologi och kulturanalys,” in *Musikinstrument Berättar: Instrumentforskning Idag*, ed. Stefan Bohman Dan Lundberg, and Gunnar Ternhag (Hedemora: Gidlund, 2007), 18-52. In the same volume, see also Tern-

tualization presents new methodological challenges. Most notably, perhaps, the new questions being asked by organologists mean that in many cases, the actual objects of study have shifted, from instruments to people. This shift, Ternhag suggests, may tend to blur the boundaries of the field, perhaps to an unwelcome extent. He questions whether studies which do not take the musical instrument itself as their object can really be considered to belong to the field of organology: “All research about ‘instruments and music’”, he points out, “cannot reasonably be labeled organology; that would be a meaningless expansion of the term.”⁶¹

Ternhag is correct, I think, to state the danger of—so to speak—losing the “organ” in organology. Indeed, I would suggest that the best approach in any organological study, no matter how heavily contextual, is to integrate soft questions about culture and context with the specialized knowledge of the physical substance of musical instruments that has been the hallmark of the field. This is not, however, for the sake of keeping the work within the realm of the discipline of organology, but rather for the insights such an approach provides into how technology and culture work together.

The title of one recent volume of contextual organ studies, *The Organ as a Mirror of its Time*, suggests the tight relationship that exists between a musical instrument and the culture that produced it.⁶² However, it is perhaps even more useful to conceive of that relationship not as a reflection, but as a co-construction. Technologies surely do not proceed along inevitable, self-determined trajectories; they are contingent upon the specific cultures which produced them. On the other hand, neither are their forms infinitely malleable: they are determined by the hard physical substance of the materials they are made of; they are obdurate; they shape themselves, and they help to shape the culture that they are part of. An explanation of a technology must therefore couple a contextual understanding with a physical understanding, an approach that Madeleine Akrich has characterized as “mov[ing] constantly between the technical and the social. . . between the inside and the outside of technical objects.”⁶³

hag, “Musikinstrumentforskning på nytt,” 9-17. Carroll Pursell has also recently identified “decipher[ing] meaning” as an approach from cultural history studies that may be profitably applied in technology studies: “One can ask many questions of a tool or machine: Where did it come from (the traditional search for an inventor or designer)? How does it work? What does it do? But one can also ask what does it mean—to the designer, the builder, the consumer, the casual observer, and so forth?” “Technologies as Cultural Practice and Production,” *Technology and Culture* 51, no. 3 (2010): 716.

⁶¹Ternhag, “Organologi,” 41.

⁶²Kerala J. Snyder, ed., *The Organ as a Mirror of Its Time: North European Reflections, 1610-2000* (Oxford: Oxford University Press, 2002).

⁶³Madeleine Akrich, “The De-Description of Technical Objects,” in *Shaping Technol-*

Which Outside? A Contextual Methodology

“The outside,” of course, is a very big place. The organologist who wants to understand an instrument in context, therefore, faces the challenge of knowing which part of the outside to pay attention to: choosing which context to care about. Pamela Long has recently explained that a “contextual methodology” for historians of technology is one which “sees technology as embedded within a broader social and cultural context,” and “includes a study of the relevant social, political and material circumstances.”⁶⁴ The methodological problem is how to define what the relevant circumstances are.

In this study, I am interested in understanding the claviorganum as Stein and his contemporaries understood it. Therefore, my point of departure is the notion that those observers’ own words about the instrument will suggest the most important contexts to explore. Long describes this approach as paying “careful attention to the conceptual categories of past societies”: a historical artifact, she suggests, “should be understood within its own culture in terms of the categories that belong to historical actors.” Because the meaning of those “conceptual categories” shifts over time, the starting point for this kind of study must be, again in Long’s words, “careful, detailed attention to the fabric of meaning that exists within the culture to which that [artifact] initially belonged.”⁶⁵

Paul von Stetten, writing in 1788, did not describe Stein’s new *Clavecin organisé* as one of his “latest works of mechanical ingenuity,” or one of his “latest expressive instruments”: it was, instead, one of his “latest works of art.” For him that characterization was, moreover, apparently one of the most important things to note about the instrument. The decision to pay “careful, detailed attention” to this category generated the overarching question for this study: the investigation of the identity of the claviorganum as a work of art.

I have also used the same approach to define smaller topics and questions throughout the study. For example, as I pointed out above, Stein’s inventions are most commonly interpreted as “expressive” instruments. In contemporary writings about the instruments, however, the word “expressive” appears only rarely; meanwhile, the related category of *Empfindsamkeit* is

ogy/Building Society: Studies in Sociotechnical Change, ed. Wiebe E. Bijker and John Law (Cambridge, Massachusetts: MIT Press, 1992), 206.

⁶⁴Pamela O. Long, “The Craft of Premodern European History of Technology: Past and Future Practice,” *Technology and Culture* 51, no. 3 (2010): 698-714.

⁶⁵Pamela O. Long, *Openness, Secrecy, Authorship: Technical Arts and the Culture of Knowledge From Antiquity to the Renaissance* (Baltimore: Johns Hopkins University Press, 2001), 3.

constantly discussed. By moving away from the modern category of expression and trying instead to map out the boundaries of the historical category of *Empfindsamkeit*, I was able to identify connections between the sound of musical inventions and the emerging field of aesthetics in the mid-eighteenth century that I had not previously understood, and this understanding defined the selection of topics discussed in chapter 5. I selected the major topics discussed in chapters 4 and 6—improvement and the public, respectively—in the same way.

A Local History

Long’s contextual methodology, finally, recommends a narrow focus, rather than a broad one: “[A contextual] approach necessarily begins at the level of local history. Although the historical survey or synthesis always has its place, a contextual approach requires that broad accounts be deeply informed by specialized investigations based on primary-source research.”⁶⁶ My focus in this study is narrow indeed; I describe a single builder and his instruments, and the definitions and institutions of art within a single city.

I chose this local-history approach because I wanted to be able to understand how the clavichord took shape as the result of specific negotiations by particular people, rather than attributing it more vaguely to the influence of what Bruno Latour has called “macro-actors”:⁶⁷ big, impersonal entities such as “expression,” for example, or for that matter, “music.” My ambition was, to borrow another word from Latour, to “re-assemble” the society in which Stein’s instruments existed, from bits and pieces of contemporary conversation—and indeed from bits and pieces of the instruments themselves. To take the example of chapter 5 again, I attempt there to trace ideas embodied in the design of Stein’s *Melodica* from the *Versuch über die wahre Art das Clavier zu spielen* of C. P. E. Bach, which Stein himself cites as an inspiration; through institutions of music-making in Augsburg influenced by Bach; into the *Melodica* itself, as Stein describes it; and back out again, where they surface in an altered but still recognizable form in texts documenting the instrument’s contemporary reception. To assemble such a picture requires also assembling, as much as is possible, an internally coherent, robustly linked set of sources, and the natural result is the case study approach I have adopted here.

⁶⁶Long, “The Craft,” 699.

⁶⁷See, for example, “Visualisation and Cognition: Drawing Things Together,” *Knowledge and Society: Studies in the Sociology of Culture Past and Present* 6 (1986): 1-40, especially 26, and *Reassembling the Social: An Introduction to Actor-Network-Theory* (Oxford: Oxford University Press, 2005), especially 35ff. and 165ff.

Writing a local history also makes the complex task of describing a rich context for a historical artefact more feasible. That job entails explicating what have been described as multiple layers of the “technological system” in which the object operated. As Mick Wilson summarizes, one such layer includes the “artefactual content” of the technology, or the actual physical material under consideration; while another is the “immediate context of utility” for the technology; and a third, “topmost” layer comprises the broader societal conditions that enable or drive the production of the technology and the projects for which it is used.⁶⁸ With regard to the clav-iorganum, I try to bring together a study of its physical substance with a consideration of the musical use to which it was put, but also with the social and cultural institutions that encouraged its building and use. The conceptual category of “art” can be followed up and down through all of those layers, and used to bind them into one story—but it requires a narrow scope to make sure that all of the characters in the story are talking about the same “art.”

1.5 Sources

The Instrument

Stein’s clav-iorganum is currently held by the Gothenburg City Museum and has the inventory number GM4478. At the time of writing, the clav-iorganum was in storage in the museum’s magazine on Polstjärnegatan in Gothenburg, where I examined it on two occasions, in the spring of 2005, and again in the spring of 2008.

During my examinations, I measured and photographed both the piano and the organ. I also inspected the inside of the wind trunk and the area underneath the soundboard with a flexible boroscope. I attempted to identify repairs and alterations to the instrument, as well as damaged and missing parts.

The clav-iorganum is not presently in playable condition. Several notes on the piano are strung and can be played. The bellows leather leaks, so it is not possible to play the organ, but it is possible to let the pipes speak by manually holding together the leather. However, for the most part, I was not able to hear the sound of the instrument.

I also reviewed the records held by the museum pertaining to the clav-iorganum. These include the museum’s own card catalog entry and several

⁶⁸Mick Wilson, “How Should We Speak About Art and Technology?” *Crossings: eJournal of Art and Technology* 1, no. 1 (2001).

photographs; an unpublished documentation report by Michael Latcham, chiefly describing the claviorganum's piano; and a set of photographs of Stein's signature, dated 1781, on the underside of the piano's soundboard, sent to the museum by Reinhardt Menger in 1973.

The Documents

Besides the claviorganum, my primary source material consists of a collection of contemporary accounts of Stein, his instruments, and the arts in Augsburg, spanning approximately the years 1750-1790. The material includes both published and unpublished documents, all of which represent firsthand accounts, either authored by "eyewitnesses" or taken directly from eyewitness reports. Some of the texts are authored by Stein himself, but most are by people who knew Stein or had seen or heard his instruments, although even in the latter case, there is sometimes reason to believe that Stein provided some of the details and formulations, as I will discuss below.

A substantial part of the source material consists of descriptions of Stein's most famous instruments published in contemporary periodicals. Publishers of newspapers and magazines were naturally in the business of informing their readers about what was new and different, and it is to be expected that Stein, too, would have been interested in spreading the news of his inventions to potential customers. Although the descriptions are not explicitly framed as advertisements, they do display a universally positive tone, which can probably be attributed at least in part to enthusiasm about novelty, as well as a desire to present local (or German) figures and achievements in a positive light. In spite of the positive bias inherent to this type of source—or even because of it—such articles do demonstrate what contemporary onlookers found it important to say about Stein's instruments, and the grounds upon which the instruments were judged.⁶⁹

Details from the best-known of the published sources were recombined and transmitted—and often embroidered—in musical dictionaries and encyclopedias from the late eighteenth to the twentieth century. The earliest of these secondary sources are more or less contemporary with Stein and some of the primary source material;⁷⁰ however, they are not firsthand

⁶⁹On positive bias in German music reviews of the period, see Mary Sue Morrow, *German Music Criticism in the Late Eighteenth Century: Aesthetic Issues in Instrumental Music* (Cambridge: Cambridge University Press, 1997), 41-43, and (on national bias) 45-65.

⁷⁰For example: Ernst Ludwig Gerber, *Historisch-biographisches Lexikon der Tonkünstler* (1790-92) and *Neues historisch-biographisches Lexikon der Tonkünstler* (1812-1814), s. v. "Stein (Johann Andreas)." Facsimile edition, Othmar Wessely, ed. (Graz:

accounts, and for the most part, they add no new details to the original reports. Apparently new information must be evaluated critically. Gerber, for example, reports in 1814 that over 700 of Stein's instruments were spread across Europe.⁷¹ This statistic, as far as I know, appears in none of the primary sources, and although the majority of the information in Gerber's article is drawn from previously published and cited sources, he does not provide a reference for this figure. However, its specificity, in combination with the accuracy of Gerber's report overall, makes it convincing, suggesting that perhaps it was based on reliable unpublished information from another source.⁷² A contrasting case is the article on Stein in Lipowsky's *Baierisches Musik-Lexikon*, in which facts are clearly taken from Stetten's *Kunst-Geschichte*, but have just as clearly been garbled in the transmission. In this context, Lipowsky's assertion that Stein's claviorganum was made for the king of Sweden, a detail that I believe he is alone in reporting, seems less credible.⁷³

Although these secondary sources are not generally useful as a source of biographical details, they do document Stein's reputation, the reception of his instruments, and changing attitudes toward musical instrument building, art, and craft over time (for this purpose they may, of course, be regarded as primary sources). Sometimes, the extended historical context they provide helps to clarify the particular attitudes and circumstances of the late eighteenth century. However, the reception of Stein and his instruments is not a central question in this dissertation, so my focus remains mostly on the firsthand accounts published in and shortly after Stein's lifetime.

Akademische Druck- und Verlagsanstalt, 1966-77). Heinrich Christoph Koch, *Musikalisches Lexikon*, s. v. "Melodica," "Saitenharmonika," "Vis à vis," "Stein, (Johann Andreas)" (Frankfurt: 1802). Facsimile edition, Nicole Schwindt, ed. (Kassel: Bärenreiter, 2001). Johann Georg Krünitz, *Oeconomische Encyclopädie*, s. v. "Melodica" (Berlin: Joachim Pauli, 1802), <http://www.kruenitz1.uni-trier.de/>.

⁷¹"Von seiner Melodika und seinen Pianofortes sind über 700 in ganz Europa verbreitet." Gerber, *Neues historisch-biographische Lexikon*, s. v. "Stein (Johann Andreas)."

⁷²Indeed, it has been widely repeated in nineteenth century histories as well as twentieth-century organological studies. Latham, for example, uses the figure as the basis for calculating the percentage of Stein's extant instruments and the productivity of his workshop and journeymen. At a guess, the source for the information was indeed a first-hand communication; it appears together with another specific detail, the time of Stein's death, which as far as I know, Gerber is the first to report. These are, moreover, the only details for which Gerber does not provide a reference to a published source.

⁷³Felix Joseph Lipowsky, *Baierisches Musik-Lexikon*, s. v. "Stein, Georg Andreas" (Munich: Jakob Giel, 1811), <http://www.muenchener-digitalisierungszentrum.de/>.

I have also referred to major contemporary dictionaries⁷⁴ for definitions of broad terms such as art, artist, mechanics, and so on. Again, these definitions allow me to clarify my analysis of the primary sources by placing them in a historical context. I am, however, not chiefly interested in the question of what art was, but rather how art was made and used in Stein's and Stetten's Augsburg; so again, my focus remains on the primary sources that describe art in that specific time and place.

The rest of this section lists the most important primary sources I use in this study, ordered by topic and type, and briefly addresses some questions of authorship, audience, and editions.

Johann Andreas Stein's Notebook

From 1748 until at least the late 1770s, Stein kept a notebook in which he recorded notes of various kinds on his work, on music, and on instrument building. The notebook has not been published and is currently in private ownership in Vienna. I examined and photographed it in the spring of 2006.⁷⁵

The notebook is pocket-sized and bound in leather. It has 315 pages⁷⁶ and is written mostly in German, with some entries in French, in both ink and pencil. The entries are not in chronological order, and most of the pages are undated. The entries are also written in several different hands, so that it is possible that not all of them are by Stein. The earliest date that appears in the notebook is August 1, 1748 and the latest is 1777.

The entries are diverse in type and include numerous sketches, many of moldings or other ornaments, and some measured drawings of instruments, as well as organ specifications, stringing schedules, and notes on musical intervals and temperament. There are a few passages copied from other books, and some notes on building keyboards, organ pipes, and hammer actions. The notebook also contains travel itineraries, calculations of hours worked and wages earned and received, drafts of letters, poems, and drawings of people and places.

⁷⁴For example: *Grosses vollständiges Universalexicon aller Wissenschaften und Künste* (Halle and Leipzig: Johann Heinrich Zedler, 1732-1750), <http://mdz10.bib-bvb.de/~zedler/zedler2007/index.html>; Johann Georg Krünitz, *Oekonomische Enzyklopädie*.

⁷⁵I am most grateful to the Streicher family for permission to examine the notebook and to Uta Goebel-Streicher for her kind assistance.

⁷⁶The pages are numbered in pencil in a later hand. According to Klaus, the numbers were added by Eva Hertz. *Studien zur Entwicklungsgeschichte*, 379 n. 282.

Writings of Paul von Stetten the Younger

Paul von Stetten was a member of one of Augsburg's oldest and proudest families, and served as a mayor of the city for many years. As his writings make clear, he saw the success of the arts as a way to improve the city's reputation and prosperity; thus, he had a vested interest in praising and promoting local artists. Descriptions of the arts in Augsburg by visitors to the city are often less enthusiastic. Stetten's sometimes extravagant praise of local artists is, therefore, to be taken with a grain of salt. His writings are useful, however, for what they reveal about the role of artists and the significance of the arts in Augsburg society.

The first and larger volume of Paul von Stetten's *Kunst- Gewerb- und Handwerks-Geschichte der Reichs-Stadt Augsburg* ("History of the arts, trades, and crafts in the Free Imperial City of Augsburg") was published in 1779. A supplement appeared in 1788.⁷⁷ The *Kunst-Geschichte* is organized as a system of the arts in which the fundamental division is between the fine and mechanical arts. Stetten sometimes pauses to reflect on the nature of the arts and the crafts; however, the book is a work not of philosophy but of local history, consisting mainly of short biographies of past and present artists in Stetten's Augsburg. Contemporary readers considered the effort to document the practice of the arts important and forward-thinking.⁷⁸

⁷⁷ *Kunst-Geschichte* 1779; *Kunst-Geschichte* 1788.

⁷⁸ For example, a 1780 review praised the first part of the *Kunst-Geschichte* as a first, necessary step toward assembling a national history of the arts: "Until now there has still been a great lack of such authors [as Stetten] here [in Germany]: for the ordinary city histories are more concerned with historical records about their construction, their founding and their various fates, or with describing their attractions and curiosities, than with the history of their arts and artists—which, however, deserves just as much attention, and in many respects is just as important, if not much more so." ("Bisher hat man noch einen großen Mangel an solchen Schriftstellern bey uns gehabt: denn die gewöhnlichen Städtegeschichte [sic] beschäftigen sich mehr mit historischen Urkunden von ihrer Erbauung, ihren Stiftungen und verschiedenen Schicksalen, oder mit Beschreibung ihrer Sehenswürdigkeiten und Seltenheiten als mit der Kunst- und Künstlergeschichte, die doch so viele Aufmerksamkeit verdient, und in vielen Rücksichten eben so wichtig, wo nicht weit wichtiger ist.") The review concludes, "May we soon receive more art histories of this kind for a general art history of Germany—but may they also be written with just as much precision, diligence and care as this one!" ("Möchten wir doch bald mehrere Kunstgeschichten dieser Art zu einer allgemeinen Kunstgeschichte Deutschlands erhalten, aber möchten sie auch mit eben der Genauigkeit, eben dem Fleiße und eben der Sorgfalt abgefaßt seyn, als die gegenwärtige!") "Kunst- Gewerb- und Handwerks-geschichte der Reichstadt Augsburg verfaßt von Paul von Stetten den iungeren. . .", *Neue Bibliothek der schönen Wissenschaften und der freyen Künste* 24, no. 2 (1780): 256-70, <http://141.89.36.83/fea/digbib/view?did=c1:12157&p=1>.

Stetten includes an entry for Stein, of course, in both volumes,⁷⁹ and these entries document all of the keyboard instruments for which Stein was famous. Although he gives few details about these instruments, they are nearly all described in more depth in other contemporary publications (presented below). The biographical details that Stetten provides in the first volume were presumably communicated to him by Stein himself, and the entry on Stein's "most recent works of art" in the second volume is largely taken from a passage written by Stein himself, describing his instruments in a catalog for a local art exhibition in 1783.⁸⁰

In 1779 Stetten also published *Der Mensch in seinen verschiedenen Lagen und Ständen für die Jugend geschildert* ("Man portrayed for young readers in his various situations and classes").⁸¹ This was an illustrated textbook, in which Stetten presents a universal system of human societies and activities, of which the arts make up one part, and in which he also addresses the nature of the arts more explicitly than in the *Kunst-Geschichte*. The book includes an entry on organ and keyboard instrument building among the mechanical arts. My presentation of Stetten's art concept in chapter 3 builds on both works, juxtaposing the philosophical discussion in *Der Mensch* with the empirical portrayal in the *Kunst-Geschichte*.

I also refer to two travel guides for Augsburg published by Stetten in 1772 and 1788. The first of these, *Die vornehmsten Merkwürdigkeiten, der Reichs-Stadt Augsburg* ("The foremost points of interest in the Free Imperial City of Augsburg"), consists mainly of a list of the most interesting sights for visitors to the city. These include works of art and the workshops of local artists. The second guide, *Beschreibung der Reichs-Stadt Augsburg* ("Description of the Free Imperial City of Augsburg"), is more expansive, and includes a description of the organization of Augsburg society and the place of artists within that society. I use both books to link my analysis of Stetten's art concept to real circumstances of art manufacture and use in Augsburg.⁸²

⁷⁹ *Kunst-Geschichte* 1779, 160-62; *Kunst-Geschichte* 1788, 56.

⁸⁰ *Vierte Nachricht an das Augspurgische Publikum, von der öffentlichen Ausstellung verschiedener Kunstarbeiten und jährlichen Austheilung der Preise bey der alten Stadt-Akademie...* (Augsburg, 1783).

⁸¹ *Der Mensch in seinen verschiedenen Lagen und Ständen für die Jugend geschildert* (Augsburg: Johann Jacob Haid u. Sohn, 1779). Facsimile edition, Helmut Gier, ed. (Nördlingen: Dr. Alfons Uhl, 1998).

⁸² *Die vornehmsten Merkwürdigkeiten, der Reichs-Stadt Augsburg* (Augsburg: Conrad Heinrich Stage, 1772), http://www.bibliothek.uni-augsburg.de/de/dda/urn/urn_uba000200-uba000399/uba000211/index.html; and *Beschreibung der Reichs-Stadt Augsburg, nach ihrer Lage jetzigen Verfassung, Handlung und den zu solcher gehörenden Künsten und Gewerben auch ihrer andern Merkwürdigkeiten* (Augsburg: Conrad Hein-

The Barfüßer Organ

A long description of the Barfüßer organ, which Stein completed in 1756, was published in a local periodical, the *Kunstzeitung der Kayserl. Akademie zu Augsburg*, in February 1770. The article, by an unnamed author, was reprinted with no substantial changes the following month in Leipzig, in a weekly music magazine edited by Johann Adam Hiller.⁸³ As I mentioned above, archival documents pertaining to the organ and Stein's contract negotiations with the Barfüßer church have been presented by Hertz and others.⁸⁴ Here, however, my focus is on the published articles, in which the organ was publicly presented to contemporary observers.

The Poly-Tono-Clavichordium

A long description of Stein's *Poly-Tono-Clavichordium*, a harpsichord-piano, was also published in two versions. It first appeared in July 1769, once again published by Hiller in Leipzig, in a supplement to his *Wöchentliche Nachrichten, die Musik betreffend*, under the title "News of an improvement to the *pianoforte* instrument."⁸⁵ A longer version appeared in the Augsburg *Intelligenz-Zettel* in October of the same year, where it was titled, "On the invention of a *Poly-Tono-Clavichordium* or musical *Affekt*-instrument, and on the improvement of a new organ."⁸⁶ The "new organ" referred to is Stein's *Melodica*, which he described in more detail in another article a few years later (see below).

My analysis in chapter 4 uses the version of the article published in Augsburg. In this version, the description of the instrument itself is prefaced

rich Stage, 1788), http://www.bibliothek.uni-augsburg.de/dda/urn/urn_uba001400-uba001599/uba001452/.

⁸³"Orgelbaukunst," *Kunstzeitung der Kayserl. Akademie zu Augsburg*, February 5, 1770, 41-45; Johann Adam Hiller, ed., "Nachricht. Von einer neu erbauten Orgel, aus dem 6ten Stück der Augspurgischen Kunst-Zeitung, den 5ten Febr. 1770," *Musikalische Nachrichten und Anmerkungen* (Leipzig), March 12, 1770, 86-88, <http://books.google.se/books?id=vRdDAAAACAAJ&printsec=frontcover#v=onepage&q&f=false>.

⁸⁴Hertz, "Johann Andreas Stein"; "Die Orgel in der Kirche."

⁸⁵The article appeared in two parts, in the July 24 and July 31 numbers: "Nachricht von Verbesserung des Pianofortinstruments," *Anhang zu den wöchentlichen Nachrichten und Anmerkungen die Musik betreffend* (Leipzig), July 24, 1769, 32, <http://books.google.se/books?id=ADc9AAAAACAAJ&printsec=frontcover#v=onepage&q=&f=false>; and "Fortsetzung der Nachricht von Verbesserung des Pianoforte," *Anhang zu den wöchentlichen Nachrichten und Anmerkungen die Musik betreffend* (Leipzig), July 31, 1769, 40, <http://books.google.se/books?id=ADc9AAAAACAAJ&printsec=frontcover#v=onepage&q=&f=false>.

⁸⁶*Augsburgischer Intelligenz-Zettel*, "Von Erfindung eines Poly-Toni-Clavichordii oder musikalischen Affecten-Instruments, und von Verbesserung eines neuen Orgelwerks," October 5, 1769.

by an expansive discussion of the importance of supporting the arts, the art of organ building, and the necessity of improving the existing keyboard instrumentarium. In Hiller's version, which is apparently excerpted from the Augsburg article (although it was published earlier), the description of the instrument is the same, but it is prefaced with briefer remarks that weave together a few details from the Augsburg introduction with different material that focuses mainly on the need for improvements to the piano.

Like the description of the Barfüßer organ, the *Poly-Tono-Clavichordium* description is unsigned. It has been suggested that Stein himself wrote or at least approved the text.⁸⁷ In my opinion, Stein was not himself the author of the article. The text refers to Stein in the third person (in contrast, the article about his *Melodica*, which Stein certainly authored, is written in the first person). The language, moreover sometimes suggests the point of view of an onlooker: as, for example, in the final sentences: "Enough! Whoever wishes to be convinced of this must have seen all of its parts and heard it played, as I have done."⁸⁸ However, the level of detail in the descriptions of the *Poly-Tono-Clavichordium*'s action and registration possibilities, especially, do suggest that the author communicated with Stein about the instrument.

The Melodica

Stein's own description of his *Melodica*, the small organ with which a player could produce *piano* or *forte* by varying the pressure of the finger, was published in 1772. The article appeared in the Leipzig periodical *Neue Bibliothek der schönen Wissenschaften und der freyen Künste*. It was also printed separately in Augsburg in the same year.⁸⁹ In this study I refer to the version that appeared in the *Neue Bibliothek*. In contrast to, for example, Hiller's music magazine, the *Neue Bibliothek* was a journal more broadly focused on philosophy, art, and aesthetics, and the *Melodica* article, un-

⁸⁷For example: Latcham, "Swirling," 507; Cole, *The Pianoforte*, 180.

⁸⁸"Genug! Wer davon überzeugt seyn will, mus solches nach allen seinen Theilen, so, wie ich, gesehen, und zu spielen gehört haben." *Augsburgischer Intelligenz-Zettel*, "Von Erfindung eines Poly-Toni-Clavichordii."

⁸⁹Johann Andreas Stein, "Beschreibung eines neuerfundnen Clavierinstrumentes, Melodica genannt. . .," *Neue Bibliothek der schönen Wissenschaften und der freyen Künste* 13, no. 1 (1772): 106-16, <http://141.89.36.83/fea/digbib/projekt>. Hertz, "Johann Andreas Stein," 53-61, cites and excerpts Johann Andreas Stein, *Beschreibung meiner Melodica, eines neuerfundnen Clavierinstrumentes* (Augsburg: J. J. Lotter, 1772). Krünitz, s. v. "Melodica" cites and excerpts another version from Augsburg: Johann Christoph Heckel, *Beschreibung der Steinischen Melodica, eines neuerfundnen Clavierinstrumentes* (Augsburg, 1772).

like the other published descriptions about Stein's instruments, specifically addresses questions of musical aesthetics.

The Naples *Vis-à-vis*

A 1789 letter by the diplomat Norbert Hadrava describes inspecting and concertizing on a *Vis-à-vis* instrument by Stein that he had purchased on behalf of a Naples nobleman; as I mentioned above, Rice argues that the instrument Hadrava describes is probably the same as an extant Stein *Vis-à-vis* in Naples. In contrast to the published descriptions of Stein's instruments, Hadrava's more personal account documents some specific scenarios where the instrument was used, and records his own reactions to the instrument's appearance and sound, as well as those of other listeners. In this study I have made use of Rice's transcription of Hadrava's letter.⁹⁰

(Another *Vis-à-vis* instrument by Stein, probably from 1777, is extant in Verona; I know of no more detailed historical record of that instrument, however, than Stetten's brief mention in the first volume of the *Kunst-Geschichte*).⁹¹

The *Clavecin Organisé* and Patrick Alströmer's Diary

I know of no published contemporary descriptions of the *Clavecin organisé* that Stein sent to Sweden, beyond Stetten's brief reference to it in 1788. The instrument is mentioned a number of times, however, in the daily engagement diary kept by its owner in Gothenburg, Patrick Alströmer. Alströmer's diary is held by the Regional Archives (*Landsarkivet*) in Gothenburg. It spans the period from April 18, 1774 to December 6, 1791, although the entries from December 10, 1779 to January 16, 1781 are missing, and the surviving pages have been damaged by fire, suggesting that there may have been additional pages that are now lost.

Alströmer began the diary upon moving from his home in Alingsås, near Gothenburg, to Vänersborg on Lake Vänern to take up the office of deputy governor (*vice landshövding*) of the surrounding regions. In 1775 he left the post and returned to Alingsås, but continued to keep his diary. It is a tersely written, formal record of the events of Alströmer's daily life, including both business appointments and social engagements. The mentions of the clavioorganum are brief, simply noting when and where Alströmer played on

⁹⁰Rice, "Stein's 'favorite instrument.'" The *Vis-à-vis* presently in Naples is undated but a date of 1783 has been suggested by Latcham. Hadrava's letter is from April 27, 1789.

⁹¹Stetten, *Kunst-Geschichte* 1779, 162.

the instrument, and often the names of others who also played or listened to the music, and offering only a few clues about the music performed. A transcription of the diary has been published in digital form.⁹²

The *Saitenharmonika*

The most detailed contemporary description of Stein's *Saitenharmonika*, with its combination of hammer and plucking action, was published in Heinrich Boßler's *Musikalische Real-Zeitung* in November 1789. The firsthand account, by the composer and music writer Johann Friedrich Christmann, is in reply to a request in an earlier number of the periodical for more information to complement a brief report from an anonymous reader in Stuttgart who had recently heard Stein's daughter Nannette perform on the *Saitenharmonika* there.⁹³

Another, briefer contemporary account of the *Saitenharmonika* was published as an anecdote, part of a longer letter, by Johann Friedrich Reichardt, in a volume of his correspondence in 1804. In the letter, Reichardt reminisces about hearing Nannette play an instrument that he does not name, but which matches the description of the *Saitenharmonika*.⁹⁴

Both Christmann's and Reichardt's descriptions emphasize the special capability of the *Saitenharmonika* to create an extreme *decrescendo*. They do so in language that strongly corresponds to Stein's own language in the short text he wrote for the catalog of the 1783 art exhibition in Augsburg upon which Stetten's 1788 report was based. According to Stein's text, the loudness of the *Saitenharmonika* could "transform from the most

⁹²The diary is described in Berit Ozolins, "Dagboken," in *Ekonomi och musik i 1700-talets Göteborg: En tidspegel utifrån en samtida dagbok* (Gothenburg: Göteborgs Stadsmuseum, 2005), 152-177, especially 153-156. The transcribed diary is on a CD that accompanies the book. I am most grateful to Jan Ling for also sharing with me his personal copies of the transcription with his notes and glosses.

⁹³Heinrich Boßler, ed., "Aus einem Schreiben von Stuttgart," *Musikalische Real-Zeitung* (Speyer), July 29, 1789, 237; and "Antwort auf die Anfrage wegen Herrn Steins neuerfundener Saitenharmonica, aus einem Brief des Herrn Pf. Christmanns an J.," *Musikalische Real-Zeitung* (Speyer), November 4, 1789, 352-54, both in the facsimile edition (Hildesheim: Olms, 1971). Christmann (1752-1817) was also a joint editor with Boßler of the *Real-Zeitung*.

⁹⁴Johann Friedrich Reichardt, *Vertraute Briefe aus Paris geschrieben in den Jahren 1802 und 1803*, vol. 1 (Hamburg: B. G. Hoffmann, 1804), 327-328, http://books.google.se/books?id=1MEWAAAAAYAAJ&printsec=frontcover&hl=sv&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false. Reichardt's biographer, H. M. Schletterer, also excerpts a 1790 letter written by Reichardt from Augsburg, which recounts the same event, where Reichardt refers to the instrument as a "Crescendo-Fortepiano." *Joh. Friedrich Reichardt: Sein Leben und seine Werke* (Augsburg: J. A. Schlosser, 1865), 478-79.

sublime *fortissimo*” into “complete nothingness” (“aus dem erhabensten Fortissime. . . in gänzlichem Nichts verwandelt”); Christmann, meanwhile, says that the instrument filled the space between *pianissimo* and “absolute nothingness” (“das völlige Nichts”); and Reichardt quotes Stein as saying, “You believe at last that you still hear something, but you hear nothing, nothing at all, simply nothing at all” (“Sie glauben zuletzt noch immer was zu hören, Sie hören aber nichts, gar nichts, rein gar nichts”). Probably, then, both Reichardt’s reminiscence and the more formal report published by Christmann reflect direct communication about the instrument from Stein himself.

The Mozart Letters

The correspondence of the Mozart family is an important source of information about Stein and his instruments, especially the letters exchanged between Leopold and Wolfgang Mozart from the period around Wolfgang’s visit to Augsburg in the fall of 1777.⁹⁵ In particular, scholars have scrutinized Wolfgang’s letter of October 17, in which he praises Stein’s pianos to his father, for evidence about what Stein’s pianos were like in 1777, and the kind of piano action and sound that Mozart would have known at that time. The letters also, however, describe how Wolfgang made music in Stein’s home, played on his pianos and his organs in the local churches, and enlisted Stein’s help to arrange concerts in the city after a disagreement with the son of the Catholic mayor. In this study, I am mainly interested in the glimpse the letters provide into Stein’s circle of acquaintances and his life in Augsburg.

Writings of C. F. D. Schubart

The musician and author Christian Friedrich Daniel Schubart (1739-1791) became acquainted with Stein when he lived for a short time in Augsburg in 1774, and he mentions Stein and his instruments frequently in his writings thereafter.

Some of these texts provide specific details about Stein’s instruments and life in Augsburg. Foremost among these are the *Deutsche Chronik* (“German chronicle”), a periodical Schubart started in Augsburg and continued

⁹⁵The stay in Augsburg is discussed in letters exchanged among members of the Mozart family from the end of September to the beginning of November, 1777. Wolfgang Mozart describes the visit in several letters written from Augsburg to Leopold in Salzburg: in an addendum to the letter of October 14 begun by his mother Maria Anna, and on October 16, October 17, and October 23-25. *Mozart: Briefe*, 2:54-85.

for some years after leaving the city, and his autobiography, *Leben und Gesinnungen* (“Life and beliefs,” written in 1778-79 and published posthumously, in 1791-93). During the months that Schubart spent in Augsburg, the *Deutsche Chronik* included news items about musical events in the city, in which Stein sometimes figured. Later, in 1776, updates on Stein’s ongoing work with his *Melodica* appeared there.⁹⁶ Schubart had arrived in Augsburg two years after Stein had published the article announcing the invention of the *Melodica* in 1772. He apparently knew the instrument firsthand, and perhaps took a special interest in it for this reason. He also knew and played on the Barfüßer organ and wrote enthusiastically about that instrument in the *Leben und Gesinnungen*, in a passage in which he describes Stein as one of his “warmest friends.” That book describes his stay in Augsburg in some detail and, in the same way as the Mozart letters, offers a personal glimpse into daily life in the city.⁹⁷

Schubart’s texts are also important for this study because they place musical instruments within a larger conversation about art, and especially the fine arts and musical aesthetics, frequently comparing music to drawing and painting. In a lyrical, much-quoted description of Stein’s *Melodica* in the *Ideen zu einer Aesthetik der Tonkunst* (“Ideas on an aesthetics of music,” dictated in prison in 1784-5, first published in 1806), Schubart praises the instrument for its ability to create a *mezzotint* effect. Another passage compares and contrasts various keyboard instruments, including the *Melodica*, in terms of their ability to produce contour, color, and shading, a conceit that Schubart also develops in a longer essay entitled *Klavierrecepte* (“Recipe for a keyboard”).⁹⁸ In both texts, Stein’s fortepianos and clavicords also receive special praise. Schubart’s writings demonstrate, too, how important the art of musical instrument building was, as he constantly connects it, like the other arts, to progress and national honor. In the *Deutsche*

⁹⁶The *Deutsche Chronik* appeared from 1774-77, published first in Augsburg and then, after the first quarter of 1774, in Ulm. News of the *Melodica* appeared in “Von deutscher Erfindung,” February 1, 1776, 73-75, and “Musikalische Nachrichten,” April 8, 1776, 232. Facsimile edition (Heidelberg: Lambert Schneider, 1975).

⁹⁷*Schubart’s Leben und Gesinnungen: Von ihm selbst, im Kerker aufgesetzt*, ed. Ludwig Schubart, 2 vols (Stuttgart: Gebrüder Mäntler, 1791-93), 1:23-29, <http://resolver.sub.uni-goettingen.de/purl?PPN312428359>.

⁹⁸*C. F. D. Schubart’s, des Patrioten, gesammelte Schriften und Schicksale*, ed. Ludwig Schubart, vol. 5, *C. F. D. Schubart’s Ideen zu einer Aesthetik der Tonkunst* (Stuttgart: J. Scheible’s Buchhandlung, 1839), 222, 292-97. The *Ideen* was dictated in 1784-85. The first edition was published posthumously, in 1809.

“Klavierrecepte,” in *C. F. D. Schubart’s, des Patrioten, gesammelte Schriften und Schicksale*, ed. Ludwig Schubart, vol. 6, *C. F. D. Schubart’s vermischte Schriften, erster Teil* (Stuttgart: J. Scheible’s Buchhandlung, 1839), 69-74. The essay was first published in the third volume of Schubart’s *Musikalische Rhapsodien*, in 1786.

Chronik he claims Stein's *Melodica* among a series of great German advances in musical instrument making. In another periodical, his *Vaterlandschronik* ("Fatherland chronicle"), in a passage praising German musical instrument builders, Schubart declares that before Stein's fort pianos, "even the creative spirit of the Britons must bow."⁹⁹

An outspoken critic of the Catholic Church, Schubart was eventually expelled from Augsburg by the Catholic leadership of the city. Later, he wrote that "art, skill, industry, assiduity in the arts, enlightenment and the beauty of their customs distinguish the Lutherans in Augsburg so considerably from their fellow citizens the Catholics that one nowhere more than here comes to know the boon of the Reformation."¹⁰⁰ He was, then, perhaps predisposed to write about Protestant artists, including Stein, with special enthusiasm. A contemporary reviewer of the *Deutsche Chronik*, in fact, criticized Schubart for just such a failing, complaining, "Some news items about the learned men and artists there [in Augsburg] are very pleasant, for they are certainly too little known in other countries; but the author probably speaks with a little too much partisan enthusiasm."¹⁰¹

1.6 Disposition of Chapters

Chapter 2 begins with a brief chronological account of Johann Andreas Stein's life and work, focusing especially on his musical inventions and their reception by his contemporaries. The middle parts of the chapter describe the Gothenburg clavichord and reviews the sources that establish its provenance, and the final part considers the clavichord in the context of other organ-pianos from around the same time period.

⁹⁹ Schubart, "Von teutscher Erfindung," 73; "Tonkunst," *Vaterlandschronik* (Stuttgart), April 7, 1789, 230 <http://books.google.se/books?id=YF4AAAAAcAAJ&printsec=frontcover&hl=sv>. "Stein in Augsburg hat dem Fortepiano eine Stärke, Schönheit und Würkung gegeben, wovor sich der Schöpfungsgeist der Britten selbst beugt."

¹⁰⁰ "Kunst, Geschicklichkeit, Gewerbsamkeit, Kunstfleiß, Aufklärung und Schönheit der Sitten zeichnet die Lutheraner in Augsburg so merklich vor ihren Mitbürgern den Katholiken aus, daß man nirgends mehr als hier die Wohlthat der Reformazion kennen lernt. Und doch behaupten die Katholiken einen so augenscheinlichen politischen Vorzug über die Lutheraner, daß man ohne ihre Unterstützung in Augsburg ohnmöglich fortkommen kann." Schubart, *Leben und Gesinnungen*, 2:17.

¹⁰¹ "Einige Nachrichten von dortigen Gelehrten und Künstlern sind sehr angenehm, weil sie in andern Ländern gar zu unbekannt sind; nur spricht der Verf. wohl oft mit etwas zu partheyischem Enthusiasmus." J. E. Biester, "Deutsche Chronik auf das Jahr 1774. Herausgegeben von M. Christ. Friedrich. Dan. Schubart. . .," *Allgemeine deutsche Bibliothek* 27, no. 2 (1776): 594-95.

Chapter 3 examines a selection of writings by the Augsburg historian Paul von Stetten the Younger on art and Augsburg society. The first part of the chapter looks at Stetten's definitions of art and artists, with particular reference to organ and keyboard instrument building. The second part of the chapter describes the position of art and artists within the structures of Augsburg society. The third part considers Stein's place in that society, and the continuity between the language that Stetten uses to talk about art and Stein's his own descriptions of work.

These two chapters provide the underpinnings for chapters 4, 5, and 6, which explore how the ideas about art that operated in Stein's and Stetten's Augsburg are made visible in Stein's claviorganum. Each chapter looks at one aspect of art, as Stetten defines it, and applies it to the claviorganum, using the written sources about Stein's other musical inventions as comparative material.

Chapter 4 examines the notion that improvement was an essential component of art—or as Stetten writes, “the artist consists in improvement.” The chapter investigates the relationships between art, intellect, and progress that are exposed in a contemporary description of Stein's *Poly-Tono-Clavichordium*, and the contemporary significance of Stein's German action, of which the claviorganum contains the earliest preserved example.

Chapter 5 addresses Stetten's contention that all works of art, even of the mechanical arts, had to exhibit a quality of “refinement” that otherwise characterized the fine arts specifically. That quality, I suggest, consisted in an aesthetic affordance, and the chapter demonstrates how Stein's claviorganum may have provided such an affordance, by way of comparison with Stein's *Melodica*, in which current ideas about musical aesthetics were clearly inscribed.

Chapter 6 takes up the notion, manifested in Stetten's efforts to establish an art academy and an annual art exhibition in Augsburg, that works of art were objects to be put on public display. It considers the various ways in which Stein's instruments were exhibited for a newly emerging, newly critical public audience—in the press, as tourist attractions in Augsburg, and in the formal context of an art exhibition—and suggests ways in which patterns of display and evaluation may have shaped the way Patrick Alströmer used his claviorganum.

Chapter 7, the Conclusion, summarizes the results of my investigation. Appendix A collects transcriptions and translations of a selection of my primary source material.

1.7 Conventions

Funny Names

For the names of Stein's musical inventions, I have followed spellings from primary sources: *Poly-Tono-Clavichordium*, *Melodica*, and *Saitenharmonika*. Many historical texts use the spelling "Melodika"; however, Stein's own description of the instrument uses the spelling "Melodica." The spellings "Saitenharmonica" and "Saitenharmonika" both appear in the earliest published description that names the instrument, in Boßler's *Musikalische Real-Zeitung*. I have used the latter spelling as it is favored by other historical sources.

Following Latcham, I use the word piano to refer to all varieties of historical (and modern) hammer-action instruments. During the eighteenth century, hammer-action instruments were referred to as pianofortes, fortepianos, and many variations thereof, names which simply reflect a usage that was not yet standardized, and not necessarily any differences in the instruments themselves. As Latcham points out, the continuity in the development of hammer-action keyboard instruments, from Cristofori's "harpsichord with piano and forte" to the modern Steinway, motivates the use of the same name for all of them.¹⁰² The terms grand piano and square piano refer to wing-shaped and rectangular-shaped pianos, respectively.

Transcriptions and Translations

All translations are mine, unless otherwise noted. Usually, quotations of a source are translated in the main text, and provided in the original language in a footnote for reference.

I have not modernized historical spellings in the translations, but I have sometimes changed or added punctuation in order to clarify the structure of long sentences. I have let some well-known terms, such as *Kenner*, *Liebhaber*, *Affekt*, and *Empfindsamkeit*, stand untranslated, especially when their historical meanings are directly relevant to the topic being discussed.

In my transcriptions of printed sources, I have modernized punctuation and typeface. For example, I always use bold type to indicate emphasized words, regardless of how they were originally set. Foreign words in German texts from the period are typically set in Latin letters; here I have used italics. Occasionally portions of text in the facsimile editions I consulted were illegible; this is indicated by [ill.].

¹⁰²Latcham, "Mozart and the pianos of Johann Andreas Stein", 120 n. 9.

I have attempted to transcribe the passages I quote from the Stein notebook as literally as possible, without correcting punctuation or spelling, and doing my best to reproduce original punctuation marks, umlauts, and capitalization (or lack thereof). I have indicated line breaks with slashes [/] and indicated words and letters that I was not sure of or could not read with [?] and [ill.], respectively.

I would like especially to acknowledge Tilman Skowroneck's generous assistance in proofreading my transcriptions, advising my translations, and puzzling out material from the pages of the Stein notebook. His help improved my work enormously; of course, it goes without saying that any errors in the transcriptions and translations are mine alone.

Notes on Citations

When citing an older source that I consulted in a modern edition, I provide the original publication information for the source, followed by publication information for the edition I consulted. In the case of online editions, I provide a URL.

When citing older periodicals, I have followed modern standards for citing newspapers (for example, most of the Augsburg papers), magazines (for example, Hiller's and Schubart's weekly productions), and journals (longer-running publications with volume and issue numbers, such as the *Neue Bibliothek der schönen Wissenschaften und der freyen Künste*), with the reservation that these periodicals are not always easy to classify into modern categories. The magazines and journals were typically bound into quarterly or yearly volumes with their own title and publication information; in the interest of streamlining the citations and avoiding repetition, I have not included that information. Instead, I simply give the general publication information for the modern editions that I consulted, whether print or digital (with the exception of one or two cases where that information was not provided with copies that I ordered from libraries).

Photographs and Drawings

All photographs are mine, unless otherwise noted.

Pages from the Stein notebook are reproduced with the generous permission of Uta Goebel-Streicher and Wolfgang Streicher. In some cases, I have overlaid Stein's sketches with fine lines to clarify the original pencil strokes, which are now somewhat faded.

Chapter 2

Stein and the Claviorganum

The aim of this chapter is to acquaint readers with Johann Andreas Stein and his instruments, especially with the Gothenburg claviorganum. The first part of the chapter reviews Stein's life and instruments and provides a chronological framework to anchor the topical discussions presented in subsequent chapters. The second and third parts present the history of the claviorganum and a brief description of the instrument. The fourth part considers the claviorganum in the context of other organized instruments of the period.

2.1 Stein and His Instruments

Several good, comprehensive biographies of Stein are reviewed in the introduction to this study. My presentation here is more selective. I focus mainly on Stein's organs, his early pianos, and his musical inventions, in order to provide a basis for describing the claviorganum in the context of Stein's other work, and a foundation for the analyses of Stein's inventions in the following chapters.

In addition, this overview follows the structure of the two contemporary reports on Stein's life and work by Stein's first biographer, Paul von Stetten the Younger, supplementing them with other primary sources.¹ My aim is to present Stein's work as it unfolded for observers during his lifetime. Both

¹In Paul von Stetten, *Kunst- Gewerb- und Handwerks-Geschichte der Reichs-Stadt Augsburg* (Augsburg: Conrad Heinrich Stage, 1779), http://www.bibliothek.uni-augsburg.de/de/dda/urn/urn_uba000200-uba000399/uba000209/; and *Kunst- Gewerb- und Handwerks-Geschichte der Reichs-Stadt Augsburg: Zweiter Theil oder Nachtrag* (Augsburg: Conrad Heinrich Stage, 1788), http://www.bibliothek.uni-augsburg.de/de/dda/urn/urn_uba000200-uba000399/uba000210/.

parts of Stetten’s biography are transcribed and translated in the Appendix. They are summarized here in Table 2.1.

Table 2.1: Stein’s life as reported by Paul von Stetten the Younger in the two volumes of the *Kunst- Gewerb- und Handwerks-Geschichte der Reichs-Stadt Augsburg* (1779 and 1788).

Year	Event/Instrument
1728	Born in Heidelberg
1756	Barfüßer organ
1758-9	Journey to Paris
1766	Holy Cross organ
1769	<i>Poly-Tono-Clavichordium</i>
1771	<i>Melodica</i>
1773	Journey to Paris with <i>Poly-Tono-Clavichordium</i> and <i>Melodica</i>
1777	Journey to Vienna with <i>Vis-à-vis</i> (now in Verona?)
Before 1783	<i>Vis-à-vis</i> (now in Naples?)
Before 1783	<i>Saitenharmonika</i> (now in Boston?)
1783	<i>Vis-à-vis</i> and <i>Saitenharmonika</i> shown in conjunction with local art exhibition
Before 1788	<i>Clavecin organisé</i> (now in Gothenburg)

Education

Stetten records that Johann Andreas Stein was born in 1728 in Heidelberg in the region of Germany known as the *Kurpfalz* (the Electoral Palatinate, just north of Karlsruhe in the modern federal state of Baden-Württemberg). He is silent on the details of Stein’s training, although he notes that Stein had “found it needful to establish himself in the theory of mechanics and became just as strong in this as in practice.”²

Stein probably received his early education from his father, who worked as an organ builder in Heidelberg from at least 1735.³ The most important

²“Er hielte für nöthig, sich in der Theorie der Mechanik vest zu setzen, und wurde darinn so stark als in der Praxi.” Stetten, *Kunst-Geschichte* 1779, 160-61.

³Martin Kölle, “Die Orgelbauerfamilie Stein: Leben und Wirken einer badischen Instrumentenmacherfamilie über drei Generationen,” in *Die Orgelstadt Karlsruhe innerhalb der Orgellandschaft am Oberrhein*, ed. Michael Gerhard Kaufmann and Martin Kares (Karlsruhe: Selbstverlag der Badischen Landesbibliothek, 2001), 29; and Eva

source for Stein's education is a notebook that he began to keep when he set out from home as a journeyman organ builder in 1748. The earliest dated entry is written on the title page and reads (Stein used the name Georg as a young man):

Georg Andreas Stein of Heildelsheim. August 1, 1748. On this day I have left my country. I have bought this book in Karlsruhe for half a florin.⁴

The notebook documents Stein's travels to Strasbourg, where he worked with the Silbermann family of organ builders, and throughout southwest Germany, where he worked with the organ and keyboard instrument builder Franz Jakob Spath in Regensburg. The entries, most of which are undated, include travel itineraries, contact information, organ specifications, pipe scalings, notes on hours worked and wages, notes on music theory, and descriptions of instruments and work techniques, as well as many sketches. The latest recorded date in the notebook is 1777.

Strasbourg and Regensburg

According to the records of Johann Andreas Silbermann, the oldest of the four brothers who led the family workshop in Strasbourg, Stein started work with the Silbermanns on August 4, 1748 and stayed with them until April of 1759.⁵ The Silbermanns were well-known and highly regarded builders of organs and keyboard instruments. In the 1730s and 1740s, Gottfried Silbermann in Freiberg, the uncle of the Strasbourg brothers, had been the first German builder to make pianos, modelled on the instruments by Cristofori. Gottfried's nephew Johann Heinrich, who worked with him for a time, is thought to have learned piano building from him; Johann Heinrich is known to have built pianos from at least the 1760s.⁶ A third brother,

Hertz, "Johann Andreas Stein (1728-1792): eine Beitrag zur Geschichte des Klavierbaus" (PhD diss., Albert-Ludwigs Universität zu Freiburg, 1937), 1.

⁴"Georg Andreas/Stein/Von Heıldelsheim./den 1 Augustus 1748./En ce jour je/m' en suis allé quitér/mon peis Je acheté/ce livre a Carls Ruhe/pour un demi florin." Unpublished notebook of Johann Andreas Stein, 1.

⁵"Aô: 1748. den 4 Augusti kam derselbe zu meinem Bruder Daniel in Arbeit... Aô: 1749. im April ist er wider abgereyßt." Marc Schaefer, ed., *Das Silbermann-Archiv: Der handschriftliche Nachlass des Orgelmachers Andreas Silbermann* (Winterthur: Amadeus Verlag, 1994), 112-113.

⁶See John Koster, "Foreign Influences in Eighteenth-Century French Piano Making," *Early Keyboard Journal* 11 (1993): 7-38; and "Two Early French Grand Pianos," *Early Keyboard Journal* 12 (1994): 7-37.

Johann Daniel made mechanical musical instruments as well as organs.⁷ There is, however, no evidence that Stein was occupied with anything other than organ building during his time in Strasbourg.

A letter from Stein to his father shortly after he arrived records his enthusiasm at the opportunity to train in such a renowned shop:

I find that when things are going well for me, it is not enough that I alone know it, but rather I must inform other people and especially concerning the good fortune I have found here. . . Concerning my masters I ask God for nothing but to grant me the grace to stay with them, for only a year, only half a year. Which I do not doubt, for I was of the opinion that we were also organ builders, but after this we may praise ourselves that we have the name for free. Their like is not to be found in the world, everything is done differently. I may praise myself that he must like me very much because I always have the honor of staying with him after the meal is over and discussing with each other while the other journeymen must go out the door, even though there is also an organ builder journeyman among them, but the master doubtless sees that I have something in my head too. . . My master tells me everything and I am also allowed to ask him things. He called me away from my work and showed me soldering, which is amazing.⁸

⁷A serinette by Johann Daniel is held by the Musée Historique in Strasbourg: Badisches Landesmuseum Karlsruhe and Franziskanermuseum Villingen-Schwenningen, eds, *Silbermann: Geschichte und Legende einer Orgelbauerfamilie* (Ostfildern: Jan Thorbecke Verlag, 2006), 64. Johann Andreas Silbermann was not enthusiastic about the pursuit; he wrote to a correspondent that his “brother Daniel. . . once lost so much time with such things and barrel organ machines, that it almost cannot be answered for. In Dresden, besides the large inheritance from our uncle, he kept spending time on this kind of work, and left many drawings and writings about it, which, upon his death, were offered to us by his widow. But since we have, so to speak, banned things that only waste time from our workshops, we did not ask for any of it.” (“[Daniel], der ehemahlen auch mit dergleichen Sachen und Thrähe-Orgel Maschinen eine solche Zeit verlohren, daß fast nicht zu verantworten ist. Er hat nachgehents in Drefßden neben seiner gethanen grossen Erbschafft von unserm Oncle die Zeit immer mit dergleichen Arbeiten zugebracht, und davon viele Risse und Schrifften hinterlassen, die uns nach seinem Absterben Aô: 1766. von seiner hinterbliebenen Frauen angeboten worden. Allein da wir dergleichen Sachen die nur Zeit rauben gleichsam aus unsern Werckstätten verbant, nichts damit zu thun haben, so verlangten wir nichts davon.”) Schaefer, ed., *Das Silbermann-Archiv*, 308-309.

⁸“[Ich] meine wann mir wohl gehet so ist nicht genug daß ich es allein wiße, sondern ich mus auch andere Leuthe avertiren und sonderlich betreffent mein Glück welches allhier gefunden. . . Betreffent meine Herren so bitte Gott um nichts alls mir die Genade zu verleyhen daß nur ein Jahr oder nur ein halbes bey ihnen zu bleiben. Woran ich

According to his notebook, Stein left Strasbourg on June 7, 1749 and traveled for the next several months through southwest Germany, visiting organs and organ builders and finding work along the way.⁹

In October of 1749, Stein started work with Spath in Regensburg.¹⁰ He certainly knew Spath as an organ builder: the name appears on an (undated) list in Stein's notebook as "Mr. Jacob Spath organ builder in Regensburg."¹¹ Spath would come to be best-known, however, as a builder of tangent pianos, or *Tangentenflügel*: wing-shaped instruments in which the strings were struck not by hammers but by slips of wood, or tangents, tossed against the strings by the movement of the keys.¹² Like hammer-action instruments, the *Tangentenflügel* allowed the player to control dynamics with touch alone. There are descriptions of instruments by Spath upon which the player could create *piano* and *forte* with the pressure of the finger from as early as 1751, although the earliest unequivocal reference to a tangent action is a 1770 advertisement by Spath himself.¹³ After 1774 Spath worked

nicht zweifle, dan ich stunde in der Meynung als wären wir auch Orgelmacher, aber wir dörfen uns nach diesen rühmen daß wir den Nahmen umsonst haben. Ihresgleichen wird in der Welt nicht gefunden, alles wird anderst gemacht. Ich darf mich rühmen daß er mich sehr lieben mus weilen allemahl nach geschehener Mahlzeit die Ehre habe bey ihme zu bleiben und mit einander zu discouriren wo die andern Gesellen zur Thür hinaus müßen obwohl auch ein Orgelmachers Gesell dabey ist, der Herr siehet aber wohl daß ich auch im Copff habe. . . Mein H[err] sagt mir alles und ich darff ihn auch fragen. Er hat mich von der Arbeit weggeruffen, und hat mir das Löden gewießen welches wunder würdig." *Ibid.*, 312.

⁹Stein recorded his travel itineraries and occasional observations on the instruments he saw. His route is discussed in detail in Hertz, "Johann Andreas Stein," 4-5, 70 n. 17.

¹⁰"1749/le 16 jour du mois 8br/je m en suis arive a/Regenspurg et en suiter/jour[?] ill.] comance traviller/chez Mr. Franz Spe[a?]th." Stein notebook, 52. Modern scholars often use the spelling "Späth" but "Spath" seems to have been the more common historical spelling: Michael Latcham, "Franz Jakob Spath and the *Tangentenflügel*, an Eighteenth-Century Tradition," *The Galpin Society Journal* 57 (2004): 151 n. 6.

Spath later wrote to Johann Andreas Silbermann on several occasions regarding journeymen. In 1755, for example, Spath asked Silbermann to send him a "perfect journeyman organ builder" to assist him on a large organ, saying that "it was well known to him that the best people from all places and of every condition" worked for Silbermann. "Weilen er ein 16. füßig Orgwelwerk unterhanden hatte, wozu er einen perfecten Orgelmachers-Gesellen benötigt hätte. . . ersuchte er mich, einen solchen ihme zukommen zu laßen, weil ihm wohl bewust ist daß sich bey mir die besten Leute von allen Orten und Condition bewerben." *Das Silbermann-Archiv*, 309.

¹¹"H Jacob Spath orgel/macher in Regensburg." Stein notebook, 67.

¹²For example, in Ernst Ludwig Gerber, *Historisch-biographisches Lexikon der Tonkünstler* and *Neues historisch-biographisches Lexikon der Tonkünstler*, s. v. "Spath (Johann Adam)" (Leipzig: Breifkopf, 1790-92 and 1819-12). Facsimile edition, Othmar Wessely, ed., vols. 1 and 3 (Graz: Akademische Druck- und Verlagsanstalt, 1966-77).

¹³Latcham, "Franz Jakob Spath," reviews the eighteenth-century reports on Spath's *Tangentenflügel*. Latcham points out that Gerber's identification of a 1751 instrument

with Christoph Friedrich Schmahl, and in fact, the only extant *Tangentenflügel* are by the firm of Spath und Schmahl and date from after Spath's death in 1786.

There is an undated sketch in Stein's notebook of a wing-shaped instrument of an unspecified type by Spath. There are also some similarities in construction between Stein's early pianos and surviving instruments by Spath und Schmahl. Thus, it seems clear that Stein saw stringed keyboard instruments by Spath. Whether he was familiar with the *Tangentenflügel* in particular, however, is not known.

Stein's Notes from His Journeyman Period

Although most of the entries in Stein's notebook are undated, many make reference to places and organs that Stein visited on his travels, and so can be assigned to his journeyman period. There are, as well, some entries that have the character of study or reference material and which, although they do not refer specifically to dates or places, may well date from the same period. These notes provide a glimpse into the subjects Stein studied during those years.

The entries consist of a mix of Stein's notes on the organs that he saw on his travels, including specifications, scalings, and some sketches, and notes that he copied out from other books. Written-out descriptions of work techniques are rare in the notebook, but there are a few from Stein's time in the Silbermann shop. The letter from Stein to his father cited above, for example, contains a description of finishing key covers in ebony and ivory, and a similar description appears in the notebook.¹⁴ Another notebook page describes how to set the height of the cut-up of a pipe mouth:

At Mr. Silbermann's I observed that a cut-up of $\frac{1}{4}$ for stopped pipes and $\frac{1}{5}$ for open pipes gives a sweet and charming sound. One can also lay out a scaling from the cut-ups of the smallest and largest pipes. This saves work with the compass.¹⁵

by Spath as a *Tangentenflügel* is an inaccurate transmission of the original report by Adlung, who calls the instrument a *Clavier*, but argues that Adlung's description leaves room for the possibility that the instrument did in fact have a tangent action.

¹⁴Stein notebook, 181.

¹⁵"Bey H. Silbermann habe/observiert daß das gedackte/pfeifwerck den 4ten theil/aufgeschnitten und daß/ofene den 5ten theil gibt einen/anmuthigen und lieblichen/klang. Man kan auch eine/Mensur auffreissen von/dem aufschnit der kleinsten/und größtten pfeifen so/ist die Pratique deß Zir/kels gespahret." Stein notebook, 27. Hertz reads the final word as "gekehret": "Johann Andreas Stein," 2. Another entry on pipe mouth layout also describes the use of proportions, though it may be of a later date.

An undated short paragraph on how to “make a windchest to play two manuals with valves at the front and back” falls among other pages that are probably from Stein’s journeyman period, and may describe a construction Stein observed or learned from one of the organ builders he visited as a journeyman.¹⁶

Most of the notes that refer to other books have to do with musical intervals and temperament. The relatively large amount of such material suggests that Stein made a careful study of this topic. For example, notes on one pair of facing pages refer to Andreas Werckmeister’s *Musikalische Temperatur* and Johann Georg Neidhardt’s *Beste und leichteste Temperatur des Monochordi*, as well as “Pretorius,” presumably Michael Praetorius.¹⁷ Another set of pages contains notes from Athanasius Kircher’s *Musurgia Universalis*, including copies of tables showing the divisions of a tone into commas and the number of schismas and commas in various musical intervals, and a multiplication proof that expresses the syntonic comma as the ratio between a major tone and a minor tone.¹⁸

Among the set of notes from Kircher is an entry written during Stein’s stay in Regensburg. It consists of a list setting out the proportions of all the intervals within an octave, titled “Relationship of an entire octave” and with

The page gives the lip width, expressed as a fraction, perhaps of the pipe circumference, for a Montre 8', a Terz, a Nazart, and a Quintathon. A measurement for height is also given, also as a fraction, perhaps indicating the height of the lip or the cut-up. “Montre 8 fuß ist/daß labio $\frac{2}{8}$ breit/ $\frac{1}{4}$ [?] hoch. . .” Stein notebook, 165.

¹⁶Man kan eine windladen/mit 2 Clavier zum spiehlen/machen Als hinten und forn/ventile. . .” Stein notebook, 59.

¹⁷*Musikalische Temperatur, oder deutlicher und warer mathematischer Unterricht, wie man durch Anweisung des Monochordi ein Clavier, sonderlich die Orgel-Wercke, Positive, Regale, Spinetten und dergleichen wol temperirt stimmen könne* (1691); *Beste und leichteste Temperatur des Monochordi* (1706). The authors’ names, the titles of the books, and the cities of publication are written on pp. 62-63 of the notebook. Page 63 has the additional notation, “Mr. Praetorius can be had from Nuremberg” (“Mons. Pretorius ist/von [nurn?] zu haben”): likely a reference to Praetorius’ *Syntagma Musicum*. A draft of a letter signed “georg and Stn” on pp. 60-61 of the notebook references Georg Andreas Sorge’s *Gespräch zwischen einem Musico Theoretico und einem Studio musices* (1748).

¹⁸Kircher’s *Musurgia Universalis* was published in Rome, in Latin, in 1650. An abridged German translation appeared in 1662. Stein’s copy of Kircher’s diagram of the division of a tone is titled “Vorstellung eines Tons/Musici” with the notation “Kircher,” on p. 139 of the notebook. It appears on pp. 103 and 134 of the edition I consulted, a digital facsimile of the 1650 edition at <http://num-scd-ulp.u-strasbg.fr:8080/465>. Stein’s copy of Kircher’s table of schismas and diaschismas is titled “Tabella/stellet vor wie viel Comata/und chismata ein jedes/Musicalisches Interval/entfalte,” on p. 141 of the notebook. It appears on p. 135 of Kircher’s book. The expression of the syntonic comma on p. 142 of the notebook (and on many other pages as well) appears, for example, on p. 114 of Kircher’s book. (The major and minor tone are the two sizes of major second in a system of just intonation.)

the notation, “1749 in Regensburg measured myself on the monochord.”¹⁹ The Regensburg entry appears to have been written at the same time as the Kircher entries; thus, the entire set of notes may date from Stein’s time in Regensburg. Regardless of when the notes were made, however, they indicate that Stein received, or made for himself, a thorough education in tuning and temperament that combined both theoretical and practical study.

Little of the material that can clearly be assigned to Stein’s journeyman period specifically addresses stringed keyboard instrument building. The notebook does contain a series of pages containing notes from the German translation of Scipione Maffei’s 1711 description of Crisotofori’s pianoforte, which had been published in Johann Mattheson’s *Critica Musica* in 1725.²⁰ The notes from *Critica Musica* are undated, but they appear in proximity to other dated material from his journeyman period, and are written in the same large, clear hand as other entries from the period. They include a copy of the drawing of the hammer action that accompanied the article, captioned “Pandalon,” shown in Figure 2.1. The drawing reproduces the letters from the published diagram, although not the legend. The string band is labeled “Saiten.”²¹

The notebook also contains two undated entries that refer to stringed keyboard instruments by Silbermann and Spath, respectively. These may date from Stein’s journeyman period, but they may also have been written later. The first lists a set of measurements for a wing-shaped instrument by one of the Silbermanns:

Silbermann’s *Instrument* is $7\frac{1}{2}$ feet long, 2 feet and 9 inches wide, 1 foot and $11\frac{1}{2}$ inches to the bentside [i.e, the keycheek measurement], soundboard height [?] $6\frac{1}{2}$ inches.²²

Although the word *Instrument* is unspecific, the mention of a bentside (“Bogen”) indicates that the measurements are of a wing-shaped instrument, presumably either a harpsichord or a grand piano. Indeed, the length and

¹⁹“die Verhalt[n[i/u?]ß einer ganzen/octav” and “1749 in Regensburg selbsten auf/dem Monochordium gemeßen.” Stein notebook, 138.

²⁰Johann Ulrich König, “Musikalische Merckwürdigkeiten des Marchese Scipio Maffei, Beschreibung eines neuerfundenen Clavicins, auf welchem das *piano* und *forte* zu haben, nebst einigen Betrachtungen über die Musicalische Instrumente, aus dem Welschen ins Teutsche übersetzt,” in *Critica Musica*, ed. Johann Mattheson (Hamburg, 1725), 2:335-42.

²¹Stein notebook, 110-112.

²²“Silbermans Instrument ist/Lang $7\frac{1}{2}$ schu/breit 2 schu 9 zoll/biß an bogen 1 sch $11\frac{1}{2}$ zoll/Ressonanz höh[?] $6\frac{1}{2}$ zoll.” Stein notebook, 161.

large organ was a two-manual and pedal instrument for the leading Protestant church in Augsburg, the Barfüßer Church, which he completed in 1756.

The organ was enthusiastically received in the city. Even before its completion, the instrument figured as the subject of one of the Augsburg *Friedensgemälde* (“peace pictures”)—these were leaflets consisting of a copperplate engraving and accompanying text, usually with a biblical theme, distributed annually in commemoration of the Peace of Augsburg to Protestant schoolchildren in the city. The 1756 *Friedensgemälde* depicted Stein’s organ in the newly renovated Barfüßer Church, framed by musical figures from the Old Testament.²⁵

The organ was also depicted in another copperplate engraving made from a drawing by Stein himself by the well-known Augsburg engraver Emanuel Eichel.²⁶ That engraving was advertised in a long article about the organ that appeared in an Augsburg paper in 1770. The article was reprinted shortly thereafter by Johann Adam Hiller.²⁷ It praised the organ’s contribution to the city, calling it a work “that does the greatest credit to the church in which it stands, and that will preserve the master who produced it from being forgotten by posterity for as long as the arts are treasured.”²⁸ Similarly, Paul von Stetten called the organ “a great credit” to Stein “in its sound, its mechanism, and its beautiful architectural proportions.”²⁹

The Barfüßer organ also became an attraction for visiting sightseers. Stetten listed it among the sights of Augsburg in a 1788 travel guide to the city,³⁰ and the instrument’s status as a tourist attraction is confirmed by a

²⁵August, del., and Gottlob Rugendaß, sculps, “Friedensgemälde 1756: Neue Orgel in der Barfüßerkirche,” in *Samlung aller Denkmale des Westphälischen Friedens, welche vom Jahr 1650 an, biß 1789; hauptsächlich in biblischen Friedens-Gemälden, der Evangelischen Schuljugend zu Augsburg sind ausgetheilt worden* (Augsburg: 1790), <http://media.bibliothek.uni-augsburg.de/node?id=38248>.

²⁶The engraving is reproduced in “Die Orgel in der Kirche zu den Barfüßern in Augsburg, ein Meisterwerk des berühmten Klavier- und Orgelbauers Johann Andreas Stein,” pt. 1, *Zeitschrift für Instrumentenbau* 23, no. 6 (1902), 135, http://daten.digitale-sammlungen.de/bsb00004249/image_1.

²⁷“Orgelbaukunst,” *Kunstzeitung der Kayserl. Akademie zu Augsburg*, February 5, 1770, 41-45; and Johann Adam Hiller, ed., “Nachricht. Von einer neu erbauten Orgel, aus dem 6ten Stück der Augspurgischen Kunst-Zeitung, den 5ten Febr. 1770,” *Musikalische Nachrichten und Anmerkungen* (Leipzig), March 12, 1770, 86-88, <http://books.google.se/books?id=vRdDAAAaAAJ&printsec=frontcover#v=onepage&q&f=false>.

²⁸“welches der Kirche, in der es stehet, die gröste Zierde giebt, und den Meister, der es verfertigt, bey der Nachwelt, so lange noch Künste werden geschätzt werden, vor der Vergeßlichkeit verwahren wird.” *Orgelbaukunst*, 41.

²⁹“In den Jahren 1755. und 56. erbaute er die große Orgel in der evangelischen Kirche zu den Barfüßern, die ihm wegen des Tones, Mechanismus, und schöner architekthischer Verhältnisse viele Ehre macht.” Stetten, *Kunst-Geschichte* 1779, 161.

³⁰Paul von Stetten, *Beschreibung der Reichs-Stadt Augsburg, nach ihrer Lage jetzigen*

number of travel diaries from the late eighteenth century. Philipp Wilhelm Gercken, for example, heard the organ in 1781, and wrote:

The large new organ by the famous local organ builder **Stein** is among [the church's] foremost attractions, for it is supposed to be one of the largest in Germany. It really does have a keen [*scharf*] and excellent sound.³¹

Stein continued to work as an organ builder for the rest of his life, but the Barfüßer organ remained the largest organ he ever built, and it was the only one of his church organs to receive substantial attention from contemporary writers.

Automata and the *Poly-Tono-Clavichordium*

Two years after he completed the Barfüßer organ, in 1758, Stein traveled to Paris. According to Stetten's account, Stein "acquainted himself with the foremost artists" there, and the journey "gave him the opportunity to work out an excellent instrument... an uncommonly strengthened harpsichord [*Clavicembel*], to which he gave the name of *Poly-Tono-Clavichordium*."³²

The *Poly-Tono-Clavichordium* was the first of Stein's inventions to be chronicled in the contemporary press. As had been the case for the Barfüßer organ, a description of the new instrument was published both in an Augsburg paper and in an almost identical version by Hiller in Leipzig.³³

Verfassung, Handlung und den zu solcher gehörenden Künsten und Gewerben auch ihrer andern Merkwürdigkeiten (Augsburg: Conrad Heinrich Stage, 1788), 163, http://www.bibliothek.uni-augsburg.de/dda/urn/urn_uba001400-uba001599/uba001452/.

³¹"Die neue große Orgel von dem dasigen berühmten Orgelbauer **Stein** gehört unter ihre vornehmsten Merkwürdigkeiten, indem sie eine von den größten in Teutschland seyn soll. Sie hat auch wirklich einen scharfen und vortreflichen Klang." Philipp Wilhelm Gercken, *Reisen durch Schwaben, Baiern, angränzende Schweiz, Franken, und die Rheinische Provinzen u. a. in den Jahren 1779-1782*, vol. 1 (Stendal: D. C. Franzen, 1783), 215, http://books.google.com/books?id=sGMPAAAAQAAJ&dq=gercken+reise+durch+schwaben&source=gbs_navlinks_s.

³²"Im Jahr 1758. reißte er nach Paris, und machte sich mit den vornehmsten Künstlern daselbst bekannt. Diese Reise gab ihm zu Ausarbeitung eine vortrefflichen Instrumentes Gelegenheit. Es ist ein ungemein verstärktes Clavicembel, dem er den Namen Poly-Toni-Clavichordium beylegte. . ." Stetten, *Kunst-Geschichte* 1779, 161.

³³*Augsburgischer Intelligenz-Zettel*, "Von Erfindung eines Poly-Toni-Clavichordii oder musikalischen Affecten-Instruments, und von Verbesserung eines neuen Orgelwerks," October 5, 1769. Johann Adam Hiller, ed., "Nachricht von Verbesserung des Pianofortinstruments," *Anhang zu den wöchentlichen Nachrichten und Anmerkungen die Musik betreffend* (Leipzig), July 24, 1769, 32, <http://books.google.se/books?id=ADc9AAAAcAAJ&printsec=frontcover#v=onepage&q=&f=false>; and "Fortsetzung der

No example of the *Poly-Tono-Clavichordium* is extant. According to the description, however, it consisted of a two-manual harpsichord to which Stein had added a fortepiano with its own keyboard. The harpsichord was placed on top of the piano, and the two instruments are described as independent, each having their own soundboard and strings, but sharing a baseboard, so that the strings of the piano “faced downward” and the lid of the piano opened towards the floor.

The 1769 article positions the *Poly-Tono-Clavichordium* as an improvement to the fortepiano, an instrument that had “so far only been made by Silbermann in Dresden,” and, although popular, had a “dull tone” and was “hard to play,” so that “not all ornaments could be played on it equally well.” The latter complaint, at least, seems likely to have referred to comments made by C. P. E. Bach about the piano in his *Versuch über die wahre Art das Clavier zu spielen*; Bach mentioned one type of trill in particular, the so-called *Pralltriller*, that was difficult to execute on the piano. With the *Poly-Tono-Clavichordium*, Stein addressed the first problem, that of a dull tone by combining the piano with the more brilliant-sounding harpsichord. In response to the second problem, he developed what the article describes as a completely new kind of hammer action—simple, with only two moving parts; light; and very easy to play. This description is the earliest dated evidence of a hammer action by Stein.³⁴

The article also reports that Stein had spent ten years working out the new action (which is consistent with Stetten’s statement that Stein had been working on the instrument during his 1758 trip to Paris), and that he collaborated on the instrument with a “famous local mechanician.” This was probably Georg Friedrich Brandter, a maker of scientific instruments. Aside from the suggestion that Stein had been working on the *Poly-Tono-Clavichordium* during the whole of the 1760s, however, there is not much evidence that speaks to his stringed keyboard instrument building activity during that period. Stein’s own notebook records that he traveled to Zürich in 1762, but the reason for the journey is not known.³⁵

Stetten does record that during the 1760s, Stein worked with a local

Nachricht von Verbesserung des Pianoforte,” *Anhang zu den wöchentlichen Nachrichten und Anmerkungen die Musik betreffend* (Leipzig), July 31, 1769, 40, <http://books.google.se/books?id=ADc9AAAACAAJ&printsec=frontcover#v=onepage&q=&f=false>. For a comparison of the two versions, see the Sources section in the Introduction.

³⁴In Stein’s notebook, there is a list of instruments built by him between the years 1750-77, which includes some pianos. The individual instruments are not dated, but the list suggests that Stein may have been building instruments with hammer actions before 1769. Nothing more about these instruments, however, is known.

³⁵“d 16 April 1762 von augsburg/nacher Zürich”; stops along the way are also listed. Stein notebook, 163.

clock-maker, Joachim Eppinger, who produced several mechanical musical instruments. According to Stetten, Eppinger was so talented that he could have been “another Vaucanson³⁶ if in his youth he had enjoyed some instruction in theory,” but was nonetheless able to advance in his craft with Stein’s guidance:

He became acquainted with Mr. Stein, the organ builder, received good advice from him, and, as he followed him, advanced ever further. In 1764 he made an agreeable self-playing organ, which played very handsome musical pieces that sounded like different instruments, by means of being pulled by a weight, and which also met with the approval of musical *Kenner*. The one which he made in 1768 was still better. It was also an artful musical instrument, strung with wire strings, with two cylinders set in motion by means of weights and wheels. It played, among other things, a difficult Prelude by Seyfert, and a very artful presto by Mr. Bach of Hamburg, with the greatest correctness and cleanness. He made his greatest piece of art in 1769. It was a Vaucansonian imitation, an image of the shepherds’ god Pan, who played several pieces on his panpipe.³⁷

The extent to which Stein collaborated with Eppinger on these instruments is not known. Certainly, he would have been able to offer Eppinger advice on making pipes, and on various kinds of playing actions. There is also some evidence that Stein had studied the workings of a barrel organ. His notebook

³⁶Jacques de Vaucanson (1709-1782) was a famous maker of musical automata. His faun that played the German flute and shepherd that played the pan-pipes were exhibited in a number of European cities, including Augsburg in 1748. A German translation of Vaucanson’s treatise describing the construction of his figures was published there in the same year under the title *Beschreibung eines mechanischen Kunst-Stucks, und automatischen Flöten-Spielers* (Maschenbaur, 1748).

³⁷“...einen Mann, welcher seinen Gaben nach, ein anderer Vaucanson hätte werden können, wofern er in seiner Jugend einiger Anleitung in der Theorie genossen hätte... Hier machte er mit Herrn Stein, dem Orgelbauer, Bekanntschaft, er erhielt von ihm guten Rath, und da er ihm folgte, brachte er es auch immer weiter. Im Jahr 1764. machte er ein artiges selbst spielendes Orgelwerk, welches durch den Zug eines Gewichtes sehr hübsche musikalische Stücke, nach den Tonarten verschiedener Instrumente spielte, und auch bey den Kennern der Musik Beyfall erhielt. Noch besser war dasjenige, welches er im Jahr 1768. zu Stand brachte. Es war ebenfalls ein künstliches musikalisches Instrument, mit Tratsaiten bezogen, von zwey Walzen, die durch Gewicht und Räder in Bewegung gebracht wurden. Es spielte unter andern ein schweres Präludium von Seyfert, und ein sehr künstliches presto von Herrn Bach zu Hamburg, mit größter Richtigkeit und Reinigkeit. Sein größtes Kunststück machte er im Jahr 1769. Es war eine Vaucansonsche Nachahmung, ein Bild des Hirten-Gottes Pan, welcher einige Stücke auf seiner Flöthe von Rohren spielte.” Stetten, *Kunst-Geschichte* 1779, 191-92.

contains a series of undated pages that, judging from the handwriting, belong together, and all appear to describe the same instrument, a barrel organ apparently by a Dutch maker. Stein's notes on the instrument include some information on pipe construction and the dimensions of the barrel, as well as the meters and number of bars in several dances which seem to have played in succession on the barrel.³⁸

The local Protestant cantor Johann Gottfried Seyfert and "Mr. Bach of Hamburg"—C. P. E. Bach—were among the most important influences on Augsburg musical culture during the 1760s. Seyfert had, in fact, studied with Bach, and according to contemporary sources, he brought Bach's style and musical sensibilities to Augsburg, both in his own compositions and as a director of church music and amateur ensembles. Stein's new hammer action for the *Poly-Tono-Clavichordium*, for example, was apparently presented in response to Bach's complaint that pianos were not capable of executing all ornaments correctly, and this makes Stetten's comment that Eppinger's organ rendered Bach's music "with the correctness and cleanliness" especially interesting. Eppinger himself had already died by the time Stetten wrote his account of Eppinger's instruments, raising the possibility that the source for some of Stetten's information was Stein himself. Thus, Stetten's remark may well reflect a concern that Stein himself found important to communicate.

Schubart and the *Melodica*

The Augsburg version of *Poly-Tono-Clavichordium* article also announced the imminent arrival of another invention by Stein: a "new organ" with "a sustained tone without monotonous noise," in which the "*piano* and *forte*" were created with "stronger and weaker pressure of the fingers." The anonymous author promised that a "special description" of this instrument would be forthcoming as soon as Stein had "produced it perfectly."³⁹

Two years later, the new instrument was ready. According to Stetten's 1779 report, Stein "gave it the name *Melodica*, and performed upon it for the first time in 1771, in the concert in the *Herren Geschlechter-Stuben*"—that is, the rooms in which the patrician society of Augsburg gathered. The

³⁸Stein notebook, 254-257. Page 255 is headed "Treh orgel holandisch." Page 257 has an address in the Hague for "Jean Richner/Mester orgelmacker."

³⁹"einer neuen Orgel mit Aushaltung des Tons ohne einförmiges Geräusche... das Piano und Forte zum stärkern und schwächern Druck des Fingers. . . davon eine besondere Beschreibung dem Publico mitgetheilt werden solle, sobald solche von ihm vollends zu Stande wird gebracht worden seyn." *Augsburgischer Intelligenz-Zettel*, "Von Erfindung eines Poly-Toni-Clavichordii."

promised description of the instrument, authored by Stein, was published the following year in the *Neue Bibliothek der schönen Wissenschaften und der freyen Künste*, a scholarly journal dedicated to edifying the general public and with a particular focus on the fine arts. The description was also published separately in Augsburg in the same year.

Stein's inspiration for the *Melodica* seems, once again, to have been C. P. E. Bach's *Versuch*: this time, Bach's admission that keyboard instruments lagged behind instruments such as the violin and the flute, because they lacked the ability to "sing." As his description makes clear, with the *Melodica* Stein aimed to provide keyboardists with an instrument that, like a wind instrument, had a sustained tone and allowed them flexible dynamic control over each individual note. As in the case of the *Poly-Tono-Clavichordium*, however, there are no surviving examples of the *Melodica*, and the means by which Stein achieved this goal are unknown. With a compass of only $3\frac{1}{2}$ octaves, from $g-c^4$, the instrument was designed solely, as the name indicated, for playing melodies, a musical task that Stein felt could and should be enough to occupy the player's entire attention. Stein did, however, suggest that the *Melodica*, which was shaped like a small harpsichord, could be placed atop another instrument with which the player could accompany the melody.

According to Stetten, Stein traveled to Paris again the next year with both the *Melodica* and the *Poly-Tono-Clavichordium*. There, Stetten reports, he not only found admirers—and buyers—for both instruments, but was also able to perform upon the *Melodica* for the royal court. The *Melodica* became, indeed, perhaps the most famous of Stein's inventions. It was received with enthusiasm, for example, by the author and composer Christian Friedrich Daniel Schubart, who struck up a close friendship with Stein during a stay in Augsburg in 1774. Mentions of the instrument are scattered throughout Schubart's writings. In his magazine the *Deutsche Chronik*, which he started in Augsburg, Schubart provided updates to his readers about continuing efforts by Stein to further perfect the *Melodica*; and he praised it in particularly glowing terms in the *Ideen zu einer Aesthetik der Tonkunst*.⁴⁰ Friedrich Nicolai also remarked on the *Melodica*, in his travel diary, *Beschreibung einer Reise durch Deutschland und die Schweiz im Jahre 1781*. Nicolai met Stein in Augsburg, but was, he reported, unable to hear the *Melodica*, as it was not in playing condition.⁴¹ In 1781 the *Melod-*

⁴⁰C. F. D. Schubart's, *des Patrioten, gesammelte Schriften und Schicksale*, ed. Ludwig Schubart, vol. 5, *C. F. D. Schubart's Ideen zu einer Aesthetik der Tonkunst* (Stuttgart: J. Scheible's Buchhandlung, 1839), 222, 292-97.

⁴¹"Dieser Künstler [Stein] hat ein Pfeifeninstrument erfunden, welchem er den Namen *Melodica* gab, und welches in der Bibliothek der schönen Wissenschaften XV. Band S.

ica received a mention (though not by name) in Johann Nicolaus Forkel's *Musikalischer Almanach für Deutschland*, when Forkel writes that Stein had invented a "new organ stop, whose construction he is however still keeping a secret"⁴²—probably a reference to the fact that Stein's description gave few specific details about how the dynamic control of the *Melodica* was achieved.

Forkel's description of the *Melodica* as an "organ stop" may have stemmed from the fact that Stein, in his description, suggested that the *Melodica* could be installed in a church organ. It would be given its own manual and could be accompanied on the other manuals, a registration with which, Stein promised, the organist "would perform miracles and attract... the attention of the entire congregation."⁴³ In fact, in 1776, Stein proposed just such an arrangement in an application to build a three-manual, 22-stop organ, with a *Melodica* as the third manual, for a monastery in Neresheim, although the plan never came to fruition.⁴⁴

Mozart and the First *Vis-à-vis* Instrument

In 1777, Stein traveled to another royal court to present another new invention: this time, Stetten wrote, to Vienna, with a "newly invented large *Flügel*, which has two keyboards that face each other, and so was to be played by two people."⁴⁵ That trip was also the last event noted in Stetten's 1779 account. When Stetten continued the narrative in 1788, he called what seems to have been a similar new instrument a "Doppelflügel" or "*Vis-à-vis*", and it is the latter name that is usually used today.⁴⁶

106 beschrieben ist. Es war aber, als ich dort war, nicht im Stande daher ich es nicht hören konnte." Friedrich Nicolai, *Beschreibung einer Reise durch Deutschland und die Schweiz im Jahre 1781: Nebst Bemerkungen über Gelehrsamkeit, Industrie, Religion und Sitten*, vol. 8 (Berlin and Stettin: 1787), 39-40, http://books.google.se/books?id=MilUAAAQAAJ&source=gbs_navlinks_s.

⁴²"Er hat auch ein neues Orgelregister erfunden, dessen Verfertigung er aber noch geheim hält." Johann Nicolus Forkel, *Musikalischer Almanach für Deutschland auf das Jahr 1782* (Leipzig: im Schwickertschen Verlag, 1781), 201, <http://www.archive.org/details/MusikalischerAlmanachFrDeutschlandAufDasJahr1782>.

⁴³"Ob dieser Gedanke auch bey einer ordinären Kirchenorgel anzubringen sey. ja. Man müßte ihnen ein besonderes Clavier zuordnen, und seine einfachen Melodien auf dem andern Claviere accompagniren. Es ist wahr, man würde Wunder thun und sich die Aufmerksamkeit der ganzen Versammlung zuziehen." Stein, "Beschreibung eines neuerfundenen Clavierinstruments," 115.

⁴⁴Hermann Meyer, "Orgeln und Orgelbauer in Oberschwaben," *Zeitschrift des Historischen Vereins für Schwaben* 54 (1941): 311-312.

⁴⁵"Im Jahr 1777. reifte er auch mit einem abermals neu erfundenen großen Flügel, der zwey einander gegenüberstehende Claviere hat, und also von zweyen Personen zu spielen war, nach Wien..." Stetten, *Kunst-Geschichte* 1779, 162.

⁴⁶Stetten's 1779 biography of Stein was reprinted in Heinrich Boßler's *Musikalische Real-Zeitung*, with the addition of the note: "Mr. Stein named it a *Vis a vis Flügel*"

A *Vis-à-vis* instrument by Stein that has been assigned a probable date of 1777 is extant in Verona.⁴⁷ The instrument consists of a two-manual harpsichord (1 x 16', 3 x 8'; one of the unisons is a 4' register in the bass) combined with a piano with bare wooden hammers. The instruments are nested together in one rectangular case, sharing a bentside and with keyboards opposing each other at the short ends. Each instrument has its own soundboard and strings. A third keyboard at the harpsichord end, coupled to the piano, allows both instruments to be played from the harpsichordist's side (the harpsichord cannot be played from the piano keyboard).

An advertisement published in Vienna on April 9, 1777 confirms Stetten's report that Stein traveled there in that year with his *Vis-à-vis*,⁴⁸ but there are no first-hand descriptions of this instrument from Stein's lifetime besides Stetten's. Modern scholars have probably been most interested in the *Vis-à-vis* for its extensive and unusual tonal resources,⁴⁹ and for its nearly unique kind of hammer action, a so-called *Zugmechanik*, or "pull action." Interestingly, however, Stetten (perhaps guided by Stein) chose to emphasize neither the action of the *Vis-à-vis* nor its tonal possibilities, but rather, what one might call its social possibilities: the novel way that it arranged two players, letting them play together while facing one another.

1777 was also the year of Wolfgang Mozart's oft-cited visit to Augsburg, documented in letters exchanged among members of the Mozart family in the fall of that year.⁵⁰ Mozart visited Stein's home, where he listened to Stein discuss how he made pianos, and what made his pianos better than those by other builders. He also heard Stein's daughter Nannette play

("Herr. St. nannte es einen Vis a vis Flügel"). "**Orgelbaukunst** aus Paul von Stettens Kunstgeschichte der Stadt Augsburg," *Musikalische Real-Zeitung* (Speyer), May 12, 1790, 148.

⁴⁷The instrument and its dating are discussed in Michael Litcham, "The Check in Some Early Pianos and the Development of Piano Technique Around the Turn of the 18th Century," *Early Music* 21, no. 1 (1993): 36; and "Mozart and the Pianos of Johann Andreas Stein," *The Galpin Society Journal* 51 (1988): 125-26.

⁴⁸In the *Wienerisches Diarium* (later the *Wiener Zeitung*). Cited in Richard Maunder, *Keyboard Instruments in Eighteenth-Century Vienna* (Oxford: Clarendon Press, 1998), 147.

⁴⁹See especially Michael Litcham, "Swirling From One Level of the Affects to Another: The Expressive *Clavier* in Mozart's Time," *Early Music* 30, no. 4 (2002): 506-507, as well as Hertz, "Johann Andreas Stein."

⁵⁰The stay in Augsburg is discussed in letters exchanged among members of the Mozart family from the end of September to the beginning of November, 1777. Wolfgang Mozart describes the visit in several letters written from Augsburg to Leopold in Salzburg: in an addendum to the letter of October 14 begun by his mother Maria Anna, and on October 16, October 17, and October 23-25. *Mozart: Briefe und Aufzeichnungen: Gesamtausgabe*, ed. Ulrich Konrad (Munich: Deutscher Taschenbuch Verlag, 2005), 2: 54-85.

the piano. During his stay in Augsburg, Mozart became embroiled in a disagreement with the son of the Catholic mayor; according to his letters, it was not until Stein and other prominent Protestant citizens intervened that he was able to arrange the public concerts that were the reason he had traveled to Augsburg in the first place.

Mozart's letters to his father perfectly illustrate Stetten's comment in 1779 that, in addition to "important" instruments such as the *Poly-Tono-Clavichordium* and the *Melodica*, "Mr. Stein has made many clavichords, pianofortes, etc."⁵¹ Mozart played on Stein's instruments all over Augsburg: he played Stein's church organs; he played clavichords made by Stein in private homes; and he played Stein's pianos, both at Stein's home and in public concerts. The public concert Mozart gave on October 22 included his Concerto in F for three keyboards (K242), performed on three of Stein's pianos by Mozart; Johann Michael Demmler, a local organist; and Stein himself. The assemblage of three pianos was specially noted both in the announcement for the concert, and in the review that followed. According to the announcement, the triple concerto was slated to be the second item on the program:

2) Keyboard concerto with 3 *Piano Fortes*. A very rare situation that is presented here through a fortunate coincidence.⁵²

The review presented the concert as an "academy on the *Forte-Piano*," and remarked more specifically that "because Mr. Stein just had three instruments of this kind finished, this provided the opportunity to present a strong concert for three keyboards." The reviewer went on to praise not only Mozart's compositions and performance, but also the instruments:

One saw here masterpieces of thought, masterpieces of performance, instruments that were masterpieces. . . instruments which, according to the judgment of outsiders, surpass by far all others of this kind.⁵³

⁵¹"Außer diesen wichtigen Instrumenten hat Herr Stein viele Claviere, Piano forte u.d.gl. immer mit schönen Verbesserungen verfertigt." Stetten, *Kunst-Geschichte* 1779, 162.

⁵²"2) Clavier-Concert mit 3 Piano Forte. Ein Umstand, der sehr selten, hier aber durch einen günstigen Zufall aufgeführt wird." *Augsburgische Staats- und Gelehrte Zeitung*, "Etwas für Kunst- und Musikliebende!", October 21, 1777, 750. Cited in Ernst Fritz Schmid, "Mozart und das geistliche Augsburg, insonderheit das Chorherrnstift Heilig Kreuz," *Zeitschrift des Historischen Vereins für Schwaben und Neuburg* 55/56 (1942): 145.

⁵³"Man sah hier Meisterstücke in den Gedanken, Meisterstücke in dem Vortrag, Meisterstücke in den Instrumenten. . . Instrumenten. . . , die nach dem Urtheile der Frem-

The Claviorganum

Stetten ends his catalog of Stein's inventions in 1779 with the Vienna *Vis-à-vis*, and resumes it in 1788 with a list of Stein's "most recent works of art." The first of these is a "*Clavecin organise* [sic] built for Sweden"—an instrument which, as I will suggest in the next part of this chapter, is almost certainly the same as the claviorganum signed by Stein that is preserved in Gothenburg. This brief mention is actually the most expansive published report about the claviorganum from Stein's lifetime.

Considering the overall structure and content of Stetten's reports, in which he carefully recorded not only what Stein had built but where he had traveled—Paris, not once but twice; Zürich; Vienna—the remark that the claviorganum had gone to Sweden was likely meant to indicate yet another feather in Stein's cap. Having traveled the continent with his instruments, readers were given to understand, Stein had now sent one of his latest instruments as far away as Sweden—a country which, at that time, enjoyed good press in Germany as a haven for science and the arts under Gustav III.⁵⁴

The Gothenburg claviorganum is the only organ-piano combination that Stein is known to have built, but there is some evidence that Stein was known as a builder of positives, as well as of larger church organs. In 1775, for example, Christian Gregor, the leader of the Moravian community in Herrnhut, wrote to Stein inquiring about the price for a positive with six stops.⁵⁵ In 1790, an article in the *Musikalische Real-Zeitung* reprinted Stetten's 1779 biography of Stein, and appended a note with the information that Stein had also built a "splendid positive" for a customer in Augsburg. The correspondent, Johann Friedrich Christmann, even compared the instrument to Stein's organ in the Barfüßer church:

den alle andre dieser Art bey weitem übertreffen." *Augsburgische Staats- und Gelehrte Zeitung*, "Augsburg vom 24. Oct.," October 28, 1777, 768. Cited in Schmid, "Mozart und das geistliche Augsburg," 159.

⁵⁴C. F. D. Schubart commented, for example, during his stay in Augsburg, that "der Geist dieser Nation flammt unter der Regierung des thätigen Gustavs sichtbarlich empor. Privatbriefe aus Stockholm können nicht genug sagen, wie alle Zweige der öffentlichen Glückseligkeit blühen, und die herrlichsten Früchte versprechen. . . Was [Gustav] für die Wissenschaften that, das weiß die ganze Welt. . . Die ernste Mine höherer Erkenntniße mildern an seinem Hofe der Anblick des Schönen in den Werken der Kunst. Die Gallerie wird fast täglich mit Meisterstücken bereichert. . . Sonderlich liebt der König, wie sein Vater, die Tonkunst, spielt selbst den Flügel und das Violoncell, und hat bereits ein sehr wohleingerichtetes Orchester, das täglich mit fremden Virtuosen bereichert wird." "Schweden," *Deutsche Chronik* (Ulm), November 21, 1774, 537-3. Facsimile edition (Heidelberg: Lambert Schneider, 1975).

⁵⁵Barbara Owen, "'Pleasing for Our Use': David Tannenburg's Moravian Organs," in *"Pleasing for Our Use": David Tannenberg and the Organs of the Moravians*, ed. Carol A. Traupman-Carr (Bethlehem: Lehigh University Press, 2000), 57.

The splendid positive that Mr. *Münzmeister* **Neuß** in Augsburg owns by him [Stein] does his great artistic talent just as much credit [as the Barfüßer organ], perhaps even more. A true masterpiece, that deserves to be seen by every *Kenner* and *Liebhaber* of these instruments.⁵⁶

Christmann called the organ a positive, suggesting a fairly small and modest instrument, so the favorable comparison to the grand Barfüßer organ is unexpected. Christmann does not say that the positive was a combination instrument or what special features it had, if any. However, his extravagant praise, and his suggestion that the instrument deserved to be seen by a wider audience, do raise the possibility that it was more than just a simple positive.

A Second *Vis-à-vis* Instrument

Alongside the claviorganum, Stetten's 1788 report lists two other new "works of art" by Stein. Stetten's description of these instruments is taken from a report written by Stein himself for the catalog of the annual exhibition of the Augsburg art academy in 1783, at which both instruments were exhibited. The first of them is another *Vis-à-vis*, or *Doppelflügel*. Stetten notes:

owing to its special action, [it] can be played by one person at each side at the same time, by which means a large number of variations arise, and not from artifice, but from a natural exchange in the thing itself.⁵⁷

The fact that the variation in sounds that are possible on the instrument are the result of real changes, rather than "artifice," seems to be particularly important. Stein, the original author of the passage, wants to indicate that the instruments are both real, independent instruments that can be coupled together; thus, the sound that results when they are combined is not the result of a toy stop that only imitates the sound of another instrument, but rather the sound of an actual harpsichord and an actual piano together.

⁵⁶"Eben so viele, vielleicht noch mehr Ehre macht seinem grossen Künstlertalent das herrliche Positiv, das Herr Münzmeister **Neuß** von ihm besitzt. Ein wahres Meisterstück, das verdient, von jedem Kenner und Lieberhaber dieser Instrumenten gesehen zu werden." Heinrich Bokler, ed., "**Orgelbaukunst**," 148.

⁵⁷"... ein sogenannter Vis à vis oder Doppelflügel, der seiner besondern Mechanik wegen, von einer einzelnen Person zu beiden Seiten zugleich gespielt werden kann, wodurch eine Menge Veränderungen, und das nicht aus Künsteley, sondern einer natürlichen Verwechslung der Sachen selbst, entstehen..." Stetten, *Kunst-Geschichte* 1788, 56.

In addition to the Verona *Vis-à-vis*, there is a second *Vis-à-vis* by Stein preserved in Naples. John Rice has argued that the Naples instrument is the same as the one mentioned here by Stetten,⁵⁸ and also the same as a *Vis-à-vis* sold by Stein to an unknown Neapolitan nobleman and described in 1789 in the personal correspondence of the Austrian diplomat and musician Norbert Hadrava. The Naples *Vis-à-vis* is similar in concept to the Verona *Vis-à-vis*, but somewhat simpler, with only two manuals on the harpsichord end, the upper of which plays the harpsichord (2 x 8', 1 x 4'), and the lower of which is connected to the piano. Unlike the Verona instrument, the piano of the Naples *Vis-à-vis* contains Stein's *Prellzungenmechanik*, with hollow leathered hammer heads.⁵⁹

A letter by Hadrava, who was the agent for several of Stein's instruments in Naples, describes the arrival of Stein's *Vis-à-vis* in that city. According to the letter, Hadrava inspected it himself, and also presented it for the inspection of Neapolitan musical enthusiasts in a concert that included music which he had composed specifically for the instrument, as well as an improvisation with the composer Giovanni Paisello, with one musician at each end of the instrument.

The *Saitenharmonika*

Stetten mentions one more work of art by Stein, although he does not give it a name. It is

a *Piano forte* that is common, to judge from its shape, but which is different in its sound. The *crescendo* and *decrescendo* are to such a degree that it tends gradually away from the most sublime *fortissimo*, dies away, and transforms itself into a complete nothingness.⁶⁰

Together with the *Vis-à-vis* mentioned in the same passage, Stetten says, this special piano was displayed in Stein's home on the occasion of a public art exhibition in the city.

A report published the following year in the *Musikalische Real-Zeitung* described what was certainly the same instrument, or another example of it,

⁵⁸John A. Rice, "Stein's 'Favorite Instrument': A Vis-à-Vis Piano-Harpsichord in Naples," *Journal of the American Musical Instrument Society* 21 (1995): 30-64.

⁵⁹A detailed description is in *ibid.*

⁶⁰"... ein seiner Gestalt nach gemeines, im Ton aber verschiedenes Piano forte. Das An- und Abwachsen ist in solchem Grad, daß es sich aus dem erhabensten Fortissime, allmählich abneigt, und in gänzlich Nichts verwandelt." Stetten, *Kunst-Geschichte* 1788, 56.

and named it Stein's "newly invented *Saitenharmonika*." The correspondent was once again Johann Friedrich Christmann, who had been present when Stein displayed the instrument for an interested public on his way to deliver it to a buyer in Mannheim:

On his journey there the admirable Stein could not possibly resist visiting his place of birth, an unimportant village in the *Pfalz*, which lay nearby. He came there with his skillful daughter, called his old friends, the elders of the village, to him, spent an enjoyable day with them, unpacked his *Saitenharmonika*, and his daughter then had to play the divine instrument all day long for small and large, Christians and Jews and Anabaptists.⁶¹

Christmann's report provides a few details about the construction of the *Saitenharmonika*. He says that "in its outward form and size it is completely similar to a usual Stein *Flügel*," but that Stein

gave the instrument one more string, which is set in motion and made to sound by a very elastic material. This variation, which Stein, in honor of his nation, calls not an English harp but an ancient German spinet, is installed in such a way that it can be played both completely alone and together with the *Forte piano*, and in that case the aforementioned spinet imparts to the *Forte piano* an excellent sharpness. In the same way, the latter can also be played by itself.⁶²

Koster points out that Stein's use of the word "spinet" to describe this special extra stop probably indicates that it consisted of a set of jacks that plucked the strings, with plectra of an unidentified "elastic material" that

⁶¹"Auf seiner Reise dahin konnte sich der liebenswürdige Stein unmöglich überwinden, seinen in der Nähe liegenden Geburtsort, ein unbedeutendes pfälzisches Dorf zu besuchen. Er kam mit seiner geschickten Tochter dahin, rief seine alten Bekannten, die Greisen des Dorft zu sich, machte sich mit ihnen einen vergnügten Tag, pakte sine Saitenharmonika aus und seine Tochter mußte dann Kleinen und Großen, Christen und Juden und Wiedertäufern den ganzen Tag über auf diesem göttlichen Instrumente spielen." Heinrich Boßler, ed., "Antwort auf die Anfrage wegen Herrn Steins neuerfundener Saitenharmonica, aus einem Brief des Herrn Pf. Christmanns an J.," *Musikalische Real-Zeitung* (Speyer), November 4, 1789, 353. Facsimile edition (Hildesheim: Georg Olms, 1971).

⁶²"Er gab dem Instrument noch eine Saite mehr, die durch eine sehr elastische Materie in Bewegung gesetzt und zum Klang gebracht wird. Diese Veränderung, die Stein zur Ehre seiner Nation nicht englische harfe; sondern ein uraltes deutsches Spinetchen nennt, ist so angebracht, daß es sowohl ganz allein, als in Verbindung mit dem Forte Piano kann gespielt werden, und in diesem Fall theilt das genannte Spinet dem Forte piano eine vortreffliche Schärfe mit. Eben so kann auch das letzere für sich allen gespielt werden." *Ibid.*

might have been, for example, a very soft leather. Latcham argues that the material was likely buffalo leather; the Naples *Vis-à-vis* has a *peau de buffle* stop, which Hadrava refers to as a *Harmonika*.⁶³

In 1790, Johann Friedrich Reichardt listened to Nannette Stein play a second *Saitenharmonika* at Stein's home in Augsburg, and reminisced about the day in a letter published over a decade later. According to Reichardt, Stein was most eager to describe to him "the perfection of the *dimenuendo*." He quotes Stein as saying, "You believe at the last that you still hear something, but you hear nothing, nothing at all, simply nothing at all."⁶⁴ Christmann, similarly, describes the instrument as filling the "gap" between "*pianissimo*" and "complete nothingness"; when the "Forte piano at its softest is transferred to the spinet and, with a small pressure, made to die away completely," the result was "the complete extinguishment of the sound." Thus, Christmann's, Reichardt's, and Stetten's accounts, all probably informed by Stein, all emphasize one particular characteristic of the *Saitenharmonika*: its ability to create a super-*piano*, so that the sound of the instrument could shade seamlessly into silence.⁶⁵

Koster has suggested that a 1783 grand piano by Stein now held by the Museum of the Fine Arts in Boston was probably originally a *Saitenharmonika*. The piano's case bears traces of alterations that appear to indicate that a register which would have sounded a third set of strings has been removed, which may well have been the extra register referred to in Christmann's account.⁶⁶

The intimate stories related by Christmann and Reichardt are among the last accounts of Stein and his instruments from his lifetime. Stein died in Augsburg in 1792, at the age of 64.

⁶³John Koster, "Grand Piano (Originally Saitenharmonika?), Johann Andreas Stein, Augsburg, 1783," in *Keyboard Musical Instruments in the Museum of Fine Arts, Boston* (Boston: Museum of Fine Arts, 1994), 142-43. Latcham, "Mozart and the Pianos," 125.

⁶⁴"...um mir die Vollkommenheit des Diminuendo zu schildern, sagte er mit den angespanntesten Sinnen und [Gebärden]: "Sie glauben zuletzt noch immer was zu hören, Sie hören aber nichts, gar nichts, rein gar nichts." Johann Friedrich Reichardt, *Vertraute Briefe aus Paris geschrieben in den Jahren 1802 und 1803*, vol. 1 (Hamburg: B. G. Hoffmann, 1804), 328, http://books.google.se/books?id=1MEWAAAAYAAJ&printsec=frontcover&hl=sv&source=gbg_summary_r&cad=0#v=onepage&q&f=false.

⁶⁵In a letter written from Augsburg in 1790, Reichardt actually calls the instrument he heard there a "*Crescendo-Fortepiano*," saying, "Es sind Züge dabei angebracht, die das *Crescendo* vom allerleisesten Hauche bis zum Donnerwetter geben." In that letter, he also quotes Stein as saying, "'Es geht gar aus, bis rein zu nichts, Sie glauben am Ende noch etwas zu hören, hören aber nichts.'" Hans Michael Schletterer, *Joh. Friedrich Reichardt: Sein Leben und Seine Werke* (Augsburg: J. A. Schlosser, 1865), 478.

⁶⁶Koster, "Grand Piano," 141-42.

2.2 Early History of the Claviorganum

Substantial documentary evidence suggests that Stein's claviorganum in the Gothenburg City Museum (GM4478) is the same as the *Clavecin organisé* by Stein named in Paul von Stetten's 1788 report, and that the instrument's first owner was the Gothenburg businessman Patrick Alströmer. This section reviews this evidence and establishes the early provenance of the claviorganum, as far as it is known.

Attribution and Dating

A printed label affixed to the soundboard of the Gothenburg claviorganum reads:

Jean André Stein, faiseur d'Orgue, des Clavecins, et Organiste
à l'Eglise des Minorittes, à Augsbourg. 1770.

The first three numerals of the date are printed and the numeral 0 has been penciled in by hand. A handwritten signature by Stein with a later date, however, appears on the underside of the soundboard of the piano, positioned underneath the printed label. This signature reads:

Jean André Stein/Augsp le 10 febr/1781.⁶⁷

A number of other pianos by Stein also have dated signatures underneath the soundboard or on the baseboard that do not agree with the dates on the soundboard labels. As Latcham has pointed out, the dates written inside the instrument are less likely to have been altered or faked than the dates on the soundboard labels, and should be presumed to be correct.⁶⁸ The date of 1781 for the Gothenburg claviorganum is, moreover, corroborated by Patrick Alströmer's acquisition of a *Fortepiano organisé* in November of 1781, as I discuss below.

Older accounts, relying on the soundboard label, sometimes identify the piano of the claviorganum as the earliest extant piano by Stein. In fact, according to the chronology of Stein's instruments established by Latcham,

⁶⁷The signature was photographed by Reinhardt Menger with Herwin Troje during an examination of the instrument in 1973 (Troje, pers. comm). The museum holds copies of Menger's photographs. They do not show the entire signature well, but Stein's name and the date are clearly legible.

⁶⁸Michael Latcham, *The Stringing, Scaling and Pitch of Hammerflügel Built In the Southern German and Viennese Traditions 1780-1820*, vol. 1 (Munich: Katzbichler, 2000), xi.

which relies on Stein's interior signatures when they exist, the claviorganum contains Stein's second-earliest preserved piano, after the Verona *Vis-à-vis*, although it does have the earliest extant example of his German action.⁶⁹

Paul von Stetten's *Clavecin organisé* and the Gothenburg Claviorganum

Paul von Stetten's 1788 report on Stein's *Clavecin organisé* reads:

To the newest works of art by our famous Mr. Stein are a *Clavecin organisé* built for Sweden, as well as a so-called *Vis à vis* or *Doppelflügel*. . . futher, a *Piano forte* that is common, to judge from its shape, but which is different in its sound. . . The artist presented both of the latter two instruments to *Liebhaber* in his house on the occasion of the 1783 exhibition of artworks.⁷⁰

Given the existence in Gothenburg of a claviorganum securely attributed to Stein, and dated 1781, the question is whether the Gothenburg instrument and the instrument mentioned by Stetten are one and the same.

Stetten's use of the word *clavecin* in this passage might indicate that he is describing an instrument with a plucking action—an organized harpsichord—rather than an organ-piano like the claviorganum.⁷¹ Indeed, later in the same sentence Stetten refers specifically to a “Pianoforte,” and this could mean that he intended the word *clavecin* to denote a different kind of instrument. Certainly, the word *clavecin* usually meant a harpsichord. In 1768, Adlung defined *clavecin* as the French equivalent of the German *Clavicymbel*, or harpsichord.⁷² In 1766, Dom Bedos described both an organized piano and an organized harpsichord, and he titled his descriptions “Organisation d'un Piano-forte” and “Organisation du Clavecin ordinaire,” respec-

⁶⁹Ibid., xii.

⁷⁰“Unter die neuesten Kunstarbeiten unseres berühmten Herrn Steins gehören ein nach Schweden verfertigtes Clavecin organise [sic], sodann ein sogenannter Vis à vis oder Doppelflügel. . . ferner ein seiner Gestalt nach gemeines, im Ton aber verschiedenes Piano forte. . . Der Künstler hat bey Gelegenheit der 1783. gewesenen Ausstellung der Kunstarbeiten, beyde letzere in seinem Hause den Liebhabern vorgelegt.” Stetten, *Kunst-Geschichte* 1788, 56.

⁷¹This has been pointed out by, for example, Michael Cole, in *The Pianoforte in the Classical Era* (Oxford: Clarendon Press, 1998), 184.

⁷²Jakob Adlung, *Musica Mechanica Organoedi* (Berlin: Friedrich Wilhelm Birnstiel, 1768). Facsimile edition, Christhard Mahrenholz, ed. (Kassel: Bärenreiter, 1961), 2:102-103.

tively. In the body of his text, he also referred to the organized harpsichord as a “Clavecin organisé.”⁷³

On the other hand, the use of the word *clavecin*, like other names for keyboards, was not standardized. It could also be used (like the word *Klavier*) to denote a keyboard instrument more generally, and perhaps especially when referring to an unusual or unique instrument. For example, in 1716, Jean Marius presented models of four hammered keyboard instruments to the Royal Academy of Sciences in Paris under the name “Clavecin à maillets.”⁷⁴ In 1741, Nils Brelin presented to the Royal Swedish Academy of Sciences a description of a newly-invented instrument with a tangent action that he titled an “upright double *Clavecin*.”⁷⁵ And, to take an example closer in time and place to Stein and his claviorganum, in 1775 the Dresden instrument builder Johann Gottlob Wagner announced his invention of a new kind of square piano with a number of different registers, which he called a “Clavecin roial.”⁷⁶

As I suggested in the discussion of sources in the introduction, it is likely that Stetten’s language in this passage came directly from Stein himself. By the 1770s, the term *fortepiano* (and its variations) were in widespread use, and would have been possibilities for builders like Wagner or Stein, or for contemporary observers such as Stetten. The deliberate selection of French terms such as *Clavecin* and *Vis-à-vis* may also have been intended to connote an air of luxury or fashion. Too, Stein worked in Strasbourg for a time; many of the entries in his notebook from this period are in French, and as Klaus has pointed out, his nameboard labels, slightly unusually for a German builder, are in French, which may be interpreted as an influence from the Silbermanns.⁷⁷ It is, therefore, perhaps not surprising that Stein would select French names for some of his instruments. At least, in the context of contemporary usage, the term *Clavecin organisé* in Stetten’s report is compatible with an organ-piano combination.

⁷³Dom Francois Bédos de Celles, *L’art du facteur d’orgues*, vol. 4 (Paris: L. F. Delatour, 1766), 634-640.

⁷⁴See, for instance, Stewart Pollens, *The Early Pianoforte* (Cambridge: Cambridge University Press, 1995), 214-220.

⁷⁵“Uprät-stående dubbel Clavesin.” Eva Helenius-Öberg, *Svenskt klavikordbygge 1720-1820: Studier i hantverkets teori och praktik jämte instrumentens utveckling och funktion i Sverige under klassisk tid* (Stockholm: Almqvist & Wiksell, 1986), 53, 196.

⁷⁶Johann Gottlob Wagner (c. 1750-1789). See Donald H. Boalch, *Makers of the Harpsichord and Clavichord 1440-1840*, 2nd ed. (Oxford: Clarendon Press, 1974), 187. The *clavecin roial* is described in Wolfgang Wenke, “Das Clavecin Royal—eine Dresdener Variante des Hammerklaviers,” in *Zur Geschichte des Hammerklaviers*, ed. Monika Lustig, Michaelsteiner Konferenzberichte (Michaelstein: Institut für Aufführungspraxis, 1996), 111-116.

⁷⁷Klaus, *Studien zur Entwicklungsgeschichte*, 1:21.

More significantly, the framework of dates that can be inferred from Stetten's accounts is consistent with the identification of the Gothenburg claviorganum as his *Clavecin organisé*. Most likely, the instrument had not been built in 1779, when Stetten published the first volume of the *Kunst-Geschichte*, or he would have mentioned it. Certainly it was built, and its purchase by a Swedish customer was known, before the publication of the second volume in 1788. According to Stetten, Stein exhibited both the *Vis-à-vis* and the *Piano forte* with the "different" sound in his house in 1783, but not the *Clavecin organisé*. However, the fact that Stetten groups the *Clavecin organisé* with the other two instruments strongly suggests that this instrument, too, was worthy of exhibition. Therefore, although there might of course have been other reasons, the fact that the *Clavecin organisé* was not put on display in 1783 suggests that either the instrument had not been built yet, or it had already left Stein's workshop.

In other words, Stetten's report fits quite well with the supposition that Stein built the *Clavecin organisé* and sent it to Sweden sometime between 1779 and 1783. Taken together with the secure date of 1781 for the Gothenburg claviorganum, and considering that since the *Clavecin organisé* was unusual enough for Stetten to mention it specifically in his report, Stein must not have made many such instruments—much less sent them to Sweden in the years around 1780—it is reasonable to conclude that Stetten's *Clavecin organisé* and the Gothenburg instrument are one and the same.

Establishing Alströmer's Ownership

The Gothenburg claviorganum was most likely commissioned by Stein from the Swedish businessman and music patron Patrick Alströmer (1733-1804). A series of entries in a diary Alströmer kept from 1775 until at least 1792⁷⁸ record his acquisition and ownership of a "pianoforte organisé." Once again, the evidence that this instrument and the Gothenburg claviorganum are one and the same is not conclusive, but it is convincing.

Alströmer's diary entries are short and factual, with few personal notations of any kind. For the most part, they record his professional and social

⁷⁸The connection between Alströmer's "pianoforte organisé" and the claviorganum in the holdings of the Gothenburg City Museum was made by Mats Krouthén and Jan Ling. See Ling, "Apollo Gothenburgensis: Patrick Alströmer och Göteborgs musikliv vid 1700-talets slut," *Svensk tidskrift för musikforskning* 81 (1999): 53-94; "En akademibroder musicerar: Något om Patrik Alströmer och svenskt musikliv vid 1700-talets slut," in *Kungliga vitterhets historie och antikvitets akademiens årsbok* (Stockholm: Almqvist & Wiksell Internationall, 2001), 88-105; and "1700-talets musik i Patrick Alströmers öron," in *Ekonomi och musik i 1700-talets Göteborg: En tidspegel utifrån en samtida dagbok* (Gothenburg: Göteborgs Stadsmuseum, 2005), 96-147.

engagements. The latter often included music-making, either at the homes of friends or in Alströmer's own home.⁷⁹ In entries from November 11 and 30, 1781, Alströmer mentions for the first time making music with friends on a "pianoforte organisé":

Sunday... afternoon: at the rehearsal for the Opera le Deserteur at Mr. Schindler's, and at Mr. Jöranson's and tried out my pianoforte organisé...

Friday... afternoon: with the French Brigadier Count Labran at a concert at Mr. Jöranson's, where my Forte piano organisé was tried out, and then with the same count at a concert at Mr. Hall's where we had supper.⁸⁰

Alströmer's names for his new instrument are, unlike Stetten's, unambiguous: he is certainly describing an organized piano. The instrument was clearly new to Alströmer in 1781, since the first entries to mention it appear in that year, and in them, he describes "trying out" the instrument. This is confirmed by a letter to Alströmer from a friend in Uddevalla in May 1782, who expresses regret that he cannot visit Gothenburg to hear Alströmer's new instrument:

I do not know when I will have the opportunity to travel to Gothenburg. If my time continues to be as restricted as it has been thus far, I will probably have to wait a long time to hear the splendid *Forte Piano organisé*.⁸¹

⁷⁹For a summary of Alströmer's musical activities see especially Ling, "1700-talets musik."

⁸⁰"Söndag... e:m: på repetitionen af Operan le Deserteur hos Hr Schindler, samt hos Hr Jöranson och proberade min pianoforte organisé..."; "Fredag... e:m: med Franske Brigadiern Comte Labran på Concert hos Hr Jöranson, hwarest min Forte piano organisé proberades, och sedan med sama Grefwe på Concert hos Hr Hall hwarest souperades." Alströmer diary, November 11 and November 30, 1781. Jan Ling kindly provided me with a transcription of the diary. It has also been published in Bertil Anderson, Martin Fritz, Jan Ling, and Berit Ozolins, *Ekonomi och musik i 1700-talets Göteborg: En tidspegel utifrån en samtida dagbok* (Gothenburg: Göteborgs Stadsmuseum, 2005).

⁸¹Letter from Johan Jacob Leijonmarck to Patrick Alströmer, May 3, 1782. "När jag får tillfälle at resa til Götheborg wet jag icke. Blifwer min tid så inskränkt hädanefter, som hittils, torde jag länge nog få wänta på at höra det präktiga Forte Piano organisé." Cited in Ling, "Apollo Gothenburgensis," 84. In point of fact, Leijonmarck did not have to wait long. A diary entry from the next month, June 13, 1782, states that Alströmer spent the afternoon "at Jöranson's with Chief Physician [*Archiat*er] Leyonmarck to let him hear my instrument." ("13. Torsdag... eftermidd: hos Jöranson med Archiat

Alströmer does not note in his diary where his new instrument has come from. Given the coincidence of dates, however, the reasonable conclusion is that his *pianoforte organisé* is, in fact, identical with the 1781 Stein claviorganum in the Gothenburg City Museum, and also with Stetten's *Clavecin organisé*.

Alströmer likely commissioned the claviorganum from Stein, either directly or through an agent. At least, Stetten's remark that the instrument was "built for Sweden" suggests that the instrument was built on commission. It is possible, however, that the claviorganum was commissioned by another Swedish customer and later given to or purchased by Alströmer.

One early nineteenth-century source suggests that Stein actually sent the claviorganum to the king of Sweden. An entry on Stein in Felix Lipowsky's *Baierisches Musik-Lexikon* of 1811 states:

He [Stein] made a so-called *Clavecin organisé*, also a *Vis-à-vis*, or *Doppelflügel*, for the king of Sweden, and sent [them] to Stockholm.⁸²

Lipowsky cites Stetten as his source for this information, and his language is clearly borrowed from Stetten. However, Lipowsky adds details that are not in Stetten's account: that the *Vis-à-vis* went to Sweden with the *Clavecin organisé*; that the instruments went to Stockholm; and that they were for the king of Sweden. The suggestion that the *Vis-à-vis* went to Sweden seems like a straightforward garbling of Stetten's report (and there are other details in the rest of Lipowsky's entry that are also clearly mistakes). The specific mentions of "Stockholm" and "the king of Sweden," however, are not a misrepresentation of Stetten's article, but completely new details. Alströmer had lived in Stockholm as a young man and had close ties to Gustaf III and the Swedish court. Perhaps, if Lipowsky's report is correct, Stein sent the claviorganum to the king in Stockholm, who later sent it to Alströmer in Göteborg. Bearing in mind the other errors in Lipowsky's article, however, I think it is equally likely that his mentions of Stockholm and the king are simply wrong.⁸³ Whether or not Lipowsky's report is

⁸²“Ein sogenanntes Clavecin organisé, dann ein Vis-à-vis, oder Doppelflügel, hat er [Stein] für den König von Schweden verfertigt, und nach Stockholm abgeschickt.” Felix Joseph Lipowsky, *Baierisches Musik-Lexikon*, s. v. “Stein, Georg Andreas” (Munich: Jakob Giel, 1811), <http://personen.digitale-sammlungen.de/pnd/bsb00000279.html>.

⁸³Assuming that Lipowsky is mistaken, it is hard to say where he got the misinformation. It is interesting in this connection, however, that Gerber's *Neues Lexikon der Tonkünstler* includes an entry for the Swedish organist and music printer Olof Åhlström, which states that Åhlström was the clavier teacher to the king of Sweden in Stockholm, and the entry, typically for German publications of the period, drops the Swedish

accurate, the conclusion that Alströmer owned Stein's claviorganum from late 1781 onwards remains secure.

If Alströmer did purchase the claviorganum from Stein, it is possible that he did so through an agent. Ling, for instance, has suggested that this might have been Dresden composer Johann Gottlieb Naumann.⁸⁴ Naumann met Alströmer during visits to Sweden in 1778 and 1783, and a set of letters he wrote to Alströmer in 1784 reveal that he had ordered a musical instrument on Alströmer's behalf during that year.⁸⁵ This particular instrument could not have been Alströmer's *fortepiano organisé*, since Alströmer's diary records that he was already in possession of that instrument in 1781. Certainly, however, Naumann might also have acted as Alströmer's agent prior to 1784, although I know of no evidence that specifically links Naumann to Augsburg or Johann Andreas Stein.

Alströmer's "Fortepiano Organisé" and the Sale to John Hall

Alströmer mentions the claviorganum sporadically in his diary between the years 1781 and 1791. Sometimes he calls it his *fortepiano organisé*, or a variation thereof, but more often simply "my instrument" or "my great instrument." It is clear that the latter phrases do refer to the claviorganum, since he sometimes mentions playing the "fortepiano organisé" at a particular location, and in a subsequent entry speaks of playing his "instrument" at the same location.

Alströmer housed the claviorganum in several different residences in Gothenburg during the early 1780s. On April 23, 1786, he noted that he had moved the claviorganum to the home of his friend John Hall:

Sunday... afternoon: visits, and made music afterwards on my great instrument, which I have moved to Mr. Hall's.⁸⁶

character "ä" and renders the name Åhlström as Ahlström: "Ahlström (Ol.) Kämmerer und Organist zu Stockholm, geb. in Schweden, war der Lehrer des vorigen Königs im Klavierspielen." Perhaps Lipowsky read a similar report, confused the two Swedes with one another, and added the details about Stockholm and the king to his entry on Stein for this reason. Gerber, *Neues historisch-biographisches Lexikon*, s. v. "Ahlström (Ol.)."

⁸⁴Ling, "1700-talets musik", 127.

⁸⁵Richard Engländer, *Johann Gottlieb Naumann als Opernkomponist (1741-1801): Mit neuen Beiträgen zur Musikgeschichte Dresdens und Stockholms* (Leipzig: Breitkopf & Härtel, 1922), 399-402.

⁸⁶"Söndag... e:m: visiter, samt musicerade sedan på mitt stora Instrument, som jag flyttat till Hr Hall." Alströmer diary, April 23, 1786.

Later in the same year Alstömer himself moved from his residence in Gothenburg to Alingsås.

John Hall was a wealthy merchant and friend of Alströmer's who had, in addition to his Gothenburg residence, a villa outside the city, Gunnebo House (*Gunnebo slott*). It has sometimes been suggested that the claviorganum was placed at Gunnebo House, where there was a salon with musical instruments.⁸⁷ Based on my reading of Alströmer's diary, however, I think it is more likely that the claviorganum actually went to Hall's house in the city. Alströmer makes visits to both places, of course, and in his diary he distinguishes between the two in a consistent way, referring to visiting the house in the city as being "at Hall's," as opposed to "traveling to Gunnebo." (He also sometimes refers specifically to visiting either "Lady Hall," who is usually at Gunnebo, or "Mr. Hall," who is not mentioned in connection with Gunnebo.) When Alströmer writes about playing his instrument, this always occurs "at Hall's"; therefore, it seems that he had placed the instrument at John Hall's city residence.⁸⁸

On August 16, 1791, Alströmer sold the claviorganum to John Hall:

Tuesday. . . Today I sold my great Fortepiano organisé to Mr. Hall for 450 Riksd.⁸⁹

At about the same time, Alströmer also sold his property in Alingsås and moved to an estate in the nearby countryside (Haneström in Lilla Edet). After years of financial difficulties, he sold many of his possessions from the home in Alingsås in an auction on September 6.⁹⁰ In the only subsequent diary entry that mentions the claviorganum, from June 19, 1792, Alströmer

⁸⁷Ling, "1700-talets musik", 127.

⁸⁸One entry, for January 2, 1787, is not consistent with this analysis. Here Alströmer writes, "2. Tuesday. morning: at 10:00 traveled to Gothenburg with cousins Britte Marie, Fredrica and Ulrica Hierta. afternoon: accompanied them to Mrs. Hall's where they heard my instrument. . . evening at Mr. Hall's." As in the rest of the diary, "Mrs. Hall's" and "Mr. Hall's" here seem to be two different places, and Alströmer clearly states here that his instrument was at Mrs. Hall's. However, numerous other entries state just as clearly that he played the instrument at Mr. Hall's. Perhaps this entry indicates that Mrs. Hall was at the residence in town, and Alströmer had accompanied his cousins to see her especially. It is also possible that Alströmer made a mistake in this entry. Scratch paper preserved with the diary shows that Alströmer wrote rough drafts of his entries before making a final clean copy, and there are occasional contradictions in the entries that suggest that he might at times have completed them some time after the fact. Ozolin, "Dagboken," 153.

⁸⁹"Tisdag. . . I dag sålde jag mitt stora Fortepiano organisé till Hr Hall för 450 Rd sp." Alströmer diary, August 16, 1791.

⁹⁰Martin Fritz, "Patrick Alströmer: En kort biografi," in *Ekonomi och musik i 1700-talets Göteborg: En tidspegel utifrån en samtida dagbok* (Göteborg: Göteborgs Stadsmuseum, 2005), 20-21.

says that he has been to Hall's to play what he no longer calls "my" instrument, but simply "the Instrument":

Tuesday. . . evening at Mr. Hall's where Court Secretary Casten and his wife were. I played on the Instrument, and Casten sang small airs.⁹¹

Sale to Gothenburg Freemasons?

There is some evidence to suggest that the claviorganum went from the hands of the Hall family into the possession of a Masonic Lodge in Gothenburg. John Hall died in 1802; five years later, his son John Hall Jr. went bankrupt, and most of the furnishings of the Halls' city residence were put up for auction in Gothenburg. An inventory of those furnishings made on April 16, 1807 included two musical instruments: a "small fortepiano" in the yellow drawing room and a "clavecin" in the salon. On May 30, the small fortepiano was sold at auction to a Mrs. Hahr for 17 *riksdaler*. The "clavecin"—described in the auction proceedings as "1 large clavecin in the salon" ("1 stor clavecin i salonen")—was sold to a Masonic Lodge for 222 *riksdaler*.⁹²

This large "clavecin" may, in fact, have been Alströmer's claviorganum. The purchase price of 222 *riksdaler* is only about half of what Hall had paid for the claviorganum in 1801. However, it is useful to be able to compare this to the price of 17 *riksdaler* for the "small fortepiano" (perhaps a square piano?) paid by Mrs. Hahr. The instrument bought by the Masonic Lodge was not only described as "large," it was also more than 10 times as expensive, suggesting that it was indeed something out of the ordinary. (In fact, the purchase price was the highest price paid for any single item in the auction.)

The fact that the instrument was called a "clavecin" in the estate inventory and the auction records does not rule out the possibility that it was an organ-piano combination, since, as I have argued above, the word "clavecin" was routinely used as a catch-all term to describe many different kinds of instruments. If the "large clavecin" was not the claviorganum, it was probably, in contrast to the "small fortepiano," a different wing-shaped instrument: perhaps a large two-manual harpsichord, if not a grand piano. However,

⁹¹"19. Tisdag. . . afton hos Hr Hall där HofSecretair Casten och dess Fru woro. Jag spelte på Instrumentet, och Casten söng små Airer." Alströmer diary, June 19, 1792.

⁹²Arvid Baekström, "De Hallska auktionerna 25/9 1807-15/8 1832," *Göteborgs historiska museum årstryck*, 1956-57. I am grateful to Jan Ling for bringing this source to my attention.

the fact that Alströmer's claviorganum is known to have been placed at Hall's residence and the high auction price suggest that the instrument in question is likely to have been the claviorganum.

Acquisition by the Gothenburg City Museum

The accession ledgers of the Gothenburg City Museum record the purchase by the museum (at that time the *Historiska museet*) in 1906 of an "Orgel-Piano" (organ-piano) from a Mr. Mauritz Perry for 45 Swedish crowns. Otto Mauritz Nicolaus Perry (1880-1950) was a Gothenburg accountant;⁹³ at present nothing is known of how he came to own the claviorganum. The museum's yearbook from 1907 lists the instrument with a picture and brief description, using the date of 1770 written on the soundboard label.⁹⁴ The claviorganum is, however, not included in a 1931 catalog of the museum's musical instruments.⁹⁵

2.3 Description of the Claviorganum

The Gothenburg claviorganum combines a small grand piano with an organ with one 8' register of stopped wooden pipes, which is enclosed in the space underneath the piano. Each instrument has its own manual, and the manuals can also be coupled together.

The instrument is largely in original condition. A few pieces of the case-work are missing or have been replaced. The piano action is well-preserved, with a few missing or replacement parts. The pipes are all original, although they may have been shortened, and some of the stoppers are missing or replacements. The organ includes a valve mounted in the wind trunk that can be opened and closed with a pedal and probably allowed the player to create *crescendo* and *decrescendo* effects, but at least some parts of this mechanism appear to be later additions.

Although in good condition, the claviorganum is not presently playable, mostly because the action is out of adjustment, and the bellows leak. A restoration to playing condition would be possible, but given the instrument's rarity and significance, probably inadvisable.

⁹³ *Sveriges dödbok 1946-2007* (database), communication from the Regional State Archive in Gothenburg (*Landsarkivet i Göteborg*).

⁹⁴ Carl Lagerberg, "Berättelse för år 1906 rörande Göteborgs musei historiska afdelning och myntkabinett," *Göteborgs museum årsstryck*, 1907: 35-36

⁹⁵ Otto Thulin, *Musikinstrument*, Historiska avdelningens vägledningar (Gothenburg: Göteborgs museum, 1931).

No detailed description of the organ of the claviorganum has previously been published. As I discussed in chapter 1, various aspects of the piano of the claviorganum have been described in several publications by Michael Latcham, and I have also had access to Latcham's unpublished documentation report about the instrument which is among the records of the Gothenburg City Museum. My description of the piano is much indebted to Latcham's observations and his analyses of Stein's other surviving pianos, but I hope that drawing together a complete description of the piano in one place will be of additional service to readers. I close the section by considering how the piano and organ functioned together.

Decoration

The claviorganum, like Stein's other instruments, is not ornately decorated, although the fineness of the workmanship and the materials create an impression of richness. The piano case is veneered in walnut, both outside and on the visible inside surfaces, and the outside of the organ case is also veneered in walnut. The stiles on the bentside of the organ case are ornamented with fluted pilasters, ending in carved pedestals and capitals that are incorporated into the baseboard and upper moldings that run along the bentside, in a restrained reference to the neoclassical style. Two doors in the bentside of the organ case as well as panels on the cheek and spine sides permit access to the pipes. Except for two panels on the rear of the spine side that are solid, these are constructed as open frames covered with a striped fabric (this looks like a replacement for an older blue silk fabric, of which there are some scraps still clinging to the panels). The fabric is decorative but also serves the purpose of allowing the sound of the organ pipes to come through.

The lid of the piano has a frame-and-panel construction and is veneered on both the inside and the outside, in keeping with its status as a luxury instrument, and perhaps also indicating that the lid was expected to be raised during performances.⁹⁶ The bentside is the public side, with its silk-

⁹⁶Stein's pianos most often have either a frame-and-panel lid or a slab construction veneered on the outside in a checkerboard pattern and covered with decorative paper on the inside: Sabine Matzenauer and Günther Joppig, "Johann Andreas Steins Hammerflügel im Münchner Stadtmuseum," *Das Musikinstrument* 7 (1992), 10-11; Klaus, *Studien zur Entwicklungsgeschichte*, 1:294. It is common for early pianos to have lids with simple or even unfinished inside surfaces (including, as Klaus points out, some of the pianos by Stein's journeyman Schiedmayer), and iconographical evidence suggests that they were often played with the lids down. In some cases the lids may also have been removed. For a brief discussion see Laurence Libin, "An Open and Shut Case?" *Early Music* 15, no. 1 (1987): 76. (It is possible to remove the lid of the claviorganum

paneled doors, mouldings, and pilasters. The spine side of the organ case has solid panels that are not meant to be opened during general use (they are nailed in place) and the spine side of the piano and organ case, typically for instruments of this school, is not veneered.⁹⁷ The instrument, then, is intended to be placed against a wall, or at least with the spine side facing away from the audience.

The nameboard of the piano is inlaid with garlands of bellflowers and an oval field in the center bearing a rhyming couplet in Swedish, which reads, “Se här ett fält för snälla fingrar/Där, konsten lätt, bekymret skingrar” (“See—here is a field for quick fingers/Where art lightly chases cares away”) (Figure 2.2). The nameboard inlay may be the work of the Swedish piano builder Johann Gabriel Högwall (1756-1816). The inlaid bellflowers are very similar to those on the nameboard of a square piano signed by Högwall in 1811, also held by the Gothenburg City Museum.⁹⁸

Entries in Alströmer’s diary show that he was acquainted with Högwall from at least the late 1780s. The diary records several visits to Högwall during 1788 and 1789, and on December 3, 1789, Alströmer mentions Högwall’s wedding in his diary:

morning: home and wrote, and out doing errands. afternoon and evening at Treasurer (*Casseuren*) Tranchell’s where the book-keeper Joh: G: Högwall of Klippan was married to Miss Greta Bousiette. . .”⁹⁹

Högwall worked for the East India Company at the company’s shipyard in a quarter of Gothenburg known as *Klippan*. His living quarters were adjacent to the company’s office, and it is not clear from Alströmer’s diary whether his visits to Högwall were business errands or social engagements. Högwall received privileges to make and repair fortepianos in 1811, but he had been engaged in this work earlier as well—in a statement written in connection with his bankruptcy in 1815 he mentions that he had learned to make fortepianos as a young man.¹⁰⁰ It seems likely that Alströmer turned to

by removing the pins from the lid hinges.)

⁹⁷Klaus, *Studien zur Entwicklungsgeschichte*, 1:292.

⁹⁸Inventory number GM4797. In the museum’s online catalog at http://carlotta.gotlib.goteborg.se/pls/carlotta/VisaObjekt?pin_objMasidn=33255 (accessed October 21, 2008). An unsigned square piano in the Borås Museum that is probably by Högwall (Mats Krouthén, pers. comm.) also has a very similar inlay on the nameboard.

⁹⁹“f:m: hemma och skref, samt ute i affärer. middag och afton hos Casseuren Tranchell hwarest Bokhållaren Joh: G: Högwall på Klippan hade bröllop med Jungfru Greta Bousiette. . .” Alströmer diary, December 3, 1789.

¹⁰⁰Mats Krouthén, “Fortepianomakare i Göteborg,” <http://www.tabulatura.com/hogwall.htm> (accessed October 20, 2008).



Figure 2.2: Inlaid couplet on the nameboard of the claviorganum. “Se här ett fält för snälla fingrar,
Där konsten lätt, bekymret skingrar.”

Högwall for the claviorganum’s elaborate nameboard, and perhaps Högwall carried out other repair work on the instrument as well.

The Organ

Disposition and Compass

No name for the organ’s 8’ wooden Gedeckt-type register is written on the instrument. There is no stop action to turn the pipes on and off; they are always on, as long as wind is in the bellows.

The compass of the organ is $C-f^3$ (54 notes). The organ keyboard, however, extends to FF in the bass, matching the piano keyboard: the lowest 7 keys are dummies.

Case Construction

The organ case encloses the space under the piano, and has the same wing-shaped form as the piano, with a spine side, front, cheek and bentside.



Figure 2.3: The clavichord with bentside doors open and cheek panel removed, showing access to the pipes and bellows. Photograph courtesy of Tilman Skowronek.

The case, of pine, consists of a floor frame and an upper frame supported by stiles. The spaces between the stiles are filled on the spine side of the instrument by two solid panels, at the front by a recessed frame-and-panel kneeboard under the manuals, on the cheek side by a frame and panel, and on the bentside by a pair of curved open-frame doors. The simpler construction of the spine panels echoes the difference between the public and private sides of the instrument.

Except for the rear spine panel, which appears to have always been simply nailed on, the doors and panels can all be opened, permitting access to the various parts of the organ. The bentside doors provide access to most of the pipes for tuning and voicing (Figure 2.3), while the mouths of the bass pipes can be accessed from the front spine panel. The front kneeboard opens onto the pallet box and bellows, and the bellows can also be accessed from the cheek panel.

The piano rests directly on the upper frame of the organ case. When the piano is in place, the cornice molding applied to the organ case frame on the public sides functions visually as the baseboard molding of the piano.

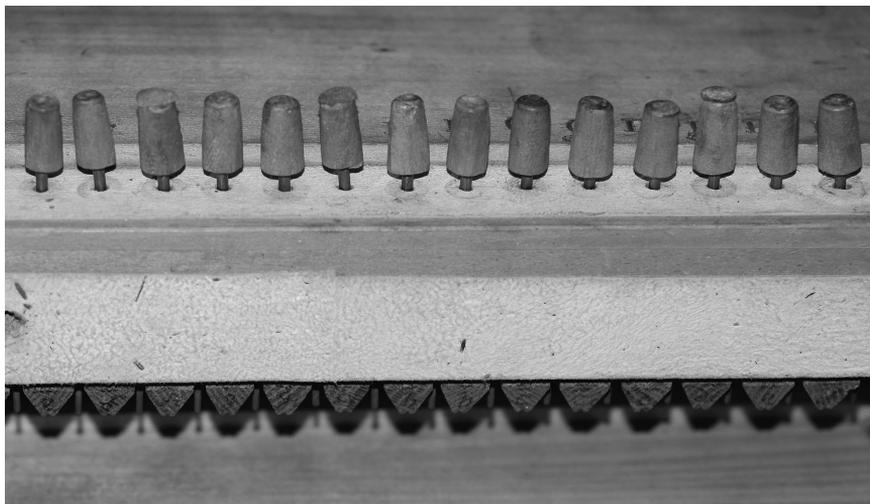


Figure 2.4: Organ stickers resting on pallets.

Playing Action

The lower of the claviorganum's two manuals belongs to the organ. Typically for a positive, it uses a sticker or pin action that connects the key directly to the pallet. When a key is pushed down, a dog that rides in the key engages a sticker (made of brass rod with a small wooden cap) that depresses the pallet for that note. The stickers pass through holes in the top of the pallet box, which is mounted just underneath the keyboard, and the lower ends of the stickers rest directly on the pallets (Figure 2.4).

The keylevers are hinged at the back of the keyframe and return by means of small brass wires that function as springs underneath the keys.

The organ manual can be coupled to the piano manual above it by means of a shove coupler. When the coupler is on, a block on the underside of the piano key engages the portion of the sticker dog that extends above the organ key, pushing the dog down through the organ key and opening the pallet below without depressing the organ key (Figure 2.5). The organ and piano then sound together on the upper manual.



Figure 2.5: Organ key with sticker dog. Photograph courtesy of Tilman Skowroneck.

Wind System

The bellows are pumped with a pedal operated by the right foot. Depressing the pedal raises the lower table of the feeder bellows, forcing air into the upper reservoir bellows. From the upper bellows the wind travels through a short vertical wind trunk that opens into the floor of the pallet box at the bass end (Figure 2.6). The bellows have been releathered at least once.

The pallets, of oak, are hinged at the back with strips of leather and guided by brass pins at the front (Figure 2.7). Note names are marked on the front of the pallets in pencil. The pallet springs are also of brass.

The pallet box and windchest are mounted on brackets directly below the manuals. There are two toeboards, one for the bass pipes and one for the tenor and treble pipes, mounted on the rear of the wind chest (Figure 2.8).

A device built into the wind trunk allows the player to regulate the flow of wind to the pipes while playing, by means of a pedal operated with the left foot. The device consists of a wooden plate or flap mounted inside the upper section of the trunk. In the off position, the flap floats vertically in the trunk, resting on the flow of wind from the bellows. Depressing the



Figure 2.6: Bellows and wind trunk from the spine side.

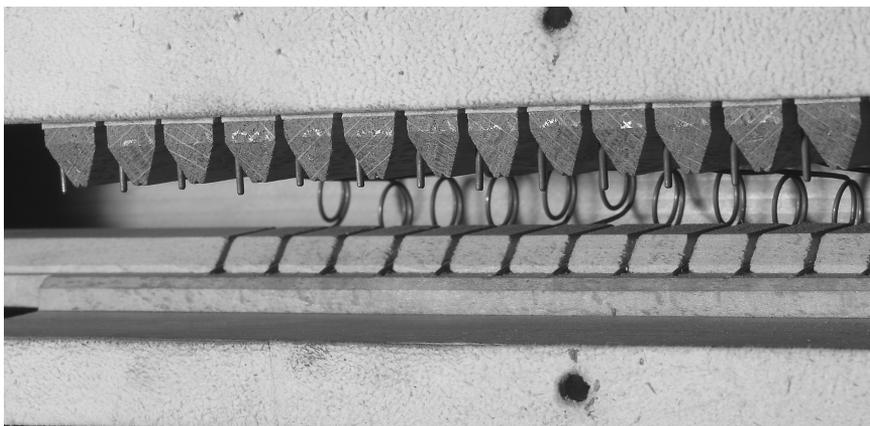


Figure 2.7: The bass end of the pallet box, with the opening to the wind trunk in the floor.



Figure 2.8: The top of the windchest with the toeboards mounted behind it. At the left of the picture are the feet of the treble pipes, racked upside down under the tenor toeboard.

left pedal engages, through a system of backfalls and a tracker, a wooden dowel that crosses through the trunk in front of the floating flap (Figure 2.9, Figure 2.10). The dowel rotates toward the back of the trunk and brings a small wooden peg affixed to it to bear against the flap, pushing it down against the flow of wind and decreasing the wind supply to the pallet box.

Although the mechanism connecting the flap to the left pedal is broken, I was able to manually move the flap back and forth within the trunk. By manually inflating the bellows, I could see that when wind was in the trunk, the flap floated in a more or less vertical position, allowing a free flow of wind to the pallet box. When there was no wind, the plate fell into a horizontal position and closed off the trunk. I could not determine if depressing the pedal all the way completely blocked the flow of air in the trunk. There is no way to lock the left pedal in the “on” position; thus it could not, in its present form, have functioned as a *Sperrventil*.¹⁰¹

It appears that the device would have worked as a kind of wind shaker, allowing the player to variably increase and decrease the amount of wind

¹⁰¹I am very grateful to Joel Speerstra for collaborating with me in my examination of the wind trunk.



Figure 2.9: The lower part of the *Windschweller* mechanism. View from inside the case, facing the kneeboard. The back of the player’s left pedal is in the right bottom corner. It would have operated the backfall, now broken, lying on the floor.

entering the pallet box. An 1823 article in the *Allgemeine musikalische Zeitung* describes a device of this type, calling it a *Windschweller*, and suggests that its purpose was primarily to decrease the volume of the speaking pipes—to create a *decrescendo*.¹⁰² It would also lower the pitch slightly. A player could thus use the *Windschweller* either to shape the dynamics of a melodic line, or to alter the loudness and pitch of a single note.

I was not able to definitely conclude to what extent this *Windschweller* is original, if at all. Based on a visual inspection with a flexible boroscope, I believe that the flap inside the trunk is original, since the color and grain of the wood match the wood of the trunk. Furthermore, the wind trunk does not appear to have been opened or altered, which almost certainly would have been necessary in order to insert the flap after the trunk was built and installed. On the other hand, the mechanism that operates the valve outside the trunk—the pedal as well as the system of trackers and

¹⁰²[Christian Friedrich Gottlob] Wilke and Friedrich Kaufmann, “Ueber die Crescendo- und Diminuendo-Züge an Orgeln,” *Allgemeine musikalische Zeitung*, February 19, 1823, 113-22.



Figure 2.10: The upper part of the *Windschweller* mechanism. View from inside the case, facing the kneeboard.

backfalls leading from the pedal to the wooden dowel inside the trunk—is, in my opinion, unlikely to be Stein’s work. The materials do not match the materials used in the rest of the instrument, and the workmanship is cruder.

It is possible that the entire mechanism is original—that the external pieces were in fact made in Stein’s workshop, but look different from the rest of the instrument because they were improvised out of convenient bits of material rather than carefully planned. Another possibility is that all or part of the device was installed sometime after the instrument arrived in Sweden. Perhaps the flap inside the trunk is original, for example, but the outer mechanism was altered, broken and repaired, or lost and replaced. If original, the flap might also have served another function, such as a tremulant or, indeed, a *Sperrventil*, and been repurposed to be used as a *Windschweller*.

Pipework

All of the pipes are housed inside the organ case (there is no façade). They are arranged in three ranks on two toeboards. The bass pipes (C - cs) are on one toeboard; they are racked horizontally in the case in two vertical stacks with their mouths under the keyboards and the stops toward the tail end of the case. The remaining pipes are racked on the second toeboard. The mid-range pipes (d - f^2) are also racked horizontally in two rows, again with their mouths under the keyboards. The treble pipes (fs^2 - f^3) are racked upside-down in a single row under the treble end of the keyboards (Figure 2.11). At some point in the instrument's history, all of the pipe feet were glued into the toeboards, so that none of the pipes can be lifted out of the instrument.

The pipes are stopped with stoppers up to fs^2 . The pipes of the treble octave (fs^2 - f^3) are slightly tapered, and have metal tuning flaps slotted into the pipe wall and bent over the top opening of the pipe.

The Piano

Construction

The main structure of the piano is of softwood. The wrestplank is oak, and the soundboard is spruce. The grain of the baseboard runs diagonal to the spine, roughly parallel to the straight portion of the bentside. The grain of the soundboard runs parallel to the spine. The soundboard has been repaired, and possibly removed and replaced.

The laminated, curved bentside liner is supported on a series of blocks mounted on the baseboard, a construction Stein used in the 1777 Verona *Vis-à-vis*, and also found in the surviving *Tangentenflügel* of Christoph Friedrich Schmahl and Franz Jacob Spath, the latter of whom Stein had worked with in Regensburg as a journeyman.¹⁰³ The claviorganum was probably built before Stein began using his famous A-frame construction, a construction which added bracing to the case by extending the bentside liner in a straight line to the treble end of the belly rail and was widely adopted by German and Viennese builders (Stein's earliest extant piano with the A-frame is from 1782).¹⁰⁴

As in other Stein pianos, the wrestplank is tenoned into the case walls at either end (Figure 2.12). The wrestplank is cracked at both ends, damage

¹⁰³Latcham, "Mozart and the Pianos," 148. A 1785 piano by Johann David Schiedmayer, who worked in Stein's shop until 1781, uses a similar construction: Klaus, *Studien zur Entwicklungsgeschichte*, 1:63.

¹⁰⁴The A-frame and claviorganum bentside constructions are contrasted in Latcham, "Mozart and the Pianos," 142; and *Stringing, Scaling and Pitch*, 14.



Figure 2.11: The treble rank of pipes is mounted upside down on the toeboard. In the top right of the picture are the feet of the lower rank of tenor pipes, mounted horizontally on the side of the toeboard. All of the pipe feet are glued into the toeboards.



Figure 2.12: Piano case with keyboards removed, showing cracks in wrestplank.

which has also occurred in other extant pianos by Stein.¹⁰⁵ The piano has a gap spacer, an iron strut between the wrestplank and the belly rail, that acts to reinforce the wrestplank, but this is not original¹⁰⁶ and was probably added to shore up the original weak wrestplank construction.

Compass, Stringing, and Scaling

The piano has a compass of $FF-f^3$ (five octaves), which is typical for the period and is the same compass found in all of Stein's extant pianos.¹⁰⁷ The stringing is bichord from $FF-gs^2$, and trichord from a^2-f^3 ; triple-stringing in the treble is typical of what Latcham has identified as Stein's "phase II" instruments (extant examples are from 1781-83), but the triple-stringing in

¹⁰⁵Sabine Matzenauer, "Zur Restaurierung eines Piano-Fortes von J.A. Stein: Erhaltene Instrumente im Vergleich," in *Zur Geschichte des Hammerklaviers*, ed. Monika Lustig, Michaelsteiner Konferenzberichte (Michaelstein: Institut für Aufführungspraxis, 1996), 50-57. Stein's wrestplank construction proved not strong enough to hold up against the tension of the strings.

¹⁰⁶Stein probably began using gap spacers in 1783; see Latcham, *Stringing, Scaling and Pitch*, 14, 60.

¹⁰⁷*Ibid.*, Table 1.

the claviorganum begins lower, at e^2 .¹⁰⁸ A number of surviving pianos by Stein's workman, Johann David Schiedmayer, who left the Stein workshop in 1781, are, like the claviorganum, triple-strung from a^2 and up.¹⁰⁹ This suggests that the range of the triple-stringing represents Stein's regular practice at that time, a practice that Schiedmayer knew and carried on. In other words, the triple-stringing in the claviorganum probably does not differ from the other, later phase II pianos for reasons having to do with the piano being combined with an organ.

The scaling of the piano is normal from about the middle of the compass up, while the bass is greatly foreshortened. The c^2 string length is 306 mm and the treble scaling is slightly stretched.¹¹⁰ The longest string, FF , is only 1830 mm long, while the FF strings on Stein's other extant pianos range from 2111 to 2128 mm.¹¹¹

Like most of Stein's extant pianos, the claviorganum lacks string gauge markings.¹¹² Indentations on the bridge consistent with the spiral wrappings of covered strings indicate that the claviorganum had covered strings on at least the lowest five notes, from $FF-AA$.

Stein did not use covered strings on his full-size grand pianos and they are not common on early grand pianos in general. Their use on the claviorganum is certainly because of the instrument's short bass scaling. The shortened scaling requires heavier strings in the bass to avoid the strings breaking, and covered strings have a better sound than very thick plain strings. The Verona *Vis-à-vis*, which also has short bass scaling, has covered strings on the lowest seven notes,¹¹³ and Latham has noted the existence of several other short-scaled wing-shaped pianos from around the same time that also use covered strings in the bass.¹¹⁴

Stein himself, in his notebook, recorded a stringing schedule for a "Fote [sic] piano petit" which specified covered strings in the bass, for the notes $FF-C$.¹¹⁵ Although the title could refer to a square or perhaps a harp-shaped piano, the existence of the claviorganum with its traces of covered

¹⁰⁸Ibid., 19. The phase I (1777) and phase III (1783-92) instruments are double-strung throughout.

¹⁰⁹Ibid.

¹¹⁰Ibid., 58-60 and 70-71 graphs 12-13. Latham argues that Stein designed the scaling of his pianos using an octave ratio of 1:1.95 rather than the Pythagorean ratio of 1:2.

¹¹¹Ibid., Table 55.

¹¹²Ibid., 51, and Latham, "Mozart and the Pianos," 146.

¹¹³Latham, *Stringing, Scaling and Pitch*, 28.

¹¹⁴For example, several *Tangentenflügel* by the firm of Späth und Schmahl: *ibid.*; and "The Sound of Some Late Eighteenth Century Keyboard Instruments," *Jaarboek Haags Gemeentemuseum*, 1993: 37.

¹¹⁵Stein notebook, 284.

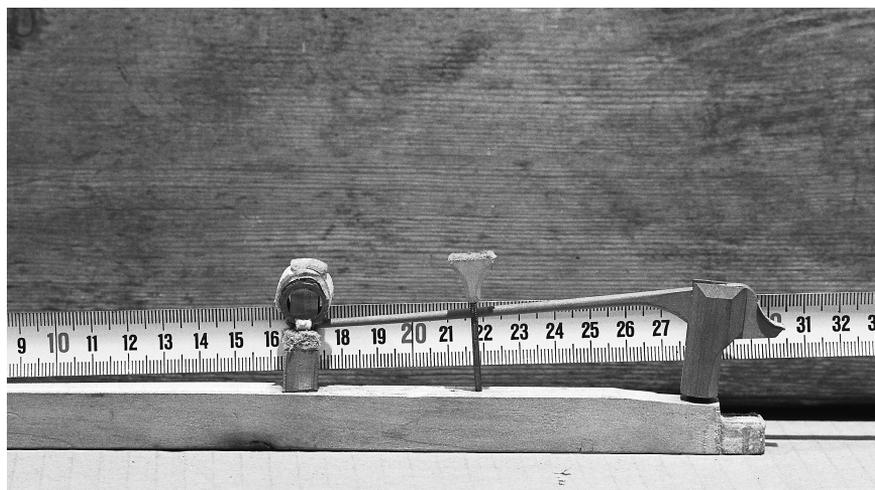


Figure 2.14: Hammer on the back of the key. Photograph courtesy of Tilman Skowroneck.

mounted in the organ keys that bear on the organ stickers. Depressing a piano key depresses the corresponding organ sticker and, in turn, the pallet (but not the organ key itself).

The hammer action is generally well-preserved. A few pieces of the action have been replaced or repaired, but nearly all of it is original. The workmanship of the action is very fine, with great consistency in the size of the pieces and smooth graduation from bass to treble. For the most part the surfaces are cleanly finished, although the chamfers on the edges of the damper rests and some of the surfaces of the capsules appear to have been filed rather than cut with a plane or chisel. There are numerous cut marks on the hammer shanks and the capsules, which may have been construction or adjustment guides, but I could not discern a pattern or definite function for the marks.

As in Stein's other phase II pianos, the hammer heads are hollow with the grain in concentric circles; they are reamed-out sections of a branch (Figure 2.16). Atypically for phase II, however, the claviorganum has small wooden blocks fixed inside the hammer heads of the bass notes, from *FF* to *E*. The tops and bottoms of the blocks are rounded to fit neatly into the heads and the wood of these blocks appears to be identical to the wood

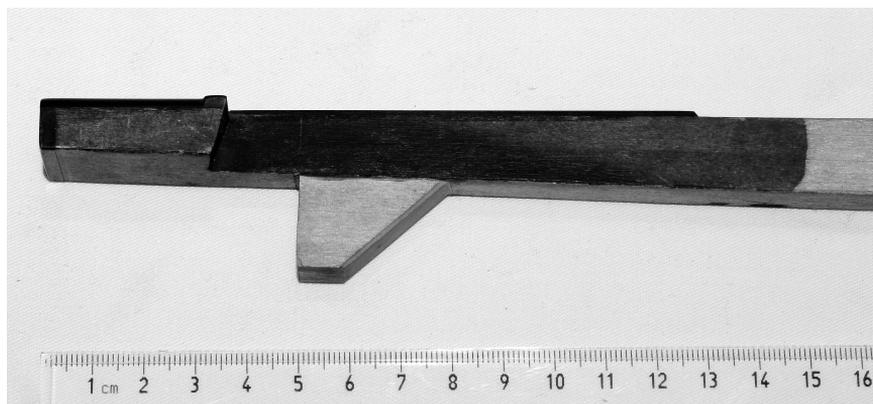


Figure 2.15: Piano key, showing coupler block.

of the damper rests; therefore, I think the blocks are probably original.¹¹⁸ Their purpose may have been to add mass to the bass hammers to compensate for the thicker strings, and covered strings, that were necessitated by the short scaling in the bass. It is also possible that they were intended to reinforce the sound of the bass notes in the piano to better match the organ sound; even though the organ compass only extends down to *C*, a stronger sound throughout the piano bass range might have been desired.¹¹⁹

The lowest layer of leather on the hammer heads is a dark brown leather that matches the leather on the hammer beaks. It is neatly applied and graduated in thickness, becoming thinner from bass to treble. In my opinion, it is possibly original (I discuss this further below). It is covered on some of the hammers by as many as three thicker layers of leather, and is not visible on some of the uppermost treble hammers (for example, *f*³).

The dampers and a cloth moderator stop are both operated by hand stops on either side of the keyboard (Figure 2.17). The damper rail works, as in a modern piano, by lifting the dampers off of the strings when engaged. The moderator consists of a wooden batten to which a row of cloth tabs is affixed; when engaged, the cloth tabs come between the hammers and the strings, muffling the sound. Although the damper and moderator are not divided, the stops can be drawn separately to operate the bass and

¹¹⁸In Latcham's unpublished documentation report held by the Gothenburg City Museum, he reaches a different conclusion.

¹¹⁹I would like to thank Tilman Skowronek for suggesting this possibility to me.

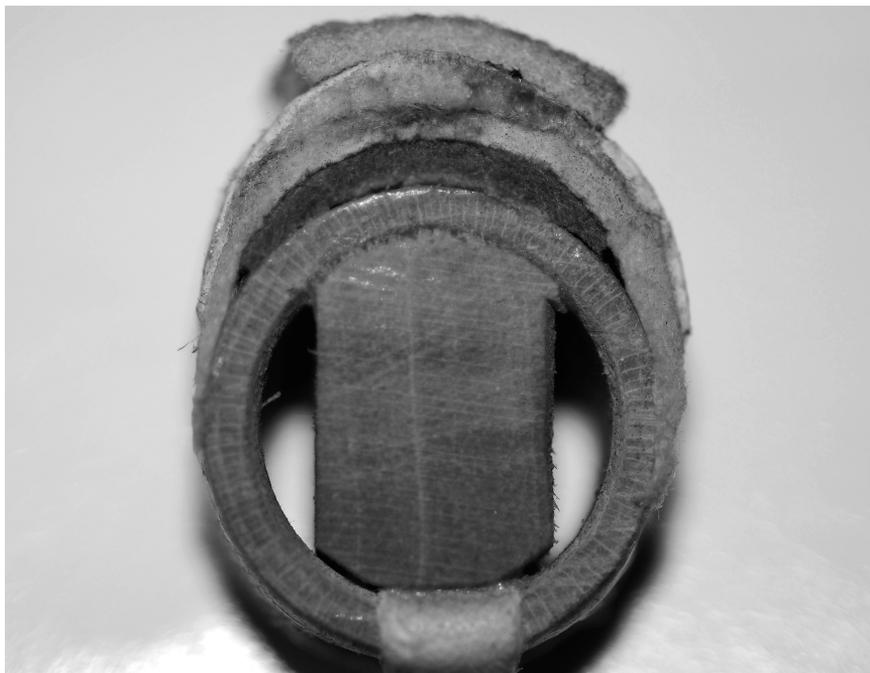


Figure 2.16: Bass hammer head.

treble sides individually (producing a “half-on” effect in the middle of the compass). The claviorganum is unique among Stein’s surviving pianos in having treble and bass dampers that can be raised separately; all of the other extant pianos use (or originally used) knee levers that raise all the dampers together.¹²⁰

The moderators in some Stein pianos are not thought to be original.¹²¹ However, in the claviorganum, the moderator mechanism—with its hand stops on the outside of the case, walnut jambs and brass adjustment knobs on the inside of the case—is identical to the damper mechanism. This suggests that the moderator is original.

¹²⁰Latcham, “Mozart and the Pianos,” 128; and “Swirling,” 511.

¹²¹John Koster, “Grand Piano,” 134; Latcham, “Mozart and the Pianos,” 127. More recently, however, Latcham has suggested that the claviorganum moderator is in fact likely to be original: for example, “Franz Jakob Spath,” 152 n. 15.

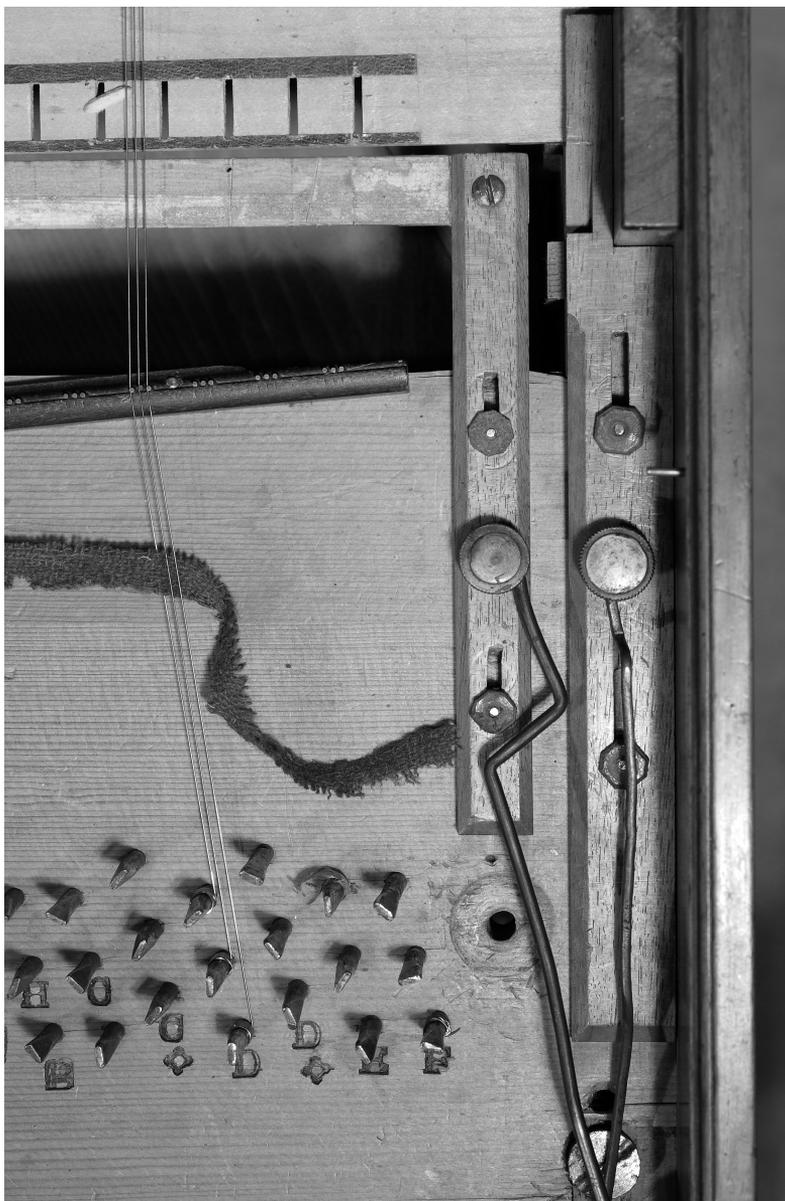


Figure 2.17: The treble action jacks for the damper and moderator, led across the top of the wrestplank.

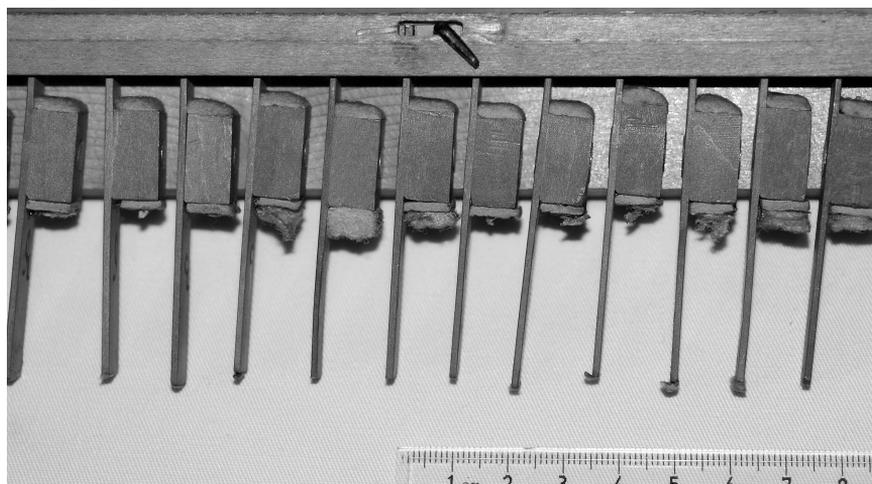


Figure 2.18: The damper rail, viewed from the back.

Sound and Registration

The Organ

The stopped wooden pipes of the organ would have produced a soft, mostly fundamental sound, with a brighter character in the treble, where the pipes are open instead of stopped. The sound of the pipes would have blended well with other instruments and been well-suited for continuo playing with solo instruments or voice.

Played alone, the organ would probably have been better suited for solo melodies than for polyphony. Using the *Windschweller*, it would probably also have been possible to “shake” the volume and pitch of individual notes, as well as to produce a gradual *crescendo* or *decrescendo* with a corresponding increase or decrease in pitch across a whole phrase or passage.

The Piano

The hollow hammer heads of the piano action, with their thin leather coverings, would have produced a rather soft tone that probably blended well with the sound of the organ. The moderator could have been applied at will to further soften the sound, or the dampers raised to create a more ringing, sustained sound.

Latcham has suggested that the hammers of the claviorganum's piano were originally unleathered.¹²² He points out that the brilliant timbre of the harpsichord, a timbre approximated by the sound of bare wooden hammers, remained important throughout much of the early history of the piano, at least until the mid-1780s. Stein's 1777 *Vis-à-vis*, for example, has bare wooden hammers. Possibly, the pianos in Stein's workshop that Wolfgang Mozart praised in 1777 did too: as Latcham notes, Spath's *Tangentenflügel*, which Mozart had apparently previously favored,¹²³ used bare wooden tangents that would have sounded similar to unleathered hammers. Latcham also argues, based on a contemporary report that describes the sound of pianos by Stein's workman Johann David Schiedmayer as "harpsichord-like," that the pianos Schiedmayer built after he left Stein in 1781 had unleathered hammers.¹²⁴ Therefore, he concludes, in 1781 Stein was probably using bare hammers as well: "After all, if Stein had been using leather on his hammers when Schiedmayer was with him, we could expect Schiedmayer to have used leather as well, following his master's ways."¹²⁵

In Latcham's opinion, the moderator on the claviorganum was intended to provide a soft alternative to the louder, more brilliant sound that such bare hammers would have made, and the very presence of the moderator constitutes some evidence that the hammers were originally unleathered. As he points out, surviving early instruments with bare wood hammers or tangents often also have moderators; these include Stein's *Vis-à-vis* and Spath's *Tangentenflügel* as well as Schiedmayer's pianos. In the latter two cases, the moderators are of leather, and in Schiedmayer's pianos, the moderators, which were operated with the knee, were normally in the "on" position. Stein's later instruments, which do have leathered hammers, do not have moderators, or their moderators are not thought to be original. Latcham suggests that "it was probably not until 1782, after Schiedmayer had left, that Stein relinquished the moderator and leathered the hammers of his pianos."¹²⁶

Latcham's point that the timbre of unleathered hammers would have

¹²²Latcham, "Swirling," 512-13.

¹²³"Before I had seen any of Stein's work, the Späth Claviers were my favorites. . ." ("Ehe ich noch vom stein seiner arbeit etwas gesehen habe, waren mir die spättischen Clavier die liebsten. . .") Wolfgang Mozart to Leopold Mozart, Augsburg, October 17, 1777, in *Mozart: Briefe*, 2:68.

¹²⁴Additional evidence that Schiedmayer used bare hammers comes from a catalog entry for an exhibition at which one of his pianos, now lost, was displayed; the entry notes that the piano originally had bare hammers, which had been leathered: Latcham, "Johann Andreas Stein," 152, where he also discusses the timbre of bare hammers further.

¹²⁵Latcham, "Swirling," 512.

¹²⁶*Ibid.*, 513.

been a familiar and popular one throughout the 1770s and 1780s is well-taken. The surviving instruments certainly indicate that bare hammers were an important and accepted sound during the period. In my opinion, however, it does not necessarily follow that the claviorganum had bare hammers, and there are simply not enough extant instruments to draw conclusions about Stein's normal practice during this period. Even supposing that his normal practice was to use bare hammers, the claviorganum, in which the sound of the piano had to be combined with the sound of the organ, could well have constituted an exception. The piano in the Verona *Vis-à-vis* piano pairs a moderator stop with bare hammers, but the *Vis-à-vis* piano is combined with a harpsichord, not an organ. The fact that the hammer leather matches the leather on the hammer beaks, and the fact that it is neatly applied and graduated in thickness through the compass are some evidence that the leathering on the claviorganum may, in fact, be original.¹²⁷

The claviorganum's moderator stop, moreover, in contrast to Schiedmayer's moderators, is probably meant to be off by default. It is operated by two hand stops, similar to organ stop knobs, one on either side of the console. Just as one pulls an organ stop to turn it on, one pulls the moderator stop to turn on the moderator. If one were to sit down at the claviorganum and simply begin to play, the knob would probably be pushed in, and the moderator would be off; this, then, ought to be the default position. It would be turned on for special effects or in music where the soft effect was particularly desired. By the same logic, the dampers, too, are on by default.¹²⁸ Since both moderator and dampers are hand-operated, they probably would have been used to register whole sections or pieces, not for quick expressive effects in short passages.

The sound of the piano, then, would probably have been that of hammers with a thin single layer of leather; this would have been a softer and more mellow tone than that of bare hammers. The moderator provided an option to make the sound even softer, and may have represented an attempt to blend the piano sound more completely with the organ sound.

¹²⁷Indeed, the same criteria are used by Latcham to suggest that the leathering in the Naples *Vis-à-vis* (1783) is original.

¹²⁸In some early hammered instruments—including, according to the published description, Stein's *Poly-Tono-Clavicordium*—the default position for the dampers was off; that is, the normal sound was undamped.

The Organ and Piano Together

The piano and organ can be played separately, or at the same time on separate manuals. The fact that the organ compass does not extend as far down as the piano compass is no doubt at least partly for practical reasons. Longer pipes would have required a larger case, and the existing bass pipes are in fact fitted very tightly into the available space. The short compass of the organ, however, also suggests the possibility of using the organ as a solo or melody voice and accompanying it with the left hand on the piano manual.¹²⁹ In such a registration, the *Windschweller* could have been used to create dynamic variation in the melody line.

The two manuals of the claviorganum may also be coupled together, in which case they both would have sounded together on the upper manual. A melody played on the organ could then be accompanied by the piano plus organ in the left hand. The piano sound might then function as a thickening of the organ sound in the bass register. Possibly this would have been a registration that invited the use of the moderator to further soften and blend the sound of the piano with the organ.

It would also have been possible to quickly switch between playing the organ alone and playing the piano and organ together, by switching between manuals with the coupler engaged. It would not have been possible, however, to switch quickly between the piano alone and the piano and organ together; this would have required turning the coupler on and off. (If, however, the organ originally had a foot-operated *Sperrventil*, rather than the *Windschweller* that is now in place, then this could have been used to quickly alternate between the piano alone and the two instruments together.)

2.4 Organized Pianos in the Late 18th Century

Organized harpsichords are known to have existed from the fourteenth century, but organized pianos, of course, are much newer. Stein's claviorganum must have been, as a matter of fact, among the very earliest organized

¹²⁹The Englishman John Marsh describes using such a registration on a combination of an organ and a "piano-harp" built for him in 1781: "Each instrument had its own manual: so that I could make transitions from one to the other, or could to a cantabile treble on the swell of my organ play a kind of harp-accompaniment with my left hand on the piano-harp." Cited in Peter Williams, "The Earl of Wemyss' Claviorgan and its Context in Eighteenth-Century England," in *Keyboard Instruments: Studies in Keyboard Organology, 1500-1800*, ed. Edwin Ripin (New York: Dover Publications, Inc., 1977), 80.

grand pianos built.¹³⁰ Both organized squares and organized grands were built during the eighteenth century, but organized squares, like the square piano itself, were more common.

In 1766, Dom Bédos describes an organized square piano with four organ stops and two manuals, of which the lower manual, for the organ, could be coupled to the upper. According to Cole, square pianos combined with one or two organ stops (a stopped wooden 8', sometimes together with a metal 4') were made by nearly all square piano makers in London, and were exported all over Europe during the latter decades of the eighteenth century. Such instruments had only one manual; the organ was playable from the piano keyboard. Cole suggests that in these instruments the 8' stop was used to "sweeten and prolong" the sound of the piano.¹³¹ Organized grand pianos such as the Gothenburg claviorganum were certainly much rarer. I know of only two surviving organized grand pianos from about the same period as the Gothenburg instrument: a grand piano combined with four organ stops attributed to Christian Gottlob Friederici, c. 1805,¹³² and an instrument by Franz Xaver Christoph, c. 1800.¹³³

Organized squares and grands together, however, perhaps made up a not-insignificant percentage of the pianos sold toward the end of the eighteenth century. An inventory of musical instruments confiscated from the nobility during the French Revolution, compiled in 1794-95, lists a total of 64 pianos, of which six, or about ten percent, are organized pianos. Four were by London makers (one by Zumpe, 1771; two by Adam Berger, 1775 and 1778; one by Longman & Broderip, n.d.); two were by Sebastian Erard of Paris (1790 and 1791). Whether or not any of these were organized grands is not noted in the inventory.¹³⁴

Mauder has catalogued the musical instruments advertised in Vienna in the *Wienerisches Diarium/Wiener Zeitung* during the period 1721-1800. Between the years 1721 and 1781, a total of 219 instruments were advertised according to Mauder's count; three of these were organized harpsichords. The earliest advertisement for an organized piano appeared in 1782. Between 1782 and 1800, a total of 1,055 instruments were advertised, and ten

¹³⁰It is apparently among the first, if not the first, of which any evidence, either documentary or physical, is preserved. I am grateful to Eleanor Smith for discussing this with me.

¹³¹Cole, *The Pianoforte*, 237-253.

¹³²In the Grassi Museum für Musikinstrumente, Leipzig; cited in *ibid.*, 251.

¹³³In the Jevisovice castle in Bohemia, inventory number E 167; cited in Latham, *Stringing, Scaling and Pitch*, 13 n. 43.

¹³⁴Cited in Albert G. Hess, "The Transition From Harpsichord to Piano," *The Galpin Society Journal* 6 (1953): 88-90. The inventory is given in English translation; Hess does not discuss the original French names of the instruments.

of these, or about one percent—not unsurprisingly, a much smaller percentage than that found among the pianos of the wealthy French aristocracy—were organized pianos of one variety or another. Most of the advertisements do not specify the type of piano, but at least two of them were organized squares, and one was an organized upright piano.¹³⁵ An advertisement that appeared on March 13, 1782 was for “a *Positiv* in very good condition, which is provided with a *Forte piano*, where each one can be played separately on a keyboard, and also coupled.” As Maunder has pointed out, the disposition and specification of this instrument sound similar to that of Stein’s claviorganum,¹³⁶ although it is likely that it was a square instrument, not wing-shaped, like Stein’s.

The Viennese organized pianos were often advertised as pianos “with flutes”: “ein Forte piano mit Flöten und Traver” (April 14, 1798); “ein organisirtes Flöten-Forte piano” (November 27, 1799); “ein Forte piano mit Flöten” (October 1, 1800).¹³⁷ This may be an indication that, in contrast to earlier organized harpsichords with a full plenum of organ stops, and some larger organized pianos with multiple stops, many smaller organized pianos with only one or two soft stops functioned as stand-ins for the combination of piano and flute, the latter instrument having become increasingly popular among amateur musicians during the late eighteenth century.¹³⁸ In 1772, Stein wrote that players could use his *Melodica* in combination with another keyboard instrument to perform violin and flute concertos. This repertoire is certainly a possibility for the Stein claviorganum, and it may have been an important part of the repertoire for the numerous other small “flute-fortepianos” of the period.

In 1792 (the year of Stein’s death), the Augsburg builder Franz Joseph Wirth, who had been one of Stein’s journeymen, advertised an organized piano in a local paper. He described it as “a new kind of *Fortepiano*,” “provided with a pleasant flute, which can be played with or without strings,” and noted that “the outer form is that of the usual *Fortepiano*,” with neither pipes nor bellows discernible from the outside. Thus, the basic disposition of the instrument was similar to that of the claviorganum, and, although the advertisement does not specify whether the instrument was square or wing-shaped, possibly its appearance was as well. Wirth’s instrument, however,

¹³⁵Maunder, *Keyboard Instruments*.

¹³⁶“Ein sehr wohl conditionirtes Positiv, welches mit einem Forte piano versehen ist, wo ein jedes ins besondere auf einem Manuale, und auch in Couplen zu schlagen ist. . . .” *Ibid.*, 109, 151.

¹³⁷*Ibid.*, 187, 193, 195.

¹³⁸Ardal Powell, *The Flute*, Yale Musical Instrument Series (New Haven: Yale University Press, 2002), 110-11.

also had “9 stops or variations” which could be operated “with the knee”; it had, moreover, “a *Piano* [i.e., a soft register]. . . installed in it, which loses itself in the *decrecendo* almost to inaudibility, and which one can also allow to increase again to *forte*.” Wirth calls the “*Force*” of this new instrument “unexpected.”¹³⁹

The reference to a *Piano* stop capable of an extreme *decrecendo* and an “unexpected” effect recalls the contemporary descriptions of Stein’s *Saitenharmonika*, and the instrument Wirth describes sounds like a *Saitenharmonika* combined with a stop of flue pipes, and with some other unspecified available mutations. Wirth set up his own shop in Augsburg in 1789, with Stein’s support;¹⁴⁰ although there is no direct link between his “new kind of *Fortepiano*” and the claviorganum, Wirth’s instrument might be evidence that Stein’s interest in combining the sounds of strings and pipes persisted during the 1780s.

By the 1820s, organized pianos like the claviorganum had perhaps become less popular, at least judging from a brief statement by the piano maker Johann Lorenz Schiedmayer in an instruction manual for fortepiano owners. Schiedmayer says that if made well, “Flöten-Claviere” had a “beautiful effect,” but he also reports that such instruments were both rare and not generally useful, and he does not consider that they have a place in a general discussion of the piano.¹⁴¹

¹³⁹“Fürs zweyte ist auch eine neue Art von Fortepiano fertig geworden. . . Dieses Instrument ist mit eine angenehmen Flötte versehen, welche mit oder ohne Saiten gespielt werden kann, und hat 9. Züge oder Veränderungen, welche mit dem Knie gedrückt werden können. Die äusserliche Form, ist die nemliche wie bey dem gewöhnliche Fortepiano. Man wird dabey weder Pfeifen noch Blasbalg gewahr, so daß man es dem äusserlichen Ansehen nach von einem gewöhnlichen Fortepiano nicht unterscheiden kann. Est ist daran ein Piano angebracht, welches sich im Decrescendo bis zum fast unhörbaren verliert, wie man es auch wider bis zum Forte anwachsen lassen kann. Die Force dieses Instruments ist unerwartend.” *Augsburgische Ordinari Postzeitung*, “Bekanntmachung,” July 4, 1792, <http://www.bibliothek.uni-augsburg.de/dda/dr/ztg/ordpost/>.

¹⁴⁰Documents treating Wirth’s citizenship application are transcribed in Klaus, *Studien zur Entwicklungsgeschichte*, 1:395.

¹⁴¹“Andere Gattungen von Clavieren, z.B. Flöten-Claviere, haben keine allgemeine Anwendbarkeit, sind deswegen selten, und gehören nicht hieher. Die mit einem Flötenwerk verbundenen Forte-Pianos namentlich müssen sehr gut angelegt und gemacht seyn, wenn sie gute Dienste machen sollen. Ihre Wirkung ist übrigens dann sehr schön.” Johann Lorenz Schiedmayer and Carl Dieudonné, *Kurze Anleitung zu einer richtigen Kenntnis und Behandlung der Forte-Pianos* (Stuttgart, 1824). Facsimile edition (Tübingen: 1994), 23.

2.5 Summary

Johann Andreas Stein trained with one of the most renowned organ building families of his day, and he achieved renown himself, both for his church organs, as well as the excellent pianos that he came to build. His career unfolded before observers in the contemporary press, however, first and foremost as a series of musical inventions, including the *Poly-Tono-Clavichordium*, the *Vis-à-vis* instruments, the *Melodica*, and the *Saitenharmonika*. The Gothenburg claviorganum, an organ-piano with fewer obviously remarkable features than these instruments, and with at least some contemporary counterparts, was less commented upon. Its identification by Paul von Stetten as one of Stein's "works of art," however, suggests that it should be considered among the panoply of Stein's inventions. The next chapter begins that task by exploring what made an instrument a "work of art," or an instrument builder an artist, in Stein's and Stetten's Augsburg.

Chapter 3

Artists and the Arts in Augsburg

In the previous chapter, Paul von Stetten's *Kunst-Geschichte* provided the framework for a review of Stein's life and work, as well as evidence for the attribution and early history of the Gothenburg claviorganum. In this chapter, I return to the *Kunst-Geschichte*, but here I use it, along with some of his other writings, as a foundation for elucidating Stetten's definition of art.

In the second volume of the *Kunst-Geschichte*, Stetten identified several new instruments by Johann Andreas Stein as "Kunstarbeiten": or, in my translation, "works of art." The passage reads:

To the newest works of art [*Kunstarbeiten*] by our famous Mr. Stein belong a Clavecin organisé built for Sweden, as well as a so-called *Vis à vis* or *Doppelflügel*. . . also a *Piano forte* that is common, to judge from its shape, but which is different in its sound.¹

One recent translation of this passage rendered Stetten's *Kunstarbeiten* as "works of craftsmanship." Another chose "creations."² The two English

¹"Unter die neuesten Kunstarbeiten unseres berühmten Herrn Steins gehören ein nach Schweden verfertigtes Clavecin organise [sic], sodann ein sogenannter *Vis à vis* oder *Doppelflügel*. . . ferner ein seiner Gestalt nach gemeines, im Ton aber verschiedenes *Piano forte*." Paul von Stetten, *Kunst- Gewerb- und Handwerks-Geschichte der Reichs-Stadt Augsburg: Zweiter Theil oder Nachtrag* (Augsburg: Conrad Heinrich Stage, 1788), 56, http://www.bibliothek.uni-augsburg.de/de/dda/urn/urn_uba000200-uba000399/uba000210/.

²John A. Rice, "Stein's 'Favorite Instrument': A *Vis-à-vis* Piano-Harpsichord in Naples," *Journal of the American Musical Instrument Society* 21 (1995): 37; and Michael Cole, *The Pianoforte in the Classical Era* (Oxford: Clarendon Press, 1998), 338, respectively.

terms carry quite different sets of associations, and the disparity between them makes it clear that what Stetten actually meant by such an apparently simple word—the associations it carried for him—is not as obvious a thing as it might seem.

The English word “art” derives from the Latin *ars*. To writers in antiquity, *ars* designated human activities of making, or technical production, that relied upon knowledge or reason.³ “Art” continued to carry the primary meaning of practical activity informed by knowledge—approximating what might today be called skilled craft—into the eighteenth century. This sense of the word is still preserved in, for instance, the word “artificial,” which describes something made, as opposed to something natural.

Medieval systems of knowledge posited two different kinds of arts: the liberal and the mechanical, also called “illiberal”.⁴ The liberal arts made up the curriculum of the medieval university; they were taught to “free men” who did not have to labor with their hands for a living. The mechanical arts were professional, vocational subjects, and had a lower status.

Today, the word “art” normally refers to an activity informed not by rational knowledge, but by individual creativity or inspiration. The boundaries of the category are certainly not uncontested, but “art,” in its unqualified form (as opposed to, say, “the applied arts,” or “the decorative arts”), is always understood to include at least those activities known as the so-called “fine arts,” among which music, for instance, is counted. The fine arts crystallized as a separate, coherent group around the middle of the eighteenth century.⁵ Some of them, like music, had previously belonged to the liberal arts, while some, like sculpture, had belonged to the mechanical arts. Eighteenth-century systems of knowledge defined the fine arts in opposition to the utilitarian mechanical arts, as arts of pleasure or entertainment,

³A review of the history of *ars* and its Greek equivalent, *techne*, with reference to the emergence of the group of the fine arts, is in Paul Oskar Kristeller, “The Modern System of the Arts: A Study in the History of Aesthetics Part I,” *Journal of the History of Ideas* 12, no. 4 (1951): 496-527. The historical relationship between *ars* and craft is reviewed in Christopher Janaway, “Arts and Crafts in Plato and Collingwood,” *Journal of Aesthetics and Art Criticism* 50, no. 1 (1992): 45-54.

⁴Reviewed in George Ovitt, “The Mechanical Arts,” in *The Restoration of Perfection: Labor and Technology in Medieval Culture* (New Brunswick and London: Rutgers University Press, 1987). The mechanical arts were not defined as early as the liberal arts, however, and whereas there was broad agreement on the seven liberal arts and their division into quadrivium and trivium, different systems offered different arrays of mechanical arts.

⁵Kristeller, “Modern System Part I,” and “The Modern System of the Arts: A Study in the History of Aesthetics (II),” *Journal of the History of Ideas* 13, no. 1 (1952): 17-46. On music especially, see Edward Lippman, “Music as a Fine Art,” in *A History of Western Musical Aesthetics* (Lincoln: University of Nebraska Press, 1992).

whose object was to imitate beautiful nature. At that time, the fine arts were only beginning to be understood as inspired, creative activities, as they are today, and they were still allied to the mechanical arts, subsumed together with them under the larger category of the arts as a whole.

To translate Stetten's *Kunstarbeiten* as "works of art" might therefore seem a poor choice. The problem is not that *Kunst* does not mean "art"; the two words have always translated one another. Rather, the problem is that "art" in Stetten's time was not the same as "art" today. Stetten did not think about Stein's instruments in the way that we think about a painting or a piece of music; in fact, he did not even think about a painting or a piece of music in quite the way we do. Pamela Long describes the problem succinctly with reference to other tricky "conceptual categories" such as "science" and "technology": these words are, she says, "present-day terms whose meanings may be inappropriate or misleading for past cultures even when cognate terms exist in the diverse languages of those cultures." The word "art" presents the same difficulty. To translate *Kunstarbeiten* as "works of art" risks misleading present-day readers.

Recognizing the problem, both of the alternative translations for *Kunstarbeiten* that I mentioned above—"works of craftsmanship" and "creations"—depart from the literal, and attempt instead to express what Stetten actually meant, in modern language. They do so in quite different ways, thus revealing quite different preconceptions about what kind of objects the instruments Stetten is describing actually *were*. The translation into "works of craftsmanship" assumes that Stetten saw Stein's instruments first and foremost as examples of skilled work done with the hands, an interpretation that the older meaning of *Kunst* certainly allows for. The translation into "creations" assumes that Stetten found the instruments' newness—evidence, perhaps, of an inspired mind at work—to be their most pertinent characteristic; this interpretation nods toward the increasingly close association of the word *Kunst* with creativity and the fine arts near the end of the century. Both interpretations are reasonable, and both gather Stein's instruments into a category where, for present-day readers, they find a comfortable fit. The fact that the two categories are so different, however, makes it clear that there is more to discover about where Stetten actually thought the instruments belonged.

Long argues that in order to understand a historical text, or even a historical artifact, it is critical to reconstruct the historical meaning of words like "art"—or, as she points out, what is likely to be an entire "complex of meanings." As I explained in chapter 1, I attempt to apply that approach in this study. In translating *Kunstarbeiten* as the deliberately dissonant "works of art," my intent is to keep the gap between Stetten's understanding and

ours wedged open, in order to motivate and make space for an investigation of his meaning, or meanings. Such an investigation has the potential to result in new knowledge about the kinds of objects Stein's instruments were to Stetten and other contemporary observers, and thus to suggest new questions to pose to the historical material.

In this chapter I examine the meaning of the word *art* for Stetten, and his near-contemporary Stein, using several different approaches. The first part analyzes two texts about the arts by Stetten, assembling from them his own understanding of what *Kunst* denoted, as well it what it connoted. The second part connects Stetten's writings on art to particular political and cultural institutions in Augsburg. The third part demonstrates the relevance to Stein of local conversations about art.

3.1 Paul von Stetten on Art

Paul von Stetten the Younger (1731-1808) was a prominent member of the leading family of Augsburg's patrician class. He took up a seat on the Augsburg city council in 1770; in 1792, he became a city mayor (*Stadtpfleger*), and held that office until 1805, when the Treaty of Pressburg turned Augsburg over to Austria and the city lost its status as a Free Imperial City.⁶

Stetten was also a prolific writer who published numerous books about Augsburg and its history. An author in the Enlightenment tradition, he aspired to write appealing, accessible, and educative books for the general reader. Especially in his later works, he concentrated on chronicling the arts, trades and crafts in Augsburg—matters that, as he put it, were “seldom found in printed books”⁷—and in this goal, too, he joined a great project of the Enlightenment.⁸

In this section I analyze two works by Stetten that present very similar systems of the arts, but for two different purposes: in one instance, to

⁶Biographies of Paul von Stetten the Younger are Siegfried Merath, *Paul von Stetten der Jüngere: ein Augsburger Patrizier am Ende der Reichsstädtischen Zeit* (Augsburg: Hans Rösler Verlag, 1961); and Ingrid Bátori, “Paul von Stetten der Jüngere. Augsburger Staatsman in schwieriger Zeit,” *Zeitschrift des Historischen Vereins für Schwaben und Neuburg* 77 (1983): 103-24. A concise biography of the Stetten family is in Paul von Stetten, *Der Mensch in seinen verschiedenen Lagen und Ständen für die Jugend geschildert* (Augsburg: Johann Jacob Haid u. Sohn, 1779). Facsimile edition, Helmut Gier, ed. (Nördlingen: Dr. Alfons Uhl, 1998).

⁷“Diese aber findet man selten in gedruckten Büchern. . .” Paul von Stetten, *Kunst-Gewerb- und Handwerks-Geschichte der Reichs-Stadt Augsburg* (Augsburg: Conrad Heinrich Stage, 1779), “Vorrede,” http://www.bibliothek.uni-augsburg.de/de/dda/urn/urn_uba000200-uba000399/uba000209/.

⁸On Stetten and the Enlightenment, see Merath, *Paul von Stetten der Jüngere*, especially 45.

narrate a universal history, in the other, a specific one. Both books draw a fundamental distinction between the fine arts and mechanical arts, but both also recognize connections between them; and both books use a cluster of ideologies—reason, progress, honor—to map the arts onto a hierarchy of social status and prestige.

Two Books

Stetten's most ambitious and most extensive treatment of the arts was his *Kunst- Gewerb- und Handwerks Geschichte der Reichs-Stadt Augsburg* ("History of the arts, trades and crafts in the Free Imperial City of Augsburg"), which appeared in two volumes in 1779 and 1788. In 1779, however, Stetten also published a much smaller book for schoolchildren that in many ways covered similar ground. Titled *Der Mensch in seinen verschiedenen Lagen und Ständen* ("Man in his various circumstances and classes"), this small primer, like the *Kunst-Geschichte*, consists largely of a systematized presentation of trades, crafts, and arts.

Because *Der Mensch* and the *Kunst-Geschichte* were written for different purposes, they offer different, complementary kinds of information about Stetten's concept of art. The *Kunst-Geschichte* is a real history: it abstracts a general system of occupations from specific information about the arts in one city, Augsburg. *Der Mensch* is a textbook: it uses a fully theoretical system of occupations as one component in an instructive, universal story about human life and humankind.

The text of *Der Mensch* is divided into numerous headings and sub-headings, but the flow of its narrative proceeds uninterrupted throughout the book. That narrative seamlessly fuses stories of progress on multiple levels: it moves from the past to the present; from the simple to the complex; from primitive societies to more advanced ones; from lowly to noble; and from birth to death, all at the same time. Man is born; forms cities and civilizations; works at menial jobs, then more intellectual ones; organizes simple occupations into more complex social and political institutions; and finally dies, and is buried.

At the core of *Der Mensch* is its system of occupations. That system is positioned within the overall narrative, at the same time as it also encapsulates within itself a demonstration of the theme of progress. It presents a series of occupations in a clear status hierarchy, which begins at the bottom with various kinds of manual labor, moves up through the mechanical arts, and reaches its pinnacle in the fine arts. The discussion takes place in the abstract, without reference to specific names or places, and Stetten also includes a few words about the philosophical grounds for his categoriza-

tion, something he never does in the *Kunst-Geschichte*. Each article that treats an occupation, however, is headed not with the name of the job, but with the title of its practitioner, so that in point of fact, Stetten builds his hierarchy not out of arts in the abstract, but out of individual people, many of whom literally “appear,” in engraved plates accompanying the text.⁹ The plates reinforce an important subtext: the theoretical system of occupations corresponded to a real social hierarchy which ranked not only particular jobs, but also individual people, over others.

Speaking to his young readers in the introduction to the book, Stetten notes that one of his main purposes was, in fact, precisely to school them in the hierarchy of his system, in order to help them make better sense of the world that surrounded them:

I would also very much like to give you a taste of how all these things [the subjects of the illustrations; i.e., the workers pictured and described in the text] are related to and differ from one another. You see many things with your own eyes every day. But. . . you still do not know how to place them into their groups, nor how to argue for why things are one way and not another. I would like to accustom you to this in good time, and I hope these illustrations will serve my purpose.¹⁰

In *Der Mensch*, then, Stetten shows clearly and pedagogically how everything fitted together: how different jobs were similar and different to one another; the relationships of the individual people working at those jobs to one another; and the place of those people in society—indeed, in human history—as a whole.

The *Kunst-Geschichte* is a more ambitious work than *Der Mensch*, and covers many more occupations; it is also, in some ways, less systematic, and

⁹“The Organ Builder” appears alongside “The Violin- and Pipe-Maker,” a plate that, like the majority of the illustrations, was drawn by Christian Erhardt (1731-1805) and engraved by Emanuel Eichel the Younger (1717-1782), both of Augsburg; Eichel had also executed an engraving of Stein’s Barfüßer organ, drawn by Stein. The plates illustrating painting, sculpture, music, theatre, dance, and parlor games were drawn by Johann Esaias Nilson (1721-1788), also of Augsburg. Nilson was famous for his drawings and miniatures in the Rococo style, and his illustrations, which depict scenes of leisure activities for the upper classes, feature more elaborately detailed interiors and garments than Erhart’s.

¹⁰“Auch möchte ich euch gern einen Vorschmack geben, wie alle diese Dinge zusammen hängen und aus einander gehen. Ihr sehet vieles täglich vor Augen. Aber, wann ihr auch, wie ich hoffe, darüber nachdenket, so wißt ihr es doch nicht in sein Fach zu bringen, noch die Gründe, warum es so und nicht anderst ist, anzuführen. Daran nun möchte ich euch bey Zeiten gewöhnen, und dazu wollen mir, wie ich hoffe, diese Kupferstiche dienen.” Stetten, *Der Mensch*, 3-4.

certainly less explicitly philosophical. The first volume lays out a complete system of the various occupations that were currently practiced, or had previously been practiced, in Augsburg, with the biographies of past and present workers at that occupation. The second volume is a follow-up to the first, and somewhat shorter. Here Stetten mostly maintains the same organization, updating his original entries under each category with newly discovered or corrected information. The *Kunst-Geschichte* is thus a local history and a biographical dictionary, and almost only incidentally a system of the arts. Its system is also less prescriptive than the one in *Der Mensch*: it includes specifically those occupations that were practiced in Augsburg, and its organization may be expected to reflect Stetten's perception of the real affinities between those occupations, both philosophical and social.

The Fine and the Mechanical Arts

First, it must be said that in neither *Der Mensch* nor the *Kunst-Geschichte* was Stetten's primary goal to lay out a philosophically stringent system of the arts. The books were written for other purposes. They do not include digrammatic representations of the arts, such as the famous taxonomy of knowledge prepared for Diderot's *Encyclopédie* (Figure 3.1).¹¹ Instead, Stetten's systems must be assembled from his tables of contents; from the headings and subheadings, which are not always consistent with the tables of contents; and, sometimes from a reading of the text itself. There are, moreover, differences between the systems presented in the two volumes of the *Kunst-Geschichte*, which were separated by only nine years, and there are also differences between the systems presented in the first volume of the *Kunst-Geschichte* and *Der Mensch*, which were both published in 1779.

Broadly speaking, however, the systems presented in the *Kunst-Geschichte* and *Der Mensch* are consistent with one another. In both works, Stetten sets up a binary system of the arts, where the primary distinction is between the fine and mechanical arts. He describes that organization in the foreword to the first volume of the *Kunst-Geschichte*:

The mechanical and fine arts make up two main divisions, whose subdivisions may be seen in the table of contents that is included.¹²

¹¹The diagram appeared in Jean d'Alembert's "Preliminary Discourse" to the *Encyclopédie*, published in 1751. A modern edition is in Denis Diderot and Jean le Rond D'Alembert, eds., *Encyclopédie, ou dictionnaire raisonné des sciences, des arts et des métiers, etc.* (University of Chicago: ARTFL Encyclopédie Project), Spring 2011 edition, Robert Morrissey, ed., <http://encyclopedia.uchicago.edu/>.

¹²"Nach der allgemeinen Einleitung machen die mechanische und die schönen Kün-

The subcategories of the mechanical arts in the *Kunst-Geschichte* include the typographical arts; architecture; the “true” (“eigentliche”) mechanical arts, among them organ building; the chemical arts; economics; and bodily exercises, in addition to a category for “Handwerker,” less-skilled workers. The fine arts, meanwhile, are divided into the visual arts, sculpture, and music (Table 3.1).

Stetten makes no explicit statement about the organization of the system of occupations in *Der Mensch*, but it is organized along the same broad lines as the *Kunst-Geschichte*. The system in *Der Mensch* is divided under ten major headings, each corresponding to a type of work, and each with sub-headings corresponding specific occupations. Each of the ten main headings is given equal weight in terms of typeface and layout—the list appears flat—but the content of the text clarifies a higher-level binary division between the mechanical and the fine arts. The first nine headings belong to the category of the mechanical arts, and the fine arts are all placed under the last heading (Table 3.2).

In both the *Kunst-Geschichte* and *Der Mensch*, then, Stetten constructs a group of the fine arts; by 1779, this represented a typical practice. Diderot and d’Alembert’s 1751 taxonomy, for example, had grouped music, painting, sculpture, architecture, and engraving together under the larger category of *Imagination*, although not under a heading of “fine arts.” Several decades later, the 1791 definition of *Kunst* in Johann Georg Krünitz’s *Oeconomische Encyclopädie* recorded what had by then become a codified understanding of the unity of the fine arts, listing a large number of so-called *schöne Künste*.¹³

Stetten never defines either the fine or mechanical arts explicitly in the *Kunst-Geschichte*, but he does do so in *Der Mensch*, the more pedagogical

ste zwey Haupt-Abtheilungen, deren Unter-Abteilungen aus dem angefügten Inhalt zu ersehen sind.” Stetten, *Kunst-Geschichte* 1779, “Vorrede.”

¹³Johann Georg Krünitz, *Oeconomische Encyclopädie*, s.v. “Kunst” (Berlin: Joachim Pauli, 1791), <http://www.kruenitz1.uni-trier.de/>. Krünitz (1728-1796) was a close contemporary of Stein (1728-1792). Krünitz’s lexicon is one of the largest reference works of the Enlightenment; in spite of the narrow focus suggested by its title, it aspired to be a universal collection of human knowledge, comparable in scope to the *Encyclopédie*, though it is less well known. It was published in 242 volumes from 1773 to 1858, under several, slightly varying titles, and was popular enough to merit a second edition printed in parallel with the first, separate printings of extracts from longer articles, and even a pirate edition. The article on *Kunst* was later excerpted in Adelung’s *Wörterbuch*, early in the nineteenth century. A review of the scope and publishing history of Krünitz’s lexicon is in Hans-Ulrich Seifert, “Dewey Meets Krünitz: A Classificatory Approach to Lexicographic Material,” in *Allgemeinwissen und Gesellschaft*, ed. Paul Michel, Madeleine Herren, and Martin Rüesch, 95-104 (2007), <http://www.enzyklopaedie.ch/kongress/aufsaetze/seifert.pdf>.

Table 3.1: Classification of the fine and mechanical arts in Paul von Stetten's *Kunst-Geschichte* (1779). The table shows only a selection of the headings at the lowest level.

Mechanische Künste	Schöne Künste
Typografische Künste	Zeichnende Künste
Schreibekunst	Malerey und Zeichnungskunst
Buchdruckerkunst	Kunst- und Gemäldesammlungen
Schrift- und Landkartenstecher	Holzschnitte
Bibliotheken	Kupferstecherkunst
Architekthische Künste	Gehämmerte Arbeit
Schreiner	Schwarze Kunst oder Sammetstich
Gartenbaukunst	Silberstecherkunst
Kriegsbaukunst	Glasschneiderkunst
Eigentliche mechanische Künste	Bildende Künste
Wasser- Mühlen- und Brückenbau: oder Zimmerkunst	Poßierkunst
Drechsel	Wachspoßieren
Orgelbaukunst	Stuccador: oder Gipsarbeit
Mechaniker, oder Verfertiger mathematischer und physikalischer Instrumente	Sculptur in Stein, Holz, Helfenbein u.a.
Uhrmacherkunst	Silber- und Goldarbeit
Die Kunst, sich selbst bewegende Bilder u.d.gl. zu verfertigen	Steinschneider
Handwerker	Siegelschneider
Armbrust- und Büchsenmacher	Stempelschneider
Grob- und Kleinschmiede	Münz- und Medaillensammlungen
Weber	Die Tonkunst
Tuchmacher	Tonkunst
Bortenmacher	Meistersänger
Cheymische Künste	Evangelischer Kirchen-Gesang
Naturaliensammlungen	
Metallurgische Künste	
Dratzieher	
Feuerwerkerkunst	
Glocken- Stück- Bildgießen u.d.gl.	
Apothekerkunst	
Kottondrucken und Malen	
Gefärbtes und gedrucktes Papier	
Gefärbtes und gedrucktes Leder	
Lackierkunst	

Table 3.2: Major headings and selected subheadings in Paul von Stetten's *Der Mensch in seinen verschiedenen Lagen und Ständen* (1779).

Main Heading	Subheadings (selected)
Gewerbe auf dem Lande	
Gewerbe, Handwerker und Künste in Städten: welche Speise, Trank, und was dazu gehöret, zubereiten und verfertigen	
Handwerker : welche die Kleidung und was dazu gehöret zubereiten und verfertigen	
Handwerker welche die Wohnungen aufbauen, auszieren und die nützlichsten Hausgeräthe verfertigen	
Handwerker , welche Holz bearbeiten	
Gewerbe und Handwerker, welche die Metalle durch Gießen bearbeiten	
Gewerbe und Handwerker welche die Metalle durch Hämmern und Schmieden bearbeiten	
Handwerker welche die Metalle durch ziehen bearbeiten	
Künste und Handwerker für die Wissenschaften, für das Kriegswesen, und für die Musik	Der Papiermacher und Kartenmacher Der Buchdrucker Der Ingenieur Der Mechanicus Der Schiffzimmermann Der Pulvermüller Der Orgelbauer oder Instrumentenmacher Der Geigen- und Pfeifenmacher Der Saitenmacher
Die schönen Künste	Die zeichnenden Künste Die bildende Künste Die Architectur oder Baukunst Die Tonkunst oder Musick Die Schauspielkunst Die Feuerwerkerkunst

work. There, in the opening sentences of the first article on the fine arts, “Die Zeichnende [sic] Künste” (the arts of drawing), he looks back upon all of the occupations that have been presented up to this point in the text, and names them collectively, for the first time, the mechanical arts:

All of those arts, trades and craftsmen [sic] that we have thus far considered serve either the necessary requirements of human beings for clothing, food, drink, living quarters and defense, or else the nobler arts and the sciences, and do so sometimes in indirect ways, sometimes direct. They are named mechanical arts, because their learning and execution mostly depends on certain manipulations and advantages.¹⁴

As the table of headings shows, the occupations that Stetten here identifies collectively as the mechanical arts have previously been identified in his text more variously, as arts (*Künste*), manual work (*Handwerke*), and trades (*Gewerbe*); nowhere does he maintain or define a rigorous distinction between those three categories. In some contexts, they simply seem to be interchangeable words, and as this passage shows, they all fit under the larger heading of “mechanical arts.”

Stetten goes on to define the fine arts by contrasting them with the mechanical arts:

The fine arts have as their object not the actual needs of human beings, but rather their enjoyment. They seek to imitate nature and to present it at its most beautiful.¹⁵

The definition is clear, and, again, typical for the period. The mechanical arts are utilitarian; they produce objects that meet a need. The fine arts provide pleasure or entertainment, and they do so by imitating beautiful nature. Thus, in his broad treatment of the fine and mechanical arts, Stetten’s systems represent a contemporary consensus on both the existence of

¹⁴“Alle diejenigen Künste, Gewerbe und Handwerker, welche wir bisher vor uns gehabt haben, dienen theils zu den nothwendigen Bedürfnissen des Menschen in Kleidung, Speise, Trank, Wohnung und Vertheidigung, oder zu edlern Künsten und den Wissenschaften, und zwar zum Theil auf mittelbare, zum Theil auf unmittelbare Weise. Sie werden mechanische Künste genennet, weil es bey deren Erlernung und Ausübung grösstentheils auf gewisse Handgriffe und Vortheile ankommt.” Stetten, *Der Mensch*, 117-18. (Stetten’s juxtaposition, in the first sentence, of *Künste* and *Gewerbe* with *Handwerker*, rather than *Handwerke*, is a recurring idiosyncrasy.)

¹⁵“Die schönen Künste haben nicht die eigentliche Bedürfnisse, sondern das Vergnügen der Menschen, zu ihrem Gegenstande. Sie suchen die Natur nachzuahmen und so vorzustellen, wie sie am schönsten ist.” *Ibid*, 118.

the two categories, and the grounds upon which they were separated from one another.

The particular system that Stetten employs in his books, however—a binary division, which posited fine and mechanical arts as equal and opposite—was not universally applied. Stetten’s system is not so much unconventional as representative of the fact that no one system was generally agreed upon. He acknowledges that situation, in an indirect fashion, when he states in the 1779 foreword to the *Kunst-Geschichte* that he makes no particular claims of correctness for his system:

I do not want to justify myself regarding the order that I have observed. . . Whether the [divisions] are skillful enough I must leave to the judgment of others.¹⁶

The humility with which Stetten proposes his principle of categorization is probably an honest reflection of a lack of consensus about the relationship of the fine and mechanical arts to one another, or even precisely which arts each category encompassed. D’Alembert’s tree of knowledge, for example, was divided into “Understanding,” “Reason,” and “Imagination”; the mechanical arts, or “Uses of Nature,” appeared as a small subdivision of “Understanding,” while the fine arts float ambiguously (and without a title) in the space under “Imagination.” Krünitz’s article, meanwhile, preserves a fundamental distinction between the mechanical and the liberal arts (“die freyen Künste”), and locates the fine arts as a subdivision of the liberal, along with “women’s arts” (“Frauenzimmer-Künste”; these included knitting and embroidery) and “arts of factories and manufactures” (“Fabriken- und Manufacturen-Künste”). Krünitz includes rhetoric and dance among the fine arts; d’Alembert places rhetoric far from the other other fine arts, under “Reason,” and does not include dance at all.

Stetten recognizes this ambiguity in another way in *Der Mensch*, in the same passage in which he defines the fine and mechanical arts. Sandwiched between his straightforward definitions, he inserts a kind of caveat. The distinction between the mechanical and the fine arts is, he carefully points out, not always cut-and-dried:

There are. . . very many among [the mechanical arts]. . . that assume a special refinement and in this way approach the fine arts, as is familiar from some kinds of metal- and woodworking.¹⁷

¹⁶“Ueber die Ordnung, die ich beobachtet habe, will ich mich nicht rechtfertigen. . . Ob sie schicklich genug sind, muß ich anderer Beurtheilung überlassen.” Stetten, *Kunst-Geschichte* 1779, “Vorrede.”

¹⁷“Indessen sind sehr viele darunter, welche eine besondere Verfeinerung annehmen

Although Stetten does not define this “particular refinement,” it seems logical to conclude that it must have consisted in the qualities that are usually considered to belong to the fine arts: that is, beauty and enjoyment, as opposed to simple utility. The article on “Architecture” in *Der Mensch* seems to illustrate just such a case:

When the [mechanical] art of building rises above what is necessary and comfortable for a building, and beautifies it by means of well-regulated [*regelmäßig*] magnificence and fineness, then it certainly belongs among the fine arts.¹⁸

The fine and the mechanical arts were different, to be sure, but they were built on the fundamental similarity of art as skilled work; thus, the divide between them was not so great that it could not be at least partly bridged.

Moreover, Stetten continues, the journey across the divide could be made in both directions:

Whoever knows how to give [the mechanical arts] this [refinement] deserves the name of artist [*Künstler*]; the others are people who work with their hands [*Handwerksleute*], regardless of whether they make their living with the mechanical or the fine arts.¹⁹

This remark further thickens the connection between the fine and mechanical arts, but in a complex way. It is, in fact, not a statement about art, but about people. Workers in either the fine or the mechanical arts, Stetten says, may or may not “deserve the name of artist”: the fine or mechanical arts remain what they are, but individual people of any profession can move in and out of practicing art.

The passage has two implications that I would like to explore. First of all, it suggests that *Kunst*, in addition to referring to any particular one of the arts, may also be understood as a collective category that transcends

und sich dadurch den schönen Künsten nähern, wie dieses von einigen Arten der Metall- und Holzarbeiten bekannt ist.” Stetten, *Der Mensch*, 118.

¹⁸“Wann die Baukunst sich über das nothwendige und bequeme bey einem Gebäude erhebet, und dasselbe durch regelmäßige Pracht und Zierlichkeit verschönert, so gehört sie allerdings unter die schönen Künste,” in “Die Architectur oder Baukunst.” Stetten, *Der Mensch*, 126. Johann Georg Sulzer defines *Regelmäßigkeit* as it pertains to the fine arts as “eine Eigenschaft der Form, in sofern man die Beobachtung einer Regel daran erkennt.” *Allgemeine Theorie der schönen Künste*, s.v. “Regelmäßigkeit” (Leipzig: M. G. Weidemanns Erben und Reich, 1771), <http://www.zeno.org/Sulzer-1771>.

¹⁹“Wer ihnen diese zu geben weiß, der verdient den Namen eines Künstlers, die übrigen sind Handwerksleute, sie mögen sich mit mechanischen oder schönen Künsten nähern.” Stetten, *Der Mensch*, 118.

the type of product being made, and is defined instead by other criteria. Stetten is not very specific about those criteria here, but it would seem that the defining characteristics of the fine arts—beauty, pleasure—are among them. Second, because the text refers, strictly speaking, not to “art” but to “artists,” the passage implies that these philosophical statements map onto a social reality. From Stetten’s use of the word “deserve” (“verdienen”; other possible translations are “merit” or “earn”), it is clear that the title of artist is an honorific: it is better to be an artist than not. In the next section, I examine each of these implications in more detail, and later in this chapter, I discuss Stetten’s efforts to promote the fine arts in Augsburg, and to confer increased privileges upon all workers identified as artists. For now, it is enough to say that in this passage, Stetten seems to see the elevated characteristics of the fine arts as a means of constructing social distinctions within and across the whole group of the arts.²⁰

Stetten provides numerous examples in *Der Mensch* of how the distinction between artists and non-artists may be drawn within a single occupation, in both the fine and the mechanical arts. An example from the mechanical arts is in the article titled “The carpenter, cabinetmaker, joiner” (“Der Schreiner, Kistler, Tischler”), in which Stetten distinguishes between the carpenter and the “artistic” carpenter—the carpenter makes plain, utilitarian furniture, while the artistic makes more elaborate, decorative pieces:

The carpenter works with the decoration of houses, and makes the necessary household furnishings of wood. . . There are artistic [*künstliche*] carpenters, who make decorated furnishings, and also combine foreign wood of many colors, or make inlays of it.²¹

²⁰One of the definitions that Krünitz records for the mechanical arts suggests something similar: he says that mechanical arts “distinguish themselves from *Handwerke*” “especially if they are directed not only to the needs of humankind, but also its pleasures”; and that to these occupations, “for their way of life, the name ‘art’ is given.” Krünitz’ suggestion that the name of art is bestowed upon an occupation for its “way of life” also implies a social component to the definition of art. Unlike Stetten, however, Krünitz does not go so far as to suggest that fine artists could actually devolve to the level of *Handwerksleute*. (“In einer andern Einschränkung sind die mechanischen Künste diejenigen, welche hauptsächlich eine Fertigkeit der Hand erfordern, ohne das Nachdenken und Fleiß bey deren Ausübung auszuschließen, besonders, wenn sie nicht bloß auf das Bedürfniß, sondern auch zugleich mit auf das Vergnügen der Menschen gerichtet sind. In diesem Verstande gibt es verschiedene Beschäftigungen, welche sich von den Handwerken unterscheiden, und für ihre Lebensart den Nahmen der Kunst hergebracht haben.”) Krünitz, s.v. *Kunst*.

²¹“Der Schreiner bearbeitet die Verzierungen des Hauses, und verfertigt das nöthige Hausgeräthe von Holz. . . Es giebt künstliche Schreiner, die dergleichen zierlich verfertigen, auch wohl ausländisches Holz von mancherley Farben zusammen setzen, oder solches einlegen.” Stetten, *Der Mensch*, 75.

An example from the fine arts comes from the article on sculpture, when Stetten distinguishes between the “true sculptor,” who is an artist, and carvers whose work only resembles that of the sculptor, and do not deserve that title:

The true sculptor makes, with a chisel, ornamented columns, or round- and bas-reliefs, that is, raised work in stone, especially marble, alabaster and similar materials, and in wood and ivory. There are *Handwerksleute* who carve images in wood, which bear some resemblance to the work of the sculptor, these are called doll-makers, and seldom merit the title of artist.²²

To sum up, Stetten’s systems of art reflect both a clear and uncontroversial philosophical distinction between the fine and mechanical arts, and a prevailing uncertainty about just how that distinction should be applied. In real life, as Stetten’s remarks and examples in *Der Mensch* make clear, the two categories remained entangled. Stetten, indeed, makes no argument for the philosophical correctness of his systems; instead, it seems that his presentation reflects, as much as anything else, the social realities that surrounded him. It was, however, important to reflect that reality accurately: the definition of art was intimately, if ineffably, connected to ideas about prestige and status, and so it mattered where the lines were drawn. Those intangible connections are the topic of the next section.

Status and Ideology

In the very first article in *Der Mensch*, “On Man,” Stetten asserts the privileged position of art, as a collective category, over other kinds of activity, describing it as an outpouring of the human soul:

Man is not only a body; he also has a soul united most exactly to the body, whose powers are much more wonderful than the body’s. . . by its power he achieves the greatest art, the greatest science, and indeed eternal salvation.²³

²²“Der eigentliche Bildhauer arbeitet mit dem Meisel Bildsäulen, oder runde- und Baßreliefs, das ist, erhabene Arbeit in Stein, besonders zu Marmor, Alabaster und dergleichen, und in Holz, wie auch in Elfenbein. Es giebt Handwerksleute, welche hölzerne Bilder schnitzen, die mit der Arbeit der Bildhauer eine Aehnlichkeit haben, diese werden Dockenmacher genennet, und verdienen den Namen der Künstler selten.” *Ibid.*, 124.

²³“... der Mensch ist nicht nur Körper; er hat auch eine mit dem Körper auf das genaueste vereinigte Seele, deren Kräfte noch weit wunderbarer als die körperlichen sind. . . Durch sie gelangt er zur größten Kunst, zur größten Wissenschaft, ja zur ewigen Glückseligkeit.” Stetten, *Der Mensch*, 5.

The practice of the arts, moreover, is a marker of civilization itself: for primitive peoples, Stetten writes, have “no understanding of God and their souls, no government, no laws, no arts. . .”²⁴ As I described above, the ordering of occupations in *Der Mensch* describes in itself an axis of increasing prestige: it shows that the arts are privileged over *Handwerke*, and within the arts, the fine arts are privileged over the mechanical. That order is echoed in the *Kunst-Geschichte*. In both books, Stetten ascribes an ideological content to the category of *Kunst* that links it inexorably to prestige and social status.²⁵

At the end of the preceding section, I quoted Stetten’s suggestion that mechanical arts might “approach” the fine arts by emulating their characteristic “refinement,” and that workers who achieve that refinement might be granted the special status of “artists,” as opposed to simply people who work with their hands. The fine arts were defined by leisure, pleasure, and decoration: qualities that were all aligned with the much older tradition that had elevated the liberal arts over the illiberal, laborious, mechanical arts, and were naturally associated with higher status. It is unsurprising, then—indeed, perhaps inevitable—that they could serve not only to distinguish the fine arts from the mechanical, but also to raise *Künstler* above *Handwerksleute*.

A kinship with the fine arts, however, was not the only intangible quality that Stetten used to define the category of *Kunst*. This section examines three more intangibles that Stetten associated with *Kunst*, all extracted from short passages scattered throughout the *Kunst-Geschichte* and *Der Mensch*, and all with strong ideological underpinnings. The three are rational understanding, improvement, and honor.

²⁴“...keine Begriffe von Gott und ihrer Seele, keine Regierung, keine Gesetze, keine Künste. . .” Stetten, *Der Mensch*, 7.

²⁵On the connection between cultural values and systems of knowledge, see George Ovitt, *The Restoration of Perfection*, 107-108. Ovitt is particularly concerned with medieval classification schemes, whose ideologically informed structure, he argues, not only reflected but actually contributed to the “lowly status” of the mechanical arts during that period. More generally, however, he notes that “from the time of the first systematic classifications of learning by the Greeks, the organization of knowledge has been in part determined by the perception of the cultural value or practical utility of a particular branch of knowledge.” With regards to the early modern period, James Farr points out that “occupational nomenclature, though not always a sure guide to the kind of work performed, more importantly to early modern Europeans, was a sure designation of the social attributes of the individual, his or her *qualité*”: “Cultural Analysis and Early Modern Artisans,” in *The Artisan and the European Town*, ed. Geoffrey Crossick (Aldershot: Scholar Press, 1997), 65.

Understanding and Reason

As he does in *Der Mensch*, Stetten finds it important in the *Kunst-Geschichte* to distinguish between work that qualifies as *Kunst* and work that does not, and several passages in the latter work introduce new criteria for that distinction. Prominent among these is intellectual understanding, or reason (*Verstand*).

Smiths, for example, fall under the category of *Handwerker* in the first volume of the *Kunst-Geschichte*, but Stetten qualifies this categorization:

Very few smiths are artists. There are some, however, who understand how to refine their work extraordinarily, partly with the help of mechanics, partly with the support of the art of drawing.²⁶

Here, as in *Der Mensch*, Stetten links artistry to a “refinement” associated with the fine arts—in this case, the art of drawing. He also clarifies, however, that smiths had to “understand” how to apply their knowledge of drawing in order to create that refinement. The German word is *verstehen*. Its noun form, *Verstand*, may be translated as “mind” or “reason”; *verstehen* connotes specifically a rational, intellectual form of understanding. Smiths could also refine their work, Stetten says, if they understood something of mechanics, a discipline with clear intellectual and scientific associations that required intellectual prowess to master. A smith who is an artist may achieve that status, in other words, by applying refinement borrowed from the fine arts, but reason is required to do so.

Stetten suggests this idea even more clearly when he describes the carpenters’ profession:

The carpenters belong to the common craftsmen. Very few of them are artists. But when they understand architecture and its proportions well, when they know how to apply such things skilfully, when they generally distinguish themselves with special industry and well-applied decorations, who would deny that they may be counted among that group?²⁷

²⁶“Die wenigsten Schmiede sind Künstler. Es giebt aber einige, die auch ihre Arbeiten theils mit Hülfe der Mechanik, theils durch den Beystand der Zeichnungskunst ungemein zu verfeinern verstehen.” Stetten, *Kunst-Geschichte* 1779, 202.

²⁷“Die Schreiner, oder wie wir hier sie nennen, die Kistler, gehören unter die gemeinen Handwerker. Die wenigsten von ihnen sind Künstler. Wann sie aber die Architektur und ihre Verhältnisse wohl verstehen, wann wie solche geschickt anzubringen wissen, wann sie überhaupts sich durch besondern Fleiß und wohl angebrachte Verzierungen hervorthun, wer wird anstehen, sie darunter zu zählen?” *Ibid.*, 112.

Here, Stetten again picks up the idea that the refinement of the fine arts is a component of *Kunst*, this time pointing to the rules of proportion, as well as “decorations.” And again, he says, these are things that must be understood with the intellect. Just as a smith must understand mechanics or drawing to be called an artist, a carpenter must understand proportion, and know how to apply its rules; he must apply decoration not haphazardly, but “well.”

Stetten’s declaration that intellectual or theoretical understanding was necessary to earn the status of an artist has its heritage in the ancient privileging of head over hand; intellectual labor has always had a higher status than manual labor. As in the case of the fine arts, which were associated with leisure and pleasure, the link between the exercise of the intellect and the high-status category of *Kunst* was supported by long-established cultural values.

Improvement and Progress

Stetten includes articles on organ building in both volumes of the *Kunst-Geschichte*; both times, they appear as a subcategory of the “true mechanical arts.” Stetten’s introduction to the true mechanical arts emphasizes the importance of mechanical understanding to these occupations, and their resulting high status. He also writes that the true mechanical arts are among those that are the most useful for society:

I now come to those arts from which the society of citizens in general, and our city in particular, draws extraordinary advantages, and which for just that reason have been practiced here since ancient times; they belong above all to the mechanical arts; and that mathematical science which is called mechanics is exercised most strongly in them.²⁸

By happy coincidence (or, perhaps, because Stetten saw Stein as one of the most prominent artists in Augsburg), the article about organ building in the first volume of the *Kunst-Geschichte* includes what is perhaps Stetten’s clearest statement about art in that work. There, he makes explicit another criterion by which *Kunst* may be identified: namely, improvement. Stetten explains:

²⁸“Ich komme nun auf Künste, von welchen die bürgerliche Gesellschaft überhaupts, und unsere Stadt insbesondere, ungemene Vortheile ziehet, und die aus eben der Ursache hier seit den ältesten Zeiten geübt worden sind; sie gehören vorzüglich unter die mechanischen Künste; und diejenige mathematische Wissenschaft, welche die Mechanik genennet wird, kommt bey diesen am stärksten in die Ausübung.” Stetten, *Kunst-Geschichte* 1779, 137.

The large musical machines that are known to us by the name of organ, as well as the smaller instruments which we call *Flügel*, *Clavicembel*, *Claviere*, *Piano forte* etc., certainly belong among the important creations of mechanics. Just as invention belongs among those things which do credit to human understanding, it also requires no mean understanding to imitate and improve those same inventions. The artist consists in this, namely in improvement: for the organ builder who stops at what he has learned from his master is a mere *Handwerksmann*.²⁹

In this passage, Stetten confirms the link between understanding and *Kunst*. As in the article on smiths, quoted above, he also indicates that understanding is necessary to apply the laws of mechanics, in particular. But he adds, as well, a new idea: he harnesses understanding specifically to the activities of “invention” (*Erfindung*) and “improvement” (*Verbesserung*).

One might expect that Stetten would find invention, presumably the more intellectually demanding activity, to be of a higher order than mere improvement. In fact, the opposite seems to be true: it is, in fact, not invention that Stetten associates with *Kunst*, but improvement: “The artist,” he declares, “consists in improvement.” Artists work to make things better; simply repeating things that have already been mastered is work of a lower order. Like leisure and understanding, improvement carries a strong ideological charge. To invent is to make something new, but to improve, by definition, is to progress. Once again, therefore, Stetten bundles a quality that is already valued highly in its own right into the category of *Kunst*.

A Higher Purpose

The article on organ building in the first part of the *Kunst-Geschichte* ends with the biography of Stein that was reviewed in the first part of chapter 2. After cataloging Stein’s life and musical instruments, Stetten concludes the biography as follows:

[Stein] belongs absolutely among those geniuses who always work toward perfection, and for whom the greatest pleasure

²⁹“Die großen musikalischen Maschinen, die uns unter dem Namen Orgeln bekannt sind, so wie auch die kleinern Instrumente, die wir Flügel, Clavicembel, Claviere, Piano forte u.d.gl. nennen, gehören allerdings unter die wichtigen Hervorbringungen der Mechanik. Gleichwie die Erfindung unter diejenigen gehöret, welche dem menschlichen Verstand Ehre machen, eben so gehört auch kein gemeiner Verstand dazu, dergleichen Erfindungen nachzuahmen und zu verbessern; in diesem, nämlich in der Verbesserung, bestehet der Künstler: dann der Orgelbauer, der bey dem stehen bleibet, was er von seinem Lehrmeister gelernt hat, ist ein bloßer Handwerksmann.” Ibid., 158.

is to have made something good and beautiful—even if their effort should not be rewarded as it deserves.³⁰

Artists could command monetary compensation commensurate with their skill, as Stetten explains in an article on weights and measures in *Der Mensch*:

the value of almost all goods is determined according to weights and measures, which are very different in each country. . . [but] works of art, especially paintings, copperplate engravings, books, compositions etc. are paid for neither according to measure nor weight, but rather according to the art and industry of the artist.³¹

To work solely for money, though, was apparently unworthy of an artist. *Kunst* was activity undertaken for its own sake, or for some other higher purpose, not for economic gain.

This idea was central for Stetten, and he confirms it in numerous places throughout his texts. The article on carpenters, cited above, refers to it obliquely, when Stetten says that carpenters who “distinguish themselves” with “special industry” may earn the right to be called artists, but in other passages, he expresses the idea more explicitly. Frequently, he uses the metaphor of earning one’s daily bread to convey his meaning. In the article about smiths, also cited above, after reviewing some of the most outstanding achievements of past smiths in the city, he continues:

Perhaps there are still some [smiths] who, if they were offered the same opportunity, would also show the same industry and art. To work industriously, correctly, and sturdily is the duty of every master. Not everyone is called to do artistic work, and often the *Handwerksmann* is much more suited to do needful work, which brings bread and sustenance, than the artist.³²

³⁰“Er gehöret überhaupts unter die Genies, die immer auf die Vervollkommnung arbeiten, und denen es das größte Vergnügen ist, etwas Gutes und Schönes gemacht zu haben: gesetzt auch, daß ihnen ihre Mühe nicht nach Verdiensten belohnet würde.” Ibid., 162.

³¹Der Werth fast aller Waaren wird nach Maasen und Gewichten bestimmt, die in jedem Lande sehr verschieden sind. . . die Kunstarbeiten, besonders Gemälde, Kupferstiche, Bücher, Musicalien u.a. werden weder nach Maaß noch nach Gewicht, sondern nach der Kunst und dem Fleiße des Künstlers; Seltenheiten aber nach dem Gefallen des Liebhabers, bezahlt. Stetten, *Der Mensch*, 40-41.

³²“Vielleicht gibt es noch manche, die, wann sich ihnen gleiche Gelegenheit darböthe, auch gleichen Fleiß und Kunst zeigen würden. Fleißig, richtig und dauerhaft zu arbeiten,

This passage is possible to read as a neutral description of the difference between *Handwerk* and *Kunst*—utility as opposed to artistry—but Stetten also makes it clear that working for “bread” alone is, ultimately, less admirable.

In the introduction to the first volume of the *Kunst-Geschichte*, for example, he explains that people who only work to feed and clothe themselves are not artists, and in fact cannot “elevate” themselves to that rank. As a result, they are uninteresting for his history:

the history of minor *Handwerker*, for sustenance and clothing, would provide little entertainment. Therefore, I remain with those who. . . can elevate themselves to art, and from that group adduce men who have really become artists,³³ or those whose work have great influence on our merchants.

In the same introduction, he laments the decline of the arts in Augsburg from former times, asserting that

the number of artists decreased. A few remained faithful to art and to taste, but most of them only worked to get their bread [*trachteten allein nach Brod*].³⁴

And of course, Stetten’s high praise of Stein as a “genius” whose “greatest pleasure” was to make something “good and beautiful,” regardless of whether or not he was paid for it, is clear enough.

Once again, it is easy to locate the idea that artists ought to be motivated by honor, by intellectual curiosity, by a desire to improve their surroundings—anything less crass than making money—in the persistent old division between the liberal and the mechanical arts, where the mechanical arts, with their lowly status, were practiced by men who had to

ist jeden Meisters Pflicht. Zu künstlichen Arbeiten hat nicht ein jeder den Beruf, und öfters ist der Handwerksmann zur nöthigen Arbeit, welche Brod und Nahrung bringt, weit tauglicher, als der Künstler.” Stetten, *Kunst-Geschichte* 1779, 203.

³³“Nicht alle diese Professionen und Künste gehören in meinen Plan. Kaufmannschaft, sowohl im großen als im kleinen, erforderte eine eigene Ausarbeitung; und die Geschichte geringer Handwerker, für Nahrung und Kleidung, würde wenig unterhaltendes an die Hand geben. Ich bleibe solchemnach allein bey denen, die entweder sich zur Kunst erheben können, und daraus sich Männer anführen lassen, die wirklich Künstler gewesen sind: oder solche, deren Arbeiten in die Kaufmannschaft sehr großen Einfluß haben.” *Ibid.*, 7.

³⁴“... eben darüber verminderte sich die Anzahl der Künstler. Einige wenige blieben der Kunst und dem Geschmacke getreu, die meisten trachteten allein nach Brod.” *Ibid.*, 14.

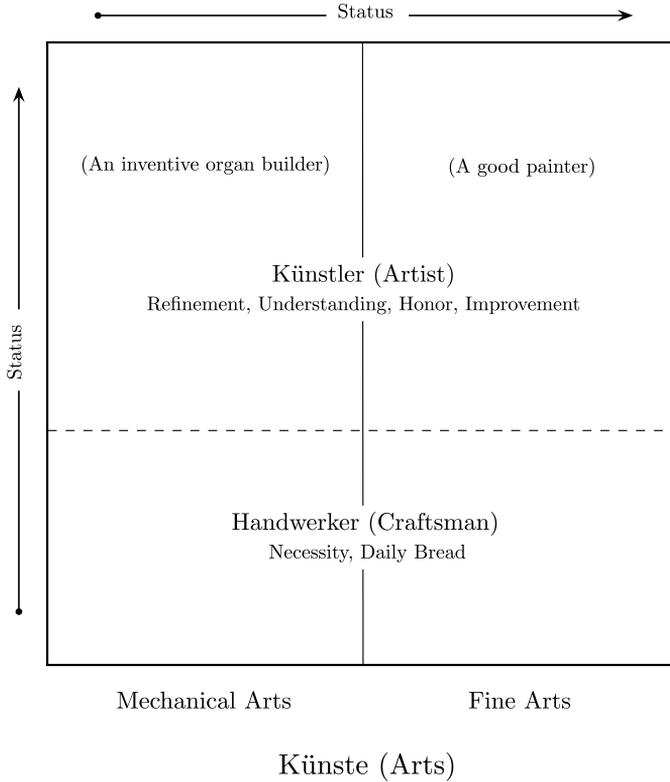


Figure 3.2: Paul von Stetten’s arrangement of the arts.

work for a living. Only someone working for a cause more noble than mere subsistence could claim the high status of an artist.

The relationships between the mechanical arts and the fine arts, and between *Künstler* and *Handwerksleute*, that Stetten expresses in *Der Mensch* and the *Kunst-Geschichte* may be summarized as a kind of matrix (Figure 3.2). Both fine and mechanical arts belonged to the category of skilled work, *Künste*, although the fine arts were more prestigious. Within that category, Stetten additionally provides grounds for sorting out from the ranks of *Handwerksleute* those workers who truly “deserved the name of artist.”

3.2 Artists in Augsburg

As he wrote in the introduction to the *Kunst-Geschichte*, Stetten saw the prosperity and reputation of his native city in a long, slow decline that was coincident with a decline in the arts practiced there. Accordingly, he worked politically to establish new institutions to train and support local artists, and also to secure special social privileges for those workers identified as artists, in order to encourage them to greater production and innovation. Allying art to strongly positive intangibles such as understanding, honor, and improvement helped Stetten to argue for his cause. To enlist support for his projects, Stetten also needed to argue more pragmatically for the practical benefits and utility of the both the fine and the mechanical arts; this is addressed more closely in chapter 6. Here, I look briefly at the hierarchy and institutions of Augsburg society, and at Stetten's work to encourage the advancement of artists and the arts within it.

The Structure of Augsburg Society

In 1788, the same year in which the second volume of the *Kunst-Geschichte* appeared, Paul von Stetten also published the *Beschreibung der Reichs-Stadt Augsburg* ("Description of the Free Imperial City of Augsburg"). Stetten couched the new book as an expanded version of an earlier short travel guide to the city, *Die vornehmsten Merkwürdigkeiten, der Reichs-Stadt Augsburg* ("The Foremost Sights of the Free Imperial City of Augsburg"), which had appeared in 1772, although in fact there is little overlap between the two.

The *Beschreibung* includes a detailed description of Augsburg's governance and legal structures—including, for example, the division of the citizenry into a sharply delineated class hierarchy. The class society, or *Ständegesellschaft*, that Stetten depicts was typical of the organization of German cities during the early modern period. Class membership was a legal category that defined relationships between individual people and the government; it also defined individual identity, and organized the relationships between one person and another.³⁵

The fundamental legal distinction in such societies was between citizens and non-citizens. Within the citizenry, class lines were drawn between the nobility or the patrician class, which included both old aristocratic families and the newly wealthy, and the bourgeoisie, which consisted of merchants,

³⁵See John D. Gagliardo, "The Structure of German Society, 1650-1800," in *Germany Under the Old Regime: 1600-1790* (London: Longman, 1991), 152-176. My presentation in the following paragraph also draws on Gagliardo.

shopkeepers, artisans, and so on. The group of non-citizens included journeymen artisans, domestic servants, and wage labourers, as well as the poor, the disabled, widows, and other non-working people. In spite of the clear divisions between the classes, upward mobility (as well as downward) was possible, not only within classes but also between one class and another. For example, members of the bourgeoisie could be ennobled for special achievement: in trade, government, science, the arts. Many of the nobility were not wealthy, and thus the nobility was often set off from the bourgeoisie less by wealth than by social privilege. Entrance into the nobility, therefore, conferred mainly social advantages upon the newly ennobled.³⁶

As an Augsburg native and member of its government, Stetten was able to describe Augsburg society from both a legal and a practical point of view. As he notes himself in the Foreword to the *Beschreibung*:

I can, without conceit, be confident that I know these things somewhat better than, for example, a learned person who has nothing to do with the administration of everyday affairs; and to whom therefore things that one does not find in books, but must learn through experience, must be less known than to me.³⁷

As Stetten describes, the Augsburg citizenry was divided into three classes: the common citizens (the “Gemeine”), the merchant class (“Kaufleute”), and the nobility. The nobility, in turn, consisted of two groups: the old aristocratic families, which Stetten calls the “von Herren” or “Geschlechter,” and what Stetten calls the “greater society” (“mehrere Gesellschaft”), which probably consisted of the city’s wealthiest families.³⁸ All citizens (*Bürger*) had the right to work at a craft and to conduct business in the city, although they also had to pay taxes and other fees. Non-citizens were not allowed to conduct business or practice a craft, but were permitted to support

³⁶Ibid., 157-58.

³⁷“...als ich mir ohne Eitelkeit zutrauen kann, solche etwas besser zu kennen, als etwan [sic] ein Gelehrter welcher mit Verwaltung des gemeinen Wesens nichts zu thun hat; dem folglich Dinge, die man nicht in Büchern findet, sondern durch Erfahrung lernen muß, weniger bekannt seyn können, als mir.” Paul von Stetten, *Beschreibung der Reichs-Stadt Augsburg, nach ihrer Lage jetzigen Verfassung, Handlung und den zu solcher gehörenden Künsten und Gewerben auch ihrer andern Merkwürdigkeiten* (Augsburg: Conrad Heinrich Stage, 1788), “Vorrede,” http://www.bibliothek.uni-augsburg.de/dda/urn/urn_uba001400-uba001599/uba001452/.

³⁸“Die eigentliche Bürgerschaft wird in drey Stände eingetheilet, nämlich in die 1) von der Herren- oder Geschlechterstube, zu welcher nicht nur die eigentlichen Geschlechter, sondern auch die von der mehreren Gesellschaft gehören. 2) Die von der Kaufleutes-tube. 3) Die von der Gemeinde, welche drey Stände an der Regimentsverfassung Antheil haben.” Ibid., 35.

themselves as factory workers or day-laborers, and paid a small annual fee to the city.³⁹ The *Gemeine* included all Augsburg citizens who did not belong to the patriciate or the merchant class, “but especially,” Stetten says, “artists, trades [sic], and craftspeople.”⁴⁰

Each class of citizens had representatives in the city government. The noble families (*Patrizier*) and *Kaufleute* had their own houses, the *Herrenstube* and the *Kaufleutestube*, which were gathering places where, for example, public concerts could be held. Certain of the guilds also owned buildings or had other properties in the city; these were also used as concert venues. Stetten mentions, for example, the *Bäckenhaus*, the bakers’ house, where, as I discuss in chapter 5, an amateur musical group of which Stein was a member met and held concerts; the “Coleg: Beckenhauß” also appears in Stein’s notebook as the purchaser of a “Clavecin.”⁴¹

In the *Beschreibung*, Stetten also includes an alphabetical list of the occupations practiced by the citizens of Augsburg, along with the number of workers belonging to each. Neither organ building nor keyboard instrument building appears as a separate item on the list. Rather, organ builders, according to Stetten, “belong to the cabinetmakers”; that is, to the cabinetmakers’ guild.⁴²

Civil Honor and a Class for Artists

The class hierarchy that Stetten describes is clearly demarcated. He does, however, briefly acknowledge two groups of people that did not fit easily into a single category. The first group was academics (*Graduirte*); the second was artists—or at least some of them. Stetten writes:

³⁹Stein, as a non-native of Augsburg, had to apply for citizenship after settling there. See Eva Hertz, “Johann Andreas Stein (1728-1792): eine Beitrag zur Geschichte des Klavierbaus” (PhD diss., Albert-Ludwigs Universität zu Freiburg, 1937), 16-17.

⁴⁰“Zum Stande der Gemeine wird alles gerechnet, was nicht unter vorigen beyden Stände begriffen ist, insonderheit aber gehören dazu, Künstler, Gewerbe, und Handwerks -leute.” Stetten, *Beschreibung*, 37-38. Stetten’s *Kaufleute* and *Gemeine* perhaps correspond more or less to what Gagliardo describes as the *Grossbürgertum*, made up of businessmen, important merchants, and master artisans, and the *Kleinbürgertum*, which included, for example, small shopkeepers and most independent artisans.

⁴¹Stein notebook, 238.

⁴²“Zu den Kistlern die Silberkistler, Orgelmacher, Büchenschifter [sic],” Stetten, *Beschreibung*, 42. Excerpts of records documenting Stein’s membership in the Augsburg cabinetmakers’ guild are transcribed in Sabine Klaus, *Studien zur Entwicklungsgeschichte besaiteter Tasteninstrumente bis etwa 1830: Unter besonderer Berücksichtigung der Instrumente im Musikinstrumentenmuseum im Münchner Stadtmuseum* (Tutzing: Hans Schneider, 1997), 1:379-383; see also 1:19.

Academics. . . indeed do not actually belong to one of these classes, but in civil honors [*in bürgerlichen Ehren*] probably are esteemed equally with those from the two *Stuben* [the patriciate and the merchant classes]. And the same for the most respected of artists, who are not [just] craftsmen [*Handwerker*].⁴³

This remark indicates that in fact, a certain amount of social mobility was possible. Even if a common citizen could not actually become a member of one of the upper classes in law, still, by dint of artistic achievement (as Stetten defined it), he or she could enjoy the same respect, and some of the same privileges.

It seems probable that the “civil honors” Stetten mentions were at least in part the result of his own long efforts to elevate the position of artists in Augsburg society. Besides his many writings, the most germane of these efforts to this study are the campaign that he undertook to establish (or more accurately, re-establish) an art academy (*Kunstakademie*) in Augsburg, and his petition to create a new kind of “in-between” class for artists, wedged into the existing *Stände*.⁴⁴ On March 30, 1779, Stetten presented a petition to one of the Augsburg city councils in which he argued that many skilled artists had left Augsburg, and others did not work as industriously as they might, because the city constitution made no provision for recognizing their achievements by conferring rank, titles, honors or the like.⁴⁵ In order for Augsburg to regain its former glory, Stetten thought, the city needed to provide incentives and positive encouragement to artists.

Stetten argued that if the government did not take pre-emptive action, there was a danger that artists would attempt to evade the authority of the upper classes and attain more privileges on their own. In fact, he pointed out, this had already occurred: in 1753, local artists had formed a society for the arts and sciences, and in 1771, they had succeeded in securing certain rights and privileges by imperial decree, bypassing the city government altogether. The decree commanded that the members of the art society were to be “treated in the same way as the local merchants”; and on election day (*Wahltag*), those members of the academy that sat on the great council

⁴³“Außerdem sind noch Graduirte, die zwar eigentlich nicht zu einem dieser Stände gehören, wohl aber in bürgerlichen Ehren, denen von beyden Stuben gleich geachtet werden. Eben so auch die angesehensten von Künstlern, die keine Handwerker sind.” Stetten, *Beschreibung*, 35.

⁴⁴My presentation here relies on Merath’s extensive documentation of Stetten’s communications on the subject with the Augsburg city government, in *Paul von Stetten der Jüngere*, 47ff.

⁴⁵The paper was titled “Gedanken über die Erweckung des schlafenden Kunsttriebes, des Fleißes und der Gewerbigkeit unter der hiesigen Bürgerschaft.” *Ibid*, 47.

of the city government were to be called directly after the members of the merchant class.⁴⁶ By the late 1770s, however, the art society had become impotent and inactive, a fate that Stetten blamed on the fact that its members were arrogant, and were not true artists, and thus had attempted to secure privileges that they did not deserve.

Stetten had a problem with the earlier society's attempt to step outside the sphere of city authority, but he was sympathetic to their goal of inspiring artists to greater achievement by improving their position in society. In other words, Stetten felt artists should be accorded special recognition not necessarily because the nature of their work inherently deserved respect, but because doing so would inspire them to work harder, and thus lead to greater prosperity for the city. He suggested, therefore, that the government recognize (tacitly, in order to avoid angering those who were not included) a new subclass of the *Gemeinde* for artists, allowing them to take up a special position at the top of that class, just below the merchants in the class above. Membership in this artists' class, in Stetten's plan, could not be bought, inherited, or married into, but only achieved through artistic merit. It would entail some specific social and legal privileges: for example, certain government offices reserved for members of the *Gemeinde* would in future be filled, Stetten recommended, by members of the artists' class alone.⁴⁷

At the same time, Stetten proposed that the government renew the old art academy under new forms, and in a new location. Successful studies at the art academy, Stetten suggested, could be a general prerequisite for membership in the new artist class. Alternatively, artists who were already established in their professions could be permitted to demonstrate the required competence by submitting drawings, models, or particularly outstanding works of art. Stein's musical instruments would presumably have qualified him for membership, as perhaps would the drawing that he made for a copperplate engraving of the Barfüßer organ.

Stetten argued to the council that qualifications of this sort were necessary for membership in the artist class because, just as he writes in *Der Mensch*, it was not the profession itself, but how it was executed that determined whether the practitioner was an artist or not. Once again, Stet-

⁴⁶Ibid, 50.

⁴⁷Merath points out the radical nature of this proposal to institute a new *Mittelstande*: "Nichts anderes hatte also Stetten im Sinne, als die eingefleischte, auf einer jahrhundertealten Verfassung beruhende Gesellschaftshierarchie in der Weise zu modifizieren, daß jedermann, und insbesondere der schöpferisch tätige Mensch die Stelle in der sozialen Stufenleiter einnehmen sollte, die dem praktischen Wert seiner Arbeitsleistung entsprach." Ibid., 51.

ten insists that even fine artists might be no more than *Handwerksleute*, craftsmen—for there could be, he says, “a very great difference” among fine artists,

so that many are hardly comparable to common craftsmen and it would, accordingly, be unfair to give them preference over skillful and inventive craftsmen, just for practicing what is mechanical in their art, without being acquainted in the slightest with what is important.⁴⁸

Conversely, among mechanical artists, there could be

some who earn their merits by inventing new trades, new advantages, and new beautifications of manufacture that can be much more substantial for the state, and make such inventive minds worthy of greater honor than the educated artist.⁴⁹

The petition sheds new light on the care with which Stetten outlined his categories of *Kunst* and *Handwerk* in the *Kunst-Geschichte* and *Der Mensch*: his definitions certainly reflected social groupings that must already have existed, but they also provided the basis for a political distinction that was soon, he hoped, to become a reality.

On April 13, the council approved Stetten’s petition and directed him to look further into the matter of establishing a new academy and return with a plan of action, which he did on May 3. On May 29, the council adopted Stetten’s plan for the academy in nearly every detail. At the same time, Stetten organized the formation of a private group of wealthy merchants who agreed to pay yearly dues to support the activities of the academy. In the event, funding for the academy proper, which focused on instruction in the fine arts, came mainly from public monies. The private contributions mainly went to support an adjunct institution, a drawing school (*Zeichenschule*) with the more pragmatic goal of teaching mechanical artists the kinds of drawing that would benefit them in their professions. This was to include “free” drawing as well as architectural drawing and perspective,

⁴⁸“... ein sehr großer Unterschied, so daß viele kaum gemeinen Handwerkern zu vergleichen sein möchten und es solchemnach unbillig wäre, sie geschickten und erfindrischen Handwerkern bloß deswegen vorzuziehen, weil diese das Mechanische der Kunst ausüben, ohne mit dem Wesentlichen im mindesten bekannt zu sein.” Stetten, “Gedanken über die Erweckung.” Cited in *Ibid.*, 51.

⁴⁹“... manche, welche durch Erfindung neuer Gewerbe, neuer Vorteile, auch neuer Verschönerung der Manufaktur sich Verdienste erwerben, die weit beachtlicher für den Staat sein können und solche erfinderische Köpfe größerer Ehre würdig machen als den eingebildeten Künstler.” *Ibid.*

but with a focus on the practical use of these skills. The academy, which opened on October 19, 1779, held annual exhibitions beginning in 1780, at which works of both the fine and the mechanical arts were shown. As the exhibition catalog from 1783 records, Stein put a *Vis-à-vis* and a *Saitenharmonika* on display in his home for the occasion. Both the academy and the exhibition are discussed further in chapter 6.

3.3 Stein the Artist

Paul von Stetten considered Stein a personal friend as well as perhaps the city's foremost artist. In the section on music that closes the second volume of the *Kunst-Geschichte*, Stetten praises the virtuosic playing of Stein's daughter Nannette, and then returns to Stein:

I am happy that with this famous master, who far exceeds all dilettantes at his art, I may take the pleasant opportunity to close this section, and at the same time all my collected writings on art.⁵⁰

The final part of this chapter considers how the status that Stein enjoyed as an accomplished artist may have affected his position in Augsburg society, using a reading of the Mozart family letters that document Wolfgang Mozart's two-week stay in Augsburg in the fall of 1777. In the first section below, Stetten's writings provide a new interpretive background for Wolfgang's story of Stein's intervention with the patrician families of Augsburg in the aftermath of a disagreement between Wolfgang and the mayor's family about arranging a public concert. In the second section, I look at Wolfgang's famous description of his visit to Stein's workshop. I discuss what the conversation that Wolfgang records reveals of Stein's own language about himself and his work, and how that language mirrors the ideas about art that are assembled in Stetten's writings.

Stein, Mozart, and the Augsburg Patriciate

In August of 1777, both Leopold and Wolfgang Mozart lost their positions at the Salzburg court of the Archbishop Colloredo, after a period of some dissatisfaction there on Wolfgang's part. As a result, on September 23,

⁵⁰“Glücklich, daß ich mit solchen, berühmte Meister in der Kunst weit übertreffenden Dilettanten, diesen Abschnitt, und zugleich, alle meine gesammelten Kunstnachrichten zu beschließen, die schöne Gelegenheit ergreifen darf.” Stetten, *Kunst-Geschichte* 1788, 320.

Wolfgang embarked on a prolonged tour with his mother, Maria Anna, to look for a new position and to try to earn money by playing concerts. They visited Munich, Augsburg, and Mannheim before moving on to a longer stay in Paris. Their Augsburg stay lasted two weeks, from October 11 to October 25. Leopold, who remained in Salzburg, kept in touch with near-daily letters. His letters from Salzburg in September indicate that he had begun planning for them to visit Stein in Augsburg almost as soon as they left, and he hoped that Stein would be able to help arrange “one or two” concerts for Wolfgang there.

Leopold was from Augsburg and his letters from this period make it clear that he still knew the city and the people there well. He gave Wolfgang detailed instructions in how to handle the social interactions that would help procure concerts, publicity, and perhaps lead eventually to a permanent position. In his letter of September 25, to Wolfgang and Maria Anna in Munich, for example, he made the following suggestions:

This morning I received Mr. Glatz from Augsburg, and we agreed that you must stop in Augsburg at the Lamb in the heil: Kreuzergasse, where you will pay 30 kreutzer per person for dinner and the rooms are nice, and the most important people, English, French etc. stop off there. . . Should you come to Augsburg, Wolfgang must have someone take him to Mr. Organbuilder Stein right away. Mr. Stein, who has not seen him since he was seven, will have a hard time recognizing him. He might tell him that he comes from Innsbruck and has a commission to look at instruments. Mr. Glatz tells me that Mr. Stein, Mr. Bioley and Mr. Fingerl are in a position to organize a very fine concert. You must also visit Mr. Christoph von Zabuesnig, who wrote lovely German poetry about you in Salzburg, he is a businessman, and a scholar. This gentleman can get something fine and reprintable in the newspapers in Augsburg. . . My brother or his daughter will take you to your Grace the mayor von Langenmantl, where you may convey my humblest regards. . . At the courts you must not wear your cross. But in Augsburg you must wear it every day; then it will give you esteem and respect, and also in every place where there is no reigning prince. If you want to you can visit the monasteries of Heilig Kreuz and St. Ulrich and try out the organs. Mr. Stein will surely take you to his organ in the Barfüßer Church. . .⁵¹

⁵¹“Heute frühe ließ ich H: Glatz von Augsp: zu mir kommen, und wir kamen über

Leopold's informant, Johann Cristoph Glatz, as well as "Mr. Bioley," "Mr. Fingerl," and "Mr. Christoph von Zabuesnig," were all Augsburg merchants. Franz Bioley traded in textiles. Johann Conrad von Fingerlin was a mirror manufacturer who had spearheaded the establishment of the silver trade in Augsburg in 1769 and also arranged numerous concerts. Johann Christoph Zabuesnig (1747-1827) was a businessman who traded in fashionable accessories (*Galanteriewaren*) as well as a novelist and playwright. The "mayor von Langenmantel" whom Leopold mentions was Jakob Wilhelm Benedikt Langenmantel (1719-1790). He and Leopold had studied together at the Jesuit gymnasium St. Salvator in Augsburg and traveled to Salzburg to enroll at the university together.

It is worth noting that Leopold instructs Wolfgang to visit the mayor (and reminds him of the proper form of address!), but does not suggest that the mayor will be able or willing to arrange any concert. In fact, in a later letter, on October 9, he makes it clear that the first person Wolfgang ought to approach about arranging a concert was Stein:

Assuming that you have left Munich, I write to you in Augsburg, and enclose a letter to Mr. Stein, in which I heartily recommend the arrangement of one or two concerts. . . Praise his organ, he thinks very highly of it; it is also good, and then write to me, what kind of instruments he has. . .⁵²

eins, daß ihr in Augsp: bey m Lamb in der heil: Kreuzergasse absteigen sollt, wo ihr Mittags die Person 30 xr bezahlt und schöne Zimmerl sind, auch die ansehnlichsten Leute, Engelländer, Franzosen etc: einkehren. . . Solltet ihr nun nach Augsp: kommen; so müste der Wolfg: sich gleich zum H: Orgelmacher Stein führen lassen. H: Stein, der ihn seit seinem 7ten Jahr nicht mehr gesehen, würde ihn schwerlich mehr kennen. Er könnte ihm sagen er wäre aus Insprugg und hätte Commiſion Instrumente anzusehen. Mir sagt H: Glatz daß H: Stein, H: Bioley und H: Fingerl im Stande sind ein recht schönes Concert zu veranstalten. den H: Christoph von Zabuesnig, der die schöne deutsche Poesie in Salz: über dich gemacht, must du auch besuchen, er ist ein Kaufmann, und ein Gelehrter. In Augsp: kann was schönes und nachdrückliches durch diesen Herrn in die Zeitungen kommen. . . Mein Bruder oder seine Tochter werden dich wohl zu ihro Gnaden den H: Stattpfeleger von Langenmantl führen, wo du meine unterthanigste Empfehlung ablegen kannst. . . An den Höfen must du dein Kreuz nicht tragen. aber in Augspurg must du es alle Tage nehmen; da macht es dir Ansehen und Respect, und so an allen Orten, wo kein Regierender Herr ist. Wenn du willst die Klöster zum hl: Kreuz und St: Ulrich besuchen, das kannst du alles thun und ihre Orgeln probieren. H: Stein wird dich wohl auf seine Orgl nach den Baarfüssern führen. . ." Leopold Mozart to Wolfgang Mozart, Salzburg, September 25, 1777, in *Mozart: Briefe und Aufzeichnungen: Gesamtausgabe*, ed. Ulrich Konrad (Munich: Deutscher Taschenbuch Verlag, 2005), 2:9.

⁵²"Ich [sic: "in"] der Vermuthung, daß ihr München verlassen, schreibe ich nach Augsp: und schliesse dir hier ein Schreiben an H: Stein bey, wo ich ihm die Besorgung eines oder zweyer Concerten bestens anempfehle. . . Mache dir auf seiner Orgl Ehre, er hält viel darauf; sie ist auch gut, und schreibe mir dann, was er für Instrumenten hat." Leopold

Wolfgang and Maria Anna arrived in Augsburg on October 11. In his first letter from there, dated October 14, Wolfgang reported to Leopold on his first errand in the city, which was not, as his father had suggested, a visit to Stein. Instead, on October 12, he paid a visit to the mayor Leopold had mentioned, Jakob Langenmantel (or in Mozart's Italian transliteration, "Longotabaro"):

I went first to Mr. Mayor Longotabaro; my uncle, who is a truly good, kind man, and an honest citizen, went with me, and had the honor of waiting upstairs in the foyer like a lackey, until I came out from the Arch-Mayor. . . He [Langenmantel] gave me no peace, I had to follow him up to his son-in-law [sic] and my uncle had the honor of waiting on the steps [*über eine Stiege im Pflerz*] in the meantime. I had to hold myself back, with all my might, otherwise I would with the greatest courtesy have said something.⁵³

For three-quarters of an hour, Wolfgang played for the Langenmantel family on an instrument they brought out, "a good clavichord by Stein."⁵⁴ He then made arrangements with the mayor's son, Jakob Alois, to visit Stein together that afternoon. During the course of the visit, Wolfgang wrote in a letter a few days later, Jakob Alois promised to arrange a concert for Wolfgang in the *Herrn Geschlechterstube*, where the patrician families of the city often had concerts:

Now Papa, you must know that the young Mr. v. Langenmantel had said at Stein's that he wanted to busy himself with arranging a concert [*accademie*] in the chamber [*stube*] (as something special, that would do me honor) totally alone for the patrician

Mozart to Wolfgang Mozart, Salzburg, October 9, 1777, in *ibid.*, 2:41.

⁵³"Mein erster Gang war zum hr: stadtpfeger Longotabaro; Mein hr: vetter, der ein rechter brafer, lieber Mann, und ein Ehrlicher burger ist, hat mich hin begleitet, und hatte die Ehre oben im vorhause wie ein laquais zu warten, bis ich von dem Erz-stadtpfeger heraus kommen würde. . . er gab mir keinen fried, ich musste mit ihm hinauf zu seinem schwiegersohn |: im 2:ten stock :| und mein hr: Vetter hatte die Ehre unterdessen über eine stiege im Pflerz zu warten. ich musste mich zurückhalten, mit allem gewalt, sonst hatte ich mit der grösten höfflichkeit etwas gesagt." Wolfgang Mozart to Leopold Mozart, Augsburg, October 14, in *ibid.*, 2:54. Probably Mozart meant "son" here instead of "son-in-law"; *ibid.*, 5:398.

⁵⁴"ich hatte oben die Ehre. . . 3/4 stunde auf einen guten Clavicord von stein zu spielen." *Ibid.*, 2:54.

families. You would not believe with what engagement he spoke and promised to undertake it.⁵⁵

The next day, however, which was Monday, October 13, Wolfgang began to receive indications that something was amiss. He met Jakob Alois, as they had arranged the day before, but this time the mayor's son seemed less enthusiastic about arranging a concert for Wolfgang. Wolfgang noted angrily to his father that he nonetheless played for Jakob Alois again, and was invited by him for dinner at 2 p.m. on Tuesday.

The following day, Tuesday, Wolfgang saw the tentative arrangements fall apart. Jakob Alois sent for him at 11 a.m., asking him to come and bring music with him for several people to play. Wolfgang came with his music, but when he arrived at the Langenmantels' house, he was told that no concert could be arranged for him at all, since the patriciate had no money to pay for any virtuoso. On the same morning, Wolfgang wrote, Jakob Alois also questioned Wolfgang about his "cross": his medal from the Pope that Leopold had instructed him to wear in "every place where there [was] no reigning prince," expecting it to garner him "esteem and respect."

Despite the fact that Jakob Alois had reneged on his promise of a concert, Wolfgang spent the rest of the day with the Langenmantels. He played for the family for the third time; he went with Jacob Alois to the theater in the afternoon, and joined him for supper in the evening. At supper, however, Wolfgang lost his temper with Jakob Alois, who, with his sister, was teasing him about his medal, and he left in anger.

The next day, Wednesday, Wolfgang saw Stein for the second time, this time at the house of Friedrich Hartmann Graf, the director of Protestant church music in Augsburg. Wolfgang had been to Graf's with Stein previously, on the evening of Sunday the 12th. This time the calico manufacturer, and amateur violon player Anton Christoph Gignoux was also there, and Wolfgang discussed the events of the previous days to the three men:

I told everything to Mr. Stein, Mr. Geniaux, and Mr. Director Graf. Not about the cross; but that I was disgusted in the highest degree, that people had talked big about a concert to me and now nothing was to come of it... I really regret that I traveled here. I would never in my life have believed, that, while

⁵⁵"Nun muß der Papa wissen, daß der jung: H: v. langemantl beym H. stein dort gesagt hat, er wolle sich impegnirn eine academie auf der stube |: als etwas rares, daß mir Ehre macht :| ganz allein für die H: Patritii zu veranstalten. man kann nicht glauben, mit was für einem impegno er sprach, und sich anzunehmen versprach." Wolfgang Mozart to Leopold Mozart, Augsburg, October 16, in *ibid.*, 2:62-63.

Augsburg is still the birthplace of my father, that people here would affront his son like this.

According to Wolfgang, the response from Stein and his friends was immediate and supportive: “Papa, you cannot imagine how the three of them lamented and became upset. Oh, you must give a concert here. We do not need the patricians.” When Wolfgang (perhaps rather dramatically) offered to give a private “farewell concert at Mr. Stein’s” for “my few good friends,” Graf became “very distressed. That is dreadful, he cried; that is scandalous—who would have believed it of Langenmantl—*Pardieu*, if he had wished it, it would have been possible.”⁵⁶ Graf then saw them down the stairs, and Stein and Gignoux accompanied Wolfgang back to the inn where he was staying. They pleaded with him to stay on in Augsburg, but he was still determined to leave as soon as he could.

The next day, the situation escalated. Earlier in the week, on Monday or Tuesday, Wolfgang had been invited by Jacob Aloys to attend a different concert for the patrician families that was to take place that day. In the meantime, however, as a result of the treatment he had received at the Langenmantels’ hands, he had decided not to go: “I decided. . . to let the whole *Patritiat* kiss my ass, and to leave town.”⁵⁷ At lunchtime, a servant from the Langenmantel household came to fetch Wolfgang to the concert. He gave her the message that he was otherwise engaged, and that he would visit the Langenmantels on Friday to take his leave, as he would be departing Augsburg on Saturday.

However, as Wolfgang learned later, Stein had taken the intervening period to speak with some of other patrician families on his behalf. He reported to his father:

In the meantime, Mr. Stein went to the other patrician gentlemen of the Protestant side, and gave such a shocking speech

⁵⁶“ . . . erzählte ich alles dem H: stein, H: *geniaux* und H: Director graf. nicht wegen dem kreüz; sondern daß ich im höchsten grad disgutirt seye, indeme man mir das maul machte wegen einem Concert und nun alles nichts seye. . . mich reüet es recht daß ich hieher gereiset bin. ich hätte mein lebtag nicht geglaubt, daß, da noch Augsburg die vatterstadt meines Papa ist, daß man hier seinen sohn so affrontiren würde. Der Papa kann sich nicht einbilden, wie die 3 leute lamentirten und sich erzörnten. ah sie müssen ein Concert hier geben. wir brauchen die Patritii nicht. ich blieb aber bei meiner Resolution; und sagte, ja, für meine wenige gute freünde da, welche kenner sind, will ich zum abshied bey H: *stein* eine kleine Accademie geben. Der Director war ganz betrübt. daß ist abscheülich rief er; das ist eine schande—wer würde sich aber das vom langemantl einbilden—*Pardieu*, wenn er gewollt hätte, so hätte es gehen müssen.” *Ibid.*, 2:64-65.

⁵⁷“ . . . so entschlosse ich mich, nicht mehr zu ihm zu gehen, und mich von ganzen Patritiat im arschlecken zu lassen, und weg zu reisen.” *Ibid.*, 2:65.

that the gentlemen got really scared. What, they said, should we let a man who does us so much honor leave without hearing him. Mr. von Langenmantl just thinks that because he has already heard him that is enough. *Enfin* it was such a fire, that the good young Mr. Kurzenmantl himself had to seek out Mr. Stein, to implore him on everyone's behalf to do his utmost to persuade me to go to the academy.⁵⁸

As a result of Stein's intervention, Wolfgang did attend the concert for the patriciate, and played one of his own keyboard sonatas;⁵⁹ he was given two ducats. Moreover, he was urged (he does not say exactly by whom) to give a public concert the next Wednesday.

Having Stein arrange a concert, of course, was what Leopold had thought would be necessary from the beginning. Wolfgang's interaction with the Langenmantels was in the nature of a long and unpleasant detour, and doubtless one that Leopold could have foreseen. Leopold's response to the saga is written in two stages, in a letter begun on October 18 and continued on October 20. On October 18, Leopold had received Wolfgang's letter of October 14, in which Wolfgang described his visit to the Langenmantels and how the younger Langenmantel had promised, and then refused, to arrange the promised concert. In response, Leopold explains at some length about Augsburg politics and what he perceives as the arrogant exercise of power by the city's ruling class, providing an interesting perspective on Wolfgang's misadventure:

What you write to me of Augsburg and the visit with the mayor Longotabaro agreed exactly with what I expected. This letter made me and then all of us. . . laugh amazingly. . . That my brother had to wait in the foyer would only seem strange to you but not at all to him. . . the mayor in Augsburg is her ruling King of Diamonds [*Schellenkönig*]. These people are used to it, they have astonishing respect for it, because they do not know any greater lord, and their ruling lord does not spontaneously know [*weis nicht geschwind*] how he must speak to other people, for he

⁵⁸"H: *stein* ist unterdessen zu die andern H: Patritii vom [sic] der Evangelischen seite gelaufen, und hat halt ganz erschrocklich perorirt, so saß den H: völlig angst wurde. was, sagten sie, einen Mann der uns so viele Ehre macht sollen wir weglassen, ohne ihm zu hören. der H: v: langemantel meint halt weil er ihn schon gehört hat so ists genug. *Enfin* es war hat so ein feuer, daß der gute junge H: v. kurzenMantl selbst den H: *stein* hat aufsuchen müsen, um ihn in Nammen aller zu ersuchen, er möchte sein möglichstes thun, um mich zu persuadiren daß ich in die Accademie ginge." Ibid.

⁵⁹Wolfgang Mozart to Leopold Mozart, Augsburg, October 17, 1777. Ibid., 2:69.

is mostly only used to speaking down to his servant magistrates, or his citizens, from the heights of his *schmuzigen* throne, who never come to him, except to hear his commands, or to beg a favor of him: and so it is with all of these so-called noble lords in the imperial cities. . . the prelates in Augsburg were all, the ones I knew as a young man, all such clods [*Schrollen*], and they are probably still like that.⁶⁰

On October 20, Leopold recieved Wolfgang's next letter, in which he explained how Stein had helped to procure him a concert in the Langenmantels' despite. Leopold wrote in reply:

I have now received your letter of the 17th and was very curious about the continuation of the Augsburg story. The begging of the Augsburg patriciate is known to all the world, and every honest man of the world in Augsburg laughs about it; for that reason they are also *in the employ of the rich businessmen*, who can get anything they want from the government for their money. Concerning the young Longotabaro, he loves to tease, and comes by his jibing honestly; for his dear father loved it too: therefore his upbringing was lacking, and that is also the perogative that the boys of the patrician families have always claimed for themselves, and still do, when they have the opportunity, to make fun of others, in this consists their high nobility. Whoever gets a little friendly with them gives them his heart at once and falls prey to their mocking, which they otherwise only exercise against their people.⁶¹

⁶⁰“Was du mir von Augsp: und dem Besuch des Statpfl: Longotabaro schreibst hat mit meiner vermuthung ganz übereins getroffen. dieser Brief machte mich und dann auch uns alle. . . erstaunlich lachen. . . daß mein Bruder im vorhaus hat warten müssen, wird nur dir, ihm aber gar nicht seltsamm vorkommen seyn. . . der Stattpfeger in Augsp: ist aber ihr regierender Schellenkönig. das sind diese Leute schon gewohnt, sie haben den erstaunlichsten respect, weil sie keinen grössern Herrn können, und dieser ihr regierender Herr weis nicht geschwind, wie er mit andern Leuten reden muß, da er meistens nur gewohnt ist mit seinen Magistratsdienern, oder mit seiner Bürgerschaft von der Höhe seines schmuzigen Thrones herunter zu sprechen, die niemals zu ihm kommen, ausgenommen seine Befehle zu vernehmen, oder ihn um eine Gnade zu bitten: und so sind alle diese so genannten vornehmen Herrn in den Reichsstätten. . . die Prelaten in Augsp: waren alle, die ich, als iunger Mensch, kannte, alle solche Schrollen, und werden es noch seyn. . .” Leopold Mozart to Wolfgang Mozart, Salzburg, October 18, 1777, in *ibid.*, 2:72-73

⁶¹“Nun erheilt ich den Schreiben vom 17ten und war sehr vorwützig auf die Folge der Augsp: geschichte. Die Betteley des Augsp: Patriatiats ist aller Welt bekannt, und ieder ehrliche Weltmann in Augsp: lacht darüber; deswegen sind sie auch *im Sold der reichen Kaufmannschaft*, die fürs Geld von dern hungerigen Obrigkeit alles erhalten können.

Leopold was, in fact, so scornful of the mayor's family that he did not think much of the fact that Wolfgang had played for the patrician families at all, particularly in the light of the treatment he had received at their hands, though he accepts that "pleasing" Stein was a good reason to do it:

They would have had a hard time getting me in their beggar's academy. Enough! you have done it to please Mr. Stein.⁶²

According to Leopold Mozart, the common citizens of Augsburg generally had little or no influence with the ruling families, and were accustomed—or resigned—to this state of affairs. Franz Mozart had waited patiently outside the mayor's door; Wolfgang had to endure the mocking of the mayor's son and daughter as best he could. Seen in this light, the fact that Stein, also one of the common citizens of the city, could go to members of the ruling families and give a "shocking speech"—criticizing the mayor, and creating a "fire"—and, at the end of it, convince them to do what he wanted, is really quite surprising. It certainly indicates that Stein commanded unusual respect and influence in the city.

Clearly, Stein's influence must have had to do with his widespread renown as a musical instrument builder and inventor. In addition to being a builder, he was also a skilled musician and held the position of organist at the city's largest Protestant church, which surely also contributed to his reputation. But juxtaposing Wolfgang Mozart's story with Stetten's remarks about the status of artists in the *Beschreibung*, and with Stetten's project to establish a special class for artists, suggests that Stein did not just enjoy special prestige because he was famous, or because he made impressive instruments. Rather, his influence had specifically to do with what the nature of his occupation was understood to be, and the characteristics associated with it.

Probably, too, that influence was regulated and organized, if only tacitly—much like the legal privileges Stetten was to propose to the city council a decade later. From Wolfgang's account, for example, it appears that Stein wielded influence mostly, or only, with other Protestants. As a Free Imperial

Was den jungen Longotabaro anbelanget, hat er die Liebhaberey zum foppen, und der spötteley nicht gestohlen; dann sein *cher Pere*, war auch ein Liebhaber: folglich fehlt es an der Erziehung, und das ist auch all das Vorrecht, dessen sich die Patriziats Buben iederzeit angemasset, und also noch anmannen, über andere, wenns Gelegenheit giebt, zu spassen, in diesem bestehet ihr hoher Adl. wer sich mit ihnen ein bisschen gemein macht, der giebt ihnen gleich das Herz und verfällt in ihre Spötteley, die sie sonst nur gegen ihre Leute ausüben." Ibid., 2:73.

⁶²"... mich würden sie schwerlich in ihre Bettl-accademie gebracht haben. Basta! du hast es dem H: Stein zum Gefahlen gethan..." Ibid., 2:74.

City, Augsburg was not subject to the religious preference of a ruling prince, but instead maintained a principle of strict religious parity; in spite (or perhaps because) of the “separate-but-equal” strategy, Catholic and Protestant citizens were often at odds. Stein was able to persuade more powerful citizens to do what he wanted, but only on his own side of the aisle.

Wolfgang also records that Stein visited the Protestant patricians in the company of the calico manufacturer Gignoux, as well as other acquaintances who, in light of Leopold’s comments about the influence that wealthy businessmen exerted over the patriciate, could well also have belonged to the *Kaufleute*, the merchant class. In other words, it may be that in the incident Wolfgang describes, Stein was able to make his case before the patrician families because, just as Stetten describes, as an outstanding artist he was held in the same esteem as the members of that. Although a first reading of the letters, therefore, might suggest that Stein had broken class boundaries in Augsburg by dint of his excellence, in fact, it seems likely that his relationships with other citizens of the city were actually defined, just as one might expect in the context of the class society, by his social status—namely, the status of artist.

Negotiating Art

On October 17, Wolfgang Mozart visited Stein’s home and played his pianos for the first time. His subsequent report to Leopold praised the instruments, especially their good damping and the refinement of an escapement added to the hammer action. Mozart also listened to Stein talk about how he made his pianos, and he quotes Stein:

It is true, he does not sell such a Piano forte for under 300 florins: but the trouble and the pains he takes are beyond any price. . . . When he has finished such a Clavier (as he told me himself) he first sits down at it, and tries out all kinds of passages, running and leaping, and scrapes and works until the Clavier does everything. For he works only for the benefit of the music, and not for his own, otherwise he would finish very quickly.

He often says, if I was not such a passionate lover of music myself, and could not play the Clavier a little myself, I would surely have lost patience for my work a long time ago; but I am simply a lover of instruments that do not affect the player, and that are sturdy.⁶³

⁶³“es ist wahr, er giebt so ein Piano forte nicht unter 300 f: aber seine Mühe und fleiß

Besides Stein's own description of his *Melodica*, the conversation that Wolfgang Mozart records here is one of the most expansive statements preserved by Stein about his building practice. Certainly it is the most relaxed and spontaneous. Most readings of the letter from which this passage is excerpted have used it to answer questions about how Stein built his pianos: the kind of action he was using, his method of preparing a soundboard, and so on. This passage in particular, however, reveals not just something about how Stein built, but also something about why.

The most interesting aspect of the passage for my purposes is the way the conversation set down by Wolfgang dovetails so neatly with the ideas about art that Paul von Stetten set down in the *Kunst-Geschichte* and *Der Mensch*. Stein said, Mozart reports, that he worked tirelessly to improve his instruments, and that he was uninterested in personal gain. Stetten would write in *Der Mensch* that artists were paid for their work, not according to its measure, but according to their own "art and industry." Stein, in Wolfgang's portrayal, could never be compensated according to the true value of his work, because the "trouble and pains" that he took to make his instruments better were "beyond any price." The rhetoric divorces his work completely from the money he received for it, in precisely the way that Stetten identifies for the true artist, who works not for bread but for some higher purpose. Stein said, according to Wolfgang, that he worked in the service of music and musicians: "only for the benefit of the music, and not his own." He also ascribes his success to his own love for and knowledge of music. In this scene, then, Stein is seen deploying key aspects of the idea of art that Stetten described: industry, improvement, a closeness to the fine arts, and above all, dedication to a cause more noble than financial profit.

Tilman Skowronek has recently considered the extraorganological significance of this passage; he suggests bearing in mind that its purpose is likely to have been something like a sales pitch, designed to "influence" and "impress" Wolfgang.⁶⁴ This is surely correct, and the sales pitch worked, or

die er anwendet, ist nicht zu bezahlen. . . wen er solch ein Clavier fertig hat, (wie er mir selbst sagte) so sezt er sich erst hin, und Probirt allerley Passagen, läüffe und springe, und schabt und arbeitet so lange bis das Clavier alles thut. denn er arbeitet nur zum Nuzen der Musique, und nicht seines nuzens wegen allein, sonst würde er gleich fertig seyn.

Er sag oft, wenn ich nicht selbst ein so Paßionirtes liebhaber der Musick wäre, und nicht selbst etwas weniges auf dem Clavier könnte, so hätte ich gewis schon längst die gedult bey meiner arbeit verloren; allein ich bin halt ein liebhaber von instrumenten die den spieller nicht ansetzen, und die dauerhaft sind." Wolfgang Mozart to Leopold Mozart, Augsburg, October 17, 1777, in *ibid*, 2:68-69.

⁶⁴Tilman Skowronek, *Beethoven the Pianist* (Cambridge: Cambridge University Press, 2010), 129-30.

almost: Wolfgang did transmit Stein's rhetoric to his father, and clearly, he would have loved for Leopold buy one of Stein's pianos. What is interesting, I think, are the terms in which the sales pitch was presented. One might say that what Stein was pitching to Mozart was not a piano, but a work of art.

Writing on the German-born London musical inventor Joseph Merlin, Latcham has suggested that inquiries into historical actors' social and economic motivations should be embarked on with caution: they risk being too cynical, of failing to take into account what Latcham describes, in Merlin's case, as the "sparkle and imagination" that "fired his ingenuity and his creativity."⁶⁵ I think it is correct to insist that an analysis of motivations should begin, at least, by believing what people say about themselves. However, I think it is also important to note that there is no necessary contradiction between the fact that Stein deployed a kind of rhetoric that not only made sales but also allowed him to "influence" and "impress" people, and to climb at least a few rungs on the social ladder, and the notion that he was a dedicated builder with noble motivations. Clearly, in a world where art conferred status because of its ideological charge, the two kinds of motivations converged.

It is useful, moreover, to take note of how Stein's doubtless sincere convictions about what he did resonated with the social context in which he found himself, instead of simply ascribing those convictions to his own personal honor. Doing so lets us put together a much more complete picture of the "technological system," to return to Wilson's phrase, of which Stein and his instruments were a part. It becomes possible to better understand how local economic and social conditions perhaps inspired, and certainly supported, his innovations and his building practice.

3.4 Summary

The writings of Paul von Stetten the Younger on the arts in Augsburg demonstrate the essential components of his art concept. The word "art," for Stetten, could refer to any one of a number of skilled occupations, either fine or mechanical. It could also refer, however, to a sub-group of those occupations that were distinguished from, and elevated above, less-skilled labor, *Handwerk*. "Art," in this latter sense, was an evaluative category which Stetten defined using a number of ideologically laden criteria: for example, artists, as opposed to craftsmen, applied intellectual understanding

⁶⁵Michael Latcham, "The Apotheosis of Merlin," in *Music of the Past—Instruments and Imagination*, ed. Michael Latcham (Bern: Peter Lang, 2006), 297-98.

to their work; artists benefitted society by working tirelessly to improve the things they made; and perhaps most important, artists did not work for financial gain, but for some kind of higher purpose—for example, simply for the pleasure of making something good or beautiful.

Stetten was familiar with, and employed, the relatively recent understanding of the fine arts as arts that imitated beautiful nature, with pleasure as their object, and this group is opposed to the mechanical arts in his systems. The new definition of the fine arts also inform Stetten's general concept of art to a certain extent, for he says that one way for a mechanical art to qualify as art, rather than craft, is to exhibit the particular "refinement"—by which he appears to mean mostly decoration—that is characteristic of the fine arts. The entanglement of the definition of art with the definition of the fine arts was typical for the period, as contemporary lexicons reveal: the usage of the word "art" to denote the fine arts specifically was just coming into currency. Stetten, however, had not accepted that usage; in fact, he seems to struggle against it, maintaining steadfastly that even a fine art can be nothing more than mere *Handwerk*, if it is executed unthinkingly, or for the wrong reasons.

Stetten's ideas about art had a clear impact on the structure and institutions of Augsburg society. Stetten saw encouraging art as the key to increasing prosperity in the city, so that he worked politically to establish an art academy for training artists and even proposed that a special artist's class be recognized within the framework of Augsburg's class society, to inspire artists to greater and better work.

Johann Andreas Stein's status as one of the most renowned artists in Augsburg was, therefore, probably one reason for the influence he seems to have wielded among the patrician families of Augsburg. Stein spoke the same language of art as Stetten, and his remarks about his work both reflect and anticipate Stetten's writings. He described his piano building to Wolfgang Mozart, for example, as a labor of love, done not for his own profit, but to benefit musicians, and even music itself. The qualities that Stetten assigned to art, in other words, appear as important influences on Stein's building practice, something that the next three chapters of this study explore in more detail. Each of these chapters selects one aspect of what one might call Stetten's art project in Augsburg, and uses it to explore how the Gothenburg clavichord may have been considered a work of art.

Chapter 4

“The Artist Consists in Improvement”

In the previous chapter, I suggested that for Paul von Stetten, improvement was an essential component of art. Stetten asserts this idea, in fact specifically with regard to musical instrument making. In the first volume of his *Kunst-Geschichte*, in the passage on organ building, he writes, “the artist consists. . . in improvement: for the organ builder who stops at what he has learned from his master is a mere craftsman [*Handwerksmann*].”¹ We can see this view of art confirmed in the second volume of the *Kunst-Geschichte*, when Stetten contrasts Stein’s inventions to his “common” pianos: only the former were “works of art.”²

For Stetten, furthermore, artful improvement depended on rational, intellectual thought. He says that the invention of musical instruments is a “credit to human understanding”; furthermore, it required “no mean understanding” to imitate and improve those same inventions.”³ Johann Andreas Stein, for example, he noted, had educated himself in the theory of mechanics.⁴

Stein’s inventions received a great deal of space in the contemporary

¹Paul von Stetten, *Kunst- Gewerb- und Handwerks-Geschichte der Reichs-Stadt Augsburg* (Augsburg: Conrad Heinrich Stage, 1779), 158, http://www.bibliothek.uni-augsburg.de/de/dda/urn/urn_uba000200-uba000399/uba000209/.

²Paul von Stetten, *Kunst-, Gewerb- und Handwerks-Geschichte der Reichs-Stadt Augsburg: Zweiter Theil oder Nachtrag* (Augsburg: Conrad Heinrich Stage, 1788), 56, http://www.bibliothek.uni-augsburg.de/de/dda/urn/urn_uba000200-uba000399/uba000210/.

³Stetten, *Kunst-Geschichte* 1779, 158.

⁴“Er hielte für nöthig, sich in der Theorie der Mechanik vest zu setzen, und wurde darinn so stark als in der Praxi.” Ibid., 160-61.

press. Descriptions of his instruments were typically published in more than one version, and they were typically not (or not only) advertisements, but rather presented as part of a serious discourse about music and society. Inventions were important to write about: they were interesting, of course, simply because they were new, but they were also intimately associated with improvement and progress, prestige and status, even for authors who did not explicitly couple them, as Stetten did, to a definition of art. For Stein's contemporaries, his inventions were the foundation of his reputation.

The Augsburg educator Hieronymous Andreas Mertens, for example, who like Stetten worked to promote the arts in the city, described Stein in a 1783 eulogy for the cantor Johann Gottfried Seyfert simply as "the universally most famous and renowned inventor of a very fine wing-shaped instrument, a very important man in his branch. . ."⁵ Christian Friedrich Daniel Schubart, who was personally acquainted with Stein, considered the invention of the *Melodica* the most important of Stein's professional achievements. In his memoirs, he calls Stein "one of my warmest friends. . . whose organs, harpsichords, fortepianos, clavichords, and especially the great invention of the **Melodika** long ago obtained for him a respected rank among German inventors and improvers of musical works of art."⁶ Schubart, like Stetten, considered that musical instruments can be works of art, and he expanded the significance of making improvements to those instruments even further. In 1776, in an article in the *Deutsche Chronik* titled "Von teutscher Erfindung" ("On German invention"), written shortly after he left Augsburg, Schubart uses inventions like Stein's *Melodica* to tell a grand story about German national identity, even superiority:

My heart rejoices when I consider everything that we Germans have already invented. When the foreigner calls us phlegmatic men, denies our genius and wit, and would gladly push us out

⁵"Johann Andreas Stein, der allenthalben rühmlichst bekannte Erfinder eines sehr feinen Flügelinstrumentes, ein sehr bedeutender Mann in seinem Fache. . ." "Lobschrift auf Herrn Johann Gottfried Seyfert, ehemaligen Director des evangelischen Musikchors in der Reichsstadt Augsburg," *Journal von und für Deutschland* 5, no. 12 (1788): 468-86, <http://www.ub.uni-bielefeld.de/diglib/aufkl/journdeut/index.htm>. It is not possible to know definitely which of Stein's instruments Mertens refers to here; a "wing-shaped instrument" could be the *Poly-Tono-Clavichordium* or the *Saitenharmonika*, or even simply the grand piano.

⁶"Einer meiner wärmsten Freunde war Stein, dessen Orgeln, Flügel, Fortepiano's, Klaviere und sonderlich die grose Erfindung der Melodika ihm längst einen angesehenen Rang unter den deutschen Erfindern und Verbesserern musikalischer Kunstwerke erworben haben." *Schubart's Leben und Gesinnungen: Von ihm selbst, im Kerker aufgesetzt*, ed. Ludwig Schubart (Stuttgart: Gebrüder Mäntler, 1791-93), 1:23-4, <http://gdz.sub.uni-goettingen.de/>.

the door among the slavish hordes of imitators;—and we then stand there, and beat our breasts, and say, “Have you invented what we have invented?” Then he must look upon us with awe, and thank God if we will only consent to be his comrades. “The man didn’t invent [gun]powder” is a proverb one uses about stupid people; but **we have invented it**. The entire science of artillery is ours; the art of printing is ours; the invention of paper is ours; the arts of engraving and mezzotint and woodcuts are ours;—Ha, majestic organ, you are our creature, and you too, sweetly cooing clarinet! We gave light and shade to the great harpsichord, and transformed it into the fortepiano; we enticed divine sounds out of glass, and raised the *Melodika* to the level of the human voice. . . .”⁷

Schubart assures his readers in the same article: “Nor is **Stein’s** inventive mind at rest; for he is still brooding on the great invention of his *Melodika*, in order to bestow upon it the greatest possible degree of perfection.”⁸

After his death, Stein’s inventions and improvements quickly solidified from news into history. In 1792, an obituary in an Augsburg paper lamented:

Mr. Johann Andreas Stein, organ and instrument building master, and local organist, in whom Germany and all of Europe possessed one of their foremost artists, died suddenly of a stroke on February 29. . . . The pain of this great loss finds no solace except in the knowledge that the immortal man lives on in his great

⁷”S Herz im Leib lacht mir, wenn ich so dran denke, was wir Teutsche alles schon erfunden haben. Wenn der Ausländer uns phlegmatische Kerls nennt, uns Genie und Titz [sic: Witz] abspricht, und uns gern unter der Sklavenheerde der Nachahmer zum Thor ’naustreiben möchte;—und wir dann da stehen, und auf die Brust schlagen und sprechen: Habt ihr auch erfunden, was wir erfunden haben? so muß er uns mit Ehrfurcht ansehen, und Gott danken, wenn wir nur Kameraden mit ihm seyn wollen. Der Kerl hat ’s Pulver nicht erfunden, pflegt man im Sprichwort von einem dummen Menschen zu sagen; aber **wir habens erfunden**. Die ganze Geschützwissenschaft ist Unser; die Buchdruckerkunst Unser; die Erfindung des Papiers Unser; die Kupferstecherkunst und Sammetstich und Holzschnitt sind Unser;—Ha, Maiestätische Orgel, du bist unser Geschöpf, und auch du, zärtlich girrendes Klarinet! Wir haben dem hohen Flügel Mittel tinten gegeben, und ihm zum Fortepiano umgeschaffen; wir haben Göttertöne aus’m Glase gelockt, und die *Melodika* bis zur Menschenstimme erhoben.” “Von teutscher Erfindung,” *Deutsche Chronik* (Ulm), February 1, 1776, 73-4. Facsimile edition (Heidelberg: Lambert Schneider, 1975).

⁸“**Steins** erfindrischer Kopf ruht auch nicht; denn der brütet noch immer über der großen Erfindung seiner *Melodika*, um ihr den höchstmöglichen Grad der Vollkommenheit zu geben.” *Ibid.*, 74.

inventions, especially in his heart-melting pianoforte, which won for him a significant name throughout all of Europe.⁹

A process that had begun with the inclusion of Stein's inventions in the encyclopedic *Kunst-Geschichte* continued as the descriptions from Stetten and the contemporary press were picked up and reprinted in encyclopedias of music and technology throughout the nineteenth century. In this context, the inventions' fleeting value as news hardened into a more durable function as signposts in the history of music and musical instrument making. Lexicographers writing about Stein relied heavily on Stetten, but focused even more narrowly on Stein's list of inventions than Stetten had done. Ernst Ludwig Gerber's *Historisch-biographisches Lexikon der Tonkünstler* (1790-92) and *Neues historisch-biographisches Lexikon der Tonkünstler* (1812-1814), for example, both include entries on Stein that consist of little more than a catalog of Stein's inventions; in fact, Gerber introduces the second entry with the motivation, "I owe the reader news of a few more unusual inventions of this great master."¹⁰

Heinrich Christoph Koch's *Musikalisches Lexikon* includes entries on Stein's *Vis-à-vis*, *Melodica*, and *Saitenharmonika*. Koch also has an entry for Stein himself in a separate index of persons, or more accurately inventors: an "Alphabetical register of names of those people who have distinguished themselves in the field of music by those inventions, improvements, and similar things which are treated here and there in the articles of this lexicon."¹¹ Koch's entries are brief, noting little more than each inventor's

⁹"Herr Johann Andreas Stein, Orgel- und Instrumentenbaumeister, auch Organist allhier, an welchem Deutschland und ganz Europa einen seiner ersten Künstler besaß, starb den 29. Februar nach einer langwierigen Wassersucht in einem Schlaganfall plötzlich im 64. Jahr seines Alters. Der Schmerz über diesen großen Verlust findet keine Beruhigung, als in der Gewißheit, daß der unsterbliche Mann fortlebt in seinen grossen Erfindungen, vorzüglich in seinem herzschnmelzenden Pianoforte, das ihm durch ganz Europa einen bedeutenden Namen erwarb. . ." *Augsburgische Ordinari Postzeitung*, March 8, 1792. Cited in Sabine K. Klaus, *Studien zur Entwicklungsgeschichte besaiteter Tasteninstrumente bis etwa 1830: Unter besonderer Berücksichtigung der Instrumente im Musikinstrumentenmuseum im Münchner Stadtmuseum* (Tutzing: Hans Schneider, 1997), 1:382.

¹⁰Dem Leser bin ich noch die Nachrichten von einigen merkwürdigen Erfindungen dieses großen Meisters schuldig." Ernst Ludwig Gerber, *Neues historisch-biographisches Lexikon der Tonkünstler*, s. v. "Stein (Johann Andreas)" (Leipzig: Breitkopf, 1812-12). Facsimile edition, Othmar Wessely, ed. (Graz: Akademische Druck- und Verlagsanstalt, 1966-77).

¹¹"Alphabetisches Namensverzeichnis derjenigen Personen, die sich im Fache der Musik durch solche Erfindungen, Verbesserungen u. d. gl. ausgezeichnet haben, von welchen hier und da in den Artikeln dieses Lexikons gehandelt worden ist." Heinrich Christoph Koch, *Musikalisches Lexikon* (Frankfurt: 1802). Facsimile edition, Nicole Schwindt, ed. (Kassel: Bärenreiter, 2001).

name, professional title, and innovations, and the list does not just contain makers of musical instruments or physical devices; it runs the gamut from music theorists like Guido to the god of music, Apollo. The concept of invention was so central to Koch's historiography, in other words, that he couched all of music history in those terms.

Koch's entry on Stein reads:

Stein, (Johann Andreas) Organist in the Evangelical Barfüßer Church in Augsburg, was also the most excellent mechanician [*Mechanikus*] in the second half of the last century regarding the building of keyboard instruments. He not only brought the fortepiano to a previously unknown degree of perfection. . . but also was the inventor of the *Melodika*. . . and a *Doppelflügel* called a *Vis à vis*.¹²

Koch's identification of Stein as a "mechanician" is probably meant to indicate (as Stetten had also reported) that Stein had a theoretical command of mechanics that Koch, at least, considered extraordinary for an instrument maker. Koch assigns the title of *Mechanikus* to four people besides Stein in his register. They were all inventors of scientific or musical instruments; none were professional organ builders or musical instrument makers.¹³ In contrast, Koch includes eight keyboard instrument makers besides Stein in his register, none of whom are identified as a *Mechanikus*.¹⁴

¹²"Stein, (Johann Andreas) Organist an der evangelischen Barfüßer:Kirche zu Augsburg, war zugleich der vorzüglichste Mechanikus in der zweyten Hälfte des verwichenen Jahrhunderts in Hinsicht auf den Bau der Claviatur-Instrumente. Er brachte nicht nur das Fortepiano zu einem vorher noch unbekanntem Grade der Vollkommenheit (S. Fortepiano,) sondern war auch der Erfinder der Melodika, (S. Melodika,) und eines Doppelflügels mit Namen Vis à vis." Ibid., s.v. "Stein, (Johann Andreas)."

¹³"Duclos, a Mechanikus in Berlin, invented a Chronometer in 1787"; "Harrison, (John) the famous Mechanikus in London, who invented a clock for the determination of sea-length, is also the inventor, or rather the improver of a previously invented Chronometer"; "Hessel, a Mechanikus in Petersburg, appears to be the first and real inventor of the Claviatur or the so-called Tastenharmonika. . ."; "Hohlfeld, a Mechanikus in Berlin, not only invented a machine in 1752 which notated everything that was played on a keyboard instrument, but also, in 1754, a Bogenflügel." Ibid., s.v. "Duclos," "Harrison," "Hessel," "Hohlfeld."

¹⁴"Friederici, (Christian Ernst) ein berühmter Clavier-und Orgelbauer zu Gera, erfand nicht allein eine Bebung an dem Flügel, (s. Flügel) sondern er war auch der Erfinder des sogenannten Fortbien"; "Hofmann, Instrumentenmacher in Gotha, ist der Erfinder eines Doppelflügels mit vier Claviaturen"; "Müller, Instrumentenmacher zu Wien, hat im Jahre 1800 das in dem Artikel Dittanaklavis beschriebene Clavierinstrument erfunden"; "Roll, Orgelbauer zu Nürnberg, war der Erfinder der Bibelregale"; "Schmal, Instrumentenmacher zu Augsburg, ist der Erfinder des Tangentenflügels"; "Silbermann, (Gottfried) Orgelbauer zu Freyberg, war der Erfinder des Cembal d'Amour"; "Taskin, (Pascal,) ein

Stein's claim to the invention of the German action took on significance over time, as the position of the piano became more established, and writers were able to adopt a historical perspective when discussing the instrument. The earliest report to specifically credit Stein with inventing the German action is actually from as late as 1833. This is the obituary report for Stein's daughter, the piano builder Nannette Streicher.¹⁵ Here, Stein is described as the "inventor of a mechanism that transformed the raw *Pantolon* into the pianoforte that has now been adopted everywhere." This mechanism was certainly the *Prellzungenmechanik*, which Stein used in all of his surviving pianos beginning with the Gothenburg claviorganum, and which Nannette Streicher continued to use after his death.¹⁶

The Gothenburg claviorganum contains Stein's earliest extant *Prellzungenmechanik*, and this circumstance invites an examination of the invention of that piece of mechanics. My goal in this chapter, however, is not to investigate the importance or the position of Stein's German action within the historical lineage of the piano, but rather to consider its contemporary reception as an improvement, and to trace connections between the action and Stetten's definition of art. The first part of the chapter reviews what is known or can be deduced about Stein's early hammer actions and the possible origins of the German action. The second part presents a text that exposes a rich set of connections between art, improvement, mechanics, and piano actions: the 1769 description of Stein's *Poly-Tono-Clavichordium* published in Augsburg. The third part discusses ideas for improving piano actions that Stein himself recorded in his notebook.

4.1 Stein's Early Hammer Actions

Beginning with the Gothenburg claviorganum in 1781, all of Stein's extant pianos have the same basic arrangement of the hammer action, a type that is referred to as a *Prellzungenmechanik*, or flip action with escapement. The defining feature of a flip action (*Prellmechanik*) is that the hammer is mounted on the keylever and moves with the key. Typically, the hammer is mounted with the head towards the front of the keyboard, and typically,

geschickter Clavierbauer und Hofinstrumentenmacher zu Paris, erfand ums Jahr 1768 das Clavecin à peau de Buffle"; "Wagner, (Johann Gottlob) Instrumentenmacher zu Dresden, hat im Jahre 1774 das Clavecin royal erfunden." Ibid., s.v. "Friederici," "Hofmann," "Müller," "Roll," "Schmal," "Silbermann," "Taskin," "Wagner."

¹⁵Cf. Klaus, *Entwicklungsgeschichte*, 211.

¹⁶"...Erbauer einer der herrlichsten Orgeln, als Erfinder einer Mechanik, die den rohen Pantolon in das, jetzt überall eingeführte Pianoforte umwandelte..." [Andreas Streicher], "Nekrolog," *Allgemeine musikalische Zeitung* 35, no. 23 (1833): 373.

it is activated when the motion of the key brings the beak of the hammer into contact with a rail, pawl, or other activator that is separate from the key.¹⁷ This flips the hammer head up against the strings. This arrangement is usually distinguished from a so-called *Stoßmechanik*, or push action, in which the hammer is mounted off the key, and pushed toward the strings when the motion of the key brings some activator against it.

In the case of Stein's *Prellzungenmechanik*, the activator for the hammer is an articulated hopper, which is sprung so that it allows the hammer beak to "escape" as the hammer head moves toward the strings (Figure 4.1). The hammer may then fall back into place even while the key remains depressed. The addition of an escapement mechanism to the simple flip action is usually considered to be Stein's innovation, and Stein's particular version of the *Prellzungenmechanik* is often called the "German action" (Figure 4.2). Viennese builders of the next generation added a check to Stein's action to catch the hammer and prevent it from rebounding; this arrangement is often referred to as the "Viennese action."

Neither the term "German action" nor *Prellzungenmechanik* was used during Stein's time; in fact, hardly any contemporary sources refer specifically to the working of Stein's piano actions. One exception is a description of two square pianos by Johann Georg Kuppler in Nuremberg, who had been one of Stein's workmen. The action of Kuppler's pianos, according to the description, was "fitted with the Stein escapement."¹⁸ Another, very famous, one is Wolfgang Mozart's description of the pianos he played at Stein's house in 1777. In addition to praising the damping of Stein's pianos and the evenness of their sound, Mozart remarks:

His instruments distinguish themselves especially in the fact that they are made with an escapement. Not one in a hundred cares about this.¹⁹

¹⁷Other arrangements are possible: the hammer heads may face the rear of the keyboard, and the hammers may be activated by an intermediate lever. However, the fundamental principle of the action is that the pivot point of the hammer moves with the key, while the impulse for the motion of the hammer originates off the key. For an excellent overview see Michael Cole, "Appendix II: A Proposal for the Systematic Classification of Piano Actions", in *The Pianoforte in the Classical Era* (Oxford: Clarendon Press, 1998), 359-370.

¹⁸"Der Mechanismus ist mit der Steinischen Auslösung versehen." Heinrich Boßler, ed. "Aus einem Briefe von Nürnberg," *Musikalische Real-Zeitung* (Speyer), August 26, 1789. Facsimile edition (Hildesheim: Olms, 1971).

¹⁹"seine instrumente haben besonders das vor andern eigen, daß sie mit auslösung gemacht sind. da giebt sich der hunderteste nicht damit ab." Wolfgang Mozart to Leopold Mozart, Augsburg, October 17, 1777. In *Mozart: Briefe und Aufzeichnungen: Gesamtausgabe*, ed. Ulrich Konrad (Munich: Deutscher Taschenbuch Verlag, 2005), 2:68.

Both descriptions indicate that the escapement was recognized as a crucial feature of Stein's action.

Most often, however, sources from around Stein's lifetime confine themselves to mentioning his "improvements to" or "perfection of" the fortepiano. Clearly, the arrangement of the action and the presence of an escapement would have been an important part of what was meant, but such statements may also refer more broadly to how the action was set up and adjusted, how the individual components were shaped or weighted—all the small details of execution that created a good feel for the player at the keyboard—as well as, of course, other parameters besides the hammer action: the damping, the stringing, the sturdiness of the case, and so on. In this chapter, nevertheless, the particular focus is on the invention of the *Prellzungenmechanik* as an action type.

The Instrument List in the Notebook

Not too much is known about the antecedents of the German action, or indeed, when Stein began to build hammer actions at all. There is only one surviving hammer action by Stein that predates the clavichord, and it is of a different type. This is the so-called *Zugmechanik* in the Verona *Vis-à-vis* instrument, probably from 1777. Furthermore, although it might seem logical, and it has often been assumed, that Stein conceived the *Prellzungenmechanik* as a development of an existing *Prellmechanik* that he had seen, in fact there is very little evidence that even the latter kind of action was being built around the time that Stein must have begun to make pianos.²⁰ In other words, it may well be the case that Stein took a different path to the German action.

The documentary source material about Stein's earliest pianos is also scanty. A list in Stein's notebook headed "Since I came to Augsburg in 1749 [later changed to 1750] I made the following instruments" includes instruments called *Flügel*, *clavecin*, and *fortepiano* (in a variety of spellings).²¹ According to the list, most of the instruments called *Flügel* were sold for about 75 florins, while the instruments called *clavecin* cost 200 or more florins. This suggests that these names could have referred to single- and double-manual harpsichords, respectively. Of the nine instruments called *fortepiano*, four cost 75 florins or less, and four cost either 200 or 250 florins. Possibly, the two different price classes represent a group of square

²⁰Cole, *The Pianoforte*, 187, and especially "The Invention of the Square Piano," <http://www.squarepianos.com/origins.htm>, accessed August 8, 2009.

²¹"Alß ich im Jahr 1749 [later: 50] nacher/augsburg kam so verfertigte/ich folgende Instrumente." Unpublished notebook of Johann Andreas Stein, 238-239.

or harp-shaped pianos and a group of grand pianos.²² The ninth piano cost 400 florins; this is by far the most expensive instrument on the list and presumably was either luxuriously decorated or of a special type.

The entries on the list were not all written at once. Rather, judging from the handwriting and a shift from pen to pencil mid-way through, Stein (or someone else) added to it as time went on. None of the entries are dated, and there is no way of knowing when exactly Stein built any of the instruments mentioned, except that it must have been after 1749 (or 1750). The last date written in the notebook is 1777, but it is certainly possible that some of the entries postdate that year. However, it does seem likely that at least some of the pianos on the list were made before 1777, and the two price classes do indicate that Stein made pianos of more than one type.

The *Poly-Tono-Clavichordium* Action

The earliest clearly dated reference to a piano built by Stein is the 1769 description of his *Poly-Tono-Clavichordium*, which was a harpsichord-piano combination. Although the article highlights the newly invented action of the piano as one of the most attractive features of the new instrument, it only hints at how that action was actually arranged, and where the inspiration for it might have come from.

The article states that Stein had been working on developing the new action for ten years. It also seems to indicate that Stein himself had not previously made any fortepianos, judging from the remark,

The separate instrument that has been joined to [the double-manual harpsichord in the *Poly-Tono-Clavichordium*], which bears the name of Fortepiano. . . has so far only been made by [Gottfried] Silbermann in Dresden.²³

This statement could imply that all of the pianos on the list in Stein's notebook were built after the *Poly-Tono-Clavichordium* in 1769. Alternatively, perhaps what is meant is that it was grand pianos, in particular, that had only previously been made by Silbermann. In Stein's notebook list, the cheaper pianos—the ones that may have been squares—appear

²²Latcham suggests this possibility in his discussion of the list. "Mozart and the Pianos of Johann Andreas Stein," *The Galpin Society Journal* 51 (1998): 118-120.

²³"Das hiermit verbundene einzelne Instrument, das den Namen des Fortepiano führet, ist bißhero nur von Silbermann in Dresden verfertigt worden. . ." *Augsburgischer Intelligenz-Zettel*, "Von Erfindung eines Poly-Toni-Clavichordii oder musikalischen Affecten-Instruments, und von Verbesserung eines neuen Orgelwerks," October 5, 1769.

higher up, thus were perhaps earlier; possibly, then, the 1769 *Poly-Tono-Clavichordium* was Stein's first attempt at a grand piano.

According to Paul von Stetten, the inspiration for the *Poly-Tono-Clavichordium* came from a trip to Paris that Stein made in 1758-59—or more precisely, as Stetten writes,

In 1758 he traveled to Paris and acquainted himself with the foremost artists there. This journey gave him the opportunity to work out an excellent instrument. It is an uncommonly strengthened harpsichord [*Clavicembel*] which he gave the name of *Poly-Tono-Clavichordium*.²⁴

Hertz advances the idea that in Paris, Stein may have seen a set of hammer action plans that Jean Marius had presented to the Academy of Sciences in 1716, and that these were the inspiration for his later work. It is probably more likely, however, that Stein became acquainted on his journey with the grand pianos of Johann Heinrich Silbermann, who had learned piano building from Gottfried Silbermann in the early 1740s before returning to the Strasbourg workshop in 1743.²⁵ A 1761 report documents four pianos by J. H. Silbermann in Paris by that year,²⁶ so it seems possible that Stein could have seen such instruments there in 1758-9. Stein is also known to have visited the Silbermann workshop in Strasbourg on his way both to and from Paris²⁷, and it is perhaps worth noting that Stetten says it was “the journey” to Paris, not necessarily any of the artists that Stein met there, that provided the him the chance to “work out” the new instrument. The action used in the surviving pianos by both the Silbermanns was a

²⁴“Im Jahr 1758. reißte er nach Paris, und machte sich mit den vornehmsten Künstlern daselbst bekannt. Diese Reise gab ihm zu Ausarbeitung eine vortrefflichen Instrumentes Gelegenheit. Es ist ein ungemein verstärktes Clavicembel, dem er den Namen Poly-Toni-Clavichordium beylegte. . .” Stetten, *Kunst-Geschichte* 1779, 161.

²⁵For example, Cole, *The Fortepiano*, 181; Michael Latcham, “The Check in Some Early Pianos and the Development of Piano Technique Around the Turn of the 18th Century,” *Early Music* 21, no. 1 (1993): 35.

²⁶John Koster, “Foreign Influences in Eighteenth-Century French Piano Making,” *Early Keyboard Journal* 11 (1993): 7-38; Michael Latcham, “Pianos and Harpsichords for Their Majesties,” *Early Music* 36, no. 3 (2008): 366, 390 n. 38.

²⁷“Aô: 1758. den 19. October, kam H[err] Stein der sich indessen in Augspurg niedergelassen zu uns, brachte einen zwanzig jährigen Menschen names Ekert mit sich, welcher vortreflich das Clavier spielte. . . Er ist willens nach Paris zu reyßen, und wußte nicht ob er daselbst Profession vom Mahlen oder Clavierspielen machen will. Er hat aber das letztere erwählt, und sich daselbst einen großen Namen gemacht. Ob damals Herr Stein mit ihm gereyßt weis ich nicht. Aô: 1759. den 6. Jenner war H[err] Stein wider bey uns, er kam von Paris und reyßte wider nach Augspurg.” Marc Schaefer, ed. *Das Silbermann-Archiv: Der Handschriftliche Nachlass Des Orgelmachers Andreas Silbermann* (Winterthur: Amadeus Verlag (Bernhard Päuler), 1994), 312.

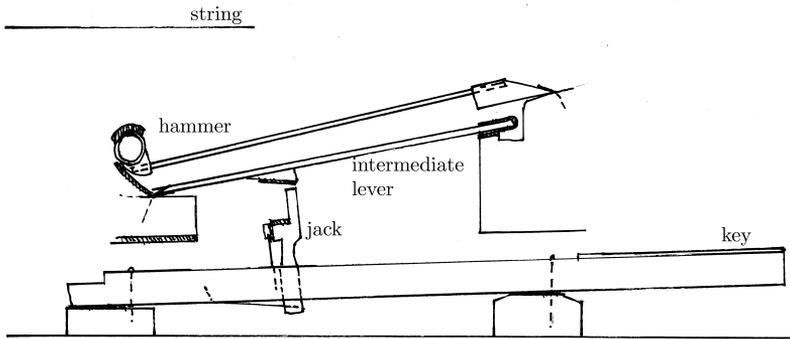


Figure 4.3: Schematic of a *Stößzungenmechanik*, as used by Johann Heinrich Silbermann. Redrawn by Tilman Skowroneck after Christo Lelie and Rosamond Harding.

Stößzungenmechanik modeled on one by Cristofori (Figure 4.3)—a push action with escapement that used an intermediate lever to activate the hammer.²⁸

As likely as it seems, it must also be said that there is no conclusive evidence that Stein saw Silbermann pianos on his trip to Paris. As a matter of fact, the statement in the *Poly-Tono-Clavichordium* article that pianos (or perhaps grand pianos) had previously only been made by “Silbermann in Dresden” might indicate that he did not: it is at least a curious statement, if one assumes Stein had in fact seen Johann Heinrich’s instruments in Paris or Strasbourg. One might explain it by the fact that Johann Heinrich’s instruments were more or less identical to Gottfried’s. Or perhaps the anonymous author of the article simply did not know about any other pianos, or know that Stein had seen them. Neither does there seem to be any evidence in Stein’s notebook that clarifies the matter. Although, as mentioned in chapter 2, the notebook contains entries indicating that Stein knew wing-shaped keyboard instruments from both the Silbermann and

²⁸The four surviving piano actions by Cristofori differ in various ways, although not in their basic arrangement. The Silbermann action is clearly copied from an action of the kind preserved in a Cristofori piano from 1726. Stewart Pollens, *The Early Pianoforte* (Cambridge: Cambridge University Press, 1995), 62-73, 175-78; Latham, “Pianos and Harpsichords,” 377.

Spath shops, where he worked as a journeyman, I have found no statement there about hammer actions by either maker. Rather, Stein's notes are about case dimensions and soundboard ribbing, and they could, in fact, refer to either harpsichords or grand pianos. With the reservation that we do not know for sure, however, I do think it is most likely that Stein saw Johann Heinrich Silbermann's pianos on his trip to Paris, and that it was his inspection of these instruments that enabled him to develop what Stetten presents as a "strengthened" harpsichord: that is, a harpsichord with the addition of a hammer action.

As far as the actual workings of the new action, the *Poly-Tono-Clavichordium* article describes it as follows:

The action is so simple that the whole work consists of only two small pieces, a tangent [or activator; *Tangent*] and a small hammer of extraordinary lightness. The skill with which it is done may be inferred from the fact that the little hammer has only to travel through a space of $3\frac{1}{2}$ Parisian inches. The slightest pressure on the keys touches the strings, and the strongest does not push them too far;—truly, a simple and yet sturdy mechanism!²⁹

Unfortunately, not too much can be deduced from this description. It has often been suggested that the action described was Stein's *Prellzungenmechanik*. The remark that "the strongest pressure on the keys does not push [the strings] too far" does suggest that the action had an escapement, and the *Prellzungenmechanik* does fit the description of having only two parts, a hammer and an activator, or *Tangent*.

However, as Cole has pointed out, since the piano of the *Poly-Tono-Clavichordium* was more or less oriented upside down, with the strings below the soundboard, the action could not have been the same as the one that is preserved in Stein's extant grand pianos.³⁰ Latcham has suggested that it might have been a simple *Stoßzungenmechanik* without the intermediate lever that had been employed by the Silbermanns, or an inverted version of the *Zugmechanik* that Stein used in his *Vis-à-vis* instrument of 1777.³¹ The published description of the new action fits perhaps most well

²⁹"Der Mechanismus ist so simpel, daß das ganze Werk bloß in zwey kleinen Stücken, in einem Tangenten und Hämmerlein von ausserordentlicher Leichtigkeit bestehet. Die Fertigkeit läßt sich daraus schliessen, da das Hämmerlein nur einen Raum von $3\frac{1}{2}$ Pariser Zoll zu durchwandern hat. Der geringste Druck der Tasten berührt die Saiten, und der stärkste übertreibt sie nicht;—Fürwahr, ein leichter und doch dauerhafter Mechanismus!" *Augsburgischer Intelligenz-Zettel*, "Von Erfindung eines Poly-Toni-Clavichordii."

³⁰Cole, *The Pianoforte*, 182.

³¹Latcham, "Mozart and the Pianos," 137 n. 37.

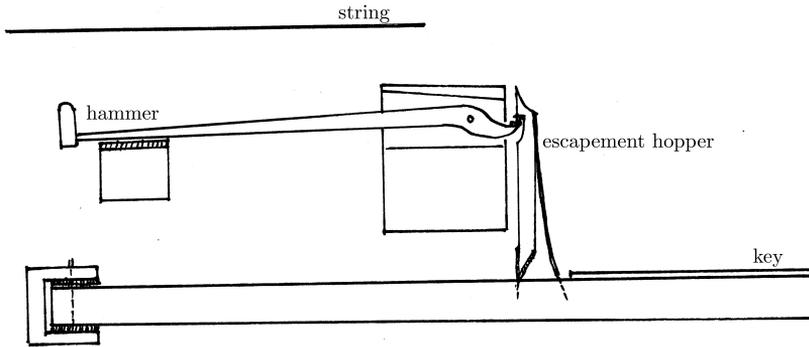


Figure 4.4: Schematic of the *Zugmechanik* of Stein's 1777 *Vis-à-vis* instrument in Verona. Redrawn by Tilman Skowroneck after Christo Lelie.

with the scenario that the immediate inspiration was, in fact, the Silbermanns' *Stoßzungenmechanik*, and the new action was a simplified version of it. The aim of the description, after all, was clearly to point out the new features of what Stein had built, presumably in comparison to something that already existed, and judging from the author's choice of detail (surely informed by Stein), the most salient new feature was the action's simplicity and resulting lightness.

The Verona *Vis-à-Vis* Action

Stein's 1777 *Vis-à-vis* in Verona is, like the *Poly-Tono-Clavichordium*, a harpsichord-piano combination. The piano action is of an unusual type, usually referred to as a *Zugmechanik* (pull action). In principle, it is like a *Stoßmechanik*, in that the hammer pivots in a rail independent of the key, while the impulse that moves the hammer originates from an activator that moves with the key. However, in the case of Stein's *Zugmechanik*, the activator does not push the hammer head toward the strings. Instead, it pulls the hammer beak away from the strings, thereby pivoting the head toward the strings (Figure 4.4).

Assuming that Stein probably knew Johann Heinrich Silbermann's action, Latham has suggested that Stein's German action may be interpreted as a “transformation” of that action, a kind of mental juggling of

its components. Where Silbermann placed the escapement on the key and the hammer off the key, Stein did the reverse. The *Zugmechanik*, which has fundamental similarities to the Silbermann action, including the construction of the dampers and the use of an inverted wrestplank as well as the fundamental principle of the *Stoßmechanik*, would then represent a transitional stage between Silbermann's action and the new *Prellzungenmechanik*.³² The *Zugmechanik* also bears some resemblance to Stein's later German action in the fact that the activator, the escapement hopper, works on the hammer beak.

This line of reasoning implies that in 1777, Stein had not yet invented the *Prellzungenmechanik*, being still engaged with the basic principles of the *Stoßzungenmechanik*. In fact, Latcham has suggested, it may even be the case that the pianos Mozart played in Stein's house in Augsburg in 1777 had not a German action but a *Zugmechanik*. As Latcham points out, there is no clear evidence that Stein had made any instruments with the German action before that date. Mozart's remark about Stein's use of an escapement has been widely interpreted as referring to the *Prellzungenmechanik*, but Stein's *Zugmechanik* had an escapement as well.³³

Summary

Stein is not definitely known to have built any hammer actions before 1769, although it seems likely that some of the instruments listed as "pianofortes" in his notebook date from before that year. It also seems probable that Stein saw grand pianos by Johann Heinrich Silbermann on his trip to Paris via Strasbourg in 1758-59. The Silbermann action, which was modelled closely on a *Stoßzungenmechanik* by Cristofori, may have provided the inspiration for the new type of hammer action that Stein built for the *Poly-Tono-Clavichordium*, which probably consisted of only a hammer and an activator, but is unlikely to have been the German action as it is known from Stein's later pianos. The *Zugmechanik* in the 1777 *Vis-à-vis* instrument is quite likely to have been derived from the Silbermann action, judging from

³²Latcham, "The check," 35-37. More recently, Latcham has questioned the correctness of this interpretation, suggesting that it is probably not possible to establish the direct antecedents of the German action, if there were any, and that it may be more accurate to locate the origins of the action in a stroke of inspiration that may remain untraceable: "Johann Andreas Stein and the Search for the Expressive Clavier," in *Bowed and Keyboard Instruments in the Age of Mozart*, ed. Thomas Steiner (Bern: Peter Lang, 2010). I, however, think that the suggestion that Stein innovated by rearranging various mechanical elements has merit.

³³Michael Latcham, "Swirling From One Level of the Affects to Another: The Expressive Clavier in Mozart's Time," *Early Music* 30, no. 4 (2002): 510.

several aspects of its construction. If Stein, in 1777, had not yet developed his *Prellungenmechanik*, then the hammer action in his claviorganum, from 1781, likely represents one of the first examples of that action ever built.

4.2 The *Poly-Tono-Clavichordium* Article

Organologists have found it interesting to trace the possible origins of the *Prellungenmechanik*, and with good reason. However, when the action was first made, its meaning had little to do with its antecedents, and much more to do with the fact that it was something new. As an invention, it was interesting for its novelty; as an improvement, moreover, it carried an ideological charge.

The 1769 description of the *Poly-Tono-Clavichordium* is the only contemporary source that specifically describes the invention of a new hammer action by Stein. Although the text does not describe the action in enough detail for us to know exactly what it was like, the version of the article published in Augsburg is quite informative about the significance of the action for contemporary observers. Intriguingly for this study, that text both echoes many of the ideas about organ building and art that appear in Stetten's *Kunst-Geschichte*, and connects those ideas to specific features of a musical technology.

The Augsburg Version

The description of the *Poly-Tono-Clavichordium* was published twice in 1769: in July, in Hiller's *Wöchentliche Nachrichten, die Musik betreffend*, and in October, in the Augsburg *Intelligenz-Blatt*. The description of the instrument is almost exactly the same in both versions, but it is prefaced by two different texts. The Augsburg preface is longer. It discusses the importance of the arts and the nature of the organ builder's profession, in addition to Stein's reasons for inventing the *Poly-Tono-Clavichordium*. Hiller's shorter introduction includes some of the same details about the motivation for inventing the instrument, but none of the discussion about the arts or organ building. Hiller's version was published first, but it is not clear if it was excerpted from the Augsburg version, or if the Augsburg version represents a re-working and expansion of Hiller's text.

The Augsburg article is unsigned. It seems, however, that the author lived in the city, judging from formulations such as "the organ and instrument maker here, Mr. Johann Andreas Stein, who is... also the organist at the local Evangelical Barfüßer Church," and the fact that he or she has

apparently seen the *Poly-Tono-Clavichordium* in person.³⁴ Certainly, the discussion of organ building and art was written for an Augsburg readership, since it was published in a local paper. Although the writer was someone who cared about the position of the arts in the city, I think it is unlikely that Stetten authored the text, for it is written in a baroque style that is quite unlike Stetten's simple, pedagogical prose. Clearly, however, it represents a contribution to a general conversation about arts and progress, in which Stetten was one participant, and that was apparently relevant to many of the citizens of Augsburg at that time.

Improvement

The preface of the Augsburg article begins with a few paragraphs that discuss the value of art, inventions, and improvements very generally, before turning to more specific musical motivations for the invention of the *Poly-Tono-Clavichordium* (and the *Melodica*, which is also discussed briefly). Much of the language and reasoning recalls the ideas about art that Stetten sets out: in particular, his declaration that “the artist consists in improvement.”

The author begins by asserting the importance of the arts to society, because of the benefits they provided in the form of new and useful inventions:

The realm of the sciences expands, in these enlightened times; and so, too, are the arts on the rise, and gain acceptance, wherever they find admirers, *Liebhaber*, and high benefactors—for this is (so to speak) the lighted tinder which fires the noble ambition and the inventive power of clever and ingenious minds, whose industry and whose many useful inventions are to be thanked for the general acceptance of both the arts and the sciences, and for which they certainly deserve renown and the esteem of the enlightened public.³⁵

³⁴“Der so berühmte als geschickte Orgel- und Instrumentmacher dahier, der zugleich Organist an der hiesigen Evangel. Barfüßerkirche ist, Herr Johann Andreas Stein. . .”; “Wer davon überzeugt seyn will, mus solches nach allen seinen Theilen, so, wie ich, gesehen, und zu spielen gehört haben.” *Augsburgischer Intelligenz-Zettel*, “Von Erfindung eines Poly-Toni-Clavichordii.”

³⁵“So wie das Reich der Wissenschaften in unseren erleuchteten Zeiten sich ausbreitet, so nehmen auch die Künsten zu, und kommen in Aufnahme, wo sie Verehrer, Liebhaber und hohe Gönnere finden; denn dieses ist gleichsam der brennende Zunder, zu Anfeuerung der so edlen Ehrbegierde und Erfindungskraft witziger und sinnreicher Köpffe, als deren Fleiß und mancherley nützlichen Erfindungen man die Aufnahme der Künsten und Wissenschaften zu danken hat, und dadurch sie allerdings Ruhm und Hochachtung bey dem erleuchteten Publico verdienen.” *Ibid.*

Here, artists produce inventions with their "industry" and their "clever and ingenious minds." They are inspired to do so by a "noble ambition," a phrase that calls to mind Stetten's idea that artists, as opposed to craftsmen, did not simply work to earn money for their daily bread, but for some higher purpose. That higher purpose seems simply defined as making things that are useful, of benefit the public at large. This is a worthy cause: for making useful things, it is claimed, artists deserve "renown and esteem," things that they will receive from "enlightened" audiences that recognize their importance.

The author hastens to add, however, that an artist's work need not be a totally new invention to be deserving:

Not only, however, do new inventions, with which an artist broadens the boundaries of his science, promote the acceptance of the arts, and do credit to such an artist—but also when familiar things or new inventions are improved, made more perfect, more useable, more serviceable. For just as much use is often had from the latter as from the former, since something that has been improved always finds, at least, more approval than that is old.³⁶

Inventions are praiseworthy, in other words, because they lead to new knowledge. But improvements are at least as good, perhaps even better, because they are of just as much use to society, or even more. "More useful" and "more serviceable" are equated here with "more perfect." The suggestion that inventions and improvements are equally valuable makes it clear that inventions are prized not because they represent a creative inspiration, but because, again, they benefit society; improvements function in just the same way.

Stein's *Poly-Tono-Clavichordium* and his *Melodica*, the author goes on to say, belong to this group of inventions and improvements:

Now, among the number of such new inventions and useful improvements, there deserves to be placed an especially new kind of musical instrument. . . which has finally been produced after

³⁶"Nicht aber nur bloß neue Erfindungen alleine, womit ein Künstler die Gränzen seiner Wissenschaften erweitert, sondern auch, wenn die schon bekannten: oder neu erfundenen Sachen, verbessert, vollkommener, brauchbarer und nützlicher gemacht werden, befördern die Aufnahme der Künsten, und machen einem solchen Künstler Ehre; denn durch das Letztere wird öfters mehr, oder eben so viel Nutzen geschafft, als durch das Erstere: weil das Berbesserte [sic], wenigstens vor dem Alten jederzeit mehr Beyfall findet." Ibid.

much effort and work by a local artist...and in addition to this, a new organ that has, among other things, a sustained tone without monotonous noise.³⁷

Having followed the author's reasoning this far, the reader will understand that these new musical instruments, too, will deserve praise most of all for the useful advantages they may be expected to provide. The author also makes it clear that they are not (or not only) the result of a moment's inspiration, but rather, his industry: the long application of "effort and work."

At this point in the text, the author pauses to describe the art of organ building, including the various skills that an artist-organ builder must master; this passage is discussed in detail in the next section. The author moves on with an argument strongly reminiscent of Stetten's comment that an organ builder "who stops at what he has learned from his master is a mere craftsman":

Now, an artist such as this, who, when making complete organ-*Clavier*- and *Flügel*-instruments of this kind, does not settle for what is old, but also strives at the same time to work more with a soul that is sensible of music [*für die Musik empfindbar*], and with the skill thereby acquired seek to improve those organs and instruments and make them more perfect, more pleasant, and more comfortable by means of new mechanical additions, will undertake nothing that does not correspond to these, his intentions; hence will always produce something useful, more perfect.³⁸

A musical instrument builder who is an "artist," that is, will always endeavor to improve upon existing instruments, and will never work for another

³⁷"Unter die Zahl solcher neuen Erfindungen und nützlichen Verbesserungen verdienet nun auch gesetzt zu werden, eine besonders neue Art, eines gleichsam vollständigen Musik-Instruments, so die Stelle vieler Claviere, Flügel und anderer Saitenspiel zugleich vertritt, nebst einer neuen Orgel mit Aushaltung des Tons ohne einförmiges Geräusche u.a. welche von einem hiesigen Künstler, der schon als ein geschickter Tonkünstler, Organist, Instrument- und Orgelmacher zugleich, berühmt ist, endlich nach vieler Mühe und Arbeit zu Stande gebracht worden ist." Ibid.

³⁸"Ein solcher Künstler nun, der bey Verfertigung dergleichen vollständigen Orgeln-Clavieren- und Flügel-Instrumenten, es nicht bey dem alten bewenden lässet, sondern sich auch zugleich dahin bestrebet, mehr mit einer für die Musik empfindbaren Seele zu arbeiten, und durch seine darinn erlangte Habilität, dergleichen Orgeln und Instrumenten zu verbessern, und mit neuen mechanischen Zusätzen vollkommener, angenehmer und bequemer zu machen suchet, wird niemals was unternehmen, daß diesen seinen Absichten nicht gemäß, folglich allemal was Nützliches, was Vollkommeneres zu Stande bringen." Ibid.

purpose. The builder gains the knowledge required to make improvements by working with musical sensitivity, and executes those improvements by changing the mechanical workings of the instruments. Read in the context of the passage as a whole, moreover, it is clear that the musical instrument builder's improvements, just like those of other artists, serve the larger goals of advancing the arts by producing better and more useful work.

It is interesting to compare this section of the text with the passage that more or less corresponds to it in the version published earlier in the year by Hiller:

until now people have complained that it [the piano] is too hard to play, and thus Mr. Bach notes in his *Versuch über die wahre Art das Clavier zu spielen*, that not all the ornaments can be produced equally well on it. Certainly a bad state of affairs for music, if she cannot express everything! How might this instrument be helped? It would be desirable for the instrument builders to have more musical insight, and to work more with a soul sensitive to music; they would then alter their mechanism until they had bestowed upon an instrument the perfection that would satisfy a connoisseur even in its small details, and would no longer be detrimental to the music in any way.³⁹

The comment that it is hard to play ornaments on the fortepiano also appears in the Augsburg article. However, there it comes later in the text, in a longer discussion of the problems with existing instruments. By placing it at the head of this passage instead, Hiller re-frames the significance of Stein's new invention. The Augsburg version of the text presents improving the piano as something that a builder would do to remain true to his "noble" intentions of benefitting society. Hiller, in contrast, who is writing not for readers in one specific social milieu (i.e., the city of Augsburg), but for a much broader group of musically interested readers, couches the whole

³⁹"Man hat sich außerdem bisher beschwert, daß es hart zu tractiren sey, wie denn auch Herr Bach in seinem Versuche über die wahre Art das Clavier zu spielen, anmerkt, daß nicht alle Manieren gleich gut darauf heraus zu bringen wären. Gewiß ein schlimmer Umstand für die Musik, wenn sie nicht alles ausdrücken kann! Wie ist nun diesem Instrumente zu helfen? Es wäre zu wünschen, daß die Instrumentmacher mehr musikalische Einsichten hätten, und mehr mit einer für die Musik empfindbaren Seele arbeiten möchten; sie würden alsdann an ihrem Mechanismo so lange verändern, bis sie einem Instrumente die Vollkommenheit gegeben, die den Kenner auch in Kleinigkeiten befriedigte, und der Musik in keinem Stücke mehr nachtheilig wäre." Johann Adam Hiller, ed., "Nachricht von Verbesserung des Pianofortinstruments," *Anhang zu den wöchentlichen Nachrichten und Anmerkungen die Musik betreffend* (Leipzig), July 24, 1769, 32, <http://books.google.se/books?id=ADc9AAAaAAJ&printsec=frontcover#v=onepage&q=&f=false>.

endeavor as a solution to a purely musical problem. The builder is no longer portrayed as being in the service of society, but rather in the service of musicians, or indeed of music itself.

Head and Hands

In the midst of the preface on the importance of improvement in the arts, there is a passage that discusses what the art of organ building encompasses:

An attentive organ builder, taken in himself, is no simple artist: he must master much more of the arts and sciences if he wishes, in a different way, to perceive all the parts of his works with wide-ranging rigor, to arrange them, and to complete them with esteem. To put it briefly: not only must he be a musician of taste, possessing more than just a musical ear, but he must also be at once a caster; a carpenter; a turner; a master builder; a mechanician; a geometer, for calculating the scalings and for scaling up and scaling down, calculating and transforming the geometrical diagrams; and a draftsman as well; and especially an honest man, who with his artfully assembled work spreads pleasure and devotion by means, so to speak, of air and barren tin. . . ⁴⁰

This passage is probably based on a similar description of organ building in Adlung's *Musica Mechanica Organoedi*, which reads:

[The art of organ building] requires a good basis in **mathematics**, because it constantly has to do with scaling up and down. Many crafts belong to it. One must be a good **carpenter**, **tin-smith**, **blacksmith**, etc. No less must a good organ builder also understand **metals** and the **kinds of wood**, from **physics**; he must know **turning**: but especially it is required that he have

⁴⁰“Ein aufmerksamer Orgelmacher, an sich selbst betrachtet, ist kein einfacher Künstler: er muß weit mehr von Künsten und Wissenschaften besitzen, wenn er anderst alle Theile seiner Arbeiten mit einer ausgebreiteten Gründlichkeit erkennen, anordnen und rühmlich zu Stande bringen will. Er muß, wann ich es kurz fassen will, nicht nur ein Tonkünstler von Geschmacke, der mehr als ein musikalisches Gehör besitzt, seyn, sondern er muß zugleich ein Gießer, ein Kistler, ein Drechsler, ein Baumeister, ein Mechanicus, ein Geometer zur Abtheilung der Mensuren, und zur Verjüngung, Vergrößerung, Berechnung und Verwandlung der geometrischen Figuren, und auch ein Zeichner, und besonders ein ehrlicher Mann seyn; der mit seiner künstlich zusammengesetzten Arbeit, gleichsam durch Wind und taubes Zinn, Vergnügen und Andacht ausbreitet. . .” *Augsburgerischer Intelligenz-Zettel*, “Von Erfindung eines Poly-Toni-Clavichordii.”

a thorough knowledge of **architecture**. For this reason organ builders also have special *privileges*, and the thing is called not a **craft**, but an **art**.⁴¹

The *Poly-Tono-Clavichordium* article specifically cites the *Musica Mechanica Organoedi* at another point, in reference to the invention of the fortepiano, so it is clear that the author has read Adlung, and many of the elements in the description of organ building are the same in the two texts. There are also differences between the two, however, and these differences help to illustrate the ways in which the *Poly-Tono-Clavichordium* was a product of the specific conversations about art that were taking place in Augsburg.

Both Adlung and the Augsburg author emphasize that the organ builder must master a variety of different skills or professions. According to Adlung, the mastery of multiple crafts, in addition to some theoretical knowledge, means that organ building itself is classified not as a craft but as an art, so that organ builders required "special privileges." Here he is probably referring to the fact that organ builders did not have their own guilds. (Krünitz reports this meaning of the word art: "In our region one calls at least all those people artists, on whom the government has not laid certain laws and restrictions of a guild, or else they call themselves by this name."⁴²) For the Augsburg author, many of the disciplines that the organ builder has to master are themselves arts; hence, the organ builder is "no simple artist," a phrase that refers certainly to the fact that his mastery is not single but multipartite, and perhaps also intimates a higher level of skill or status.

Many of the specific professions listed by the two authors correspond, although they sometimes use different names (Table 4.1) Both authors list a combination of practical and theoretical disciplines. The Augsburg text, however, throws the juxtaposition of practical and theoretical into sharper

⁴¹"Sie erfordert einen guten Grund in der **Mathematik**, weil sie stets mit Aus- und Abmessungen zu thun hat. Es gehören viel Handwerke dazu. Es muß einer ein guter **Tischler**, **Klempener**, **Schmidt**, u. s. w. seyn. Nicht weniger muß auch ein guter Orgelmacher die **Metalle** und **Holzarten** aus der **Physik** verstehen; er muß **drechseln** können: sonderlich aber wird erfordert, daß er die **Architektur** gründlich inne habe. Es haben auch die Orgelmacher desfalls besondere *Privilegia*, und heisset diese Sache kein **Handwerk**, sondern eine **Kunst**." Jakob Adlung, "Praeliminaria," in *Musica Mechanica Organoedi* (Berlin: Friedrich Wilhelm Birnstiel, 1768). Facsimile edition, Christhard Mahrenholz, ed. (Kassel: Bärenreiter, 1961), 1:5. Adlung acknowledges the transmission of the passage from Johann Caspar Trost's *Ausführliche Beschreibung des neuen Orgelwercks auf der Augustus-Burg zu Weissenfels* (1677).

⁴²"Allein, in unserer Gegend nennt man wenigstens alle diejenigen Künstler, denen die Obrigkeit nicht gewisse Gesetze und Schranken einer Zunft auferlegt hat, oder sie geben sich auch selbst diesen Nahmen." Krünitz, *Oekonomische Encyclopädie*, s. v. "Künstler" (1791).

Table 4.1: Comparison of the qualifications for an organ builder in Jakob Adlung’s *Musica Mechanica Organoedi* (1768) and “Von Erfindung eines Poly-Toni-Clavichordii oder musikalischen Affecten-Instruments” (*Augsburgischer Intelligenz-Zettel*, 1769).

<i>Musica Mechanica Organoedi</i>	<i>Augsburgischer Intelligenz-Zettel</i>
—	Tonkünstler von Geschmacke
Schmidt	—
Klempener	Gießer
Tischler	Kistler
drechseln können	Drechsler
Architektur	Baumeister
Metalle und Holzarten (Physik)	—
—	Mechanicus
Mathematik (Aus- und Abmessungen)	Geometer (Verjüngung, Vergrößerung)
—	Zeichner
—	ehrllicher Mann

relief, by specifically staking out the two opposing categories of “art” and “science,” or *Kunst* and *Wissenschaft*. *Kunst* means, of course, art in the sense of skilled work. Set against *Kunst* as it is here, *Wissenschaft* indicates not just knowledge but specifically theoretical, scientific knowledge.⁴³ The difference between the categories is further clarified in the Augsburg text by the way the author has ordered the list of disciplines. Where Adlung mixes together mathematics, carpentry, smithing, physics and architecture in no apparent order, the Augsburg author establishes a clear progression from practical to theoretical knowledge, from hand to head: caster, carpenter, turner, master builder, mechanic, geometer, draftsman.

The category of mechanics here refers not to the broad category of the mechanical arts, but rather to what Paul von Stetten named the *eigentliche mechanische Künste*, or “true mechanical arts”: those which had specifically to do with machines. A *Mechanicus* was someone who worked with moving

⁴³Adelung reports in 1811 that the general meaning of *Wissenschaft*, “the condition of knowing something, having knowledge or news of it. . . is beginning to become obsolete in High German”, and that it is now usually understood in opposition to art: “Am häufigsten gebraucht man das Wort noch, 3. Objective, von dem Inbegriffe in einander gegründeter allgemeiner Wahrheiten; wodurch sich die Wissenschaft von der Kunst unterscheidet, indem diese bloß Ausübungs, jene aber in einander gegründete allgemeine Wahrheiten enthält.” Johann Christoph Adelung, *Grammatisch-kritisches Wörterbuch der Hochdeutschen Mundart. . .*, s.v. “Die Wissenschaft” (Vienna: B. Ph. Bauer, 1811), <http://mdz.bib-bvb.de:80/digbib/lexika/adelung/>.

parts, and had some theoretical understanding of how they functioned:⁴⁴ as did Johann Andreas Stein, who, according to Stetten, was as strong in the theory of mechanics as in its practice. It was well known that organ builders used geometry for "scaling up and scaling down," and they were often pictured holding compasses. The compass itself was a familiar symbol of intellectual activity in general, and of the liberal arts, which had included geometry, in particular.⁴⁵

Adlung does not mention drafting or drawing at all. Its inclusion in the Augsburg list seems connected to the more modern perspective expressed by Stetten several years later, in which any "work of art" necessarily contained some measure of the "refinement" characteristic of the fine arts. Such refinement might consist of ornament or the correct application of the rules of proportion, both of which required a knowledge of drawing. Stetten names those smiths "artists" who "understand how to refine their work extraordinarily, partly with the help of mechanics, partly with the support of the art of drawing,"⁴⁶ and the academy for the fine arts that Stetten established was attached to a drawing school to teach drawing and drafting to mechanical artists. The position of the "draftsman" near the

⁴⁴Johann Heinrich Zedler's dictionary clarifies the distinction in the entry for *Mechanicus*: "The name is applied in a loose sense to craftsmen; but above all to those whose art is built upon the subject of mechanics. . ." ("Dieser Nahme wird in uneigentlichem Verstande denen handwercks-Leuten beygelegt; vornehmlich aber denen, deren ihre Kunst auf die Mechanick gebauet ist. . ."). *Grosses vollständiges Universalexicon aller Wissenschaften und Künste*, s.v. "Mechanicus" (Halle and Leipzig: Johann Heinrich Zedler, 1732-1750) <http://mdz10.bib-bvb.de/~zedler/zedler2007/index.html>. The entry continues: "Further, and more correctly, in particular an artist who makes mathematical instruments is called a Mechanicus. Finally and in the most correct or rather, philosophical sense, a person is called a Mechanicus who thoroughly understands the laws of motion and everything which pertains to the recognition and elucidation of these laws, and is also capable of applying them successfully." "Ferner wird ein Mechanicus, und zwar in eigentlichem Verstande, insbesondere derjenige Künstler genennet, der mathematische Instrumente verfertigt. Endlich und im eigentlichsten, oder vielmehr philosophischen Verstande heißt ein Mechanicus eine solche Person, welche die Gesetze der Bewegung und alles, was zu deren Erkenntnis und Erklärung nur gehören mag, gründlich verstehtet, auch solche glücklich anzuwenden geschickt ist."

⁴⁵Reviewed with specific reference to keyboard building in John Koster, "The Compass as Musical Tool and Symbol," in *Musiciens, facteurs et théoriciens de la Renaissance*, ed. Florence Gétreau, Musique, Images, Instruments 5 (Paris: CNRS Éditions, 2003), 11-32. As Stephen Birkett and William Jurgenson suggest, the way keyboard builders actually used compasses was a different matter: quite likely their practice was highly pragmatic, with little if any theory involved: "Geometrical Methods in Stringed Keyboard Instrument Design and Construction," *The Galpin Society Journal* 14 (2001): 242-84

⁴⁶"Die wenigsten Schmiede sind Künstler. Es giebt aber einige, die auch ihre Arbeiten theils mit Hülfe der Mechanik, theils durch den Beystand der Zeichnungskunst ungemein zu verfeinern verstehen." Stetten, *Kunst-Geschichte* 1779, 202.

apex of the list, moreover, echoes the more prestigious position of the fine arts, as compared to the mechanical.

The Augsburg passage begins and ends with two other qualifications that Adlung does not address. The first is that an organ builder must be a musician who has “taste,” and not “just a musical ear,” or more literally translated, “musical hearing” (“ein musikalisches Gehör”). The author seems here to indicate that musical hearing is not as elevated as musical taste: where taste is an intellectual faculty, hearing is a physical one. Musical hearing may then be understood to mean something like the ability to identify a particular timbre, or to discern when notes are in or out of tune, to match pitches, to set a temperament.⁴⁷ Taste, in contrast, requires a higher level of musical understanding, and implies the ability to make a specifically aesthetic judgment: in evaluating timbre, perhaps, or in selecting musically appropriate combinations of sounds for a division or entire instrument.

The distinction between taste and hearing reinforces the fundamental distinction being made by the author between head and hand, science and art. It is clear that other contemporary observers also perceived the combination of practical and theoretical knowledge to be a significant part of organ building, and observed it in Stein himself. Schubart, for example, who became acquainted with Stein during the 1770s in Augsburg, later noted that “when Stein’s fists are doing carpentry, his head is present too,”⁴⁸ and called Stein “a first-rate musical mind, speaking both mechanically and psychologically. His taste is excellent.”⁴⁹

The Augsburg author also suggests, finally, that it is important—in fact, most important of all—for an organ builder to be “an honest man.” On the one hand, it is easy to understand the pragmatic sense of this stipulation. Organ builders, unlike many other artists and craftsmen, contracted to deliver large, expensive products that took years to complete, had to be

⁴⁷For a different perspective, see John Koster, “The Compass,” 30, who suggests that in the late eighteenth century, tuning tools functioned iconographically as symbols of musical sensibility: “New instruments, above all the piano, and new manners of performance indulged the sensibilities of hearing. Thus it is understandable that two of the leading musical instrument makers of the eighteenth century, Burkat Shudi and Johann Andreas Stein, were portrayed holding not compasses but tuning hammers.” (There is also a portrait of Stein that shows him with a compass.)

⁴⁸“Wenn Stein’s Fäuste zimmern, so ist sein Kopf auch dabei.” “Klavierrecepte,” in *C. F. D. Schubart’s vermischte Schriften, erster Teil*, ed. Ludwig Schubart, vol. 6, *C. F. D. Schubart’s, des Patrioten, Gesammelte Schriften und Schicksale* (Stuttgart: J. Scheible’s Buchhandlung, 1839), 69.

⁴⁹“Stain, ein vorzüglicher musikalischer Kopf, mechanisch und psychologisch betrachtet. Sein Geschmack ist vortrefflich.” *C. F. D. Schubart’s, des Patrioten, gesammelte Schriften und Schicksale*, ed. Ludwig Schubart, vol. 5, *C. F. D. Schubart’s Ideen zu einer Aesthetik der Tonkunst* (Stuttgart: J. Scheible’s Buchhandlung, 1839), 222.

paid for along the way, and could not be fully evaluated in advance. On the other hand, however, the idea that an organ builder should be honest also seems to connect to the ideas expressed elsewhere in the text (and by Stetten), that a true artist was noble, not mercenary.

After enumerating the qualities of the "attentive" organ builder, the Augsburg passage concludes with a specific example of the benefits that such a builder can achieve: namely, the inspiration of a congregation to both "pleasure and devotion." As a result of the builder's "artfully assembled work," the author says, the coordinated sounds of the varied stops of an organ have the power to stir the up the whole range of emotions in a listening congregation: "thanks, praise, reverence, sorrow, joyfulness." Together they "encourage the spirit from one level of the *Affekten* to another, and by means of harmonic diversions, lift up the heart, so to speak, toward heaven."⁵⁰

To sum up, the author of the *Poly-Tono-Clavichordium* article, like Stetten, emphasizes that theoretical understanding—*Verstand*, or *Wissenschaft*—is necessary in order to achieve new inventions or improvements that benefit society, and this is an essential motivation for the artist. One particular benefit that an artful organ builder can provide is the inspiration of feelings, perhaps especially religious feelings, in listeners. The familiar privileging of head over hand is here used specifically to establish the position of the artist, who works to improve society out of noble ambition and perhaps even moral conviction, above the craftsman, who works only to earn his daily bread.

Mechanical Improvements in the *Poly-Tono-Clavichordium*

After the introductory paragraphs on art and organ building, the author of the *Poly-Tono-Clavichordium* article moves to a discussion of Stein's reasons for inventing the instrument, and finally a description of the instrument itself. The sciences of architecture, geometry and drafting do not figure in

⁵⁰ "...der [the organ builder] mit seiner künstlich zusammengesetzten Arbeit, gleichsam durch Wind und taubes Zinn, Vergnügen und Andacht ausbreitet; indeme die Menge der Orgelstimmen, welche eine andächtige Gemeine in Bewegung setzen, zwar unbegiederte Töne, aber dennoch im Chorale eine vielfache Davids-Harpfe einer ganzen vielfältigen Kapelle sind, welche in uns den Dank, das Lob, die Ehrfurcht, die Trauer, die Freudigkeit u.a. gleich rege machen; und durch sachte und melancholische Gedakten, durch allerley anmuthige Flöten und Pfeiffen, durch lustige und durchdringende Mixturen und Cymbeln, durch singende Cornete, durch freudige und laute Trompeten, durch schluchzende Tremulanten, durch heroische Posaunen, durch brummende Fagots, durch schmachtende Menschen-Stimmen, durch laute und nachdrückliche Principale, von einer Stufe der Affecten zur andern, den Geist ermuntern, und das Herz durch harmonische Zerstreungen gleichsam Himmelwärts empor heben."

the description, nor indeed do honesty or musical taste. The description does, however, repeatedly make reference to the instrument's *Mechanik*, or moving parts.

The preface to the article had stated that an organ builder would always seek to improve instruments—to make them “more perfect, more pleasant, and more comfortable”—and would do so by means of “new mechanical additions.” The author continues by laying out the specific deficiencies in existing musical instruments that Stein had set out to remedy. The first problem was with stringed keyboard instruments in general. No stringed keyboard instrument had yet been built, the author says, that could achieve as much dynamic variation as the organ. Neither was the organ perfect, for it suffered from the fact that although it could produce both soft and loud sounds, these were always sustained at the same level, and could not be affected by the player's touch.

To address the second problem, Stein had invented an improved kind of organ that the author promises will be described in a later article; this was his *Melodica*. His solution to the first problem, meanwhile, was the *Poly-Tono-Clavichordium*. As its name indicates, the new instrument had the same multiplicity of sounds that the organ did, but they were created with a keyboard and strings (“clavi-chord”), as opposed to pipes.⁵¹ The presentation of the *Poly-Tono-Clavichordium* as a kind of stringed organ is further developed in the description of the instrument, which closely parallels the description of the organ that stirs the emotions of the listening congregation, cited above. Where the organ is described as the “artfully assembled work” of the organ builder, the *Poly-Tono-Clavichordium* is called “an artful assembly of keyboards.” Both the *Poly-Tono-Clavichordium* and the various organ stops are said to produce “gentle,” “melancholy,” “joyful,” and “languishing” harmonies, and while the organ's stops are likened to “a multipartite harp of David of an entire, varied orchestra,” the *Poly-Tono-Clavichordium* is said to resemble “a complete ensemble of several instruments.” The organ could “encourage the spirit from one level of the *Affekten* to another, and lift up the heart toward heaven, so to speak, by means of harmonic diversions”; with the *Poly-Tono-Clavichordium*, meanwhile, “the harmonic traits [could] be expressed, so to speak, from one level of the *Affekten* to another.”⁵²

⁵¹For a different point of view, see Eva Hertz, “Johann Andreas Stein (1728-1792): eine Beitrag zur Geschichte des Klavierbaus” (PhD diss., Albert-Ludwigs Universität zu Freiburg, 1937), 46, who suggests that the name alludes to the clavichord, reflecting the “soft, affecting pleasantness” (“sanfte affectuose Annehmlichkeit”) that the piano brought to the instrument combination.

⁵²“... eine künstliche Zusammensetzung von Clavieren mit Verbindung des beliebten

In the anonymous author's presentation, the *Poly-Tono-Clavichordium* appears as a package of mechanical improvements, conceived in collaboration with a "famous local mechanic" (almost certainly the scientific instrument maker Georg Friedrich Brandter) and systematically worked out over a ten-year period of experimentation. Two aspects of the instrument's "mechanism," in particular, are addressed. One of these, of course, was the new hammer action that Stein had invented for the piano portion of the instrument. Of equal importance, however, was the mechanism that joined the piano and harpsichord together: or rather, the very fact of their combination. Each of these mechanical innovations was aimed at a different aspect of the overall problem: to create a stringed keyboard instrument with all of the affective power of the organ.

The Hammer Action

The author's most detailed comments are on the new type of hammer action in the piano of the *Poly-Tono-Clavichordium*. This was an improvement, it seems, that was necessary not so much for the sake of improving the piano itself, but rather to make that "popular" new instrument usable in the context of Stein's larger goal. Clearly, it would be desirable to make use of an instrument in which dynamics could be controlled by the player's touch; this had been pointed out as one of the flaws of the organ. Before that could happen, however, an important flaw in the piano itself had to be addressed.

According to the Augsburg author, the piano—at least pianos that had so far been made by Silbermann in Dresden—was "hard to play" ("hart zu tractiren"), a phrase that could indicate that the touch was heavy, or that the action was difficult to control. Agricola reports in Adlung's *Musica Mechanica Organoedi* that Johann Sebastian Bach had criticized Silbermann's instruments as being hard to play ("schwer zu spielen"), and it is possible that the Augsburg author is borrowing this remark from Adlung. The *Musica Mechanica Organoedi* is actually cited in the previous sentence, which details the claims of both "Cristofoli" and Christoph Gottlieb Schröter to the original invention of the piano. Probably, however, the observation comes from C. P. E. Bach's *Versuch*, where he states that

Forto-Piano-Flügels [sic], womit sanfte, lärmende, sachte und melancholische, freudige und schmachtende Harmonien herfürgebracht, und Symphonien und Concerten wie Solo, mit forte und piano so anmuthig darauf gespielt werden können, daß es einer complete Musik mit mehrern Instrumenten nicht unähnlich zu seyn scheint"; "... ein dergleiches vollständiges musikalisches Instrument. . . womit von einer Stufe der Affecten zur andern, die harmonische Züge gleichsam ausgedruckt werden können." *Augsburgischer Intelligenz-Zettel*, "Von Erfindung eines Poly-Toni-Clavichordii."



Figure 4.5: The *Pralltriller* illustrated in C. P. E. Bach's *Versuch über die wahre Art, das Clavier zu spielen* (1753).

“the newer *Forte pianos*, if they are well and sturdily made, have many advantages, except that the way to play them [“ihre Tractierung”] must be studied especially, and not without difficulty.”⁵³ The Augsburg author’s next observation, that “not all ornaments could be played. . . equally well” on the piano, certainly comes from Bach, although Bach does not make such a general statement. Rather, he discusses the difficulty of performing on the piano one specific kind of ornament: the *Pralltriller*.

The *Pralltriller*, which is a short fast upper trill, was, according to Bach, the most important trill (Figure 4.5). It was also the most difficult, because it was essential that it be performed quickly and crisply. The last upper note of the trill was to be “snapped” (*geschnelltt*);⁵⁴ that is, played with the finger quickly bent and pulled forward off the key, and from this the trill derived a great deal of its effect.⁵⁵ After describing the execution and use of the *Pralltriller*, Bach adds:

⁵³“Die neuern *Forte piano*, wenn sie dauerhaft und gut gearbeitet sind, haben viele Vorzüge, ohngeachtet ihre Tractierung besonders und nicht ohne Schwierigkeit ausstudiret werden muß.” Carl Philipp Emanuel Bach, *Versuch über die wahre Art das Clavier zu spielen* (Berlin: Christian Friedrich Henning, 1753) and *Versuch über die wahre Art das Clavier zu spielen: Zweyter Theil, in welchem die Lehre von dem Accompagnement und der freyen Fantasie abgehandelt wird* (George Ludewig Winter, 1762). Combined facsimile edition (Leipzig: C. G. Röder, 1957), 1:8.

⁵⁴I have borrowed the term from William J. Mitchell’s translation: *Essay on the True Art of Playing Keyboard Instruments* (New York: W.W. Norton and Company, 1949).

⁵⁵“Dieser Triller ist die unentbehrlichste und angenehmste, aber auch darbey die schweste Manier. Er kommt entweder gar nicht zum Gehör, oder auf eine lahme und unausstehliche Weise, welche seinem natürlichen Wesen entgegen ist, wenn man ihn nicht vollkommen gut macht. . . Er muß recht prallen; der zuletzt angeschlagene oberste Ton von diesem Triller wird geschnelltt; dieses Schnellen allein macht ihn würcklich, und geschiehet. . . mit einer ausserordentlichen Geschwindigkeit, so, daß man Mühe hat, alle Noten in diesem Triller zu hören. Hieraus entstehet eine gar besondere Schärffe, gegen welche auch der schärfste Triller von anderer Art in keinen Vergleich kommt.” “Schnellen”

Regarding the performance of this trill, we also observe that a nearly unconquerable difficulty arises when this ornament is to be done softly on the fortepiano. We know that snapping must always happen with a certain degree of force; that force always makes the attack strong on this instrument; our trill can absolutely not be produced without snapping; so a keyboard player always suffers here, and the more so because this trill occurs very often, sometimes alone, sometimes accompanied by a turn, after an appoggiatura, and consequently, according to the rule for executing appoggiaturas, *piano*. This inconvenience happens with all snaps, but especially here, with the sharpest kind of snaps. I doubt that anyone, even with the greatest practice, will always be able to have the strength of the attack under control when performing this trill on the aforementioned instrument.⁵⁶

To correctly perform the snap that is essential to the *Pralltriller* requires some degree of force, Bach says here, and on the fortepiano, this force tends to "make the attack strong." Presumably, since the difficulty is to execute the trill "softly," the problem with a strong attack is that the resulting sound is too loud. It is not clear from Bach's analysis how the situation would be different on his preferred instrument, the clavichord, for a strong attack on that instrument also results in a louder sound. What is clear, however, is that Bach finds that it is not possible to control the piano action in the way that he would like, In particular, it is difficult to execute notes that are both fast and quiet.

The new hammer action for the *Poly-Tono-Clavichordium* is described as a direct response to this problem. Stein's solution, as it is presented in the article, appears to have consisted in simplifying and, above all, lightening

is further described: "Der höchste Ton bey den Trillern, wenn er zum letzten mahl vorkommt, wird **geschnellt**, d. i. daß man nach diesem Anschlag die Spitze des auf des geschwindeste ganz krumm eingebogenen Fingers auf das hurtigste von der Taste zurücke zieht und abgleiten läst." Bach, *Versuch*, 1:73.

⁵⁶"Bey Gelegenheit des Vortrags dieses Trillers mercken wir noch an, daß sich auf dem Forte piano, wenn diese Manier leise gemacht werden soll, eine bey nahe unübersteigliche Schwierigkeit findet. Man weiß, daß alles Schnellen durch einen gewissen Grad der Gewalt geschehen muß; diese Gewalt macht allezeit den Anschlag auf diesem Instrumente starck; unser Triller kan ganz und gar nicht ohne Schnellen hervor gebracht werden; also leidet ein Clavier-Spieler allezeit hierinnen, um so viel mehr, da dieser Triller gar sehr oft theils allein, theils in Gesellschaft des Doppel-Schlags nach einem Vorschlag, und folglich nach dem Regeln des Vortrags aller Vorschläge, piano vorkömmt. Diese Unbequemlichkeit ereignet sich bey allem Schnellen, besonders aber hier bey der schärfsten Art von Schnellen. Ich zweifle, ob man auch durch die größte Uebung, die Stärke des Anschlages bey diesem Triller auf benanntem Instrumente allezeit in seiner Gewalt wird haben können." *Ibid.*, 1:84.

the action. Stein's action consisted of "only two small pieces, a *Tangent* and a small hammer of extraordinary lightness"; was "light" but still "sturdy"; and "the slightest pressure on the key touch[ed] the strings." The end result was an action that was "so easy to play that any hand [could] get on comfortably with it."⁵⁷ Since the text mentions Silbermann as the only previous maker of pianofortes, it is quite possible that Stein's new action should be understood in contrast to—i.e., as simpler than, lighter than—the Silbermann action, which, modelled on action by Cristofori, included an intermediate lever. It is probable, too, that it was the Silbermann action that C. P. E. Bach had found unsatisfactory, for Bach would have known the pianos built by Silbermann in the 1740s for Frederick the Great at Potsdam.⁵⁸ In the piano of the *Poly-Tono-Clavichordium*, then, Stein had "remedied the inherent deficiencies" of that action.

The Combination of Instruments

The action of the piano being suitably improved, Stein was able to take the next step on the path to his *Poly-Tono-Clavichordium* by combining the piano with a harpsichord, which itself had multiple registers and manuals. Like the hammer action, the joining of the two instruments is referred to as a "mechanism", and it is in fact this mechanism that is said to solve the grand problem that has been posed. The harpsichord is described as lending brilliance to the piano and correcting its "dull tone." But more generally, it was the "artful assembly" of harpsichord and piano that allowed the *Poly-Tono-Clavichordium* to mimic a whole ensemble of instruments, and produce a whole range of *Affekten*:

it quite resembles a complete ensemble with several instruments: in the way that, as a result of the assembled mechanism of this *Poly-Tono-Clavichordium*, when it is played, one instrument gives the other its cajoling and pathetic qualities, while the latter gives the former its soft and fluent qualities, and furthermore the *Forte Piano Instrument* imparts the *crescendo* and *decrescendo* to the *Flügel* in the most pleasant way... The *Flügel*,

⁵⁷"Das unterste als das 3te Clavier ist ihm zu geeignet, und so leicht zu spielen, daß eine jede Hand bequem darauf fortkommt. "Der Mechanismus ist so simpel, daß das ganze Werk bloß in zwey kleinen Stücken, in einem Tangenten und Hämmerlein von ausserordentlicher Leichtigkeit bestehet. Die Fertigkeit läßt sich daraus schliessen, da das Hämmerlein nur einen Raum von $3 \frac{1}{2}$ Pariser Zoll zu durchwandern hat. Der geringste Druk der Tasten berührt die Saiten, und der stärkste übertreibt sie nicht; — Fürwahr, ein leichter und doch dauerhafter Mechanismus!" *Augsburgischer Intelligenz-Zettel*, "Von Erfindung eines *Poly-Toni-Clavichordii."

⁵⁸Latcham, "Pianos and harpsichords."

on the other hand, gives the *Forte-Piano-Instrument*, when it is played undamped, a soft, affecting pleasantness, and carries it along from one level of the *Affekten*, so to speak, to another, into distant keys, without insulting the ear.⁵⁹

Like the hammer action, the joining of the instruments is praised not for any mechanical complexity, but because it works better, in its simplicity, than what has been done before:

This... connection of instruments, however, consists in nothing more than that both can be coupled to one keyboard, for each one has its own case and strings. Accordingly, this instrument is not of that type in which the hammers and jacks have all of their strings in common with one another, and produce an unpleasant music because the attack of the hammers requires a completely different scaling and different strings than the jacks. Thus, two instruments are found together in one, and are separated from each other by a baseboard in the middle.⁶⁰

4.3 Hammer Actions in Stein's Notebook

The author of the *Poly-Tono-Clavichordium* article suggests that an organ builder should have knowledge of "scientific" subjects such as geometry and mechanics. Stetten's comment that Stein had educated himself in the theory of mechanics may find some confirmation in the remark by the *Poly-Tono-Clavichordium* author that Stein had collaborated with a mechanician to

⁵⁹"...daß es einer completten Music mit mehreren Instrumenten nicht unähnlich gleichet: indeme durch den zusammen gesetzten Mechanismum dieses Poli-Tono-Clavichordii, im Spielen, jenes bald diesem sein Schmeichelhaftes und Pathetisches, dieses aber bald jenem sein Sanftes und Geläufiges, gibt, und sodann das Forte Piano Instrument dem Flügel zugleich das Crescendo und Decrescendo auf die angenehmste Art mittheilet... Der Flügel hingegen gibt dem Forte-Piano-Instrument, wann es ohngedämpft gespielt wird, eine sanfte affectuose Annehmlichkeit, und reißt jenen gleichsam von einer Stufe der Affecten zur andern, in fremden Ton-Arten mit fort, ohne das Ohr zu beleidigen." *Augsburgischer Intelligenz-Zettel*, "Von Erfindung eines *Poly-Toni-Clavichordii."

⁶⁰"Diese... Verbindung aber bestehet weiter in nichts, als daß beyde auf einem Claviere gekoppelt werden können; denn jedes hat seinen besondern Körper und Saiten. Es ist dieses Werk demnach nicht von der Gattung derjenigen, wo die Hämmer und Doken einerlei Saiten mit einander gemein haben, und eine unannehmliche Musik hervor bringen, weil der Anschlag der Hämmer eine ganz andere Mensur, und andere Saiten verlangt, als die Doken. Es befinden sich also zwey Instrumente in einem beysammen, und sind in der Mitte durch einen Boden von einander abgesondert." *Ibid*.

develop the new hammer action for that instrument.⁶¹ Stein's notebook, however, shows little if any trace of an explicitly theoretical understanding of mechanics—the great majority of material that might be described as theoretical has to do with music theory. There are, nonetheless, a few pages that deal specifically with hammer actions. One of these contains several sketches of actions, including what may be a *Zugmechanik* of the type found in the Verona *Vis-à-vis*. Another set of pages contains what seem to be notes about how to construct and adjust the actions of several different kinds of instruments, including a list of notes titled “Improvement of the Fortepiano.”

Hammer Action Sketches

Near the beginning of the notebook, on page 50, are several sketches of what look like hammer actions (Figure 4.6). The largest drawing on the page is oriented sideways and shows a man who appears to be standing at a keyboard instrument, with his right hand placed upon the keyboard—or perhaps upon the lower of two keyboards, since what looks like a key is visible above his hand. The man is facing a woman who also has one arm bent as if placed upon a keyboard. A keylever appears to extend away from the man, and at the rear of the keylever, what may be a mechanism or action of some kind is built upon it. There is a vertical element extending upward from the key, and this is attached to one end of a horizontal element that appears to pass through or perhaps pivot in a third, H-shaped element. The right-hand side of the sketch, and the figure of the woman, have been largely scratched out.

The two figures facing each other with their arms bent as if playing keyboards suggests Stein's *Vis-à-vis* instruments, which were large and rectangular-shaped, with keyboards at each end at which two players could sit and face each other across the instrument. The action, if that is what it is, that is built upon the keylever in the sketch has some similarities to the arrangement of the *Zugmechanik* in the Verona *Vis-à-vis*. If the keylever in the sketch is hinged at the back, depressing the key would pull down the first vertical element and pivot the far end of the horizontal element upwards, in the same way that the *Zugmechanik* flips the hammer up toward

⁶¹Stetten reports that the Augsburg clockmaker Franz Gegenrainer received lessons from the mechanician Brandter, and one might speculate that Stein did as well. “Unter den lebenden Groß-Uhrmachern zeichnet sich Herr Franz. Xav. Gegenrainer, des Stadtgerichts Asessor, vorzüglich aus. Theils durch den vom seligen Brandter genoßenen Unterricht, theils durch eigenen Forschungsgeist, Fleiß und Nachdenken, hat er es so weit gebracht, daß er den besten Künstlern in seiner Art billig an die Seite gesetzt zu werden verdient.” Stetten, *Kunst-Geschichte* 1788, 64.

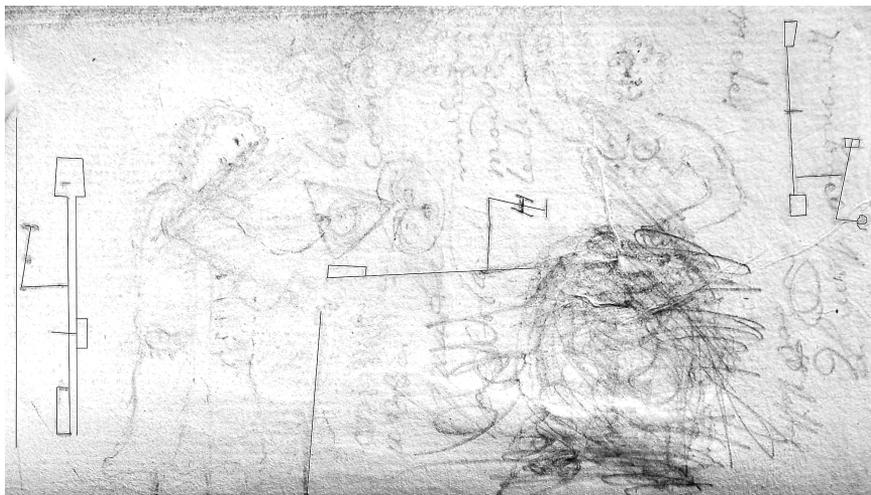


Figure 4.6: Stein notebook. Several types of hammer action, with lines overlaid on the original pencil.

the strings when the key pulls down on the vertical escapement hopper. The horizontal element in the drawing has a short stroke at the end which might represent a hammer head. Of course, the mechanism shown extends far above where any strings would be (none are shown); if the drawing does represent a hammer action, it appears to be a purely conceptual representation.

To the left of the standing man, and oriented upside down on the page, is a sketch of what seems much more unambiguously to be a hammer action, again similar to the Verona Zugmechanik (Figure 4.7). This smaller sketch shows a key lever, with a sharp or perhaps just a natural key cover at the left end, upon which is a vertical element that engages the end of what is clearly a hammer. A pivot point for the hammer is indicated in the middle, and a string is shown at the top. The keylever appears to be hinged at the back and also to rest on a balance rail. This arrangement would not work as shown. However, if the block that appears to be a balance rail in fact represents a lower stop for the key travel, the action would function much like the Verona *Zugmechanik*.⁶² The chief difference is that in the

⁶²I am grateful to the participants in the GOArt Research Faculty Seminar for suggesting this possibility to me.

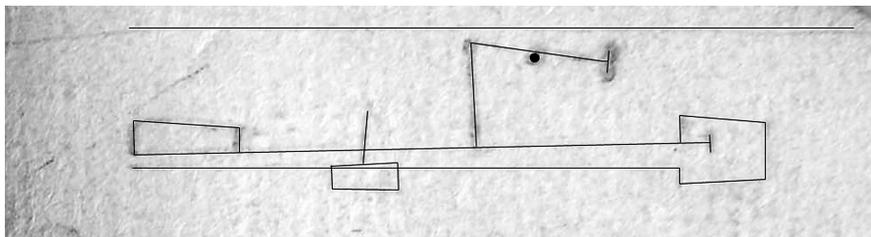


Figure 4.7: Stein notebook. Detail of hammer action, with lines overlaid on the original pencil.

Verona action, the hammer pivots at the proximal end, with an axle in the hammer beak, while the hammer shown in the sketch appears to be resting on a block or rail about which it would pivot near its middle. The shape of the hammer head shown in the sketch is similar to the Verona hammer heads.

To the right of the woman, at the top of the page, is what appears to be a third representation of a hammer action, oriented right side up (Figure 4.8). What looks like the key front is to the left, as in the other sketches. Mounted on the rear of the key is a vertical element that apparently activates a hammer hinged above it in a rail. This action, too, does not look quite as if it would work as shown. The sketch appears to show a balance pin going through the middle of the keylever, but no balance rail, and the rear end of the key lever is mounted in a rail. In order for this action to work, it seems that the key would actually have to be balanced in the middle, rather than hinged at the end. In that case, the elements shown could represent a simple *Stoßmechanik*: when the key is depressed, the activator mounted on the key pushes the hammer head, shown less clearly here with a kind of squiggle, up toward the strings, which are not shown.

The pages immediately before and after this one date from Stein's journeyman period; they list his travel routes and are written partly in French. If the drawings on this page do pertain to, say, the Verona *Vis-à-vis*, which is thought to date from 1777, then they were probably done at a later date, and perhaps drawn over earlier material. This is consistent with the palimpsestic look of the page, with fragments of text partially obscured and running crossways across, or under, the large drawing.

The notebook contains another sketch that clearly depicts the *Vis-à-vis*—not its hammer action, but the system of trackers that couples the

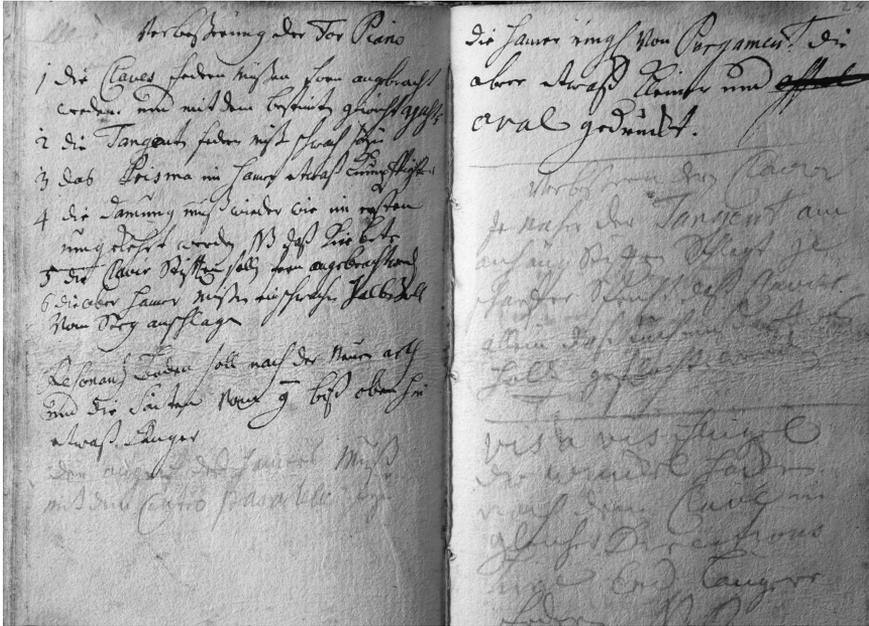


Figure 4.9: Stein notebook. “Verbesserung der For Piano.”

- 1 The key springs must be mounted at the front and [tensed?] with the designated weight
- 2 The springs of the escapement pawls [*die Tangenten federn*] must be weak
- 3 The prism of the hammer must be somewhat blunter
- 4 The dampers must be inverted again as in the first one...
- 5 The keyboard pins must be mounted at the back
- 6 The treble hammers must strike a scant half inch from the bridge⁶⁴

⁶⁴“1 die Claves federn müßen vorn angebracht/werden und mit dem bestimmten gewicht [ill., gespannt?]/2 die Tangenten federn müß schwach seÿn/3 das Prisma im hamer et-

An additional note below the numbered list that looks like it was written at the same time reads:

The soundboard should be of the new kind and the strings from g^1 and up somewhat longer⁶⁵

The same hand continues at the top of the next page:

The little hammer rings of parchment, but somewhat smaller and pressed oval⁶⁶

The next two pages contain a few more individual notes in ink that may also belong to the same list (Figure 4.10). These include:

The hammer rail must be better angled and carved out toward the bass

The hammers of fine soundboard wood⁶⁷

Nearly all of these notes have to do with the hammer action of a piano: they are directions for how to execute the details of the action, or perhaps, suggestions for things to try. The heading "Improvement of the Fortepiano" does not indicate which type of hammer action the notes refer to. However, assuming that all the notes written in ink belong to the same series, they seem to be consistent with an action that has many elements in common with the Verona *Zugmechanik*.

First of all, according to the first item on the numbered list, the keys have springs at the front. This implies that they are hinged at the back, as in the Verona instrument, although in that instrument, the fronts of the keys rest not on springs but on backfalls that raise the dampers when the keys are depressed. This is corroborated by item five, which states that the keys are pinned at the back. Second, the action described in the notebook list apparently had an escapement, for item two mentions *Tangenten*, a word which almost certainly refers here to escapement pawls. (It cannot mean keys, because the word *Claves* is being used to refer to keys. The

was kumpfigter/4 die dammung muß wieder wie im ersten/umgekehrt werden NB daß [ill.] betr/5 die Clavir Stiften sollen fern angebrachtwerden/6 die ober hamer müßen ein schwacher halb Zoll/vom Steg anschlagen." Stein notebook, 248.

⁶⁵"Resonanz boden soll nach der neuen arth/und die Saiten vom g^1 biß oben hin/etwas länger." Stein notebook, 248.

⁶⁶"die hamer ringl von Pergament die/aber etwaß kleiner und/oval gedrückt." Stein notebook, 249.

⁶⁷"die hamer leiste muß beßer/in winckel und gegen den Bass/eingeschnitten werden"; "die hamer von fein Resonanz Holz." Stein notebook, 250.

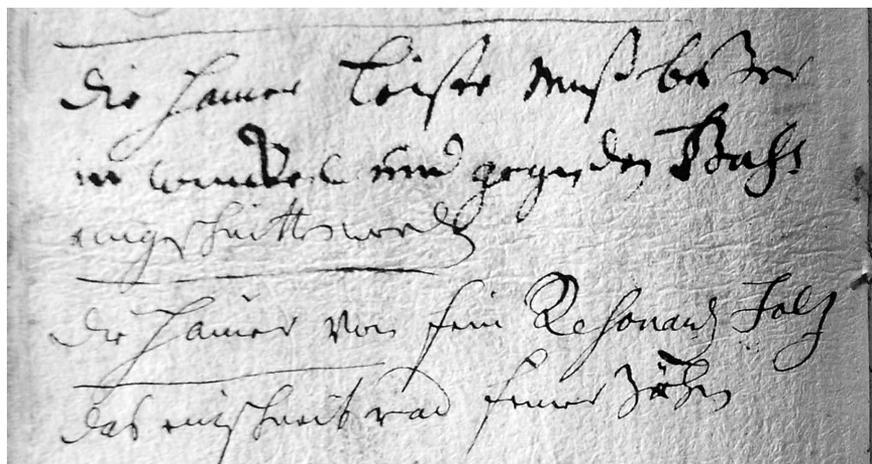


Figure 4.10: Stein notebook. Detail of entries near the heading “Verbesserung der For Piano.”

word *Tangenten* is also used in the *Poly-Tono-Clavichordium* article, where it rather clearly indicates a part that activates the hammer. The *Tangenten* described here have springs, strongly suggesting an activator that allows the hammer to escape.) Finally, the notes also mention a hammer rail, another feature of the Verona action, in which the hammers are mounted off the key, as opposed to the later German action, where they are mounted on the key.

One part of the action described here is not consistent with the Verona action: the hammer heads. The Verona hammer heads are of solid wood, rectangular in cross-section but narrowing at the bottom in the treble.⁶⁸ The notebook list, however, describes round hammer heads made of parchment, as had been used by Cristofori and Silbermann. This suggests that although the action described on these pages may be a *Zugmechanik*, the notes are not referring specifically to the construction of the Verona *Vis-à-vis*. Rather, it would seem that this was an action type that Stein used in other instruments as well. Some corroborating evidence for this interpretation is the fact that there is a separate entry on the lower right-hand corner of page 249 that pertains specifically to a *Vis-à-vis*, titled *Vis-à-vis flügel*.

⁶⁸Michael Latham, “Franz Jakob Spath and the Tangentenflügel, an Eighteenth-Century Tradition,” *The Galpin Society Journal* 57 (2004): 152 n. 11.

Although the handwriting is hard to decipher, the note appears to refer to the coupler action, mentioning a "square" that is, maybe, in the "same direction" as the harpsichord.⁶⁹ In other words, it seems that perhaps only that particular note has to do with a *Vis-à-vis* instrument specifically, while the majority of the notes on these pages may refer to an action type like the *Zugmechanik* that Stein used on more than one instrument. This scenario lends some support to Latcham's suggestion, mentioned earlier in this chapter, that the hammer action famously praised by Wolfgang Mozart at Stein's house in 1777 may in fact have been not a *Prellzungenmechanik*, but a *Zugmechanik*. I also mentioned that the action of the *Poly-Tono-Clavichordium* from 1769 was probably not a *Prellzungenmechanik* but may have been an inverted *Zugmechanik*; perhaps, then, Stein worked with the principles of the action described on these pages over a fairly long period of time.

Taken as a whole, the notes on these pages hint at a process of incremental adjustment and improvement. Although it is not easy to know what all of the notes mean, a number of them suggest a change in comparison to a previous, similar model, expressed in relative terms. The "prisma" in the hammer (that is, some triangular aspect of the hammer) should be "blunter"; the hammer rail should be at a "better" angle; the parchment rings for the hammer heads should be "smaller." The dampers should revert to an earlier stage. Hard-and-fast measurements are the exception; for the most part, the notes suggest rather than direct. The escapement springs should be "weak"; the treble strings "somewhat longer"; the hammer heads "somewhat smaller." Where the action sketches suggested a process of quick, intuitive working-out, the list on these pages reads as a deliberate recording of things that can be fine-tuned, methodically adjusted, slowly perfected. Most interesting here, perhaps, is Stein's use of the word "improvement" to head the list. It is clear evidence of the nature of his goals and how he thought about his work, but also an indication of how his thoughts dovetailed with—or perhaps even influenced—the narratives of other Augsburg writers.

⁶⁹"vis a vis flugel/der winckel hacken/nach dem Clavicin/gleicher Directions?/[ill.]? End? längere/federn NBB." Stein notebook, 249. In organ building, a square (*Winkelhake*) is a right-angled piece of the playing action that is used to change the direction of a run of trackers. The coupler in the Verona *Vis-à-vis* employs a system of squares and trackers.

4.4 Summary

The 1781 claviorganum contains Stein's earliest surviving *Prellzungenmechanik*, often called his German action, and the innovation for which he is most famous today. It is not known for certain when Stein started to build pianos with this action, nor what the immediate inspiration for the action was. The only contemporary source that discusses the invention of a hammer action by Stein at any length is an article on his *Poly-Tono-Clavichordium*, a harpsichord-piano combination, from 1769. The article does not describe the action in enough detail for it to be positively identified, although it is unlikely to have been a *Prellzungenmechanik*. Instead, the article, at least in the version which was published in Augsburg, is mainly concerned with presenting the new hammer action as an example of an improvement, motivated by the noble ambition of advancing the arts and providing benefits to society, and executed with the help of scientific understanding. To work in this way was the hallmark of an artist, and it merited renown and esteem.

According to the *Poly-Tono-Clavichordium* article, the new hammer action that it contained was most immediately motivated by a specific problem identified by C. P. E. Bach: namely, that the piano as it had previously existed was hard to play. Stein's solution consisted in producing an action that was simple and light, quite likely a reworking of the Cristofori-Silbermann action. The new action, though, however successful, seems fundamentally to have been conceived in the service of the larger innovation that was the *Poly-Tono-Clavichordium* itself. In this instrument, through the mechanical combination of harpsichord and piano, Stein aimed to achieve a stringed keyboard instrument capable of producing the full range of dynamics and *Affekten* that could be achieved on the organ.

Evidence from Stein's notebook, from documentary sources, and from his surviving instruments suggests that Stein may have worked for some time with an action type known as the *Zugmechanik*, one example of which is preserved in Stein's earliest extant piano in the 1777 *Vis-à-vis* in Verona, before developing his more famous *Prellzungenmechanik*. It is possible, for example, that the *Poly-Tono-Clavichordium* employed a variation on that type of action. According to the *Poly-Tono-Clavichordium* article, Stein had experimented with the action he developed for that instrument for ten years. A list of "improvements to the fortepiano" in Stein's notebook are consistent with the basic principles of the *Zugmechanik*, and also bear witness to the development of that action as the result of a systematic process of incremental improvement.

Today, the essence of Stein's innovation in the *Prellzungenmechanik* is

sometimes considered to be the addition of an escapement to the simple *Prell* or flip action. Judging from the evidence of his earlier actions, however, it seems more likely that Stein was working with the concept of an escapement from the beginning, with the Silbermann action as a point of departure. His first fundamental improvement, as it was described by his contemporaries or perhaps he himself, was simply to lighten the action, to make it easier to control and to play. The German action, which is also light and responsive, was probably developed for the same purpose and understood in the same way.

To contemporary observers, moreover, the hammer action of the clavichord would quite likely have been considered together with the other machinery of the instrument, such as the coupler between piano and organ, as a reasoned response to a musical problem or problems in the form of a set of mechanical solutions, carefully and systematically worked out. These mechanical solutions would have signalled the builder's intellectual understanding on the one hand, and a commitment to improving society and advancing the arts on the other.

The discussion of art and society in the anonymously authored Augsburg *Poly-Tono-Clavichordium* article echoes—or rather, anticipates—much of what Stetten would write about art and especially about organ building in the first volume of the *Kunst-Geschichte*, ten years later. Clearly, much of the material in the *Poly-Tono-Clavichordium* article describing the instrument comes from Stein himself, so that the grander framework in which Stein's work is set is likely to have been informed by Stein's own presentation of that work, as much as to have shaped it. These ideas, in turn, surely influenced Stetten's subsequent writing on art and organ building.

Chapter 5

Approaching the Fine Arts

In chapter 3, I discussed Paul von Stetten’s assertion, quoted above, that it was possible for the mechanical arts, if executed with “refinement,” to “approach the fine arts.” The fine arts, Stetten says, were arts of pleasure rather than utility, whose object was to imitate beautiful nature. A “refined” work of the mechanical arts would therefore, presumably, have been an object that served not just a utilitarian but also an aesthetic function. According to Stetten, moreover, “refinement” was something that characterized and separated the work of all “artists,” whether fine or mechanical, from mere *Handwerksleute*. In this chapter, I examine how Stein’s musical inventions—his works of art—were designed to provide a specifically aesthetic experience, during a period when the way that music functioned as a fine art was under particular scrutiny by early writers in the field of aesthetics.

Throughout the second half of the eighteenth century, German writers held fast to the mimetic theory of the fine arts that had been proposed, notably by Batteux, earlier in the century. During this period, however, the basic notion that music imitated nature was elaborated into various theories about how it also imitated, expressed, and aroused the emotions, or sentiments—in German, *Empfindungen*. The term *Empfindsamkeit*, meanwhile, came to refer to a kind of sensitivity to the fine arts art: a faculty that allowed people to perceive and be touched by the sentiments that were being expressed in music. The behavior (so to speak) of *Empfindsamkeit* was, in a sense, a prerequisite for the experience of art.

The musical instrument that was considered best at communicating the sentiments was the human voice, not only because a sung text clarified the emotional content of music, but also for the specific tonal qualities of the

voice: sustain, dynamic range and flexibility, and variable intonation. As Carl Philipp Emanuel Bach pointed out in the most influential treatise on keyboard playing of the period, his *Versuch über die wahre Art das Clavier zu spielen*, the sound of keyboard instruments could fall far short of the vocal ideal. Stein's instruments were never ornately decorated—visually, they were not works of art. It was, instead, the sound that they produced that qualified them as art, in Stetten's sense of the word. In his inventions, especially, Stein developed tonal properties that supported and encouraged the communication of the emotions in music, and as a result, these instruments were able to afford their users the experience of music as a fine art.

This chapter focuses particularly on one of Stein's inventions, his *Melodica*, a small organ with a single rank of flue pipes that allowed the player, by means of a new mechanism that Stein had invented, to vary the pitch and loudness of each note through variable pressure of the finger throughout the duration of the note. In 1772, Stein published a description of the *Melodica* in which he makes clear that the instrument was intended as a response to the deficiencies in existing keyboard instruments that had been pointed out by Bach, and as a solution to the dilemma of providing an instrument with which the keyboard player could communicate the *Empfindungen* to listeners. The *Melodica* has particular relevance to this study because it shares certain characteristics with the Gothenburg claviorganum. Both instruments contain a single stop of flue pipes, and in his description of the *Melodica*, Stein suggested that he considered that organ pipes had the greatest potential for creating a vocal sound in a keyboard instrument. Stein also stipulated that the *Melodica* was intended for playing solo lines, but suggested that it could be placed on top of a stringed keyboard instrument so that an accompaniment could be played on the lower keyboard, a situation that would have resembled the disposition of the claviorganum.

The first part of the chapter reviews contemporary discussions about music and the fine arts, and examines the proposition that musical instruments could provide a way for players and listeners to engage in a specifically aesthetic behavior—a way to enact *Empfindsamkeit*. The second part describes the culture of *empfindsam* music-making in which Stein participated in Augsburg. The third part presents Bach's *Versuch* as the inspiration for Stein's *Melodica*, Stein's own description of his invention, and its contemporary reception. The last part considers the Gothenburg claviorganum's design and significance as a tool for the fine arts. It focuses both on Stein's tonal design for the instrument, as well as the possibly later installation of a *Windschweller*, or wind shaker, which allowed the player to dynamically shape notes played on the organ.

5.1 Affording Art

Music as a Fine Art

Stetten's contention that certain works of the mechanical arts could "approach" the fine arts is one that is contingent upon his particular time and place. The statement relies upon the simultaneous existence of the old concept of the mechanical arts and the newer idea of the fine arts as a separate and fundamentally different group of pursuits. Similarly, considering Stein's musical "works of art" as technologies that afforded a specifically aesthetic behavior to their users suggests an explanation for their invention that is historically situated, as well as a way to understand their particular contemporary significance. Before the notion of the fine arts had been proposed, in other words, and before music had been placed within that group, a musical instrument could not have functioned as a tool for the fine arts. Moreover, the new meaning that Stein's musical instruments could carry as aesthetic technologies depended upon precisely what his contemporaries understood the fine arts to be.

Most scholars, following a classic pair of studies by Kristeller, posit the emergence of a unified system of the fine arts and the discipline of aesthetics around the middle of the eighteenth century.¹ Core members of the group included painting, sculpture, music and poetry. In Kristeller's analysis, eighteenth-century writers were increasingly concerned with finding correspondences among the activities that today are recognized as the fine arts, and by this means, to extrapolate the common principles that united them. It is this discussion that signals the earliest presence of aesthetic thought, in the modern sense. Music, for example, was repeatedly compared to painting, a trope that did not remain within the confines of philosophical texts, but spread to every kind of writing about music. In particular, the metaphor of musical dynamics as painterly light and shadow became enormously popular.²

¹Paul Oskar Kristeller, "The Modern System of the Arts: A Study in the History of Aesthetics Part I," *Journal of the History of Ideas* 12, no. 4 (1951): 496-527; "The Modern System of the Arts: A Study in the History of Aesthetics (II)," *Journal of the History of Ideas* 13, no. 1 (1952): 17-46. A recent elaboration of Kristeller's thesis is Larry Shiner, *The Invention of Art: A Cultural History* (Chicago: University of Chicago Press), 2001. For an interesting challenge to Kristeller, however, see James I. Porter, "Is Art Modern? Kristeller's 'Modern System of the Arts' Reconsidered," *The British Journal of Aesthetics* 49, no. 1 (2009): 1-24.

²On comparisons between music and painting by German writers in the second half of the eighteenth century, see Annette Richards, *The Free Fantasia and the Musical Picturesque* (Cambridge: Cambridge University Press, 2001), 89-92, and, with specific reference to portraiture, "Picturing the Moment in Sound: C. P. E. Bach and the Musical

From the first half of the eighteenth century, French writers, in particular, espoused the view that the fine arts were unified first and foremost by the fact that their purpose was to imitate beautiful nature. The most influential proponent of this thesis in Germany was Charles Batteux (1713-1780), in his *Les beaux-arts réduits à un même principe* (1746; translated into German in 1751).³ In Germany, however, with regards to music in particular, this so-called mimetic theory was integrated with a strong, pre-existing rhetorical understanding of music, as it had been expressed most notably by Johann Mattheson, according to which music was supposed to express and arouse specific passions (*Leidenschaften*), or, in the vocabulary of the later part of the century, sentiments (*Empfindungen*).

Thus, although what Morrow has called a “mimetic paradigm” directed aesthetic thought throughout the second half of the century in Germany, it became complicated with additional notions about how, for music, the concept of imitation might encompass not only a literal imitation of nature but also the imitation or even the expression of the sentiments. Suggestions that music should imitate the human voice; imitate the sentiments; express sentiments; and sympathetically arouse sentiments in listeners were all current. Almost always, however, writers considered that vocal music could perform all of these tasks more capably than instrumental music.⁴

Empfindsamkeit and Aesthetics

In 1772, Stein published a article describing his latest invention, the *Melodica*. He ended it by saying who the new instrument was meant for:

I recommend my *Melodica*. . . to all keyboardists with *Empfindung*. I have labored for their sake, and for their sake I will labor on. . .⁵

Portrait,” in *Essays in Honor of Christopher Hogwood: The Maestro’s Direction*, ed. Thomas Donahue (Lanham, Maryland: Scarecrow Press, 2011).

³Kristeller, “The Modern System F”, 20-21.

⁴Good reviews are in Morrow, Mary Sue, *German Music Criticism in the Late Eighteenth Century: Aesthetic Issues in Instrumental Music* (Cambridge: Cambridge University Press, 1997), 8-12; and Edward Lippman, “Music as a Fine Art,” in *A History of Western Musical Aesthetics* (Lincoln: University of Nebraska Press, 1992), 19-25. My presentation here follows Morrow especially. Both Morrow and Lippman suggest that conformation to mimetic theory was problematic for music, in particular, thus the expansion of the theory to include expression was necessary for music’s inclusion in the group of the fine arts. On the expansion of the mimetic theory to include expression with regard to other fine arts, however, see Herbert M. Schueller, “Correspondences Between Music and the Sister Arts, According to 18th Century Aesthetic Theory,” *The Journal of Aesthetics and Art Criticism* 11, no. 4 (1953): 334-59.

⁵“Ich empfehle also meine Melodica allen Clavieristen, die Empfindung haben. Ihnen

The period from about 1750-1780 in Germany is often referred to as the Age of *Empfindsamkeit*, the German expression of an cross-European intellectual movement that was characterized by a focus on the importance of an emotional response—both internal and external—to music, literature and the other fine arts. In the eighteenth century, *Empfindsamkeit* was the German equivalent, more or less, of the English “sensibility” or “sentimentality.” Today *Empfindsamkeit* is often understood to be more or less the same as emotionality, or even an exaggerated emotionality, “a readiness to give the emotions priority and to express them without restraint”⁶, while *empfindsam* is often taken to be more or less synonymous with “emotional.” The German Age of *Empfindsamkeit* is associated with an overtly emotionalized style of music, typified by the works of C. P. E. Bach—the so-called *empfindsamer Stil*. Thus, it is possible today to talk about the “*empfindsam* music” of the period, referring to music that was meant to arouse emotion, or sentiment, in the listener.⁷

This chapter focuses, however, on the contemporary usage of the word *Empfindsamkeit* to mean not emotionality or sentimentality *per se*, but rather, following an analysis by Georgia Cowart, a state or quality of being susceptible to sentiment.⁸ As Cowart writes, in the eighteenth century, “*Empfindsamkeit*. . . refers more properly to the listener than to the music.” The concept of *Empfindsamkeit* in the latter part of the eighteenth century developed out of theories about sense perception and the notion that knowledge could be founded upon the experience of external, physical stimuli, as opposed to abstract ideas or reasoning. Within this discourse, the *Empfindungen*, or sentiments, throughout most of the century were understood to be not emotions in general, but specifically, as Cowart puts it, “the heart’s subjective responses to sensuous stimuli.” The *Empfindungen* were further understood to be preferentially soft and tender sentiments, the result of a wordless, internal and subtle process of response. An *empfindsam* person, then, was someone in whom external stimuli could arouse such sentiments.

zu Liebe habe ich gearbeitet, und ihnen zu Liebe werde ich noch ferner arbeiten. . .” Johann Andreas Stein, “Beschreibung eines neuerfundnenen Clavierinstrumentes, Melodica genannt. . .,” *Neue Bibliothek der schönen Wissenschaften und der freyen Künste* 13, no. 1 (1772): 16, <http://141.89.36.83/fea/digbib/projekt>.

⁶T. C. W. Blanning, *The Culture of Power and the Power of Culture: Old Regime Europe 1660-1789* (Oxford: Oxford University Press, 2002), 149.

⁷As, for example, when Isabella van Elferen notes that “*empfindsam* music caused its audience to weep. . .” “‘Ihr Augen Weint!’ Intersubjective Tears in the Sentimental Concert Hall,” *Understanding Bach 2* (2007): 78.

⁸Georgia J. Cowart, “Sense and Sensibility in Eighteenth-Century Musical Thought,” *Acta Musicologica* 56, no. 3 (1984): 251-66, especially (on usage in Germany) 258-265.

As Cowart points out, the idea of *Empfindsamkeit* provided the foundation for the emerging aesthetic discussion in Germany. It offered both a way of describing how the fine arts operated on the senses (the word aesthetics means “perception by the senses”) and, by at least the early 1770s, it also provided a model for the critical evaluation of the arts by educated observers. Johann Georg Sulzer, for example, in his *Allgemeine Theorie der schönen Künste* (1771-74), defined an *Empfindung* as a perception (*Vorstellung*) that creates a pleasant or unpleasant impression, or affects the observer’s “powers of desire” (*Begehrungskräfte*)—that is, makes the observer either want or reject it. To experience an *Empfindung*, then, implies a critical perspective. Sulzer contrasts the concept of the *Empfindung*, a sensory perception of an external object, with the *Erkenntnis*, which is an objective recognition or understanding of an external object. According to Sulzer, an *Erkenntnis* allows us to recognize how a thing is made, but an *Empfindung* allows us to judge whether it is good or bad, based on the subjective impression it makes upon us. *Empfindsamkeit*, for Sulzer, was a sensitivity to the beautiful and the ugly, the good and the bad. An *empfindsam* person was someone who possessed such a sensitivity. The goal of the fine arts, in turn, was to present what Sulzer termed the “objects of taste” (“Gegenstände des Geshmaks”) to the observer, so that “the soul could practice its *Empfindsamkeit* upon them” (“daß die Seele ihre Empfindsamkeit daran üben könne.”⁹ Before the word aesthetics itself came into widespread use, then, discussion about the nature of the fine arts and how people responded to them took place using the language of *Empfindsamkeit*. *Empfindsamkeit* came to be understood as a capacity to be touched by sensory stimuli, a capacity for the apprehension of emotion as a foundation for critical judgment, and thus, again in Cowart’s words, “a quality that makes the cultivated person sensitive to all forms of music and the arts.”

One might say, therefore, that all of the prevailing theories about how music worked as a fine art, whether through the literal imitation of nature, or through the imitation or expression or arousal of the sentiments, were predicated upon the same foundation: the presumed susceptibility of the listener to be moved, to perceive and feel the sentiments. In order to be

⁹Johann Georg Sulzer, *Allgemeine Theorie der schönen Künste* (Leipzig: M. G. Weidemanns Erben und Reich, 1771), 311-316. Sulzer began the work in 1753. He also identified a second, related definition of the *Empfindungen* as what he called “reigning sentiments”—sentiments that, upon being awoken in the soul, would lead to right action. Thus, the fine arts had as their purpose not (or not only) to entertain, but also to instill the “reigning sentiments” in observers. The artist was a teacher, practicing *Empfindsamkeit* was a kind of moral exercise, and so the fine arts were, for Sulzer, useful arts, just as the mechanical arts were. Here, however, I am mainly interested in Sulzer’s presentation of *Empfindsamkeit* as a critical faculty more generally.

moved by music, to understand how it imitated nature, to evaluate it as good or bad, beautiful or ugly, or even to apprehend its content, listeners had to possess, and practice, *Empfindsamkeit*. Following this line of reasoning, it is also possible, from the standpoint of the historian, to think of *Empfindsamkeit* not only as a quality (something people had) but also as an action, or a behavior (something people did)—and specifically, as a behavior that supported, or even enabled, the practice of the fine arts during this period.

Conceiving of *Empfindsamkeit* as an actively practiced behavior is useful because it offers a way to describe more precisely the role that musical instruments played in this environment. Musical instruments are often portrayed as evolving in concert with contemporary musical styles—that is, scholars relate the technology of instruments directly to the music they produce. The development of the piano during the second half of the eighteenth century is typically associated with musical imperatives: for example, with “evolving needs for increased power, range of notes, and above all, dynamic nuance.”¹⁰ Although this may be broadly true, it is also a kind of shorthand; in fact, instruments do not relate directly to music. Music neither builds nor plays instruments. Rather, between the instrument and the music on one side there is the builder, and on the other side, the people who play and listen to the instrument, the users. Builders may design an instrument with a particular kind of music in mind, but they also build for a prospective user, someone whom they predict will want to use the instrument in a certain way. Therefore, an important part of understanding why instrument technologies develop in the way that they do, and what they mean, is to inquire into the behaviors that they provide—or “afford”—to the people who play them.¹¹

Empfindsam behavior required an external object, a sensory stimulus that would arouse and move the sentiments. In the case of music, this could be provided by the voice, or by a musical instrument. We can understand musical instruments, therefore, in the way that they made available particular kinds of sounds or particular ways to manipulate those sounds, as technologies that afforded to their users the behavior of *Empfindsamkeit*. This is an affordance that was only available for a few decades during the second half of the eighteenth century; it suggests, therefore, a historically

¹⁰Laurence Libin, “The Instruments,” in *Eighteenth-Century Keyboard Music*, ed. Robert Marshall, Studies in Musical Genres and Repertories (New York: Schirmer Books, 1994), 3

¹¹Following James Gibson, *An Ecological Approach to Visual Perception* (Boston: Houghton Mifflin, 1979), an affordance is a possibility for action implicit in an object or environment. A floor affords walking; a ball affords bouncing.

specific explanation for the new keyboard instruments developed during this period—including, for example, Stein’s *Melodica*. Furthermore, the notion that talking about *Empfindsamkeit* was an early way of talking about the fine arts and aesthetics sheds light on the larger issues that were at stake with such instruments. The *Melodica*—which, Stein was careful to note, he had made for players and listeners “with *Empfindung*”—did not merely afford dynamically flexible music-making, or even the expression of the emotions. Rather, its really important affordance was the practice of music as a fine art.

5.2 Bach’s *Versuch* as the Inspiration for the *Melodica*

The most prominent contemporary text to trace the path between keyboard instrument technology and the sentiments is C. P. E. Bach’s *Versuch über die wahre Art das Clavier zu spielen* (*Essay on the True Way to Play the Keyboard*).¹² The *Versuch* was also the most influential eighteenth-century treatise work on keyboard performance.

Stein refers to the *Versuch* as a source of inspiration in his published description of the *Melodica*. He cites specifically the the first part of the book, which was first published in 1753. This part provided instruction in what Bach calls the three “main components” of the “true” method of playing the keyboard: fingering, ornamentation, and “good presentation” (“der gute Vortrag”), chiefly in the context of the performance of pieces for

¹²The title is usually translated as *Essay on the True Art of Playing Keyboard Instruments*, following the 1949 English translation by William J. Mitchell (New York: W. W. Norton and Company). The translation of the German *Art* as “art,” however, is not very good, and, of course, it is especially infelicitous in the context of this study. *Art* means “kind,” “species,” or “way.” Even if one understands the English word art, as used by Mitchell, to denote not genius or creativity but rather skill, craft, or technique, still, those concepts would have been expressed by the German word *Kunst*, not *Art*.

For this study, I consulted a facsimile of the first edition: Carl Philipp Emanuel Bach, *Versuch über die wahre Art das Clavier zu spielen* (Berlin: Christian Friedrich Henning, 1753) and *Versuch über die wahre Art das Clavier zu spielen: Zweyter Theil, in welchem die Lehre von dem Accompagnement und der freyen Fantasie abgehandelt wird* (George Ludewig Winter, 1762). Combined facsimile edition (Leipzig: C. G. Röder, 1957). In order to assist readers using other editions, the abbreviated citations in the footnotes in this section refer to the section titles and paragraph numbers assigned by Bach, as follows: *Versuch* Part 1 or Part 2 is indicated (i.e., *Versuch* 1 or *Versuch* 2), followed by the title of the chapter and, when applicable, sub-chapter (e.g., “Einleitung”); the paragraph number (e.g., par. 2); and finally the page number on which the cited paragraph appears in the edition I consulted (e.g., 9).

solo keyboard.¹³ The second part of the *Versuch* first appeared in 1762, and focused on the application of that method to figured bass and the free fantasia.

In the *Versuch*, Bach presents a model of how music works that is consistent with other contemporary writing on *Empfindsamkeit* and the fine arts, as well as an explanation of different keyboard instruments work more or less well within that model. Both aspects of Bach's work demonstrably influenced Stein's design choices for the *Melodica*, as I show later in the chapter. This section traces the reasoning in the *Versuch* that connects technologies of sound production in keyboard instruments to the processes of moving and being moved through music.

Sensitivity and Good Presentation

Bach, in 1753, was writing near the forefront of the new discussion about the fine arts in Germany.¹⁴ It has often been pointed out that the *Versuch* is a practical treatise, not a philosophical one, and as a matter of fact, Bach advises keyboardists against seeking practical instruction in "books and discourses in which one hears of nothing else than nature, taste, song, melody, regardless of the fact that their authors sometimes are not capable of putting two notes together that are natural, tasteful, singing, and melodious."¹⁵ Even this apparently dismissive statement, however, reveals—unsurprisingly—that Bach was acutely aware of the subjects at issue. In his post at the court of Frederick the Great at Potsdam near Berlin, he was part of a circle of theorists and musicians writing prolifically about music theory and aesthetics. Kirnberger, Marpurg, Quantz, Agricola, Sulzer, Lessing, Krause, and Nicolai were all in Berlin during the 1750s. The first four men were at Frederick's court with Bach; the latter six were members of the Monday Club, an exclusive group of Berlin intellectuals, presided

¹³“Zur wahren Art das Clavier zu spielen, gehören hauptsächlich drey Stücke, welche so genau mit einander verbunden sind, daß eines ohne das andere weder seyn kann, noch darf; nemlich die **rechte Finger-Setzung, die guten Manieren, und der gute Vortrag.**” *Versuch* 1, “Einleitung,” par. 1, 1.

¹⁴Baumgarten's *Aesthetica* appeared in 1750; the German translation of Batteux in 1751.

¹⁵“...solches aus weitläufigen Büchern und Discursen zu hohlen, worinn man von nichts anderm als von Natur, Geschmack, Gesang, Melodie, höret, ungeachtet ihre Urheber öfters nicht im Stande sind, zwey Noten zu setzen, welche natürlich, schmackhaft, singend und melodisch sind...” *Versuch* 1, “Vom Vortrage,” par. 12, 122. William Mitchell reads this statement as evidence of a “practitioner’s scorn” for all “works that pronounced first principles and the governing laws of aesthetics”: Mitchell, *Essay*, 11. A more cautious reading might suggest that Bach scorned the idea of learning practice from theoreticians, but not (necessarily) the theories themselves.

over by Sulzer from 1750-1763¹⁶, with which Bach, not himself a member, nevertheless seems to have been associated¹⁷.

Certainly, in the *Versuch*, Bach seems to draw both on the older rhetorical tradition represented by Mattheson and newer conversations about music and the sentiments. He discusses these topics at greatest length in the final section of the first part of the *Versuch*, titled "Vom Vortrage," which I have chosen to translate here as "On presentation." This is a departure from William Mitchell's translation, which renders *Vortrag* as "performance." For Bach, however, *Vortrag* does not actually denote the whole of what might typically be considered a musical performance, but only one aspect of it: the communicative aspect, the means by which the musician conveys the content of a piece of music to the listener.

Other possible translations of *Vortrag* might be "execution" or "delivery." "Execution," however, suggests purely technical accomplishment, and according to Bach, this was necessary for *der gute Vortrag*, but not identical with it. "Delivery" is better, as it is linked to the idea of music as rhetoric upon which Bach is drawing. Precisely because of its strong ties to the field of rhetoric, however, the word delivery also connotes a direct, persuasive intervention by the orator that is not really appropriate to the process Bach describes in the *Versuch*. "Presentation," on the other hand, encompasses the idea of a recital or a speech, but also suggests a more neutral process of making music and musical meaning available in a middle ground between musician and audience. The job of the musician, for Bach, as I show in this section, was not to decide what music meant and then "deliver" that meaning to the listener in a convincing fashion, but rather, more neutrally, to identify and present the "true content" of the music, so that the listener could be moved by it.

Bach begins the section on presentation, then, by suggesting that people commonly assume that the best keyboardists are the most technically accomplished ones, the ones who can play the fastest and most accurately. In fact, he argues, this is a misconception. Such players, he thinks,

give the sensitive soul of the listener nothing at all to do. They surprise the ear without pleasing it, and numb the understanding without doing enough for it. . . a mere technician can hardly lay claim to the true credit of someone who is capable of transporting the ear, more than the face, and the heart more than

¹⁶Johan van der Zande, "Orpheus in Berlin: A Reappraisal of Johann Georg Sulzer's Theory of the Polite Arts," *Central European History* 28 (1995): 185.

¹⁷Cowart, "Sense and Sensibility," 259-60.

the ear, into a soft sentiment [*Empfindung*], and pulling them where they will.¹⁸

For Bach, “mere” speed and virtuosity, although they might look impressive (i.e., “move the face”), cannot compare to the importance—as he puts it—of moving first the ear, and by that means, the heart.

The way Bach uses the word “empfindlich” here to describe the “sensitive soul of the listener” is a good illustration of the position that the *Versuch* occupied in a kind of a middle ground between the discourses of musical rhetoric and musical *Empfindsamkeit*. When Bach published the first part of the *Versuch*, the word “empfindsam” was not yet in common use. It appeared in print as least as early as 1755, when Nicolai, in his *Briefe über den itzigen Zustand der schönen Wissenschaften in Deutschland* suggested that an “empfindsames Herz” (“sensitive heart”) was necessary to appreciate music, or indeed any of the fine arts, but its first well-known use was later, in 1769, when Lessing famously suggested it as a translation of “sentimental” for the German translation of Lawrence Sterne’s *Sentimental Journey*.¹⁹ Bach’s idea that a good keyboardist should provide something to do for the “empfindliche Seele,” the “sensitive soul,” of the listener recalls Mattheson’s suggestion that music should reach the “empfindliche Sinne,” or “sensitive mind”²⁰ of the listener. Where Mattheson, however, describes the listener’s response as intellectual, Bach, in this passage, describes first a physical, then an emotional response—precisely what later writers would describe as *Empfindsamkeit*, a sense perception that led ultimately to a response of the heart.

For example, in *Der vollkommene Capellmeister* (1739), in a challenge to composers of instrumental music to write just as rhetorically as if they were setting a sung text, Mattheson says that they should

... know how, merely through the selection of tones and their skillful conjunction, to express truly all the inclinations of the heart, so that from this, the listener may completely grasp and

¹⁸“Die Erfahrung lehret es mehr als zu oft, wie die Treffer und geschwinden Spieler... der empfindlichen Seele eines Zuhörers aber gar nichts zu thun geben. Sie überraschen das Ohr, ohne es zu vergnügen, und betäuben den Verstand, ohne ihm genung [sic] zu thun... Es darf aber ein bloßer Treffer wohl nicht auf die wahrhaften Verdienste desjenigen Ansprüche machen, der mehr das Ohr als das Gesicht, und mehr das Herz als das Ohr in eine sanfte Empfindung zu versetzen und dahin, wo er will, zu reissen vermögend ist.” *Versuch* 1, “Vom Vortrage,” par. 1, 115.

¹⁹Cowart, “Sense and Sensibility,” 262-63. Both Nicolai and Lessing were part of Bach’s circle in Berlin.

²⁰In *Das forschende Orchestre*, 1721. Cited in *ibid.*, 258.

clearly understand the thrust, the meaning, the position, and the emphasis, as if it were a real speech.²¹

Here, Mattheson describes the ideal response of the listener as an objective, almost analytical perception of specific elements of a piece of music, precisely the same kind of response one would have to hearing a persuasive speech. This is quite different from Bach's suggestion that the keyboardist should aim to "transport" the listener's heart into a "soft sentiment." Although Bach may have drawn the word "empfindlich" from an older conversation, then, the way he uses it, to indicate the particular quality of receptiveness or sensibility that enabled a listener to be moved in a gentle way, belongs to a newer one.

Bach's use of the word "sentiment" (*Empfindung*) tells a similar story. As the passage cited above makes clear, the new understanding of a sentiment as a tender emotion that arises in response to a physical stimulus is present in Bach's thought. At the same time, throughout the first part of the *Versuch*, Bach uses the word *Empfindungen* apparently interchangeably with other words for the emotions: *Gefühle* (feelings), *Affekten* (affects), and *Leidenschaften* (passions). The latter two terms, especially, are firmly associated with the rhetorical tradition, the language of which thus remains current for Bach, although the extent to which their earlier meaning is preserved in his thought is not really clear. At least, if Bach understands there to be significant (or even subtle) differences in the meanings of these terms, he does not say so.

As Bach continues in the section "On presentation," he develops the notion that communicating with the "sensitive soul" of the listener is an important part of presentation. He goes on to say, in fact, that this communication is more than important, it is the very definition of a good presentation:

In what does good presentation consist? In nothing else than the ability, in singing or playing, to make musical thoughts susceptible [*empfindlich*] to the ear, according to their true content and *Affekt*. Differences in the presentation can make the

²¹"... [w]ahrhaftig alle Neigungen des Hertzens, durch blossе ausgesuchte Klänge und deren geschickte Zusammenfügung, ohne Worte dergestalt auszudrucken wissen, daß der Zuhörer daraus, als ob es eine wirkliche Rede wäre, den Trieb, den Sinn, die Meinung und den Nachdruck, mit allen dazu gehörigen Ein- und Abschnitten, völlig begreifen und deutlich verstehen möge." Johann Mattheson, *Der Vollkommene Capellmeister* (Hamburg: Christian Herold, 1739), 208, [http://imslp.org/wiki/Der_vollkommene_Capellmeister_\(Mattheson,_Johann\)](http://imslp.org/wiki/Der_vollkommene_Capellmeister_(Mattheson,_Johann)). The passage cited is in Part 2, in the section titled "Vom Unterschiede zwischen den Sing- und Spiel-Melodien."

same thoughts so different to the ear that one hardly senses
[*empfindet*] any more that they are the same.²²

Here Bach uses the word *empfindlich* to describe the music, rather than the listener, yet another indication of a discourse that had not yet become standardized. As Mattheson had done, Bach also asserts here that instrumentalists, just as much as vocalists, should be able to render music intelligible to the listener—this is what defines a good presentation, whether “singend oder spielend,” “singing or playing.”). Again, too, for Bach, the vehicles for the listener’s understanding are the ear and the sentiments: musical content should be made “susceptible to the ear,” so that the listener can “sense” that content.

The main thrust of this passage, however, is to emphasize how fundamentally important the presentation itself was to the correct communication of musical meaning—the presentation dictates the listener’s understanding of the music to such an extent that the music itself is almost subordinate to the way in which it is performed. It is possible, Bach says, to make the same music sound so different that the listener will understand it differently. But this is apparently a cautionary statement, not an encouraging one—a “good presentation” is one that conveys the “true” meaning of the music. Arbitrary variations mislead the listener’s senses—the listener “hardly senses any more” the correct nature of the musical thoughts that are being presented.

The notion that the player has a responsibility to adjust the presentation according to the content of the music implies that communicating musical meaning requires not only an *empfindsam* (or, as Bach says, *empfindlich*) listener, but also an *empfindsam* performer. After a discussion of the means by which a player can achieve a good presentation, which I return to in the next section, Bach confirms this implication in a famous passage in which he states that in order to move the listener, the keyboardist must also be moved by the music, in the same way:

²²“Worinn aber besteht der gute Vortrag? in nichts anderm als der Fertigkeit, musikalische Gedancken nach ihrem wahren Inhalte und Affeckt singend oder spielend dem Gehöre empfindlich zu machen. Man kan durch die Verschiedenheit desselben einerley Gedancken dem Ohre so veränderlich machen, daß man kaum mehr empfindet, daß es einerley Gedancken gewesen sind.” *Versuch* 1, “Vom Vortrage,” par. 2, 117. The distinction between “affect” and “content” here seems analogous to the statement, in the passage cited above, that a bad performance will provide nothing for either the “ear” or the “understanding” of the listener. Although Bach does not comment explicitly on the matter, possibly these and similar statements should be understood as a reference to the contemporary debate about the roles of sense and reason in understanding music.

Because a **musician** cannot move [his listeners] differently from how he himself may be moved just then, he must of necessity be able to put himself into all of the moods (*Affekten*) that he wants to excite in his listeners; he makes them understand his sentiments [*Empfindungen*], and in this way, ideally, moves them to feel the sentiment with him [*zur Mit-Empfindung*].²³

The player, in other words, must be just as sensitive as the listener, if the listener is to understand the “true content” of the music. Bach also notes that players must be sensitive to the emotional content of music not only in their own original pieces, but also in music by other composers:

[I]n the latter case he must sense [*empfinden*] the same passions [*Leidenschaften*] in himself that the creator of the unfamiliar piece had when it was made.²⁴

He contrasts these sensitive musicians with “insensitive” (*unempfindlich*) ones. An *unempfindlich* performer, for example, refuses to use physical gestures that could help communicate the meaning of the music to the listener:

Only that person who, because of his lack of sensitivity [*Unempfindlichkeit*], is forced to sit before the instrument like a carved picture, will falsely contend that all of this [i.e., the communication of the *Empfindungen*] could happen without the least gesticulation. . . With good gestures, our intentions come to the listener’s aid.²⁵

²³Indem ein **Musickus** nicht anders rühren kann, er sey dann selbst gerührt; so muß er nothwendig sich selbst in alle Affecten setzen können, welche er bey seinen Zuhörern erregen will; er giebt ihnen seine Empfindungen zu verstehen und bewegt sie solchegestalt am besten zur Mit-Empfindung.” *Versuch 1*, “Vom Vortrage,” par. 13, 122. The first part of the first sentence is often translated as something like, “Because a musician cannot move [his listeners] unless he himself is moved. . .” This is a possible reading. In my opinion, however, the phrase “nicht anders rühren. . .” does not imply “in no other way except by being moved himself,” but rather, “in no way except the way he himself is moved.” The difference in meaning is distinct (although it does not affect my argument here). The first reading suggests that Bach is defining a position in opposition to the idea that a musician needs only to depict an emotion in order for the listener to feel that emotion. In the second reading, that position is taken for granted; Bach is saying instead that the listener can only feel the same emotion that the player himself is feeling at any given moment. The statement then stands at the head of its paragraph as an argument upon which the rest of the paragraph elaborates.

²⁴“ . . . im letztern Falle muß er dieselbe Leidenschaften bey sich empfinden, welche der Urheber des fremden Stücks bey dessen Verfertigung hatte.” *Ibid*.

²⁵“Daß alles dieses ohne die geringsten Gebärden abgehen könne, wird derjenige bloß läugnen, welcher durch seine Unempfindlichkeit genöthigt ist, wie ein geschnittes

A sensitive musician, then, was both capable of and willing to use movement and gestures to support the presentation, "aiding" the listener in experiencing the same *Empfindungen* as the musician.

The idea that the musician, like the listener, must be moved raises the question of how that is to take place: What moves the musician? The word *empfindlich* implies not just a general emotionality but something more specific, a susceptibility to stimulus that resulted in an emotional response. An *Empfindung* was a specific emotional reaction to a physical sensation. Logically, then, an *empfindlich* musician, just like an *empfindlich* listener, would be moved not by the idea of an emotion, perhaps as it might be encoded in musical notation, but rather, by the sound of music itself. Bach writes that a sensitive musician can "put himself" into various moods, or *Affekten*, but apparently, he envisions this to occur not through a process of imagination, or willpower, but, instead, in response to the sound of the musician's own "good presentation."

He remarks, for instance, that *unempfindlich* musicians do not correctly understand even pieces that they have composed themselves, because they are not capable of performing them in a way that makes them intelligible:

[Insensitive] practitioners, regardless of their skill, often themselves fail to do credit to their pieces, which are otherwise not bad. They do not know what hides in the pieces, because they cannot bring it out.²⁶

A musician cannot understand music just by reading it or thinking about it; otherwise, composers would always know which sentiments were to be found in their own music. Instead, Bach says, if composers cannot "bring out" the sentiments in performance, they do not know that they were ever there. He continues:

If someone else, who possesses tender sentiments and has mastered good presentation, plays such pieces, however, they [the insensitive musicians] are amazed to discover that their works contain more than they knew and believed.²⁷

Bild vor dem Instrumente zu sitzen. So unanständig und schädlich heßliche Gebärden sind: so nützlich sind die guten, indem sie unsern Absichten bey den Zuhörern zu Hülfe kommen." Ibid., 122-123. "Läugnen" should usually be translated as "deny" or "disavow," but this makes no sense in the context; perhaps there is an error in the text.

²⁶"Diese letztern Ausüßer machen ungeachtet ihrer Fertigkeit ihren sonst nicht übeln Stücken oft selbst schlechte Ehre. Sie wissen nicht, was darinnen steckt, weil sie es nicht herausbringen können." Ibid., 123.

²⁷"Spielt solche Stücke aber ein anderer, welcher zärtliche Empfindungen besitzt,

It was, then, the sound of the presentation itself that made the musician sensible of the meaning in the music. Hearing the music played in a “good” way was a prerequisite for being moved by it—the ear, as Bach noted above, had first to be moved, and then the heart, and this applied not only for the listener, but also for the musician. It is worth noting that although the physical sensation of hearing the music was necessary to excite the sentiments, it was not the tone or timbre of the instrument that accomplished this, but rather, the way the music was performed.²⁸ The good presentation was therefore doubly important: with it, the *empfindlich* musician could move him- or herself first of all, and only thereafter the listener.

For Bach, therefore, a good presentation was not one that was expressive or emotional *per se*, but rather, one in which the musician correctly communicated to the listener the true content of the music, so that the listener was moved to feel the same sentiments as the player. The exercise required both player and listener to possess the sensitivity to sentiment that later writers would term *Empfindsamkeit*. Musicians who both “possessed tender sentiments” and had “mastered good presentation” would be able to respond to the sound of their own performance by being moved to feel a sentiment that, ideally, they would then be able to induce in their listeners.

The Elements of Presentation and the Vocal Ideal

If a good presentation was necessary to move the listener, how was such a presentation to be achieved? At the beginning of the section “On presentation,” Bach lists a set of techniques that he calls the “Gegenstände des Vortrags”: the “elements of presentation.”²⁹ Speed and technical virtuosity, as Bach had noted at the beginning of the section, were not necessary for a good presentation. Rather, the elements of presentation consisted of particular ways of manipulating the notes that were being played:

The elements of presentation are the loudness and softness of tones, their pressure, quick release, legato, staccato, vibrato, arpeggiation, holding [prolongation; *Halten*], slowing down, and proceeding.

und den guten Vortrag in seiner Gewalt hat; so erfahren sie mit Verwunderung, daß ihre Werke mehr enthalten, als sie gewust und geglaubt haben.” Ibid.

²⁸The notion that the quality, or timbre, of a musical sound in and of itself could move the sentiments did not begin to be discussed until about the 1770s. See Emily I. Dolan, “The Idea of Timbre in the Age of Haydn” (PhD diss., Cornell University, 2006).

²⁹In Mitchell’s translation, the “subject matter of performance.”

In German, the passage reads:

Die Gegenstände des Vortrags sind die Stärke und Schwäche der Töne, ihr Druck, Schnellen, Ziehen, Stoßen, Beben, Brechen, Halten, Schleppen und Fortgehen.³⁰

Mitchell translates the word *Schnellen* as “the snap,” which is his name for the particular kind of short trill that Bach calls the *Schneller*. Elsewhere, however, Bach uses the verb *schnellen* to describe a technique of quickly releasing a key that he actually describes as the particular hallmark of another short trill, the *Pralltriller*. The word *Schnellen* in this passage, therefore, probably refers not to a particular ornament, but rather to the quick-release technique in general. Mitchell also translates *Druck* as “touch,” but a better translation is probably “pressure”: later in this section, Bach describes *Druck* as a prolonged contact with the key that can actually be partnered with the quick release denoted by *schnellen*.³¹ He also mentions, in the Introduction to the first part of the *Versuch*, that it was this prolonged pressure, which could be applied and modulated after the initial attack, that made it possible to produce *vibrato* effects on the clavichord.³² In Mitchell’s translation, the list of “elements” appears heterogeneous and even disorganized, including such disparate categories as dynamic effects, an ornament, specific kinds of touch such as legato and staccato, and “touch” in general. A more literal translation reveals the list to be a consistent presentation, organized almost entirely in juxtaposed pairs (*Druck-Schnellen* turns out to be one such pair), of various ways of applying contour and color to individual notes.

Good presentation, as a whole, required the player to make appropriate choices about the use of these techniques for shaping individual notes, and it also implied mastery of the two other main components of the “true way” of playing the keyboard: good fingering, so as to produce a round, flowing sound, and good ornamentation:

A good presentation may therefore be recognized by the way the player lets all the notes, along with the good ornaments appropriate to them, be heard at the right time, with the proper strength, with a touch that is weighed according to the true content of the piece, in an easy way. From this arise roundness,

³⁰ *Versuch* 1, “Vom Vortrage,” par. 3, 117.

³¹ “Auch in den geschwindesten Gedancken muß man hiebey jeder Note ihren gehörigen Druck geben; sonst ist der Anschlag ungleich und undeutlich. Diese Gedancken werden gemeinlich nach der bey den Trillern angeführten Art geschnellet.” *Ibid.*, par. 4, 118.

³² *Versuch* 1, “Einleitung,” par. 11, 8-9.

purity, and a flowing quality in the manner of playing, and in this way one becomes clear and expressive.³³

Fingering, ornamentation, and good presentation were all tools that the keyboardist could employ to achieve what Bach presents as the ultimate goal: a “singing” performance. The idea that keyboardists needed, but often failed, to effectively emulate a vocal performance was central to Bach’s thinking: in fact, the entire *Versuch* is framed as a response to that problem. He sets up the argument in the introduction to the first part of the book, where he asserts that because keyboardists were frequently ignorant of the true way of playing their instrument, they failed to produce a fluent, intelligible—ultimately, as we have seen, a moving—performance. As a result, the keyboard itself had gotten a bad reputation as an unpleasant-sounding instrument that could not be made to “sing.” Such keyboardists, Bach says,

after a disgusting amount of effort, have finally learned, with their playing, to make the keyboard despicable to listeners of understanding. In their playing, the round, clear, and natural have been found lacking; on the contrary, instead of these things nothing but hacking, jangling and stumbling has been found.³⁴

This failing on the part of keyboardists, or their instructors, had led to a situation in which

people have even begun to believe that having to play something slow or singing on the keyboard would be cause for alarm: it would neither be possible to connect one note to another, nor to separate one note from another with an impulse; the instrument would have to be endured only as a necessary evil for accompaniment.³⁵

³³“Der gute Vortrag ist also sofort daran zu erkennen, wenn man alle Noten nebst den ihnen zugemessenen guten Manieren zu rechter Zeit in ihrer gehörigen Stärcke durch einen nach dem wahren Inhalte des Stücks abgewognen Druck mit einer Leichtigkeit hören läßt. Hieraus entstehet das Runde, Reine und Fliessende in der Spielart, und wird man dadurch deutlich und ausdrückend.” *Versuch* 1, “Vom Vortrage,” par. 4, 117.

³⁴“...so hat man mehrentheils Clavier-Spieler gehöret, welche nach einer abscheulichen Mühe endlich gelernet haben, verständigen Zuhörern, das Clavier durch ihr Spielen eckelhaft zu machen. Man hat in ihrem Spielen das runde, deutliche und natürliche vermißt; hingegen, an statt dessen lauter Gehacke, Poltern und Stolpern angetroffen.” *Versuch* 1, “Einleitung,” par. 2, 2.

³⁵“... daß man schon angefangen hat zu glauben, es würde einem Angst, wenn man etwas langsames oder sangbares auf dem Clavier spielen soll; man könne weder einen Ton an den andern ziehen, noch einen Ton von dem andern durch einen Stoß absondern; man müsse dieses Instrument bloß als ein nöthiges Uebel zur Begleitung dulden.” *Ibid.*

The overarching argument that Bach presents in the *Versuch* is that with proper understanding and instruction, keyboardists can indeed achieve a singing, communicative performance. Thus, although he maintains that these “accusations” against his instrument are “unfounded and contradictory,” he also argues that, to the extent that they are true, they are “sure indications of the bad way of playing the keyboard.”³⁶

Good presentation appears as perhaps the most important means of moving the sentiments, because it is in the section on presentation that Bach makes his most detailed remarks on that topic. However, the other two components of Bach’s “true way” were essential as well. Correct fingering aided in producing a round, flowing sound. A good use of ornamentation could help to make up for the relative lack of sustain of stringed keyboard instruments as compared to the voice, which was an important concern: as Bach points out here, lack of sustain made it difficult not only to connect notes but also to separate them in a meaningful way. Ornaments, however, were not only useful for connecting and extending the short-lived sounds produced by stringed keyboards. They were also, and perhaps more importantly, tools for helping the listener to clearly perceive the content of the music. Bach makes this point in the section on ornaments (“Von den Manieren”):

[Ornaments] are certainly indispensable, when you consider their usefulness. They connect the notes; they enliven them; they give them, when necessary, a special emphasis and weight; they make them pleasing, and inspire a special attention; they help explain their content; whether that content be sad or happy or in any way that it may be constituted, they always contribute to it what is theirs; they provide a substantial part of the opportunity and material for true presentation. . . without them, the best song is empty and fatuous, and the most obvious content must appear unclear.³⁷

³⁶“So ungegründet und widersprechend diese Beschuldigungen sind, so gewisse Zeichen sind sie doch der schlechten Art, das Clavier zu spielen.” Ibid.

³⁷“Sie hängen die Noten zusammen; sie beleben sie; sie geben ihnen, wenn es nöthig ist, einen besondern Nachdruck und Gewicht; sie machen sie gefällig, und erwecken eine besondere Aufmerksamkeit; sie helfen ihren Inhalt erklären; es mag dieser traurig oder fröhlich oder sonst beschaffen seyn wie er will, so tragen sie allezeit das ihrige darzu bey; sie geben einen ansehnlichen Theil der Gelegenheit und Materie zum wahren Vortrage; einer mäßigen Composition kann durch sie aufgeholfen werden, da hingegen der beste Gesang ohne sie leer und einfältig, und der kläreste Inhalt davon allezeit undeutlich erscheinen muß.” *Versuch* 1, “Von den Manieren”: Part 1, “Von den Manieren überhaupt,” par. 1, 51.

The elements of presentation, meanwhile, represented tools for imitating what one might call the “speechiness” of the voice—the particular ways that the voice could shape sounds to communicate meaning. By shaping individual notes in specific ways—prolonging them, abbreviating them, shaking them, arpeggiating them, making them louder or softer—the keyboardist could mimic the articulation, rhythms, and dynamic patterns of a singing or speaking voice. Like ornaments, certain of the elements of presentation could also be used to help solve the problem of sustain:

Because of the lack of a long sustain and a perfect *crescendo* and *decrescendo* of the tone—which people describe, not incorrectly, in a painterly way, as shadow and light—it is no small task to play an *Adagio* on our instrument in a singing fashion. . . . However. . . on our instrument this deficiency can be satisfactorily compensated for in an excellent way using various means, broken chords and similar things. . . .³⁸

Later in the same passage, Bach mentions “trills and mordents” as additional examples of the “means that [keyboardists] have for sustain.”³⁹ The “elements of presentation,” in short, were the keyboardist’s tools for creating musical speech.

Playing in “a singing fashion” was important not primarily in order to create a *cantabile* effect in and of itself, although Bach does say, in this section and elsewhere, that the keyboardist should strive to produce a round, flowing sound. Instead, emulating the sound of the human voice—its contours, its movement, its patterns—was important because this was the best way for the player to move the listener. The human voice was, of course, considered a superior instrument for communicating and exciting the sentiments, not only because it was easier to find meaning in a sung text than in wordless music, but also, by the 1750s, for qualities inherent to the voice itself. Mattheson had emphasized that the instrumentalist should be able to declaim the content of the music without words, as effectively as if a text were present. By 1754, the year after the *Versuch* was published, Hiller could write that the raw vocalizations of inner feelings were actually iden-

³⁸“Wegen Mangel des langen Tonhaltens und des vollkommenen Ab- und Zunehmen des Tones, welches man nicht unrecht durch Schatten und Licht mahlerisch ausdrückt, ist es keine geringe Aufgabe, auf unserm Instrumente ein *Adagio* singend zu spielen. . . . Indessen. . . da bey unserm Instrumente dieser Mangel vorzüglich durch verschiedene Hülfsmittel, harmonische Brechungen, und dergleichen hinlänglich ersetzt wird. . . .” *Versuch* 1, “Vom Vortrage,” par. 7, 119.

³⁹“ . . . unsere meisten Hülfsmittel zum Aushalten, z. E. die Triller und Mordenten. . . .” *Ibid.*

tical with the feelings that had inspired them, and as such could induce, unmediated, the same feeling in the heart of a listener:

A sound, then, generated from the feeling of the heart, is the feeling itself. It is recognized as such immediately, and reaches directly and without digression into the heart.

The more accurately keyboardists could mimic the voice at the keyboard, therefore, by learning to “think singingly” and to skillfully employ ornamentation and the elements of presentation, the more successful they would be at making the listener not only understand but emotionally experience the content of the music—the more successful they would be, in other words, at touching the heart.

Bach emphasizes song as the most important model for keyboardists throughout the *Versuch*. He instructs players to develop their taste and their ability to understand and present musical meaning by listening to singers and by singing themselves. For example, he writes:

one must neglect no opportunity to listen to skillful singers, especially. In this way one learns to think singingly, and one would do well, afterwards, to sing a thought out loud oneself, in order to discover the correct presentation.⁴⁰

The passage continues with the suggestion, cited at the beginning of this section, that these are much better ways to learn to play well than reading books about nature, taste, song, and melody. Seen against the backdrop of Bach's other comments about how players must be able to move themselves in order to give a good presentation, this passage may also be understood to indicate not just a distaste for the theoretical as opposed to the practical, but also Bach's understanding that sensing the correct content of the music required the player to actually hear it, not just think about it. In addition, it seems clear that by listening to singing, in particular, the player would learn how to reproduce on the keyboard the details of expression that the human voice could naturally impart. The player would first of all learn what the music meant; second, hear the manner of expressing it, which the voice could do perfectly; and third, consider how to reproduce the effect as perfectly as possible upon the keyboard.

⁴⁰“... daß man keine Gelegenheit verabsäumen müsse, geschickte Sängler besonders zu hören; Man lernet dadurch singend denken, und wird man wohl thun, daß man sich hernach selbst einen Gedancken vorsinget, um den rechten Vortrag desselben zu treffen.” Ibid, par. 12, 121-22.

How Instruments Afford Good Presentation

Bach blames the fact that keyboardists so frequently failed to perform singly mainly on their unfamiliarity with the “true way” of playing their instrument, and on poor instruction. He also points out, however—as this discussion has already touched on—that when it came to playing singly, players of the keyboard faced a particular disadvantage:

As all other instruments have learned to sing, only the keyboard has remained behind in this. . .⁴¹

The “true way of playing the keyboard” constituted the means by which keyboardists could move listeners with a communicative, vocal performance. At the same time, it was a set of techniques for overcoming the deficiencies inherent in the various keyboard instruments that made them all, in different ways, less perfect than melody instruments such as the flute or violin, not to mention the voice itself.

The best keyboard instrument, logically, would be one that mimicked the properties of the voice most closely. Such an instrument would have a flexible and flowing sound; it would allow the player to shape speech and dynamics with the same minute control as a singer; and it would have as long a sustain as possible. Although Bach notes that keyboard instruments generally suffered from such flaws as the “lack of a long sustain and a perfect *crescendo* and *decrescendo* of the tone,” which affected the keyboardist’s ability to play in a “singing fashion,” he also points out that not all kinds of keyboards had the same characteristics. The ways in which a player could apply the techniques that made up a good presentation, therefore, varied with the type of instrument being played. Put the other way around, different instrument types afforded a good presentation (and the possibility of moving the sentiments) in different ways, and to different extents.

Bach discusses the different properties of different kinds of instruments for the first time in the Introduction to the first part of the *Versuch*, as a necessary foundation for the specific instruction in technique that is to follow:

Before we attempt to remedy [the] mistakes [that keyboardists make] with well-founded instructions, we still need to say something about the instruments. In addition to many different kinds of keyboards which partly remain unknown because of their flaws, and partly have not yet been introduced everywhere, there

⁴¹“Indem alle andere Instrumente haben singen gelernet; so ist blos das Clavier hierinnen zurück geblieben.” *Versuch* 1, “Einleitung,” par. 2, 2.

are chiefly two kinds that have thus far met with the most approval, namely harpsichords and clavichords. The former is generally used in larger ensembles [*zu starcken Musicken*], the latter for playing alone. The newer fortepianos, if they are sturdy and well-made, have many advantages, aside from the fact that their touch [*Tractirung*] must be studied individually, and not without difficulty. They do well for playing alone and in ensemble music without too many parts. . . .⁴²

Here, Bach provides both a kind of historical perspective on the keyboard instrumentarium—a sense of what is old and new, what is traditional and what is exotic—and an evaluation of the most relevant current instruments for the keyboardist in terms of what music they are best suited to. The clavichord works for solo music, while the harpsichord is better when playing in groups; presumably, these recommendations have primarily to do with the fact that the harpsichord is louder than the clavichord, and has a more brilliant sound. Fortepianos can serve both purposes, although, perhaps because they are so new, they are apparently often not well made, and most people have not become accustomed to playing on them yet.

In the second part of the *Versuch*, which deals mostly with accompaniment, Bach returns to the discussion. He begins the introduction to this part by reviewing the keyboard instruments most commonly used for accompaniment, and, again, pointing out the specific musical situations to which they are best suited. He includes the organ, which is, he says,

indispensable for church music, because of the fugues, the strong choirs, and simply because of the *legato*. It conveys grandeur and maintains order.⁴³

The harpsichord was also necessary for some sacred music, in order to fill out the sound of arias and recitatives that had only a sparse accompaniment. “Unfortunately,” Bach notes,

⁴²“Bevor wir diesen Fehlern durch gegründete Vorschriften abzuhelfen suchen, müssen wir noch etwas von dem Instrumente sagen. Man hat ausser vielen Arten der Claviere, welche theils wegen ihrer Mängel ungekant geblieben, theils noch nicht überall eingeführt sind, hauptsächlich zwey Arten, nemlich die Flügel und Clavicorde, welche bis hieher den meisten Beyfall erhalten haben. Jene braucht man insgemein zu starcken Musicken, diese zum allein spielen. Die neueren Forte piano, wenn sie dauerhaft und gut gearbeitet sind, haben viele Vorzüge, ohngeachtet ihre Tractirung besonders und nicht ohne Schwierigkeit ausstudiret werden muß. Sie thun gut bey dem allein spielen und bey einer nicht gar zu starck gesetzten Music. . . .” *Ibid.*, par. 11, 8.

⁴³“Die **Orgel** ist bey Kirchensachen, wegen der Fugen, starken Chöre, und überhaupt der Bindung wegen unentbehrlich. Sie befördert die Pracht und erhält die Ordnung.” *Versuch 2*, “Einleitung,” par. 3, 1.

one very often hears how bare the performance sounds in such a situation without the accompaniment of the harpsichord.⁴⁴

In both cases, Bach links the technology of the instrument to the sound impression received by the listener. The organ, with its strong, balanced, and connected sound, communicates a sense of “grandeur” to the listener, while the harpsichord, with its brilliant overtones, can prevent the listener from experiencing a thinly set piece of ensemble music as “bare.” The beneficial effect of the appropriate sound on the keyboardist’s possibilities to move the listener is perhaps implied, although not stated directly.

Bach also says here that the clavichord and fortepiano are both suited to the same type of accompaniment:

The **fortepiano** and the **clavichord** are the best at supporting a performance in which the greatest refinements of taste occur.⁴⁵

The quieter, less penetrating sound of these two instruments would be less likely to overpower a nuanced solo voice; but also, both fortepiano and clavichord would presumably be more capable of echoing and reinforcing the solo voice with subtle shaping of the speech and dynamic adjustments. In spite of the fortepiano’s apparent capabilities in this regard, however, its newness and relative unfamiliarity still seem to be in evidence, as Bach remarks:

Certain singers, however, would rather be accompanied by the **clavichord** or the **harpsichord** than by the [fortepiano].⁴⁶

Bach includes one other keyboard instrument type in this discussion. It was one of the new types that had “not yet been introduced everywhere”: the *Bogenflügel* by the Berlin inventor Johann Hohlfeld (1711-1777), an instrument in which the strings were excited by the application of a bow in the manner of a violin. According to the description published by Marburg in Berlin in 1754, the *Bogenflügel* looked like a one-manual harpsichord, but was strung with gut strings which gave it a “caressing, penetrating” sound more similar to the human voice than the “silvery” sound of the harpsichord. Pressing a key brought the corresponding string to bear against the bow. By varying the pressure of the finger, the player could change the dynamic

⁴⁴“Man hört leyder mehr als zu oft, wie kahl in diesem Falle die Ausführung ohne Begleitung des Flügels ausfällt.” Ibid., par. 4, 2.

⁴⁵“Das **Fortepiano** und das **Clavicord** unterstützen am besten eine Ausführung, wo die größten Feinigkeiten des Geschmacks vorkommen.” Ibid., par. 6, 2.

⁴⁶“Nur wollen gewisse Sänger lieber mit dem **Clavichord** oder **Flügel**, als mit jenem Instrument, accompagnirt seyn.” Ibid.

level both from note to note and within the duration of a single note. The 1754 description presents the *Bogenflügel* as a solution to the problem of keyboard instruments that could not sing, by virtue of its sound; its sustain and dynamic capabilities; and its consistent, responsive action that allowed the player to execute even difficult ornaments with ease, including “certain ornaments borrowed from the art of singing” that were “not possible to execute on usual claviers at all.”⁴⁷ Not suprisingly, perhaps, given this description, Bach approved of Hohlfeld’s concept: he remarks of the *Bogenflügel* (which he calls a *Bogenclavier*) that

it is a shame that the lovely invention of the **Hohlfeldian Bogenclavier** has not yet become useful to the general public; therefore one cannot describe its particular advantages in this area precisely yet. It may safely be assumed that it would also distinguish itself in accompaniment.⁴⁸

⁴⁷“Bey so vielen Vorzügen, die der Flügel bishero hatte, war derselbe dennoch mangelhaft. Alle andere gewöhnlichen Instrumente haben dieses mit der Menschenstimme gemein, daß man den Ton darauf aushalten, und denselben an der Stärke sowohl machen als abnehmen lassen kann. Dem Flügel alleine fehlte dieser Vortheil zu seiner Vollkommenheit. . . Einem geschickten Mechanicus hieselbst, dem Herrn Hohlfeld war es vorbehalten, diesem Mangel abzuhelfen. . . Dieses neue Instrument, welches der Herr Erfinder einen **Bogenflügel** (*clavecin à archet*) benennet hat, kömmt in der Grösse und dem äusserlichen Ansehen einem kleinen einhörigen Flügel bey, ausser daß selbiges mit Darmsaiten bezogen ist, von welchen es folglich zwar nicht den gewöhnlichen Silberklang eines gemeinen Flügels, aber gegentheils einen der Menschenstimme desto ähnlicher schmeichelnd durchdringenden Ton erhält. . . Die Tractirung dieses Bogenflügels ist noch leichter als auf dem gemeinen Clavichord. . . Man ist also im Stande, alle mögliche Spielmanieren und kleine Zierlichkeiten, sie haben Nahmen wie sie wollen, ohne die geringste Mühe aufs netteste heraus zu bringen, ein Umstand, worin die übrigen Flügel wegen der ungleichen Griffbretter und wegen der ungleichen Bekielung allezeit verschieden sind, da der eine zu hart, der andere zu weich ist, nicht zu gedenken, wie gewisse aus der Singkunst entlehnte Manieren auf den gewöhnlichen Clavieren gar unausüblich sind, als welche man allhier aufs sanfteste vortragen kann.” Friedrich Wilhelm Marpurg, “VIII. Musikalische Neuigkeiten aus Berlin: 2. Bey den so vielen Vorzüge, die der Flügel bishero hatte. . .,” *Historisch-Kristische Beyträge zur Aufnahme der Musik* 1, no. 2 (1754): 169-72, http://commons.wikimedia.org/wiki/File:Historisch-Kritische_Beyträge_zur_Aufnahme_der_Musik_Bd.1.pdf. Several passages in the description bear more than a passing resemblance to the first part of the the *Versuch*, published the previous year. If the description originated with Hohlfeld, this suggests that he, like Stein some years later, found inspiration in Bach’s presentation. As the description points out, however, Hohlfeld was not the first to build this kind of instrument; on the history of the *Bogenflügel*, see Emily I. Dolan, “The Origins of the Orchestra Machine,” *Current Musicology* 76 (2003): 8-9.

⁴⁸“Es ist Schade, daß die schöne Erfindung des **Holfeldischen Bogenclaviers** noch nicht gemeinnützig geworden ist; man kann daher dessen besonders Vorzüge hierinnen noch nicht genau bestimmen. Es ist gewiß zu glauben, daß es sich auch bey der Begleitung gut ausnehmen werde.” *Versuch* 2, “Einleitung,” par. 2, 1.

In addition to the two general discussions of instrument types in the introductions to the two parts of the *Versuch*, Bach sometimes provides instructions on technique that are tailored to one instrument type or another. A recurring theme is the problem of how to create dynamic effects on the harpsichord, an instrument that had decided limitations when it came to producing what Bach calls the “special effect of light and shadow”⁴⁹ that resulted especially from the small-scale dynamic manipulation of notes. In the short teaching pieces (*Probe-Stücke*) that accompanied the *Versuch*, Bach included abundant dynamic markings for pedagogical reasons, but as he mentions, not all of these could be realized on the harpsichord:

If one is playing these pieces [the *Probe-Stücke*] on a harpsichord with more than one manual, one remains on the same manual for the *forte* and *piano* markings that occur on individual notes; one does not switch manuals until entire passages are differentiated with *forte* and *piano*.⁵⁰

This limitation in the technology of the harpsichord created problems of presentation, and most of all, Bach suggests, for keyboard accompanists who had only a single-manual instrument at their disposal. The second part of the *Versuch*, like the first, includes a section titled “Vom Vortrage,” and here Bach makes it clear that he considers good presentation to be just as much a concern for the accompanist as for the soloist:

It is a mistake to believe that the rules of good presentation only extend to the execution of solo pieces. Everything about presentation that was discussed in the **first part of this essay**, to which I refer my readers, should also be observed for accompaniment in certain circumstances.⁵¹

As a matter of fact, the accompanist needed, if anything, to master the “rules of presentation” even more thoroughly than did the soloist. This was because the accompanist, in addition to playing the “notated bass notes

⁴⁹“... die besondere Würckung dieses Schattens und Lichts...” Ibid.

⁵⁰“Spielt man diese Probe-Stücke auf einem Flügel mit mehr als einem Griffbrette, so bleibt man mit dem forte und piano, welches bey einzeln Noten vorkommt, auf demselben; man wechselt hierinnen nicht eher, als biß ganze Passagien sich durch forte und piano unterscheiden.” *Versuch 2*, “Vom Vortrage,” par. 29, 131.

⁵¹“Es ist ein Irrthum wenn man glaubt, daß sich die Regeln des guten Vortrags bloss auf die Ausführung der Handsachen erstrecken. Man hat alles dasjenige, was im **ersten Theile dieses Versuchs** vom Vortrage abgehandelt worden ist, und wohin ich meine Leser verweise, auch bey dem Accompagnement in gewissen Umständen zu beobachten.” *Versuch 2*, “Vom Vortrage,” par. 1, 242.

according to their true content," also had to determine, independently and perhaps on the spur of the moment, both how many notes to play over the bass line and where to place them on the keyboard. A thickly voiced chord, for example, would be louder than a thinly voiced one, so making "sensible arrangements" in this regard required first having decided, based on the principles of good presentation, how loud or soft the music should be, in accordance with its content.⁵²

Bach's discussion of presentation for accompanists begins with dynamics, and he concentrates especially on the particular problems that the one-manual harpsichord posed for a good presentation:

Among the elements of presentation, we begin with loudness and softness, and find, that of all the instruments upon which one plays figured bass, the one-manual harpsichord most often places the accompanist in a predicament, because of *forte* and *piano*. There is no other alternative for him than to try to improve the imperfection of this instrument by means of either reinforcing or reducing the harmony. . . Some people use a very short touch on the keys to help produce a *piano*: but the presentation suffers astonishingly from this. . .⁵³

All harpsichords were limited in their ability to produce dynamic effects, but the problem was worst on the one-manual harpsichord. A double-manual instrument at least allowed the player to switch between a louder registration and a softer one while playing by moving the hands from one manual to another, or to place the hands on different manuals with different registrations. On an instrument with one manual, only one registration was available to the player at a time, and it was at best inconvenient, and often impossible, to change the dynamic level of the music by adding or

⁵²"Das letztere [i.e., accompaniment] nimmt noch mehrern Antheil an den Regeln des guten Vortrages, als die Ausübung der Handsachen, weil ein Begleiter nicht nur seine vorgeschriebenen Grundnoten dem wahren Inhalt gemäß ausführen muß, sondern noch überdem wegen der Stärke und Schwäche, und wegen der Höhe und Tiefe der Harmonie vernünftige Einrichtungen zu machen hat." Ibid.

⁵³"Wir machen unter den Gegenständen des Vortrages den Anfang bey der Stärke und Schwäche, und finden, daß der Flügel mit einer Tastatur unter allen Instrumenten, worauf man den Generalbaß spielt, den Begleiter wegen des Forte und Piano am meisten in Verlegenheit setzt. Es bleibet ihm hier nichts übrig, als daß er durch eine verstärkte und verminderte Harmonie diese Unvollkommenheit des Instruments zu verbessern suchet. . . Einige nehmen zur Herausbringung des Piano einen ganz kurzen Anschlag der Tasten noch mit zur Hülfe: allein der Vortrag leidet hierbey erstaunlich. . ." *Versuch 2*, "Vom Vortrage," par. 4, 244.

subtracting a stop within a single piece or movement.⁵⁴ The inherent dynamic deficiency of such an instrument, in itself not conducive to a good presentation, also made the presentation “suffer” in another way: it drove keyboardists to adopt the inappropriate solution of an abbreviated touch, so that many notes received far too “short” a “pressure” (*Druck*).⁵⁵

Druck was another of the elements of presentation; it was necessary, as Bach had said in the first part of the *Versuch*, to produce a clear, round and flowing—that is, vocal—sound. A too-short touch robbed the harpsichord of the sustain it could otherwise produce:

On both the clavichord and the harpsichord the notes sustain [*nachsingen*] if one does not release them too quickly.⁵⁶

The technology of the one-manual harpsichord, in other words, not only posed a static hinder to good presentation, but also tended to actively push players away from it, thus moving them ever further from a “singing” performance that could move the sentiments.

Bach does not recommend replacing the one-manual harpsichord with a different instrument altogether, for the sound of the harpsichord, as he has already established, is well-suited to many situations. He does suggest a more acceptable technical solution for the player, which was to adjust the actual number of notes played above the bass line:

It is preferable to weaken the strength of the accompaniment by means of touching the keys with the right hand less often. . .⁵⁷

However, he also argues that an even better solution would be not technical but technological: namely, the widespread adoption of a new invention by Hohlfeld, which was not the *Bogenflügel*, but a pedal that could be added to a regular harpsichord that allowed the player to operate the manual stops while playing:

⁵⁴Hiller’s preface to the description of Stein’s *Poly-Tono-Clavichordium* makes the same comment: “Nachricht von Verbesserung des Pianofortinstruments,” *Anhang zu den wöchentlichen Nachrichten und Anmerkungen die Musik betreffend* (Leipzig), July 24, 1769, 32, <http://books.google.se/books?id=ADc9AAAAcAAJ&printsec=frontcover#v=onepage&q=&f=false>.

⁵⁵“...selbst under den abgestossenen Noten vertragen die wenigsten diesen so gar kurzen Druck.” *Versuch 2, “Vom Vortrage,” par. 4, 244.

⁵⁶“So wohl auf dem Clavicorde als auf dem Flügel singen die Noten nach, wenn man sie nicht zu kurz abfertigt.” *Versuch 1*, “Von den Trillern,” par. 20, 77.

⁵⁷“Durch einen seltenern Anschlag mit der rechten Hand... kann man noch eher die Stärke der Begleitung schwächen.” *Versuch 2*, “Vom Vortrage,” par. 4, 244-45.

The beautiful invention of our famous Mr. **Hohlfeld**, with which, since recently, one can turn all the registers of the harpsichord off and on **while playing** simply by pressing a pedal, has made the harpsichord more perfect, especially those which only have one manual, and successfully ameliorated the difficulty presented by *piano* on the latter. It would be desirable if all the harpsichords in the world, in honor of good taste, could be so fitted out.⁵⁸

Such a device would at least offer the accompanist at a one-manual harpsichord some of the dynamic options afforded by a two-manual instrument; namely, the possibility to play successive passages, if not individual notes, using louder or softer registrations. By “ameliorating the difficulty presented by *piano*,” it would also remove the pressure forcing players in the direction of a bad touch and thus an inadequate *Druck*. Bach’s discussion of the one-manual harpsichord, then, is a good example of a case in which, in his analysis, a keyboard technology only poorly affords a good presentation, and accordingly, the best solution to the problem is not to compensate by means of technique, but to address the flaws in the technology itself.

The dynamic limitations of the harpsichord (and similarly, the organ) were not shared by the fortepiano or the clavichord, the instruments that Bach indicates are best suited to solo performances and the most “refined” accompaniment. The harpsichord, by its nature, was unable to realize small-scale dynamic indications, but on the clavichord, Bach says,

this inconvenience falls away, because one can produce every kind of *forte* and *piano* so clearly and purely on this instrument, as is hardly possible on many other instruments.⁵⁹

⁵⁸“Durch einen seltenern Anschlag mit der rechten Hand, bey durchgehenden Noten, kann man noch eher die Stärke der Begleitung schwächen.” Die schöne Erfindung unsers berühmten Herrn **Holefelds**, wodurch man seit kurzem alle Register des Flügels **in währendem Spielen**, vermittelst eines leichten Fußtrittes ab- und anziehen kann, hat die Flügel überhaupt, und besonders diejenigen, welche nur ein Manual haben, vollkommener gemacht, und die Schwierigkeit, wegen des Piano, bey den letztern glücklich gehoben. Es wäre zu wünschen, das alle Flügel in der Welt zur Ehre des guten Geschmacks so eingerichtet würden. *Versuch 2*, “Vom Vortrage,” par. 4, 244-45.

⁵⁹“Spielt man diese Probe-Stücke auf einem Flügel mit mehr als einem Griffbrette, so bleibt man mit dem forte und piano, welches bey einzeln Noten vorkommt, auf demselben; man wechselt hierinnen nicht eher, als biß ganze Passagien sich durch forte und piano unterscheiden. Auf dem Clavicorde fällt diese Unbequemlichkeit weg, indem man hierauf alle Arten des forte und piano so deutlich und reine heraus bringen kan, als kaum auf manchem andern Instrumente.” *Versuch 1*, “Vom Vortrage,” par. 29, 130.

Dynamic control was, in fact, one of the defining properties of a “good clavichord,” according to Bach. Such an instrument would have a “good, sustained, caressing sound,” but also had to be strung in a way that made the all-important dynamic variation possible: firmly enough so that the player could “both really attack and caress it,” which then made it possible to “produce all kinds of forte and piano purely and clearly.”⁶⁰

Although both the fortepiano and a “good” clavichord granted the player extensive dynamic control, and although he allows that the “newer” instrument had “many advantages,” of the two, Bach preferred the clavichord:

I think nevertheless that a good clavichord, except for the fact that it has a softer sound, shares all the beauties of the former instrument and, in addition, because I can still apply pressure to each note after the attack, also has the vibrato and portato [*die Bebung und das Tragen der Töne*]. The clavichord is therefore the instrument upon which a keyboardist can be most accurately judged.⁶¹

The famous preference for the clavichord that Bach expresses here is linked directly to the unique way that the instrument afforded the player access to all of the elements of presentation: it had a sustained sound; the capability to produce the small-scale dynamic variation characteristic of speech and song; and, alone among the major keyboard types, it allowed the player to influence the sound of a note throughout its duration to produce a vibrato effect, as was possible with the voice or on other melody instruments.⁶² The clavichord’s only drawback was its “softer sound.” Bach praises the clavichord, in other words, not for being expressive as such, but rather because its vocal qualities best equipped the keyboardist to present musical content to an audience in a good way, and move the sentiments as a result. A clavichord performance provided the best opportunity for “judging” a keyboardist because it was on the clavichord that the player had

⁶⁰“Zur Eigenschaft eines guten Clavicords gehört: daß es ausser einem guten nachsingenden schmeichelnden Ton die gehörige Anzahl Tasten habe. . . Der Bezug muß vertragen können, daß man es sowol ziemlich angreifen als schmeicheln kan, und dadurch in den Stand gesetzt wird, alle Arten des forte und piano reine und deutlich heraus zu bringen.” *Versuch 1*, “Einleitung,” par. 12, 9.

⁶¹“ . . . ich glaube aber doch, daß ein gutes Clavicord, ausgenommen daß es ein schwächeren Ton hat, alle Schönheiten mit jenem gemein und überdem noch die Bebung und das Tragen der Tone voraus hat, weil ich nach dem Anschlage noch jeder Note einen Druck geben kan. Das Clavicord is also das Instrument, worauf man einen Clavieristen aufs genaueste zu beurtheilen fähig ist.” *Versuch 1*, “Einleitung,” par. 11, 8-9.

⁶²Of course, Bach’s list of the elements of presentation was no doubt influenced by the capabilities of the clavichord—but that circularity is not part of his argument to readers of the *Versuch*.

the most freedom to make decisions about presentation. For this reason, too, it was necessary for the student to “use the clavichord to learn good presentation.”⁶³ Only the clavichord could really afford the experience of freely experimenting with all of the elements of presentation. Thus, it was most easily at the clavichord, perhaps, that keyboardists could practice investigating the “true content” of a piece of music by testing different ways of playing it, and being moved themselves by the sounds that they created.

Summary

In 1773, a year after Stein's *Melodica* article and twenty years after the *Versuch*, Bach summed up his ideas about the relationship between keyboard instruments, performance, and the role of music in moving the sentiments in a few lines in his autobiography, published in 1773 as an insert in the German translation of Burney's diary:

My chief study, especially in recent years, has been directed toward playing on the keyboard, and composing for it, as vocally as possible, in spite of the lack of a sustained tone. The matter is not so simple, if you do not want to leave the ear empty, and do not want to ruin the simplicity of the song with too much noise.

It seems to me that music must, above all, touch the heart, and a keyboardist cannot achieve this merely with jangling, pounding and arpeggiating, at least I cannot.⁶⁴

Although Bach never distilled his reasoning so crisply in the *Versuch*, the earlier work, as we have seen, presented essentially the same line of thought to readers such as Stein. The job of the musician was to move the heart, or the sentiments, of the listener, and keyboardists faced a special challenge in

⁶³“Man muß also das Clavicord zur Erlernung des guten Vortrags... brauchen.” *Versuch* 1, “Einleitung,” par. 15, 11.

⁶⁴“Mein Hauptstudium ist besonders in den letzten Jahren dahin gerichtet gewesen, auf dem Klavier, ohngeachtet des Mangels an Aushaltung, soviel möglich sangbar zu spielen und dafür zu setzen. Es ist die Sache nicht so gar leicht, wenn man das Ohr nicht zu leer lassen und die edle Einfalt des Gesanges durch zu vieles Geräusch nicht verderben will. Nicht deucht, die Musik müsse vornehmlich das Herz rühren, und dahin bringt es ein Klavierspieler nie durch bloßes Poltern, Trommeln und Harpeggieren, wenigstens bei mir nicht.” In Charles Burney, *Tagebuch seiner musikalischen Reisen*, vol. 3, *Tagebuch einer musikalischen Reise durch Böhmen, Sachsen, Brandenburg, Hamburg und Holland...*, trans. J. J. C. Bode, 1773. Abridged edition, Eberhardt Klemm, ed. (Wilhelmshaven: Heinrichshofen's Verlag, 1980), 455-56.

this endeavor because of the inherent limitations of their instrument. In the *Versuch*, in addition to making this argument, Bach also makes detailed comments about the characteristics of different kinds of keyboards—the harpsichord, the clavichord, the organ, the piano. His analysis indicates that these different technologies had different affordances, and as a result, some instruments, most notably the clavichord, enabled the keyboardist to move the hearts of listeners more effectively than others.

5.3 *Empfindsamkeit* in Augsburg

Stein's description of his *Melodica*, which is presented below, indicates that he had absorbed the ideas about *Empfindsamkeit* and musical instruments espoused in C. P. E. Bach's *Versuch*. The first part of this section examines one route by which Bach's ideas reached and influenced musicians in Augsburg: the compositions and musical leadership of Johann Gottfried Seyfert, who studied with Bach in Berlin shortly before the publication of the *Versuch*. The notes Stein made in his unpublished notebook suggest that he read widely, especially in the area of music theory, and certainly, it was not necessarily Seyfert who introduced Stein to C. P. E. Bach's *Versuch*.⁶⁵ However, the musical culture that Seyfert built up there quite possibly inspired, and surely supported, Stein's ideas about building instruments for *empfindsam* music-making. The second part considers the keyboard style of the composer Ignaz von Beecke, employed at the court of Wallerstein-Oettingen near Augsburg, whom Paul von Stetten identified as Stein's benefactor. The third reviews C. F. D. Schubart's reminiscences about his life in Augsburg and his friendship with Stein. Probably Seyfert, Beecke, and Schubart all helped to create the specific culture of music-making and art that encouraged the kind of instruments that Stein built.

Johann Gottfried Seyfert

Along with Stetten's *Kunst-Geschichte*, probably the most informative source about music-making in Augsburg during Stein's lifetime is a long eulogy (*Lobschrift*) written by Hieronymus Andreas Mertens for the Augsburg composer Johann Gottfried Seyfert (1732-1772). Mertens figured prominently in the conversation about the arts in Augsburg: he served as the

⁶⁵Christopher Hogwood demonstrates Bach's overwhelming influence on minor composers in Germany during the second half of the eighteenth century in "Burney, Bach, and the Bachists," in *C. P. E. Bach Studies*, ed. Annette Richards (Cambridge: Cambridge University Press, 2006).

secretary of the art academy there, as well as the editor of the academy's periodical, the *Kunstzeitung der Kayserl. Akademie zu Augsburg*. He was also an amateur musician. His eulogy for Seyfert was published sixteen years after Seyfert's death, in 1788.⁶⁶

Mertens relates that Seyfert, a keyboardist, spent a period of six years as a young man traveling to study with different musicians in Germany, Austria, and Italy, before returning to settle down in Augsburg in 1753. He remained there until his death, taking over his father's post as Protestant cantor in 1767. According to Mertens, Seyfert's most important teacher by far was C. P. E. Bach, with whom he studied in Berlin.

Stetten includes a fairly detailed biography of Seyfert in the first volume of the *Kunst-Geschichte* in 1779, and he too makes a particular note of Seyfert's studies with "the famous" C. P. E. Bach.⁶⁷ Schubart, as well, in his description of Augsburg in the *Ideen*, mentions Seyfert as one of the city's most noteworthy musical figures (although Seyfert had died by the time Schubart came to Augsburg). He calls Seyfert "unquestionably one of the excellent musicians of our century," and also notes that he was educated in "the school of the great. . . Bach."⁶⁸

Mertens writes:

Only the excellent **Carl Philipp Emanuel Bach**, whose *wahre Art das Clavier zu spielen* Seyfert mastered completely, actually took him into his school. . . Here he came to an increasing fineness of expression on the keyboard, and his soul acquired the palpability and flexibility of expression, that he especially knew how to use in the the art of accompaniment, which he made his own, and in completely inimitable free fantasies. I may claim with certainty that Augsburg never had such a virtuoso on the clavichord and harpsichord in this difficult art as *Johann Gottfried Seyfert*. He felt every individual beauty and nuance of the melody, and recognized the intention of the composer in every

⁶⁶H.A. Mertens, "Lobschrift auf Herrn Johann Gottfried Seyfert, ehemaligen Director des evangelischen Musikchors in der Reichsstadt Augsburg," *Journal von und für Deutschland* 5, no. 7-12 (1788): 468-86, <http://www.ub.uni-bielefeld.de/diglib/aufkl/journdeut/index.htm>.

⁶⁷"Das evangelische Scholarchat unterstützte ihn zu einer Reise nach Leipzig, Dresden und Berlin, und dort war er ein Schüler des berühmten Karl Emanuel Bachs, der jetzt also Telemanns Nachfolger in Hamburg lebt." Stetten, *Kunst-Geschichte* 1779, 548.

⁶⁸"Seyfert, gehört unstreitig unter die trefflichen Musiker unsers Jahrhunderts. Er bildete sich in der Schule des großen Hamburger Bach's und des Berliner Orchesters unter den Augen Graun's . . ." *C. F. D. Schubart's, des Patrioten, gesammelte Schriften und Schicksale*, ed. Ludwig Schubart, vol. 5, *C. F. D. Schubart's Ideen zu einer Aesthetik der Tonkunst* (Stuttgart: J. Scheible's Buchhandlung, 1839), 218.

note, whether the main voice was to be powerfully supported, or only lightly shaded. That which in the arts of drawing is the *palpable Mezzotinto*, this he had, in music, completely in his power. . . .⁶⁹

In Berlin, Seyfert was also able to listen daily to Bach's music, which was the best kind of instruction, Mertens suggests, for his "ensouled" (*beseelt*) ear. Thus, "after a six-year removal from his native city. . . Seyfert came happily home again at the end of the year 1753 [the year in which the first part of the *Versuch* was published] with thorough erudition, pure taste, and rich in great and beautiful ideas."⁷⁰

Mertens's characterization of music-making in Augsburg in the years before Seyfert's arrival is unflattering in the extreme. "When he returned to his native city," Mertens says, Seyfert

had at first to deal with people whose very existence was a clear rebuke to the art of music, people, who without reading good writings, without taste and feeling, could represent real candidates for a slumbering infirmary.⁷¹

Judging from Mertens' narrative, Seyfert's return as a well-educated virtuoso and composer had an enormous positive impact on musical life in

⁶⁹"Nur der vortreffliche Carl Philipp Emanuel Bach, dessen wahre Art das Clavier zu spielen Seyfert ganz in seinen Händen hatte, nahm ihn eigentlich in seine Schule auf. . . Hier kam er zu der ausnehmenden Feinheit des Ausdrucks auf dem Claviere, und seine Seele gewan die Fühlbarkeit und Geschmeidigkeit des Ausdrucks, den er besonders in der ihm eigen gewesen Kunst der Begleitung (Accompagniren) und in ganz unnachahmlichen freyen Phantasien, anzuwenden wußte. Ich darf mit Gewißheit behaupten, daß Augsburg in dieser schweren Kunst niemahls einen solchen Virtuosen auf dem Claviere und Flügeln gehabt hat, als den Johann Gottfried Seyfert. Er fühlte jede einzelne Schönheit und Nuance der Melodie, und erkannte die Absichten des Setzers bey jeder Töne, ob die Hauptstimme kräftig zu unterstützen, oder nur leicht zu schattiren sey. Was in den zeichnenden Künsten das fühlbare Mezzotinto ist, das hatte er in der Tonkunst in seiner Gewalt. . ." Mertens, "Lobschrift," 473. The "art of accompaiment" and "free fantasies" are the particular subjects of the second part of the *Versuch*.

⁷⁰"Durch die vielen Opern und Concerte, so Seyfert in Berlin von den großen Professoren dieser Zeit fast täglich zu hören Gelegenheit fand, erhielt sein beseeltes Ohr die beste Richtung. . ."; "Nach einer sechsjährigen Entfernung von seiner Vaterstadt, unterstützt von dem dasigen evangelischen Scholarchat, von seinem Vater und durch seinen eigenen Fleiß, kam er zu Ende des Jahrs 1753 mit gründlicher Gelehrsamkeit, reinem Geschmacke, und reich an großen und schönen Gedanken, glücklich nach Hause zurück." Ibid., 474.

⁷¹"Da mußte er anfänglich mit Leuten umgehen, deren Daseyn schon einen offenbaren Widerspruch auf die Tonkunst machte; Leute, die ohne Lectüre guter Schrifften, ohne Geschmack und Gefühl, ächte Candidateten eines schlummernden Spitals vorstellen konnten." Ibid., 474.

Augsburg. Seyfert's accomplishments as a keyboardist, for example, immediately won him recognition:

On the clavichord and harpsichord, where he had both composition and execution in his hands, one heard in Augsburg what no ear had heard there before. This was even admitted by people whose ears, as far as music was concerned, might just as well have been left behind at birth.⁷²

Even more important, however, in Merten's opinion, both for Seyfert's own success and the advancement of musical culture in Augsburg, was Seyfert's work with a particular local group of musical amateurs, the so-called "musikübende und -liebende Gesellschaft," or "music-practicing and -loving society." Mertens himself belonged to this group, and so did Johann Andreas Stein. According to Mertens, the society, in contrast to another local musical group that was strictly for the patriciate class, included "merchants, manufacturers, artists, city officials and dilettantes mixed together." Mertens records that it was founded in November 14, 1752 (two years after Stein settled in Augsburg), originally consisted of 12 people, and held weekly concerts in an inn (the "Wirthshause zum Eisenhut auf dem Obstmarkte"). By 1755 the number of members had increased to 40, and the society relocated to the Beckenhaus; in fact, Stein's notebook lists a "Flügel" built by him for "coll. Beckenhaus."⁷³ Later the society increased further in size and held concerts in different local venues.

Mertens' list of the instrumentalists in the society includes:

The deceased Joseph Strehle, a master well digger, and a true virtuoso on the violin, whose pure and powerful bowing, joined with the most clear and natural expression, was capable of keeping a whole row of violinists in line... in short, a violinist whom every orchestra would have treasured; besides him, Johann Andreas Stein, the inventor, everywhere most famous and renowned, of a very fine piano-type instrument, a very important man in his branch; his *Demoiselle* daughter, who indeed did not belong to the society at that time, but now enchants every sensible ear with her solo *Adagio* on the piano; Anton

⁷²"Auf dem Claviere und Flügel, wo er Composition und Ausübung in den Händen hatte, hörte man zu Augsburg, was daselbst nie ein Ohr gehöret hatte. Dieß gestanden auch Leute, deren Ohren, der Musik wegen, in der Geburt auch hätten zurück bleiben können." "Lobschrift," 474.

⁷³It appears in the list of stringed keyboard instruments built by Stein in Augsburg beginning in 1749-1750. Stein notebook, 238-9.

Christoph Gignoux, a calico manufacturer, and a virtuoso on the large violon, which he plays with correctness, simplicity, and ease; also... a man of rare talents, Johann Philipp Haid, artist in the English style [i.e., in mezzotint], and an accomplished symphony violinist, with strong bowing... as well as the keyboardist Eckardt who now does the Germans credit in Paris, who has never had any instruction either for his instrument or for the miniature painting in which he is strong...⁷⁴

Seyfert became a member of this society. The patrician group also played music by Seyfert, but according to Mertens, "Seyfert's teaching and taste had the greatest influence on the music society at the Beckenhaus." Mertens characterizes the members of the society during Seyfert's time as "young, exquisite minds, full of fire and skill, one heart and one soul together" and describes the group as a "flock of musical converts... with whom, at least among the Protestants, a new epoch of music began in Augsburg."⁷⁵ Stetten, incidentally, makes a similar characterization in the *Kunst-Geschichte*: "at that time," he writes, "a society of fiery young music-lovers came into being."⁷⁶ Typically for him, Stetten also notes that the members of the

⁷⁴"Der vorstorbene Joseph Strehle, ein Brunnenmeister, und wahrer Virtuose auf der Violine, dessen mächtiger und reiner Bogenstrich, mit dem natürlichsten und deutlichsten Ausdrücke verbunden, fähig war, eine ganze Reihe von Violinisten im Geleise zu halten... kurz, ein Violiniste, welchen jede Capelle würde geschätzt haben; ferner, Johann Andreas Stein, der allenthalben rühmlichst bekannte Erfinder eines sehr feinen Flügelinstrumentes, ein sehr bedeutender Mann in seinem Fache; dessen Demoiselle Tochter, die zwar damahls noch nicht gehört wurde, aber jetzt alle fühlbare Ohren mit ihrem Solo Adagio auf dem Flügel entzückt; Anton Christoph Gignoux, ein Cattunfabrikant, und Virtuose auf dem großen Violon, welchen er mit Richtigkeit, Einfalt und Leichtigkeit spielt; auch... ein Mann von seltnen Talenten, Johann Philipp Haid, Künstler in der englischen Manier, und ein fertiger Sinfoniengeiger, von starkem Bogenstriche... nebst dem jetzt zu Paris den Deutschen Ehre machenden Clavierspieler Eckardt, welcher nie eine Anweisung, weder für sein Instrument, noch für die Miniaturmahlerey, worin er stark ist, gehabt hat..." Mertens, "Lobschrift," 477.

Gignoux appears to have been one of Stein's particular friends. He purchased a harpsichord from Stein (noted on the instrument list in Stein's notebook) and helped Stein to arrange a concert for Mozart in Augsburg. Johann Gottfried Eckard was the keyboardist with whom Stein traveled to Paris in 1758-9 and for whom, according to Stetten, Stein acted as something of a patron.

⁷⁵"Am stärksten wirkten Seyferts Lehren und Geschmack auf die musikübende Gesellschaft zum Beckenhaus... In der That fanden sich just zu seiner Zeit junge, auserlesene Köpfe, voll Feuer und Geschicklichkeit, ein Herz und eine Seele zusammen..."; "... Glieder aus der Schaar der Musikalischen Proselyten unsers Seyferts, mit welchen, wenigstens unter Protestanten, eine neue Epoche der Musik in Augsburg angefangen hat..." Ibid., 477.

⁷⁶"Es entstunde damals eine Gesellschaft von jungen feurigen Musik-Liebhavern..." Stetten, *Kunst-Geschichte* 1779, 549.

group “loved and practiced music not for bread, but out of an inner drive and inclination.”⁷⁷ Mertens’ comments, meanwhile, convey the group’s passion as well as indicating the importance to their performance of an inner experience of “heart” and “soul.”

The group played Seyfert’s music: sinfonias and small chamber music pieces with various instrumentations, as well as vocal music—cantatas, motets and oratorios. Mertens describes Seyfert’s work as “always governed” by “passion, understanding and sensitivity,”⁷⁸ and according to Mertens, Seyfert gradually instilled “better taste” and better musicianship in the group. He “taught people to play **Piano**,” for example, and he was a demanding rehearsal leader: he “admonished every small detail, because every detail was audible to him.”⁷⁹ Under Seyfert’s leadership, the “music-loving society” “gradually spread a purer taste, at least in instrumental music, among the Protestants of Augsburg.”⁸⁰ “Altogether,” Mertens sums up, “Seyfert was always new, and sought to imitate nothing but noble nature, without artifice.”⁸¹

Ignaz von Beecke

In 1773, the year after the *Melodica* article was published in the *Neue Bibliothek*, Stein traveled with both his *Melodica* and his *Poly-Tono-Clavichordium* to Paris. According to Stetten’s report, Stein made the trip at the instigation of a “trusted friend and benefactor,” the composer and keyboardist Ignaz von Beecke (1733-1803),⁸² who, during the time Stein lived in Augsburg, was attached to the court of Prince Philipp Karl in Oettingen-Wallerstein, a small Catholic principedom north of Augsburg with one of the best court orchestras in Germany.⁸³ Beecke came to the court as a military officer in about 1760, and by the 1770s had been appointed direc-

⁷⁷“...nicht um das Brod, sondern aus Trieb und Neigung die Musik liebten und üben...” Ibid.

⁷⁸“...in dessen Compositionen durchgehends Feuer, Verstand und Empfindung herrscht...” “Lobschrift,” 478.

⁷⁹In den angestellten Proben war er scharf, und rügte jede Kleinigkeit, weil ihm jede Kleinigkeit hörbar war... Ich rechne es Seyfertem auch zum Verdienst an, daß er die Leute Piano spielen lehrte... “Lobschrift,” 478

⁸⁰“...verbreitete nach und nach einen reinern Geschmack, wenigstens in der Instrumentalmusik, unter den Protestanten zu Augsburg.” “Lobschrift,” 476.

⁸¹“Ueberhaupt war Seyfert immer neu, und suchte nichts nachzuahmen, als die edle Natur, ohne Künsteley.” “Lobschrift,” 479.

⁸²Stetten, *Kunst-Geschichte* 1779, 161-62.

⁸³Günther Grünstedel, “Wallerstein—das ‘Schwäbische Mannheim’: zur Geschichte der Wallersteiner Hofkapelle,” *Rosetti-Forum* 2 (2001): 19-28.

tor of music there (*Hofmusikintendant*).⁸⁴ By 1771, Beecke had purchased at least one piano by Stein, and inventories from the 1790s indicate that the Oettingen-Wallerstein court at that time had several keyboard instruments by Stein, including one “with two manuals.”⁸⁵

Besides being Stein’s “benefactor,” Beecke appears to have had an important influence on Stein’s musical taste in composition and keyboard performance, at least until the late 1770s, and indeed on Augsburg musical life in general. Stetten, for example, considered Beecke “one of the strongest keyboardists in Germany,”⁸⁶ an assessment that was shared by Schubart. Schubart praises both Beecke’s compositions and his skill as a performer, and describes the evidently distinctive keyboard style that he had developed at some length:

Mr. von Beeke [sic] . . . belongs not only among the best harpsichordists [*Flügelspieler*], but also among the most preeminent and original composers. His hand is small and brilliant; his performance clear and round; his imagination rich and shining, and—which does him the most credit—his entire way of playing is self-taught. He has built a school of keyboard [*Clavier*] playing that is called Beekian [*Beekische*]. The character of this school is: idiosyncratic fingering, short, somewhat affected relocation [*Fortrücken*] of the fist, clear performance, playful wit in passagework, and especially a splendid *Pralltriller*.⁸⁷

Schubart’s remark that “a splendid *Pralltriller*” is especially characteristic of the Beecke school is of particular interest here in light of the possibility, discussed in the previous chapter, that the hammer action Stein built for his *Poly-Tono-Clavichordium* may have represented a response to Bach’s remarks in the *Versuch* about the difficulty of playing the *Pralltriller* correctly on the fortepiano. It is, perhaps, not going too far to speculate that

⁸⁴Ibid., 19; *Grove Music Online*, s.v. “Beecke, Ignaz von” (by Adolf Layer and Fiona Little), <http://www.oxfordmusiconline.com> (accessed November 2, 2007).

⁸⁵Karl August Fischer, “Johann Andreas Stein, der Augsburger Orgel- und Klavierbauer,” *Zeitschrift des Historischen Vereins für Schwaben und Neuburg* 50 (1932): 161–62.

⁸⁶Stetten, *Kunst-Geschichte* 1779, 162.

⁸⁷“Herr von Beeke . . . gehört nicht nur unter die besten Flügelspieler, sondern auch unter die vorzüglichsten und originalsten Componisten. Seine Hand ist klein und brillant; sein Vortrag deutlich und rund; seine Phantasie reich und glänzend, und—was ihn am meisten ehrt, seine ganze Spielart selbst geschaffen. Er hat im Clavier eine Schule gebildet, die man die Beekische nennt. Der Charakter dieser Schule ist: eigenthümlicher Fingersatz, kurzes, etwas affectirtes Fortrücken der Faust, deutlicher Vortrag, spielender Witz in den Passagen, und sonderlich ein herrlicher Pralltriller.” Schubart, *Ideen*, 173.

Stein's decision to develop a lighter, more trill-friendly action owed something to his admiration of Beecke's "splendid" ornaments that, judging from Schubart's description, he performed particularly well on the harpsichord.

Schubart goes on to suggest that Beecke transferred his distinctive style of playing to his compositions for keyboard, which, he thought, were unusually successful in their clear portrayal and communication of the *Empfindungen*. He also praises Beecke's other instrumental works for their highly colored, painterly style:

Beeke's pieces for keyboard are also written in this style. He is also singular in that all of his movements represent a certain painting of the sentiments, whose character is not easy to mistake. One knows exactly in which passion [*Herzstellung*] Beeke was, when he set down this or that work; that is how faithful he remains to the reigning sentiment. . . His compositions for other instruments have a completely singular coloring [*Colorit*]. The contour is drawn most exactly, and the instruments create such a powerful manifestation [*Carnation*] and a lovely mixture of colors that one cannot listen without a feeling of [*Wonnegefühl*] well-being.

Beeke has also written some things for voice; but here he does not distinguish himself as much as in instrumental music. He forces out the sentiments, and often puts more or less in the song than what is really there.⁸⁸

Schubart's evaluation in this passage is based on criteria that Bach lays out in the *Versuch*. He praises Beecke's keyboard works for the transparent, "unmistakable" way that they transmit the sentiments that Beecke himself experienced during their composition to the player and the listener. Conversely, he criticizes Beecke's vocal settings because, he finds, the music does not correspond to the sentiments present in the song—or as Bach might have put it, it fails to communicate the "true content" of the song.

⁸⁸"In diesem Style sind auch Beeke's Clavierstücke geschrieben. Er hat noch dieß Besondere, daß alle seine Sätze ein gewisses Gemälde von Empfindungen darstellen, deren Charakter sich nicht leicht verkennen läßt. Man weiß ganz genau, in welcher Herzstellung Beeke war, als er dieß oder jenes Product aufsetzte; so getreu bleibt er der herrschenden Empfindung. . . Seine Compositionen für andere Instrumente haben ein ganz eigenthümliches Colorit. Der Umriß ist aufs Genaueste angegeben, und die Instrumente bringen eine so kräftige Carnation und liebliche Farbenmischung hervor, daß man sie nicht ohne Wonnegefühl hören kann. Beeke hat auch manches für den Sang geschrieben; doch zeichnet er sich hierin nicht so sehr aus, wie in Instrumentalsachen. Er künstelt die Empfindungen heraus, und legt oft mehr oder weniger in den Gesang, als wirklich darin liegt." Ibid.

Stein was familiar with Beecke's music and appears, like Schubart, to have admired it. For example, in an entry in his notebook, Stein reports playing a duet by Beecke at a public concert in Augsburg in 1776, following a performance of a keyboard concerto by his daughter, Nannette:

My little girl, at the age of seven, played a keyboard concerto last Thursday in the *Herren Geschlechter Stube* and the following Wednesday at the merchants' concert—it was public; she did the introduction of her *Rondeaux* with great sensibility and a kind of enthusiasm so that the majority of the company cried: "Aha, that is Stein's daughter." Immediately afterwards I was claimed for a duet by Beecke, which Mr. Demmler accompanied on the violin.⁸⁹

Wolfgang Mozart also reported from Augsburg in 1777 that when he visited Stein's house, Stein had keyboard music by Beecke at home: "Recently at Stein's he brought me a Sonata by Becché." Mozart sight-read the piece, presumably at one of the new pianos by Stein that he praises in his letters, for a company that included several local musicians.⁹⁰

On the same afternoon, Mozart also listened to Stein's daughter Nannette play the keyboard—again, presumably a piano. His description of her playing confirms Stein's esteem not only for Beecke's music but also his style of playing. Unlike Stetten and Schubart, Mozart—who, as a composer and keyboard virtuoso, was both a colleague and a competitor to Beecke—was not complimentary of what he portrays as an overly theatrical style:

Speaking of [Stein's] daughter. Whoever sees and hears her play and is not forced to laugh must be made of stone [*Stein*] like her father. A seat is taken completely at the treble end, certainly not in the middle, so that one has more opportunity to move

⁸⁹“Mein kleines Mädgen [Nannette] von im 7ten Jahr hat letzen Donnerstag auf der H. Geschlechter stube und Mittwoch darauf auf der Kaufleuth Concert—es war publicus—Clavier Concert gespielt; mit vieler Empfindung und einer arth Enthusiasmus machte sie die Einleitung ihrer *Rondeaux*, so daß die Mehrsten der Gesellschaft schrien: aha, das ist Steins Tochter. Gleich darauf wurde ich selbst auf ein Bekisches Duette, welches H. Demler auf der Violon accompagnierte, gefordert.” Eva Hertz, “Johann Andreas Stein (1728-1792): eine Beitrag zur Geschichte des Klavierbaus” (PhD diss., Albert-Ludwigs Universität zu Freiburg, 1937), 14. *Violon* here is probably an idiosyncratic spelling of violin, not a double bass.

⁹⁰“Neulich beym *stein* brachte er mir eine Sonata vom Becché.” Wolfgang Mozart to Leopold Mozart, Augsburg, October 23-25, in *Mozart: Briefe und Aufzeichnungen: Gesamtausgabe*, ed. Ulrich Konrad (Munich: Deutscher Taschenbuch Verlag, 2005), 2:82-83. Mozart also mentions playing the piece in his letter to Leopold of October 17; *ibid.*, 69.

and grimace. The *eyes* are rolled. There are smirks. If a thing comes twice, it is played slower the second time. If it comes three times, even slower. The arm must be put high into the air when one plays a passage, and the arm must do as the passage is marked, not the finger, and really, with all diligence, heavily and clumsily. But the most beautiful thing is that when in a passage (that should flow like oil) the fingers of necessity must be changed, one does not have to pay much attention to it, but rather, when it is time, one leaves it out [or stops], raises the hand, and begins again completely at one's convenience [*ganz Commod*], in this way one also has more hope of catching [*erwischen*] a wrong note, and that often creates a curious effect. Mr. Stein is completely crazy about his daughter. She is eight and a half years old, she still learns everything by heart. She can become something: she has genius. But in this way she will be nothing. She will never get any speed, because she works very hard to make her hand heavy. She will never get the most difficult, most necessary, and the chief thing in music, namely the tempo, for she has worked very hard since she was young not to play on the beat. Mr. Stein and I spoke for certainly 2 hours with each other on this point. But I have quite converted him. Now he asks my advice about everything. He was completely crazy about Becché. Now he sees and hears that I play more than Becché; that I do not grimace, and still play so expressively that no one else, to his knowledge, has known how to play his Piano fortes so well.⁹¹

⁹¹“appropós wegen seinen Mäd. wer sie spielen sieht und hört, und nicht lachen muß, der muß von *stein* wie ihr vatter seyn. Es wird völlig gegen dem Discant hinauf gesessen, beylebe nicht mitten, damit man mehr gelegenheit hat, sich zu bewegen, und grimassen zu machen. Die *augen* werden verdreht. es wird geschmuzt. wenn eine sache zweymahl kömmt, so wird sie das 2:te mahl langsamer gespielt. kommt sie 3 mahl, wieder längsammer. der Arm muß in alle höhe, wenn man eine Pasage macht, und wie die Pasage marckirt wird, so muß es der arm, nicht die finger, und das recht mit allen fleiss schwerer und ungeschickt thun. das schönste aber ist, daß wenn in einer Pasage | die forfliessen soll wie öhl| notwendiger weise die finger gewechselt werden müssen, so brauchts nicht viel acht zu geben, sondern wen es zeit ist, so läst man aus, hebt die hand auf, und fängt ganz Commod wieder an, durch das hat man auch eher hofnung einen falschen ton zu erwischen, und das macht oft einen Curiosen Effect. Ich schreibe dieses nur um dem Papa einen begrif vom Clavier spielen und instruiren zu geben, damit der Papa seiner Zeit einen Nutzen daraus ziehen kann. H: stein ist völlig in seine tochter vernart. sie ist 8 half jahr alt, sie lernt nur noch alles auswendig. sie kan werden: sie hat genie. aber auf diese art wird sie nichts. sie wird niemahlen viell geschwindigkeit bekommen, well sie sich völlig befeist die hand schwerer zu machen. sie wird das nothwendigste und

Mozart's description of Nannette's playing, apparently under the tutelage of her father, bears certain similarities to Schubart's description of Beecke's playing, suggesting the influence that Beecke's style may have had on Stein. The remark that Nannette lifts her whole hand to move up and down the keyboard in passagework, for example, instead of "changing" fingers as necessary to make the passage flow smoothly, recalls Schubart's mention of Beecke's "idiosyncratic fingering" and "short relocation of the fist," which even Schubart found "somewhat affected." For Mozart, Nannette's entire performance was affected in the extreme: not only her way of touching the keys, but also what he considered her ostentatious body language and distasteful "grimaces." It seems likely from his comments at the end of the passage quoted here that the "grimaces," at least, can be traced to Beecke's influence, since he assures Leopold that he has demonstrated for Stein, who was "completely crazy about Becché," that facial expression was not a necessary part of expression at the keyboard. It is worth noting, however, that Nannette's expression of sentiment in her face and body is also in line with Bach's advice in the *Versuch*, when he says that a keyboardist must feel the emotion she wishes to express, and her audience "sees and hears" this in her.⁹²

Mozart's final comments also raise the interesting issue of what Stein himself thought about how people played his pianos, and by extension, the kind of musicians he was building them for. At least according to Mozart's report, Stein considered that Mozart played his pianos better than anyone he had ever heard. The statement seems to imply that previously, not everyone had been able to play these instruments as well as Stein imagined they could be played. Presumably, however, at least some people played them in a way that Stein judged successful, or he would not have been making them. Mozart intimates that Stein was able to make a direct comparison between Mozart's performance on his pianos and Beecke's; even leaving Mozart's comments aside, it seems clear that Stein must have heard Beecke play his pianos, and, regardless of whose style he ultimately decided to prefer, had previously liked the way Beecke dealt with the instrument.

Beecke, then, no doubt along with Seyfert, appears as the type of keyboardist—

härteste und die hauptsache in der Musique niemahlen bekommen, nämlich das tempo, weil sich sich vom jugend auf völlig befiessie hat, nicht auf den tact zu spielen. H: *stein* und ich haben gewis 2 stund mit einander über diesen Punct gesprochen. ich habe ihn aber schon Ziemlich bekehrt. er fragt mich ietzt in allen um rath. er war in den Becché völlig vernarrt. nun sieht und hört er, daß ich mehr spielle als Becché; daß ich keine grimaßen mache, und doch so expreßive spielle, daß noch keiner, nach seinen bekentniss, seine Piano forte so gut zu tractiren gewust hat." Wolfgang Mozart to Leopold Mozart, Augsburg, October 23-25, in *Mozart: Briefe*, 2:83.

⁹² *Versuch* 1, "Vom Vortrage," par. 13, 122.

probably even one of the very keyboardists—whom Stein admired and at whom he directed his instrument building efforts during the 1760s and 1770s. Like Seyfert, Beecke cultivated a pronouncedly sentimental style of playing and composing, a style that surely shaped not only the musical culture in which Stein participated in Augsburg, but also Stein's ideas about the kind of music and musicians he was building for. One might say that Seyfert, and perhaps especially Beecke, were Stein's ideal users; he was building, in a sense, for them, as well as for the other keyboardists in Augsburg that were influenced by the style they developed.

Christian Friedrich Daniel Schubart

Schubart, who came to Augsburg in 1774, wrote about the city primarily in two of his large works: the *Ideen zu einer Aesthetik der Tonkunst*, which was written in 1784-85 although it was first published posthumously, in 1806; and his autobiography, *Leben und Gesinnungen*, which he dictated to a fellow prisoner in 1778-89 while being held in captivity by the Duke of Württemberg. The *Ideen* contains a short and fairly dry review of musical life in Augsburg, in which Stetten mentions both Stein and, in a famous passage that is reviewed in the next section, Stein's *Melodica*. The *Leben und Gesinnungen*, in contrast, is most interesting for Schubart's vivid reminiscences of the people of Augsburg and his own life in the city.

Schubart's narrative reveals that he took a keen interest both in evaluating and in contributing to the life of the arts in Augsburg—especially in music, of course, but also in poetry and rhetoric. He gave lessons on the fortepiano, for instance, and he also recalls:

I played on the organ, harpsichord and clavichord, everywhere to applause; I gave lectures about the sciences and the fine arts, had gatherings for scholars and artists in my house.⁹³

He also held reading hours, both in private homes and in public venues—an activity which, he says, “initiated a remarkable revolution in taste.” For example, he gave a public reading (or readings) of Klopstock's *Messias* at the Beckenhaus, in the same hall in which Seyfert's amateur musical society played their concerts:

⁹³“Ich gab Lektionen auf dem Fortepiano”; “Ich spielte auf Orgeln, Flügeln und Klavieren allenthalben mit Beifall; ich gab Vorlesungen über die schönen Wissenschaften und Künste, hatte gelehrte und Künstlerversammlungen in meinem Hause.” Schubart, *Leben*, 2:35, 36.

My theater was the beautiful music hall in the Beckenhaus, and because, in addition to having a natural talent for reading aloud, I had also practiced at it since I was a youth, and knew my author almost by heart, I was no mean rhapsodist. The success was great beyond my expectations. With every new song my listeners increased; the *Messias* was rapidly sold out; people sat in ceremonial stillness around my reading chair; human feelings awoke, as the spirit of the poet aroused them. People shivered, cried, marveled, and I saw it with the sweetest feeling of joy in my heart, how open the German soul may be for everything beautiful, grand, and sublime, if one knows how to make it attentive.⁹⁴

Schubart notes that he sought to become acquainted with the most prominent local figures in the arts. “Rector Mertens,” he says, “became my friend early on,” and he has particular praise for Paul von Stetten:

His beautiful writings, with which he educates and delights our homeland, are only the weak plaster impressions of a stamp that is a thousand times more beautiful. He is a river that flows still and deep in its bed, that waters and fertilizes the fields of its homeland, and never roars except when intractable outrages or cliffs of delusion stand against it. His peaceful character makes him especially adept at feeling beauty and truth, and gives his judgments of the works of the spirit great decision and correctness. His eye for the fine arts is anointed, and keen; although he seems to notice the grace of small things more readily than the divinity of great ones. . . His deeds and the deeds of the entire **Stetten** family have long since won for them an eminent place in the portrait gallery of the Augsburg patriots. I too have both his spoken and his unspoken support to thank for many good things.⁹⁵

⁹⁴“Mein Odeum war der schöne Musiksaal auf dem Beckenhaus, und da ich nebst einer natürlichen Anlage zum Vorlesen, mich von Jugend auf darin übte, auch meinen Autor fast auswendig wußte: so war ich kein schlechter Rhapsode. Der Erfolg war über meine Erwartung groß. Mit jedem neuen Gesange vermehrten sich meine Zuhörer; der *Messias* wurde reissend aufgekauft; man saß in feierlicher Stille um meinen Lesestuhl her; Menschengefühle erwachten, so wie sie der Geist des Dichters weckte. Man schaurte, weinte, staunte, und ich sah’s mit dem süßesten Freuden gefühl im Herzen, wie offen die deutsche Seele für jedes Schöne, Große und Erhabene sei, wenn man sie aufmerksam zu machen weiß.” *Ibid.*, 2:40.

⁹⁵“Rector Mertens wurde frühe mein Freund”; “Seine [Stette’s] schönen Schriften, womit er unser Vaterland unterrichtet und ergötzt, sind nur schwache Gipsabdrücke eines

Schubart also relates that he struck up a close friendship with Johann Andreas Stein. He describes Stein's organ in the *Barfüßer* church in glowing terms and compliments his taste, and according to Schubart, he and Stein had a habit of listening to and discussing music together in the church:

One of my warmest friends was Stein. . . I played his masterful organ in the Barfüßer Church many times with enchantment. How incomparably purely tuned! What a clever concealment of the flaws that naturally belong to the organ! . . . One can hear nothing more ravishing than an organ sonata accompanied with other instruments, or a concerto, performed on this organ.

. . . I and Stein, whose musical taste is excellent, often listened over the balustrade of the organ, and drank in the music of the congregation. "Oh," I often spoke to him in my excitement: "when will a German Assaph fuse together everything that is great, beautiful, and noble in the music of today, all the perfections of the brass instruments, even the biting *Zink* and the *Hallposaune*, the power of the organ and all the stringed instruments, with this heavenly music of the congregation, and build out of it that terrible Whole that I always carry in my soul and find represented nowhere!"—"That may happen in heaven," said Stein, feeling the fire of this thought, "but in this world you will only find fragments of that ideal whole."⁹⁶

tausendmal schönern Stempels. Er ist ein Fluß, der still und tief in seinem Bette fließt, die Felder seiner Vaterstadt wässert und befruchtet, und nie braußt, als wenn sich ihm hartnäckiger Frevel und die Klippe des Wahns entgegen setzt. Sein ruhiger Charakter macht ihn zum Gefühl der Schönheit und Wahrheit vorzüglich geschickt, und giebt seinen Beurtheilungen über die Werke des Geistes viel Bestimmtheit und Richtigkeit. Sein Auge für die schönen Künste ist gesalbt und scharfblickend; doch scheint er die Grazie des Kleinen leichter zu bemerken, als das Göttliche des Großen. . . Seine und überhaupt des ganzen Stettenschen Hauses vaterländische Thaten haben ihnen schon läng stens einen ansehnlichen Platz im Bildersaale der Augsbürgischen Patrioten erworben. Auch ich hatte ihrer stillen und lauten Unterstützung manches Gute zu danken." *Ibid.*, 20-22.

⁹⁶"Einer meiner wärmsten Freunde war Stein. . . Ich habe seine meisterhafte Orgel in der Barfüßer Kirche mehrmalen mit Entzücken gespielt. Wie unnachahmlich rein gestimmt! Welche schlaue Verbergung der den Orgeln so natürlichen Gebrechen! . . . Man kann nichts hinreissenderes hören, als eine mit andern Instrumenten begleitete Orgelsonate, oder auch ein Konzert auf dieser Orgel vorgetragen. . . Ich und Stein, dessen musikalischer Geschmack vortrefflich ist, lauschten oft über die Blumengeländer der Orgel hinunter, und tranken die Töne der Gemeinde auf. 'O' sprach ich oft in der Begeisterung zu ihm: 'wann schmilzt einmal ein deutscher Assaph alles Große, Schöne und Edle der heutigen Musik, alle Vollkommenheiten der blasenden Instrumente, den schneidenden Zinken und die Hallposaune ja nicht zu vergessen, die Kraft der Orgel und aller Saiteninstrumente, mit diesem himmlischen Tönen der Gemeinde zusammen, und bildet daraus das fürchterliche

To some extent, Schubart's language in these passages, composed in the late 1770s, reveals a way of thinking about art and emotion that has moved on, or away, from the culture of *Empfindsamkeit* as it was constructed in the decades just prior, with its ideals of tenderness, receptivity, and nuance. Schubart's text is more reflective of the ideals of *Sturm und Drang*, of grand emotion, passionate extremes. This way of experiencing art overlays Schubart's anecdotes, a little like a palimpsest, so that the text cannot really be read as a description of the particular emotional responses Stein might have had to art, or his specific ideas about musical performance. The text does, however, allow us to glimpse a local culture of discussing and promoting the arts that would have supported Stein as he developed his own thinking about music and art, and helped to shape his decisions about what kinds of instruments to build. It seems quite likely, for example, that Stein attended Schubart's lectures on the arts and sciences and the gatherings for artists in Schubart's home. Probably he listened to Schubart read Klopstock, and participated with the rest of the audience in the collective, public experience of being moved by the performance of the text that Schubart describes.

Quite possibly, too, Stein was among the group of friends in Schubart's home on the night that Catholic authorities arrived to place Schubart under house arrest, prior to expelling him from the city. Schubart begins the tale:

I sat one peaceful evening among a group of trusted and proven friends. . . I was playing some fantasies on my Stein clavichord, with *Empfindung*. Intimacy and bright friendship shone down from every face.⁹⁷

This scene of perfect companionship, however, was rudely interrupted when the house was surrounded by soldiers, and a deputy of the Catholic mayor entered the room, arrested Schubart, and confiscated his writings. The company of friends departed, and Schubart was left alone, under guard. The next day, Schubart's publisher negotiated visiting rights for his friends:

In the blink of an eye my table was covered with food and drink that my friends had brought me; and money was pressed into all

Ganze, das ich immer in meiner Seele herumtrage und nirgends dargestellt finde!' —'So mag's im Himmel zugehen,' sagte Stein, die Gluth dieses Gedanken fühlend, 'auf dieser Welt wirst Du nur Theile dieses idealischen Ganzen finden.'" Ibid., 2:23-25.

⁹⁷"Ich saß an einem ruhigen Abend unter einem Chor trauer und bewährter Freunde. . . Ich spielte einige Fantasien auf meinem Steinischen Klavier mit *Empfindung*. Vertraulichkeit und helle Freundschaft leuchteten alle Gesichter herunter." Ibid., 2:53-54.

my pockets. Nothing was more moving than the look on the face of a fourteen-year old clavichord student of excellent ability, who visited me, placed his gift on the table, then suddenly turned away, spoke not a word, fearfully played a few broken notes on the clavichord and—began to weep loudly. I pressed him tightly to my heart, the blossoming, passionate youth, wet his brow with my tears, and bid him farewell.⁹⁸

Schubart's anecdote is of particular interest here for its perfect illustration of the way a musical instrument—in this case, a clavichord by Stein—could afford an *empfindsam* experience and, indeed, the direct communication of *Empfindungen* from player to listener. At the beginning of the evening, Schubart is playing upon his instrument “with *Empfindung*,” creating an atmosphere in which both player and listener experience feelings of familiarity, security, and trust. The next day, Schubart's pupil uses the clavichord to wordlessly voice his emotions of fear and sorrow. The sound of the instrument—not in any piece of music, but in just “a few broken notes”—conveys the feelings directly back into his own heart, as well as Schubart's, causing them both to burst into tears. The episode parallels precisely Hiller's description of how music allows the communication of feeling from one person to another: “A sound, generated from the feeling of the heart, is the feeling itself. It is recognized as such immediately, and reaches directly and without digression [i.e., via the intellect] into the heart.”⁹⁹

Given the central role that musical instruments could play in mediating emotional experiences and interactions, as suggested here by Schubart, it is small wonder that Stein would have found it important to build instruments that afforded those possibilities as perfectly as possible, to players and listeners alike. The next section examines the explicit statements he made about the matter in his 1772 description of his *Melodica*.

⁹⁸“Und nun stand mein Tisch in einem Augenblick voll von Speisen und Trank, die mir meine Freunde zutrug; und in alle Taschen wurde mir Geld gestekt. Nichts war mir rührender, als der Anblick eines vierzehnjährigen Klavierschülers von trefflicher Anlage, der mich besuchte, sein Geschenk auf den Tische legte, sich plötzlich wandte, kein Wort sprach, einige gebrochne Töne aus dem Klavier herausängstete und—laut zu weinen anfieng. Ich drückte ihn fest an mein Herz, den blühenden, gefühlvollen Jüngling, nezte seine Stirne mit meinen Thränen, und nahm Abschied von ihm.” Ibid., 2:56.

⁹⁹“Ein Ton also, von dem Gefühl des Herzens erzeugt, ist das Gefühl selbst. Es wird gleich so dafür erkannt, und gelanget unmittelbar und ohne Umschweif zu dem Herzen...” Johann Adam Hiller, “Von der Nachahmung der Natur in der Musik,” *Historisch-Kritische Beyträge zur Aufnahme der Musik* 1, no. 6 (1755): 520-21, http://commons.wikimedia.org/wiki/File:Historisch-Kritische_Beytr%C3%A4ge_zur_Aufnahme_der_Musik_Bd.1.pdf.

5.4 Stein's *Melodica*

In 1772, Stein published the description of the *Melodica*, both locally in Augsburg, and in a Leipzig periodical, the *Neue Bibliothek der schönen Wissenschaften und der freyen Künste*. This section presents an analysis of the article as it appeared in the *Neue Bibliothek*.¹⁰⁰ Published between 1765 and 1805, normally biannually, the *Neue Bibliothek* printed essays and review articles for a general readership on a wide range of subjects, but especially the fine arts.¹⁰¹ Reviews of Paul von Stetten's books appeared in the *Neue Bibliothek*, for example, as did reviews of the annual reports from the public exhibitions arranged by the Augsburg art academy.

Stein's article was one of only a very few musical instrument descriptions published in the *Neue Bibliothek*¹⁰², and, for an article of that type, it includes some unusually explicit discussion of what may fairly be called music aesthetics. The articles about the Barfüßer organ and the *Poly-Tono-Clavichordium*, for example, that had been published in Hiller's music magazine, *Wöchentliche Nachrichten, die Musik betreffend*, are mostly confined to describing how the instruments worked and sounded. The *Melodica* article represents, to a much greater extent, a deliberate contribution to a philosophical conversation about the way music worked—by virtue of its content, as well as its placement in the pages of a periodical largely dedicated to discussing the fine arts art and aesthetics.

There are no known surviving examples of the *Melodica*. Aside from a few comments by contemporary observers, therefore (primarily, C. F. D. Schubart), Stein's own article is the only source of information about the instrument. According to his description, the *Melodica* was a one-manual organ, shaped like a small wing-shaped keyboard instrument, that contained only a single rank of pipes. It functioned first and foremost as a melody instrument upon which the keyboardist could shape a single line of music with the same nuance and control as a violinist or a flautist—or indeed, a vocalist. Unsurprisingly, Stein does not describe the construction or action of his new invention in much detail. He does, however, write at length about the ideas and the experiments that inspired it, as well as the experience of

¹⁰⁰Stein, "Beschreibung eines neuerfundenen Clavierinstrumentes"; and Johann Christoph Heckel, *Beschreibung der Steinischen Melodica*, eines neuerfundene Clavierinstrumentes (Augsburg, 1772). Heckel's article is excerpted in Johann Georg Krünitz, *Oeconomische Encyclopädie*, s. v. "Melodica" (Berlin: Joachim Pauli, 1802), <http://www.kruenitz1.uni-trier.de/>.

¹⁰¹On the emergence of the so-called scholarly review journal during the eighteenth century, see Morrow, *German Music Criticism*, 20-21, 26-29.

¹⁰²Besides Stein's description of his *Melodica*, my survey of the journal's contents found only a description of Ben Franklin's *Harmonika*, published in 4, no. 1 (1767): 116.

playing it and the kinds of sounds that it could produce.

The first part of this section discusses what Stein himself writes about his new invention. The second part takes up the reception of the *Melodica* by Stein's contemporaries.

Stein's Description

The basic features of the *Melodica* had previously been described in the introduction to the description of the *Poly-Tono-Clavichordium* published in Augsburg in 1769. In that article, the anonymous author notes that each instrument represented a different solution to a problem that was "well-known to those who are knowledgeable about music": namely, to create an improved kind of keyboard instrument that offered both sustain and flexible dynamic control. The *Melodica*, specifically, was described as an improvement over existing church organs, which had a "strong, monotonous, and often unclear noise" that was "an offence to the musical ear" and had "always been considered a deficiency by music lovers, even those of only average insight."

The problem described by the anonymous author of the *Poly-Tono-Clavichordium* article is the same problem that C. P. E. Bach presents in the *Versuch*: the fact that the keyboardist's instruments, unlike those of other musicians, are inadequate for their purpose. In the 1772 description of the *Melodica*, Stein lays out a clearly structured argument, again predicated upon this basic problem, for why his new invention is necessary. In the *Melodica* article, however, Stein presents the problem more precisely, and he also places it in a larger framework that, judging from the explicit references he makes to Bach in the text, was likely inspired by a reading of the *Versuch*. The problem Stein poses in the *Melodica* article is not simply that of making a dynamically flexible keyboard instrument with a long sustain. Rather, it is a problem with much greater import: to invent a keyboard instrument that will enable the keyboardist to "play upon the heart."

Inspiration

Stein begins his article by stating that "for more than 15 years," he has been "occupied with investigating music that has an effect upon the soul."¹⁰³ The remark places the beginning of his interest in this topic in roughly the mid-1750s, perhaps two or three years after the publication of the first part of

¹⁰³ "Schon mehr als 15 Jahre lang bin ich mit Untersuchung der Musik, welche auf die Seele wirkt, beschäftigt." Stein, "Beschreibung eines neuerfundnen Clavierinstruments," 106.

the *Versuch* in 1753. As reviewed in chapter 2 Stein completed the Barfüßer organ in 1756 and continued to work as an organ builder in Augsburg in the years that followed; during the 1760s, he apparently also collaborated with the clockmaker Joachim Eppinger on musical automata and musical clocks, at least one of which was programmed to play music by C. P. E. Bach. Except for the 1763 travel clavichord for the Mozart family and the ambiguous evidence of the notebook instrument list, however, there is no documentation of Stein's activity as a stringed keyboard maker before the 1769 *Poly-Tono-Clavichordium* article.

As a matter of fact, the *Poly-Tono-Clavichordium* article describes both of Stein's new instruments specifically from an organ-builder's point of view. The *Melodica*, of course, was a new and improved kind of organ. The *Poly-Tono-Clavichordium*, meanwhile, is actually characterized as a stringed instrument that could sound as dynamic and varied as the organ. One might say that both the *Poly-Tono-Clavichordium* and the *Melodica* represented Stein's attempts to build not just a better keyboard instrument, but a better organ. At least through the beginning of the 1770s, then, Stein approached the dilemma posed by Bach primarily as an organ builder, with an organ builder's appreciation for the capabilities of his instrument and its potential for "affecting the soul."

Stein goes on to say that he has been able to use both "our public concerts" in Augsburg as well as a great deal of "private music-making"¹⁰⁴ as a kind of laboratory space for his "investigations." The public concerts to which Stein refers are surely the activities of Augsburg's "music-practicing and -loving society," of which he was a member, under Seyfert's leadership. His remark here seems to confirm Seyfert, and perhaps specifically his transmission of Bach's music and ideas, as an important influence on the *Melodica*.

Premise

In the next section of the article, Stein explains the fundamental premise underlying the invention of the *Melodica*. Here, the ways in which both Stein's text and his new instrument represent a response to Bach's *Versuch* become clear. According to what Stein writes here, he has found, in Bach's *Versuch*, a confirmation of his observation that only a particular kind of musical instrument can produce music that is capable of moving a listener:

¹⁰⁴"Unsere öffentliche Concerte, und oft eben so viele Privatmusiken in jeder Woche, verschaffen mir hinlängliche Gelegenheit darzu." Ibid.

It did not cost me much effort to discover that only those instruments can play upon the heart whose sound is mobile, flexible, increasing and decreasing—in short, which possess the properties which **Bach** correctly calls the elements of presentation.¹⁰⁵

Stein enumerates the elements of presentation, and provides a reference to the *Versuch*:

“The elements of presentation,” he [i.e., Bach] says, “are the loudness and softness of tones, their pressure, quick release, legato, staccato, vibrato, arpeggiation, holding [prolongation; *Halten*], slowing down, and proceeding.” See the true way to play keyboard instruments, p. 117., section 3.¹⁰⁶

As I discussed above, Bach's elements of presentation consisted of various ways of manipulating the tone of a keyboard instrument.¹⁰⁷ They represented techniques with which a skilled keyboardist could reach “first the ear, and then the heart” of the sensitive listener. Strictly speaking, except perhaps for loudness and softness, none of the elements of presentation are “properties” that an instrument can “possess.” In Stein's text, however, the techniques of presentation and the properties of the instrument become one and the same. Like Bach, Stein establishes a connection between a sound stimulus and the emotions of the listener. In a move that seems natural given his perspective as an instrument builder, however, he shifts the agency for the stimulus from the player (or the music) to the instrument. The instrument is what “plays upon the heart”; therefore, it is the instrument that must perform in accordance with the elements of presentation. Having made this move, Bach's elements of presentation can now function for Stein as a set of design objectives for his new invention.

Like Bach, Stein points to song as the perfect example of a flexible sound that is capable of touching the listener, for “all of these properties can be found in the singing voice to the highest degree.” The instruments that can best imitate the voice, therefore, are “the violin, flute, oboe, and a few others”. Other instruments, such as keyboards, can “only wish” to do

¹⁰⁵“Es kostete mich nicht viele Mühe zu entdecken, daß nur diejenigen Instrumenten auf das Herz spielen können, deren Ton beweglich, biegsam, zu- und abnehmend ist, kurz, die Eigenschaften besitzen, welche **Bach** die Gegenstände des Vortrags mit Recht nennet.” Ibid.

¹⁰⁶“Die Gegenstände des Vortrags, sagt er, sind die Stärke und Schwäche der Töne, ihr Druck, Schnellen, Ziehen, Stoßen, Beben, Brechen, Halten, Schleppen und Fortgehen.’ Siehe die wahre Art das Clavier zu spielen, S. 117. §. 3.” Ibid.

¹⁰⁷Or, in a very literal reading, qualities of the tone imparted to it by such manipulations.

so.¹⁰⁸ While Bach focuses chiefly on the desirable dynamic and sustaining properties of the voice, however, Stein departs from Bach to add another property to the list: that of flexible pitch, or free intonation. Violins and flutes allow the player to control not only the loudness but also the pitch of each individual note. Keyboard instruments, in contrast, must be tuned in a fixed temperament.

Possibly, Stein's sensitivity to the affective potential of intonation owed something to the study of tuning and temperament that was a necessary part of his training as an organ builder, for he remarks that his

profession as well as his inclination has qualified him ever since his youth to direct his attention to harmony and pure intonation.¹⁰⁹

At any rate, he argues at some length that variable pitch is an important tool for moving the sentiments, primarily because it allows for the pure intonation of enharmonically related semitones:

... Only... the instruments that are not restricted to any one temperament, as the organ and all keyboard instruments are— are capable of stirring our souls; where the raising and lowering of every individual note is discretionary, in order to have the familiar differences between enharmonically related sharps and flats be pure. It is true that many musicians regard these differences as shadow-boxing, and unnecessary, but I assure you that sensible [*empfindsame*] listeners are not so generous with their “Bravo”; they demand much more gratification first.¹¹⁰

He has further observed, he says, that “all virtuosos of the right kind” widen and narrow certain intervals when playing a melody, and he believes that

¹⁰⁸“In der Singstimme stecken alle diese Eigenschaften in höchsten Grade. Die Violine, die Flöte, die Oboe, und noch einige andre sind Nachahmerinnen derselben in der That, wie es andere Instrumente zu seyn bloß wünschen.” *Ibid.*, 10607.

¹⁰⁹“Glauben Sie mir, als einem Manne, den seine Profession, so wie seine Neigung, berechtigt hat, von Jugend auf sein Augenmerk auf die Harmonie und die reine Einstimmung zu richten.” *Ibid.*, 107.

¹¹⁰“... daß nur die unbestimmten Instrumente, oder noch deutlicher zu reden, die in keiner Temperatur, wie die Orgel und alle Clavierinstrumente, eingeschränkten, vermögend sind, unsere Seele zu reizen; wo die Erhöhung und Erniedrigung eines jeden einzelnen Tones willkürlich ist, um die bekannten Differenzen der [sharp symbol] und [flat symbol] im enharmonischen Geschlechte rein zu haben. Es ist wahr, daß viele Tonkünstler diese Differenzen vor Spiegelfechterey und als unnütz ansehen, allein, ich versichere Sie, daß empfindsame Zuhörer nicht so freygebig mit ihrem Bravo sind, sie verlangen vorher vielmehr Genußthung.” *Ibid.*

this extraordinary augmenting and diminishing, along with the pure intonation of the notes, is what makes us attentive, caresses the ear, and reaches into our hearts.¹¹¹

In all of these passages, Stein presents a model for how music works that is familiar from the *Versuch*. A certain kind of sound “makes us attentive,” he says; then, when we are receptive to it, the sound first “caresses the ear,” and then “reaches into our hearts.” This familiar sequence of events is the pathway by which sound can, as Stein puts it, “stir the soul.” He presupposes an audience of “sensitive listeners,” and his favored metaphor for the way that the sound of music affects these listeners—it “plays upon the heart”—has a decidedly tactile, sensuous quality. In Stein’s text, music still works by acting as a stimulus to the senses of a receptive listener, although the nature of the musical stimulus has been slightly displaced, from the player’s presentation to the pure sound of the instrument being played.

The User

Stein is now in position to define the specific problem that the *Melodica* is intended to solve—that is, to create a keyboard instrument that “possesses” Bach’s elements of presentation, and, therefore, can play upon the heart:

Since I have sufficiently demonstrated that only those instruments whose tone is mobile, flexible, etc. can play upon the heart, the question arises: where to begin with keyboard instruments?¹¹²

The problem that Stein lays out here is allied to—perhaps inspired by—the point of view that Bach presents in the *Versuch*. Although Bach points out that each instrument type had different specific affordances, as a group he believed they had limitations that made it difficult for the keyboardist to move the listener. Bach considered the clavichord, which did have a “mobile, flexible” sound, to be the most perfect keyboard type in this respect, and Stein also follows Bach here, noting, “the clavichord we must make some exception for.”¹¹³

¹¹¹“Diese außerordentliche Vermehrung und Verminderung, sammt dem reinen Einstimmen der Töne sind es, die uns aufmerksam machen, dem Ohre schmeicheln und bis an unser Herz reichen.” Ibid., 108.

¹¹²“Da ich also hinlänglich erwiesen habe, daß nur diejenigen Instrumente auf das Herz spielen können, deren Ton beweglich, biegsam u.a. ist, so fragt es sich, was wir dann mit Clavierinstrumenten anfangen?” Ibid., 109.

¹¹³“Das *Clavicordium* müssen wir einigermassen ausnehmen.” Ibid.

A problem, by its nature, supposes the existence of a person who will benefit from its solution, and in constructing his problem, Stein simultaneously constructs an imagined user for his new invention. The user Stein imagines (later in the text, he actually refers to “my performer”) is close to the kind of keyboardist Bach describes: an *empfindsam* musician who wants to move the sentiments of listeners. Stein departs from Bach a little, however, in constructing a keyboardist who is in want, not of better techniques or more knowledge, but rather, a better instrument. Bach links the technologies of keyboard instruments to their differing affordances, but he does not suggest that keyboardists, in order to move the sentiments, need a new kind of instrument altogether (although he does seem excited about the *Bogenflügel*); rather, he thinks that keyboardists need to learn the “true way” to play the instruments they have. Stein, on the other hand, imagines that the keyboardist has already studied hard, and presumably has learned the “true way” to play. His users are the “many skillful people who dedicate themselves to [the keyboard],” but remain limited by the instruments at their disposal. These people, in Stein’s view, are actually done an injustice by their instruments:

I have always felt very sorry for the keyboard player. He must possess great, superb skill to surmount the difficulties of his instrument, and still ranks behind the violinist or flautist as far as true effect [*die wahre Wirkung*] is concerned.¹¹⁴

Stein makes apparent reference to Bach’s view that good playing alone is sufficient to move the listener, saying:

It is true that an excellent Bach can express an *Affekt* to some extent even on a harpsichord—although more through the execution of the piece itself than through the special quality of its tone.¹¹⁵

Bach, who was revered throughout Germany, and not least by Stein’s musical circle in Augsburg, might indeed be expected to “surmount the difficulties of his instrument” with his, presumably, exceptional mastery of the techniques he describes in his own treatise.

¹¹⁴“Ich habe immer den Clavieristen sehr bedauert. Er muß große vorzügliche Geschicklichkeit besitzen, um die Schwierigkeiten seines Instruments zu übersteigen, und doch einem Violinisten oder Flötenspieler, was die wahre Wirkung betrifft, nachstehen.” Ibid.

¹¹⁵“Es ist wahr, daß ein vortrefflicher Bach auch auf einem Flügel den Affekt einigermaßen ausdrücken kann; aber mehr durch die Ausführung des Stückes selbst, als durch die besondere Art seiner Töne.” Ibid.

“But who,” Stein continues, “can always be a Bach?”¹¹⁶ The question identifies Stein’s imagined users precisely: they are, first and foremost, keyboardists who want to do what Bach can do, but cannot do it so well, at least not “always.” Bach commands the elements of presentation so well that he can evoke an affecting sound even from a harpsichord, that least vocal of keyboard instruments. Lesser keyboardists, whether what they lack is Bach’s technique or his particular genius for applying it, cannot do the same. Stein’s idea, therefore, is to locate the elements of presentation not in keyboardists’ technique, but in their instrument. Bach can make a keyboard instrument sing with his technique; Stein wants to make an instrument that can sing by itself. Boldly, Stein even imagines Bach himself as a user of such an instrument, for whom it would afford unimagined new possibilities:

[W]hat would a Bach play, if only his instrument had the aforementioned advantages?¹¹⁷

Once again, as in the opening paragraphs of the article, Stein lets what players do overlap with what their instrument does. In this way, he constructs the need for his new instrument, in tandem with its audience.

Stein makes it clear throughout the article that he envisages an *empfindsam* player for his *Melodica*: the instrument he has designed may be capable of song, but only a sensitive player can appreciate and exploit that capability. In the closing paragraph of the article, for example, he reminds the reader:

I . . . recommend my *Melodica* to all keyboardists who have sentiment [*Empfindung*]. I have worked for their sake, and for their sake I will work on¹¹⁸.

In addition to supposing that his keyboardists are *empfindsam*, Stein also supposes that they have attentive and *empfindsam* listeners; he invokes these imagined listeners, as we have seen, throughout the text. The users he imagines, in other words, are sensitive keyboardists that are also situated within a particular kind of critical and self-consciously receptive musical culture, in which listeners expect to be moved by what they hear. The new invention that he goes on to describe was inspired by such a culture, and

¹¹⁶“Allein, wer ist auch allemal ein Bach?” Ibid.

¹¹⁷“ . . . was würde ein Bach erst spielen, wenn sein Instrument obige Vortheile hätte?” Ibid.

¹¹⁸“Ich empfehle also meine *Melodica* allen Clavieristen, die Empfindung haben. Ihnen zu Liebe habe ich gearbeitet, und ihnen zu Liebe werde ich noch ferner arbeiten. . . .” Ibid., 116.

it was also meant to support and extend it. The *Melodica* was, therefore, not only an instrument defined by particular tonal qualities. It was also an invention into which Stein scripted a particular pattern of behavior—that of moving and being moved—that was predicated upon new cultural expectations of emotional receptivity and ideas about the way music worked. The activity that Stein’s users were meant to use his invention *for* was not just to make music, but rather, to engage in the kind of musical behavior that could move the heart. Stein’s users were keyboardists with “sentiment,” and his new instrument would be built “for their sake”—in order, that is, to afford them the opportunity to exercise that quality of sensitivity upon which the practice of music as he understood it depended.

Sound

After this preamble, the tone of the article shifts from the philosophical to the practical. Stein reviews for the reader, step by step, the investigative process that has culminated in his new invention, before finally coming to a description of the *Melodica* itself. First, he lists a set of “requirements” that he had established for his work:

- 1) to find a sound that could be made to drift, increasing gradually, from the initial *piano* up to the highest *forte* and back again, without itself rising or falling; that always maintained its relationship to other notes, and that relinquished its *forte* and *piano* completely to the control of the player;
- 2) that nevertheless would be capable of rising and falling at times;
- 3) that would have a quick speech;
- 4) whose tone would continue to sing as long as desired, and would shake, as the player wished.¹¹⁹

Each of these four requirements—dynamics, pitch, speech, and sustain—concerned a particular characteristic of the tone of the new instrument.

¹¹⁹“Meine Forderungen waren diese: 1) Einen Ton zu finden, der sich wachsend von der ersten Schwäche bis auf die höchste Stärke auf und herunter treiben ließ, ohne an sich selbst zu steigen oder zu fallen; der immer in seinem Verhältnisse gegen andere blieb, und sein forte und piano ganz der Gewalt des Spielers überließ; 2) Der bey Gelegenheit dennoch zu steigen und zu fallen fähig wäre; 3) Der eine schnelle Ansprache hätte; 4) Dessen Ton willkürlich lang fortsänge, und, wie der Spieler will, bebte.” Ibid., 109-110.

Except for variable intonation, for which Stein had made a special case earlier in the article, each of his requirements is also taken up in the *Versuch*, and relates directly to Bach's elements of presentation. "The loudness and softness of tones" are on Bach's list, although Stein actually goes further than Bach in requiring that his instrument make it possible not only for players to control the dynamic level of individual notes, but also to modulate that level throughout the duration of the note. "Holding," or "prolongation," too, is an element of presentation, and, as Bach points out, it was actually a prerequisite for the most effective deployment of some of the other elements: *legato* and *staccato*, for example, but also vibrato (*Bebung*), which was effected by modulating "pressure" (*Druck*) on a sustained note. The "quick speech" Stein required was indispensable for reproducing the articulation patterns of the singing voice, as well as for the accurate performance of ornaments, which Bach also considered important tools for musical communication.

Stein was not the only keyboard builder, of course, to attempt a instrument with a singing, sustained tone: in the first volume of the *Versuch*, for example, Bach had praised Hohlfeld's "lovely invention," the *Bogenflügel*, in which the action of the keys brought strings to bear against a moving bow. According to the description that appeared in 1754, the *Bogenflügel* provided many of the same affordances that Stein desired for his *Melodica*. It had the same kind of dynamic control, a long sustain, and a responsive action that made it easier to play difficult ornaments.

Stein saw greater potential, however, in a completely different type of instrument, and he assures his readers that his choice is the result of a process in which he methodically "thought through all sounding bodies"¹²⁰ in order to select the one best suited to his requirements. The primary challenge of his investigation, as he frames it, was not actually one of mechanical design, but rather, of identifying the best way to produce a musical tone that had a suitable sound and could be manipulated as he wished. In spite of Bach's praise for the *Bogenflügel* (or, perhaps, spurred on by it), the first type of "sounding body" that Stein rejected for his new invention was strings: "In strings," he says, "I saw immediately that all hope was lost."¹²¹ He does not say why, but perhaps, if he did have the *Bogenflügel* in mind, he saw no good way in which such an instrument could be modified to let the player control the pitch of individual notes as well as their dynamic level.

Stein also argues against the suitability of glass as the sounding material for an instrument that is meant to move the heart, for several reasons.

¹²⁰"Ich habe durch alle klingende Körper durchgedacht." Ibid., 109.

¹²¹"Bey den Saiten sahe ich gleich alle Hoffnung verloren." Ibid., 110.

“The material glass, which, indeed, the *Harmonica* boasts of,” was “popular these days,” he says, and it afforded a “*crescendo* and *decrecendo* of the notes” that was “very welcome.” But he finds fault with “slow speech” of glass, which could not render “small details,” as well as with the fact that sounding bodies of glass produced a tone that was “far too fixed (regarding its highness and lowness) and as a consequence cannot be intonated while playing.”¹²² He also criticizes the quality of the sound produced by the glass bells (*Glockwerk*) of the *Harmonica*

I thought it was not firm, it was too spiky, and prickly to the ear; it makes one sleepy and melancholy; in short, after a quarter of an hour we are completely numbed and staggering from this music.¹²³

Here, Stein suggests that the timbre of the sound itself, rather than any particular way of manipulating it, could have a physical effect upon the listener—in this case, an undesirable one. Stein wanted to build an instrument that would make listeners attentive and susceptible to being moved. The sound of the bells, in his opinion, did precisely the opposite. It numbed listeners; it put them to sleep; it induced a state of melancholy, with that word’s medical connotations of slowness and despair; it even made them “stagger.”

Having found strings, glass, and metal all lacking, Stein turned to his final alternative: “to investigate the tone of the flute.” “I soon found,” he says, “that this would be the closest to my final aim.” The sound and speech of the flute were satisfactory—“firm, quick, responsive and sustained”—so that all Stein needed to do was to “consider the moderation of the wind, and how it could be affected by the greater or lesser pressure of the finger,” in order to satisfy his requirements of variable dynamics and pitch.¹²⁴

¹²²“Ich gerieth auf die Materie des Glases, womit eben die heutige so beliebte Harmonica pranget. Ich gestehe es, das Zu- und Abnehmen der Töne war mir sehr erwünscht, allein die langsame Ansprache, wodurch Kleinigkeiten verloren gehen, und der gar zu bestimmte Ton seiner Höhe und Tiefe, nach [*recte?*: Ton, seiner Höhe und Tiefe nach,] der sich folglich im Spielen nicht einstimmen läßt, sondern in eine Temperatur eingeschränkt seyn müßte, waren mir nicht anständig.” Ibid.

¹²³“... zu dem kam ferner die entsetzliche Höhe des Glockenwerks, und dann endlich der Ton selbst. Er war mir nicht solid, zu spitzig, und in das Ohr stechend; er macht schläfrig und melankolisch; kurz, in einer Viertelstunde sind wir von dieser Musik ganz betäubt und taumelnd.” Ibid.

¹²⁴“Nun war mir nichts mehr übrig, als den Ton der Flöte auszuforschen. Ich fand bald, daß dieses meinem Endzwecke am nächsten wäre. Der Ton ist solid, schnell, ansprechend und haltend. Ich fieng also an auf die Moderation des Windes zu denken, und wie solche durch den mehr oder weniger Druck des Fingers bewirkt werden könnte. . .” Ibid., 111.

It is not surprising that Stein, as an organ builder, settled on the sound produced by the flute as the most amenable to his purposes: organ flue pipes produced sound in a way that mimicked the passage of the breath through the flute or the recorder, and Stein already knew to build pipes, and how to wind them and voice them to speak in different ways. In addition, however, the descriptions of his instruments that were published in Augsburg are evidence of a local conversation about the great power of the organ to move the sentiments. The anonymous author of the 1769 article about the *Poly-Tono-Clavichordium* had contended that an organ builder could “[spread] pleasure and devotion by means. . . of air and barren tin,” and the stops of the organ could “move a devout congregation”, and “stir up” feelings of “thanks, praise, reverence, sorrow, joyfulness, etc.” in the hearts of listeners. The evocation of these feelings, it is explained, was achieved by the different timbres represented by the different kinds of stops, which could be variously “soft and melancholy,” “charming,” “merry and piercing,” “sobbing,” “humming,” “languishing,” “clear and emphatic,” and so on. These sounds in combination could “encourage the spirit from one level of the [Affekten] to another,” and, “by means of harmonic diversions,” they could “lift up the heart. . . toward heaven.”¹²⁵ According to the 1770 description of the organ in the Barfüßer church, meanwhile, Stein himself could play the organ in just such an affective way:

[Stein] arouses the most exalted feelings when, with long, sustained notes strengthened by the power of the stops, he spreads holy shivering in the temple where the majesty of the eternal is spoken of. . . he elicits, with a judicious mixture of stops, softer, sweeter feelings, pleasant to the heart, and in accordance with the love of the Savior preached there.¹²⁶

¹²⁵“...mit seiner künstlich zusammengesetzten Arbeit, gleichsam durch Wind und taubes Zinn, Vergnügen und Andacht ausbreitet; indeme die Menge der Orgelstimmen, welche eine andächtige Gemeine in Bewegung setzen, zwar unbegliederte Töne, aber dennoch im Chorale eine vielfache Davids-Harpe einer ganzen vielfältigen Kapelle sind, welche in uns den Dank, das Lob, die Ehrfurcht, die Trauer, die Freudigkeit u.a. gleich rege machen; und durch sachte und melancholische Gedakten, durch allerley anmuthige Flöten und Pfeiffen, durch lustige und durchdringende Mixturen und Cymbeln, durch singende Cornete, durch freudige und laute Trompeten, durch schluchzende Tremulanten, durch heroische Posaunen, durch brummende Fagots, durch schmachkende Menschen-Stimmen, durch laute und nachdrückliche Principale, von einer Stufe der Affecten zur andern, den Geist ermuntern, und das Herz durch harmonische Zerstreungen gleichsam Himmelwärts empor heben.” *Augsburgischer Intelligenz-Zettel*, “Von Erfindung eines Poly-Toni-Clavichordii.”

¹²⁶“Bald erwecket er die erhabensten Empfindungen, wenn er durch langgezogene und durch die Macht der Stimmen verstärkte Töne heiliges Schauern in dem Tempel, wo

Stein's selection of the flute as a model for his new invention, then, certainly capitalized on tools and knowledge that he already possessed, but it was probably not only a pragmatic choice: like his contemporaries, Stein would doubtless have experienced the sound of organ pipes as moving, with great potential to "play upon the heart."

Workings

"Finally," Stein says, "I saw myself rewarded for my efforts with the invention of a new instrument," one which would have the "the same advantages as the violin or the flute," and intended first and foremost for "the formation of simple melodies;"¹²⁷ accordingly, he named it the *Melodica*. It had "the shape of a small harpsichord, 3 $\frac{1}{2}$ feet long"; was tuned, typically for an organ, in Chorton; and had a compass of "3 $\frac{1}{2}$ octaves, beginning from the lowest g of the violin up to c4."¹²⁸

Because Stein says that he chose the flute as the model for the instrument, it is clear that the *Melodica* would have contained flue (or labial) pipes, which produce sound when a stream of air blown into the pipe excites the column of air within the pipe body, in the same manner as the flute.¹²⁹ According to Stein, the pipes he built for the *Melodica* had a "very lovely and pithz [*körnicht*]" sound that was "exactly like that of a recorder, if not superior."¹³⁰ The fact that the *Melodica* was intended only for playing melodies suggests that the instrument would have had only a single register; at least, Stein does not indicate that the instrument had any provision for engaging or disengaging registers. The overall length of the instrument and

von der Maiestät des Unendlichen geredet worden, verbreitet; bald bringt er durch eine verständige Mischung der Stimmen sanftere und dem Herzen angenehme, reizende, und mit der daselbst gepredigten Liebe des Heylandes übereinkommende Empfindungen hervor. . . ." Johann Adam Hiller, ed., "Nachricht. Von einer neu erbauten Orgel, aus dem 6ten Stück der Augspurgischen Kunst-Zeitung, den 5ten Febr. 1770," *Wöchentliche Nachrichten, die Musik betreffend* (Leipzig), March 12, 1770, 87, <http://books.google.se/books?id=vRdDAAAACAAJ&printsec=frontcover#v=onepage&q&f=false>.

¹²⁷"... ich sah mich endlich durch die Erfindung eines neuen Instruments für meine Mühe belohnt"; "Meine Absicht war, dem Clavieristen ein Instrument zu verschaffen, wodurch er... mit der Violine oder Flöte gleiche Vortheil hätte... Mein Spieler hat hier nicht mit einer Hand voll Tönen, sondern mit der Bildung einer einfachen Melodie zu thun..." Stein, "Beschreibung eines neuerfundnen Clavierinstrumentes," 111.

¹²⁸"... die Gestalt eines kleinen Flügels von 3 $\frac{1}{2}$ Schuh lang. . ."; "Der Ambitus besteht in 3 $\frac{1}{2}$ Octaven, von dem untersten g der Violine anfangend bis in das 4te gestrichene c um so wohl alle Violin- als Flötenconcerte einzuschließen." Ibid., 112-13.

¹²⁹Organ reed stops, in contrast, produce sound by means of a vibrating tongue, in the manner of a clarinet.

¹³⁰"Der Ton selbst is sehr schön und körnicht, und einer Flöte *a bec* vollkommen gleich, wo nicht übertreffend." Ibid., 113.

Stein's comparison to the sound of the recorder suggest stopped pipes at 8' pitch, likely made of wood, with a wide scaling that would produce a flute-like sound.

Although the basic design of the pipes was probably not too unusual, then—something like a wooden Gedackt 8'—Stein does say that he labored with their construction in order to produce a specific and atypical kind of speech. Adjusting pipe speech, a process known as “voicing,” (in German, “Intonieren”), involves making small changes to the geometry of the pipe “mouth”: to the flue, or windway; to the upper and lower lips; and to the languid, the plate between the pipe foot and its resonating body. Stein's goal was to voice his pipes so that they spoke quickly and very quietly: he wanted them to speak “in an instant,” he says, “without the entrance of the wind being noticeable on quickly played notes, as is usual in organ pipes.”¹³¹ The kind of speech Stein describes would have made possible both a connected, *cantabile* sound and a syllabic, rhetorical performance. The pipes, in other words, would have been able to speak as well as to sing. Stein also apparently designed the touch of the *Melodica* to work in concert with the smooth, responsive behavior of the pipes: he characterizes the touch as “like a clavichord,” with a shallow keyfall, “not deeper than the back of a slender knife,” which “provide[d] the advantage of fluency.”¹³²

Stein comments that making the pipes for the *Melodica* was one of the most difficult parts of the entire project. The reason was that, unlike other organ pipes, the *Melodica* pipes needed to sound correctly over a range of wind pressures: “to speak equally well with both strong and weak wind.”¹³³ Like all organs, the *Melodica* had a sustained sound: its pipes would “continue to sing as long as desired,” as long as they were supplied with wind. What made the *Melodica* remarkable, however, was that it also allowed the player, by changing the pressure of the finger on the key, to modulate the wind to each pipe throughout the duration of that sustain. Increasing or decreasing the wind to the pipe resulted in a louder or softer sound; as a result, the dynamic level of each note on the *Melodica* could change, even as the sound was sustained. This capability, Stein notes, could be exploited to create either a *crescendo* or a vibrato:

¹³¹Or “quickly detached notes”: “Der Anspruch is augenblicklich da; ohne daß der Eintritt des Windes bemerkt wird, wie gemeiniglich in den Orgelpfeifen, bey geschwind gestoßenen Noten.” Ibid.

¹³²“Das Tractament des Claviers ist wie ein Clavicordium. Der Fall ist nicht tiefer als ein schwacher Messerrücken. Hierinn steckt eben der Vortheil zur Geläufigkeit.” Ibid.

¹³³“Es war dieses eben keine der geringsten Schwürigkeiten, eine Pfeife so zu machen, daß sie den starkem und schwachem Winde gleich gut anspräche.” Ibid.

Concerning the touch in a musical sense, every tone may drift from the first *piano* up to the highest *forte*, by means of the lesser or greater pressure of the finger, and also tremble [*Beben*] slowly or quickly at the same time.¹³⁴

A strong *crescendo* on the *Melodica* could also be accompanied by a rise in pitch, which could be eliminated if the player desired:

... the pitch rises a little at the *forte*, and must rise, in order to be able to intonate its notes purely, as mentioned above. But if there are places where the note must be *forte* and absolutely must not go up, then a small, unnoticeable movement for the left knee is provided, by means of which the note is indeed made *fortissimo*, but moves not a hair from its place.¹³⁵

This passage indicates that the *Melodica* was not truly a freely intonating instrument, like the violin or the voice. It did, however, fulfill the less radical conditions that Stein had previously stipulated: the sound could increase and decrease in volume “without itself rising or falling,” while still being “capable of rising and falling at times,” although only in a restricted way. The player could not lower the pitch of a note, only raise it “a little,” and could only do so by also raising the dynamic level. Volume and pitch were thus inevitably affectively linked. Like loudness, pitch could be controlled on a note-by-note basis: not only did it follow loudness, but the instrument also included a knee lever or similar mechanism that allowed the player to quickly and unobtrusively prevent a rise in pitch for any given note.

¹³⁴“Was das Tractament im musikalischem Verstande betrifft, so läßt sich jeder Ton von der ersten Schwäche bis auf das höchste *forte*, durch den minder- oder mehrern Druck des Fingers treiben, auch zu gleicher Zeit langsam oder geschwinde *beben*.” Ibid.

¹³⁵“Hier muß ich sagen, das der Ton bey dem stärksten *forte* sich ein wenig erhöht und erhöhen muß, um, wie oben gesagt, seine Töne rein einstimmen zu können. Wann aber Stellen vorkommen, wo der Ton *forte* und absolut nicht steigen soll, so ist eine kleine unmerkliche Bewegung für das linke Knie angebracht, vermittelst deren der Ton wohl *fortissime* gemacht wird, allein kein Haar aus seiner Stelle rücket.” Ibid., 113-14. It is not clear how this worked, but perhaps the knee lever operated a mechanism that changed the sounding length of the pipes in some way. Krünitz’s entry on the *Melodica*, which relied on Heckel’s version of the article, calls the mechanism a “damper” or “damping” (“Dämpfung”): s.v. “Melodica,” 193. Stein also says that it was possible to tune the entire *Melodica* up or down a quarter-tone by means of a screw (see below), and perhaps these two mechanisms were related. My thanks to Tilman Skowronek for suggesting the latter possibility to me.

Stein does not describe how the mechanism that produced this effect worked.¹³⁶ Because the text makes clear, however, that the loudness and pitch of each note are controlled individually, even when multiple notes are played at once, it would seem that the modulation of the air supply must have operated at or after the division of the wind to the separate pipes—perhaps in the pallet box, or at the point of entry of the wind to the pipe foot itself. The bellows itself was operated by a spring, and the player had no interaction with it while playing:

... the compression [of the bellows] occupies neither a player or a calcant—just as little, in fact, as does the entire bellows—but rather occurs with the help of a spring action. This has been installed so that the attention of the player does not have to be occupied with controlling the bellows.¹³⁷

Stein also emphasizes that the *Melodica* did not employ any kind of swell box or register crescendo:

That which now and then is effected in organs by having more or fewer pipes speak in unison by means of greater or lesser pressure on the key is not a *crescendo* [*Anwachsung*], but rather a stepwise reinforcement, and does not pertain here. A whole register of pipes held in a special case that is opened a greater or lesser amount with a movement, and as a result produces *piano* and *forte* in this way, does not pertain here either, because it reinforces all the tones at the same time and not each individual tone at the proper time and at the discretion of the player.¹³⁸

¹³⁶The fact that the dynamic level of notes could change largely without a change in pitch might raise the question of whether the *Melodica* could have been an early free reed instrument. The fact that one of Stein's stated goals was to build an instrument that actually did have variable pitch makes this improbable, however, and so especially do Stein's repeated comparisons of the *Melodica* with the flute. If Stein indeed took the flute as his model for a "sound-producing body", then the *Melodica* must reasonably be assumed to have had labial (flue) pipes.

¹³⁷"Inzwischen aber beschäftigt die Compression eben so wenig als überhaupt der ganze Blaßbalg weder den Spieler, noch den Calcanten, sondern sie geschieht mit Hülfe der Federkraft. Man hat diese deswegen angebracht, um die Aufmerksamkeit des Spielers nicht mit der Regierung des Blaßbaldes zu beschäftigen." Ibid., 114.

¹³⁸"Das, was hin und wieder in Orgeln durch Ansprechung mehr oder weniger Pfeifen im *unisono* durch den mehr- oder wenigern Druck des Clavis bewirkt worden, ist keine Anwachsung, sondern eine stufenmäßige Verstärkung, und gehöret nicht hieher. Ein ganzes Register Pfeifen, in einen besondern Kasten eingesperrt, welcher durch eine Bewegung mehr oder weniger eröffnet wird, folglich das *piano* und *forte* auf diese Art hervorbringt, gehört auch nicht daher, weil es alle Töne zugleich und nicht jeden einzeln zur gehörigen Zeit und nach der Willkühr des Spielers verstärkt." Ibid., 116.

The particular nature of Stein's mechanical solution is less important for this discussion than his inspiration for his invention, how he wrote about it, and what he intended it to afford to his users. Stein wanted his readers to understand that one could create *crescendo* and *vibrato* by modulating the air flowing through the *Melodica*, in the same way that a flautist or a singer modulated the breath. Inspired by Bach and by a musical culture patterned on the model of playing and listening that Bach described, Stein had set out to create a keyboard instrument that could, quite literally, sing. It was this goal that led him to reject a series of sounding materials and existing technologies, and resulted in the specific new technology for modulating pitch and dynamics at the keyboard that he developed for the *Melodica*.

Use

As in the case of the *Poly-Tono-Clavichordium*—an instrument that produced a organ-like multitude of sounds with strings, as opposed to pipes—the name of the *Melodica* communicated the invention's most relevant new feature. The *Melodica*, Stein says, was a keyboard instrument that was engineered specifically for playing single lines of music:

My performer is not concerned with a hand full of notes, but rather with the formation of simple melodies—and in truth, this formation will occupy his thoughts completely.¹³⁹

By designing the *Melodica* in a way that discouraged polyphonic or homophonic playing¹⁴⁰, Stein decoupled the form of the keyboard from its most characteristic function, the ability to sound more than one note at once. The move allied his instrument even more firmly with singing instruments like the violin and the flute. The *Melodica* was a keyboard instrument, but not a harmony instrument, and its name conveyed that fundamental intention.

To “play polyphonically” on the *Melodica*, Stein acknowledges, is not “impossible.” Contrapuntal and chordal textures were, nevertheless, “contrary to [the *Melodica*'s] purpose,” and indeed, its very nature. Stein warns that using the *Melodica* for multi-voiced music would “reduce this *Affekt-Instrument* to an organ again”—that is, cause it to revert from a singing voice back to a keyboard instrument, literally making it something it was

¹³⁹“Mein Spieler hat hier nicht mit einer Hand voll Tönen, sonder mit der Bildung einer einfachen Melodie zu thun; und in Wahrheit, diese Bildung wird sein ganzes Nachdenken beschäftigen.” Ibid., 111.

¹⁴⁰Stein uses the words “vollstimmig” and “vielstimmig” apparently interchangeably. He specifically mentions fugal textures as unsuitable for the *Melodica*, but the same would seem to apply to chordal textures as well.

not. Polyphony, he notes, “demands notes with fixed pitches”; but one of the *Melodica*'s defining features was that, “like the natural flute” (and unlike the organ), it had “notes with variable pitch.” Thus, playing polyphonically on the *Melodica* implied a deliberate rejection of the essence of the invention. Finally, Stein argues that “our whole attention. . . does not suffice for more than the formation of a single melody anyway.” It was impossible, he believed, to play more than one line of music at once in a way that “claims the attention” of the listener. It was, therefore, also impossible that a keyboardist playing polyphony on the *Melodica* could be using the instrument as an “*Affekt*-Instrument,” to “play upon the heart.”¹⁴¹

The *Melodica* would not usually have been played alone, but rather as a solo voice accompanied by other instruments. Stein chose the *Melodica*'s high compass ($g-c^4$; a typical four-octave organ compass was $C-c^3$) “in order to include all violin and flute concertos.”¹⁴² Like the flute, the *Melodica* could also be tuned slightly higher or lower than its natural Chorton pitch, to facilitate ensemble tuning—as Stein says, “raised or lowered a quarter-tone above or below that by means of a screw, and in this way may be tuned to all instruments, as when the flute is pulled out.”¹⁴³ Furthermore, Stein made provision in the design of his instrument for it to be accompanied by a keyboardist who would always be conveniently at hand—the *Melodica* player herself:

In order that one can also accompany oneself while playing it, however, I have given the instrument the shape of a small harpsichord. . . and constructed it to be placed on top of another

¹⁴¹“Es ist aber darum nicht unmöglich, auf diesem Werke vollstimmig zu spielen, sondern ich behaupte nur, daß man es aus verschiedenen Ursachen wider seinen Zweck brauchen würde, wenn man vollstimmig darauf spielen wollte.

1) Würde man dieses Affekteninstrument wieder zur Orgel herunter setzen, und dazu ist es nicht gemacht.

2) Erfordert das vielstimmige Spielen bestimmte Töne, dieses Werk aber hat, wie die natürliche Flöte, unbestimmte Töne. Und der vortreffliche Quanz hat schon in seinem Flötenwerke gesagt: „zwo Flöten stimmen selten, und drey gar nicht zusammen.“

3) Weil unsere ganze Aufmerksamkeit, wie ich oben gesagt, ohnehin nicht weiter als auf die Bildung einer einzigen Melodie hinreicht. Ich habe diesen Umstand an großen Clavierspielern wahrgenommen, besonders beym Fugen, wo verschiedene Themata über einander weglafen, wo sich das eine, welches die Aufmerksamkeit begleitet, gegen daß andere, welches matt und verlassen erscheinet, sehr ausgezeichnet.” *Ibid.*, 112.

¹⁴²“Der Ambitus bestehet in $3 \frac{1}{2}$ Octaven, von dem untersten g der Violine anfangend bis in das 4te gestrichene c um so wohl alle Violin- als Flötenconcerte einzuschließen.” *Ibid.*, 113.

¹⁴³“Im Ganzen hat es den wahren Chorton, läßt sich aber vermittelst einer Schraube einen viertel Ton darüber oder darunter erhöhten oder erniedrigen, und so wie bey dem ausziehen der Flöte zu allen Instrumenten stimmen.” *Ibid.*, 114.

instrument, by which means the entire music is very much elevated.¹⁴⁴

Finally, Stein suggests, the *Melodica* could be incorporated into a church organ as a solo stop on a separate manual, and accompanied with other stops on a second manual:

One would have to arrange a special keyboard for it, and accompany its simple melodies on the other keyboard.¹⁴⁵

In addition to pointing out specific repertoire and ensemble scenarios for the *Melodica*, Stein claims a broader usefulness for his “*Affekten-Instrument*” that has to do with its ability to imitate the affective qualities of the human voice. A church organist with a *Melodica*, he avows, would be able to “perform miracles, and attract... the attention of the entire congregation.”¹⁴⁶ As he has done previously, Stein here invokes the idea of the attentive audience, of listeners who are receptive and discerning. Like Bach’s *empfindlich* listeners, the members of Stein’s attentive congregation are susceptible of being moved by the proper stimulus. The *Melodica* works through that faculty of attention to move the congregation, in precisely the same way that a voice might do. In fact, Stein actually continues this passage by identifying the *Melodica* as a voice, in so many words:

It seems, in fact, that we have only now lived to see the time when the so-called *vox humana* in the organ is no longer a satire.¹⁴⁷

In his autobiography, C. F. D. Schubart describes being deeply moved by a performance of vocal music with organ accompaniment in the Augsburg cathedral in 1774, two years after the *Melodica* article, and two years before Stein would apply to build a *Melodica* division for a monastery organ in Neresheim. Stein had taken Schubart to the church in Augsburg, promising, “Soon you will hear something that will please you!” Schubart recalls:

¹⁴⁴“Damit man sich aber auch selbst accompnieren könne, so habe ich dem Werke die Gestalt eines kleinen Flügels von $3\frac{1}{2}$ Schuh lang gegeben, und es zu Aufsetzen bey einem andern Instrumente gerichtet, wodurch die ganze Musik sehr erhoben wird.” Ibid., 112-13.

¹⁴⁵“Man müßte ihnen ein besonderes Clavier zuordnen, und seine einfachen Melodien auf dem andern Claviere accompnieren.” Ibid., 115.

¹⁴⁶“Es ist wahr, man würde Wunder thun und sich die Aufmerksamkeit der ganzen Versammlung zuziehen.” Ibid.

¹⁴⁷“Es scheinet in der That, daß wir erst jetzo den Zeitpunkt erlebt haben, in welchem die sogenannte *vox humana* in der Orgel keine Satyre mehr ist.” Ibid.

On Good Friday Stein fetched me and went with me to the cathedral. There the priests sang, with some of the choirboys, the sublime Miserere by **Allegri** and a hymn only accompanied by a Rückpositiv—so splendidly, so transported into the unity of one divine sentiment, with such full, four-voiced strength, and with notes so weighed upon the scale of the heart, that I forgot about opera and chamber styles, all flourishes, runs, appoggiaturas, cadences, and all the Asiatic decoration of the newest music. It is still resonating in my soul, so powerfully did it penetrate.¹⁴⁸

Schubart's rhetoric underscores the moving power of vocal music with a metaphor of being transported, "verflökt": literally, carried away, on a river of sound, towards and into a "Himmelsempfindung," a "divine sentiment." Bach had written in the *Versuch* that the embellishments and ornaments that were the keyboardist's "means. . . for sustain" should be played "in such a way that one believes that one hears only single notes."¹⁴⁹ Similarly, Schubart gladly eschews "flourishes, runs [and] appoggiaturas" in favor of the unembellished sound of the voice. His response to this unadorned vocal sound is the kind of response that Stein imagined a *Melodica*, perhaps installed in a church organ, could elicit in an attentive listener. The *Melodica*, in short, was meant to be used to move people. Indeed, it is not impossible that Stein's desire to invent a true *vox humana* arose out of precisely such moving musical experiences.

Stein concludes his discussion of how the *Melodica* may be used as a voice with an allusion to the broader aesthetic issues that are at stake, contrasting the "satires" of the voice that have been made by other builders with his own efforts to create a real, "natural" voice:

The Messrs. Organ- and Instrumentmaker have hitherto been so generous with the word **natural**, when they brought their

¹⁴⁸“Das ist herrlich, sagte Stein; ‘Du sollst doch nächstens was hören, das Dir gefallen soll!’ Am Charfreitag holte mich Stein ab, und gieng mit mir ins Dom. Die Priester mit einigen Chorknaben sangen da das erhabene Miserere von **Allegri** und einen Psalm nur mit einem Rückpositive begleitet, so trefflich, so in die Einheit Einer Himmelsempfindung verflökt, so in der vollen vierstimmigen Kraft und mit so auf der Herzenswage abgewogenen Tönen, daß ich Opern- und Kammerstil, alle Schnörkel, Läufe, Vorschläge, Kadenzen, und all den asiatischen Schmuck der neuesten Tonkunst darüber vergaß. Noch hallt es in meiner Seele nach, so mächtig drang es ein.” Schubart: *Leben und Gesinnungen* 2:27-28.

¹⁴⁹“... zudem so sind unsere meisten Hilfsmittel zum Aushalten, z. E. die Triller und Mordenten, bey der Stimme und andern Instrumenten so gut gewöhnlich als bey dem unsrigen. Es müssen aber alle diese Manieren rund und dergestalt vorgetragen werden, daß man glauben sollte, man höre bloss simple Noten.” *Versuch* 1, “Vom Vortrage,” par. 7, 121.

skill in manufacturing a natural human voice to the attention of the world in public notices, or advertised a natural traverse flute. I assure you that a shudder always comes over me at the word **natural** when I hear it used on such occasions. It has now occupied me for 15 years, and I have now come far enough that I realize how much further I have to go.¹⁵⁰

As Paul von Stetten would write in 1777, the objective of imitating nature was understood as the defining characteristic of the group of the fine arts. By invoking “nature” and “the natural,” therefore, Stein suggests a grander utility, a sort of meta-function, for the *Melodica*. The *Melodica* is more than a musical instrument, and more even than an “*Affekt*-Instrument” designed to move the sentiments: it is not just a voice, but a “natural” voice. In describing his work as a quest for the “natural,” Stein makes a claim for his invention as a specifically aesthetic technology. If the *Melodica*’s immediate function was to move the sentiments, its ultimate function was to mediate the practice of music as a fine art.

Stein’s intimation of an “art function” for the *Melodica* in this passage is reinforced by another closing remark, this time about the effect of the instrument on listeners. Attempting to describe the way the instrument sounds, he writes:

The effect is certainly extraordinarily new, foreign and completely unexpected. If you just imagine, for example, hearing a violin concerto from an organist, with all its emphases, appoggiaturas, slurs, vibratos—in short, with light and shadow—then you hear something like this *Melodica*.¹⁵¹

Comparing music to the visual arts using the metaphor of light and shadow was a popular way to describe the sound of music from the middle of the century onwards. Bach comments in the *Versuch* that, “not incorrectly,” it

¹⁵⁰“Die Herrn Orgel- und Instrumentenmacher sind bis hierher so freygebig mit dem Worte **natürlich** gewesen, wann sie der Welt in öffentlichen Nachrichten ihre Geschicklichkeit in Verfertigung einer natürlichen Menschenstimme bekannt gemacht, oder eine natürliche Flöte Travers angekündigt haben. Ich versichere Sie, daß mich bey dem Worte **natürlich** allemal ein Schauer überfällt, wenn ich es von ihnen bey solchen Gelegenheiten höre. Es hat mich nun 15 Jahre beschäftigt, und nun bin ich so weit gekommen, daß ich einsehe, wie weit ich noch dazu habe.” Stein, “Beschreibung eines neuererfundene Clavierinstrumentes,” 115-16.

¹⁵¹“Der Effekt ist in der That außerordentlich neu, fremd und völlig unerwartet. Man stelle sich z. B. nur ein Violinconcert, mit allen seinen Druckern, Schleifern, Bindungen, Bebungen, kurz mit Schatten und Licht von einem Organisten zu hören vor, so hört man ungefähr diese *Melodica*.” *Ibid.*, 11415.

was common to describe *crescendo* and *decrescendo* “in a painterly way, as shadow and light,” which, he remarks, produced a “special effect.”¹⁵²

The comparison relied upon (and helped to construct) the emerging contemporary consensus around a group of fundamentally similar, so-called fine arts. Although Stein’s comments about nature and light and shadow are little more than glancing allusions, therefore, taken together their import is clear. In the scenario Stein envisages, the player of a *Melodica* engages in an activity that is fundamentally the same as painting or another of the fine arts. The behavior of the listening audience, meanwhile, is fundamentally the same as that of viewing a painting. The *Melodica*, in other words, was a technology that made it possible to practice music as a fine art.

Contemporary Reception

Did Stein’s contemporaries make the associations that Stein intended? How was the *Melodica*, in fact, used, and what did people have to say about it? This section discusses the reception of the *Melodica* in the years following its invention, using texts by C. F. D. Schubart, who appears to have had firsthand experience of the new instrument. Schubart’s descriptions of the *Melodica*, in particular his use of the rhetoric of light and shadow, demonstrate that contemporary observers could indeed perceive the larger issues that Stein felt were at stake with his new invention, and that the instrument could serve as a locus for an ongoing discussion of these issues.

Reception in the Press

The *Melodica* received more attention in the contemporary press than any of Stein’s other instruments, remaining before the public eye for several decades after its invention. Stein’s own article appeared in two versions, both published in 1772. In the same year, Paul von Stetten listed the *Melodica*, along with an instrument that was probably the *Poly-Tono-Clavichordium*, in the *Merkwürdigkeiten*, his first handbook for travelers to Augsburg. There, Stetten includes Stein’s shop in a list of local “workshops and factories”:

Mr. J. A. **Stein**, organ builder, makes organs, harpsichords, clavichords, the *Melodica* of his own invention, among other

¹⁵²“Wegen Mangel des langen Tonhaltens und des vollkommenen Ab- und Zunehmen des Tones, welches man nicht unrecht durch Schatten und Licht mahlerisch ausdrückt. . . .”; “. . . die besondere Würckung des Schatten und Lichts. . .”. *Versuch* 1, “Vom Vortrage,” par. 7, 121, and par. 29, 131.

things. At present one may also see there a harpsichord [*Clavicembel*] of special composition and effect. . . ¹⁵³

A few years later, in 1776, Schubart reported twice on continuing efforts by Stein to improve the *Melodica* in his political periodical, the *Deutsche Chronik*, which he published between 1774 and 1777. The earlier numbers are particularly rich in cultural news from Augsburg; even after Schubart had left the city, however, he maintained correspondence with Augsburg contacts. The news he published of the *Melodica*, for instance, was provided by Stein himself. Writing on “German Invention,” on February 1, 1776, Schubart assures his readers that “the German inventive spirit has not yet evaporated,” and points out that

Neither is **Stein’s** inventive mind at rest; for he is still brooding on the great invention of his Melodika, in order to bring to it the greatest possible degree of perfection. ¹⁵⁴

On April 8 of the same year, he published the following item of “Musical News”:

My friend Stein gives to the public through me the following explanation regarding his *Melodica*:

The first instrument of this kind, which astounded all of the *Kenner* in Paris, Stein calls only an attempt. . . Only have patience! Soon Stein will step forward with his perfected invention. . . ¹⁵⁵

¹⁵³“Hr. J. A. Stein, Orgelmacher, verfertiget Orgeln, Clavicembel, Claviere, die von ihm erfundene Melodica u.a. Man sieht auch dormalen bey ihme ein Clavicembel von besonderer Zusammensetzung und Wirkung. . .” Paul von Stetten, *Die vornehmsten Merkwürdigkeiten, der Reichs-Stadt Augsburg* (Augsburg: Conrad Heinrich Stage, 1772), 25, http://www.bibliothek.uni-augsburg.de/de/dda/urn/urn_uba000200-uba000399/uba000211/index.html. The entry appears under the heading “Werkhäuser und Fabriken.”

¹⁵⁴“Das der teutsche Erfindungsgeist noch nicht verdustet ist”; “Steins erfindrischer Kopf ruht auch nicht; denn der brüet noch immer über der großen Erfindung seiner Melodika, um ihr den höchstmöglichsten Grad der Vollkommenheit zu geben.” “Von teutscher Erfindung,” *Deutsche Chronik* (Ulm), February 1, 1776, 74. Facsimile edition (Heidelberg: Lambert Schneider, 1975).

¹⁵⁵“Mein Freund Stein giebt durch mich dem Publikum folgende Erklärung wegen seiner Melodika: Das erste Instrument dieser Art, das alle Kenner in Paris in Erstaunen setzte, nennt Stein bloß einen Versuch. . . Nur Gedult! Bald wird Stein mit seiner vollendeten Erfindung hervortreten. . .” “Musikalische Nachricht,” *Deutsche Chronik* (Ulm), April 8, 1776, 232. Facsimile edition (Heidelberg: Lambert Schneider, 1975).

After 1776, news reports about the *Melodica* gave way to accounts that demonstrate its reception, and the instrument found its way from the daily press into more substantial, more permanent publications. The *Melodica* turned out to be, as Stetten's 1772 report had suggested, an object that captured the attention of people interested in music and the fine arts. It also came to serve as evidence of Stein's creativity and success as a musical instrument builder, and it was always mentioned in the retrospective, biographical reports summarizing Stein's life and work that began to appear more frequently in the last quarter of the century.

The first of these was, of course, the short biography of Stein that Paul von Stetten included in the first part of the *Kunst-Geschichte* in 1777. Stetten echoes Schubart's (or perhaps rather Stein's) allusion to approving Parisian connoisseurs, reporting that Stein traveled with the *Melodica* to that city, played it in the Dauphine's chamber, and found a buyer for it there.

In 1781, Johann Nicolaus Forkel's music magazine, *Musikalischer Almanach für Deutschland*, included a short entry on Stein in which an "organ register" is mentioned that was probably the *Melodica*:

Stein (Johann Andreas) Organ- and Instrument-maker in Augsburg. . . As well as having built organs that are excellent and worth seeing, he also makes unusually beautiful harpsichords, pianofortes, clavichords and other musical instruments. He has also invented a new organ register, the manufacture of which, however, he still keeps secret.¹⁵⁶

Stein's suggestion that the *Melodica* could be installed in a regular church organ is consistent with the description of a "new organ register." Stein's article about his *Melodica*, moreover, reveals so few details about the mechanism that allowed the instrument to change the pitch and dynamics of individual notes that its manufacture might well be described as "secret." The details in this entry then, could have been derived from Stein's article—although it is also possible that the writer for the *Almanach* had actually seen the *Melodica* and spoken about it with Stein.

¹⁵⁶“Stein (Johann Andreas) Orgel- und Instrumentmacher zu Augsburg. . . Ausser daß er vortrefliche und sehenswürdige Orgeln gebaut hat, verfertigt er auch ungemene schöne Flügel, Pianoforte, Claviere und andere musikalische Instrumente. Er hat auch ein neues Orgelregister erfunden, dessen Verfertigung er aber noch geheim hält.” *Musikalischer Almanach für Deutschland auf das Jahr 1782* (Leipzig: im Schwickertschen Verlag, 1781), 201.

The critic Friedrich Nicolai, for example, certainly visited Augsburg in 1781 with the intention of seeing the *Melodica*, as he records in a travel diary which was published in 1787. Nicolai noted:

Augsburg has [a] musical-mechanical artist who is a great credit to the city: namely, the organ builder Mr. J. A. Stein... This artist has invented a pipe instrument which he named *Melodica*, and which is described in the *Bibliothek der schönen Wissenschaften*, vol. 15, p. 106. When I was there, however, it was not in good condition and therefore I could not hear it.¹⁵⁷

Schubart returned to the *Melodica* in his *Ideen zu einer Aesthetik der Tonkunst*, written in 1784-85 (published posthumously). In the *Ideen*, Schubart included reviews of musical life in a number of German regions and cities, including Augsburg. In the Augsburg section, he mentions Stein among the city's prominent musical figures (Seyfert is another); among other accomplishments, Schubart writes, Stein is "the inventor of that divine instrument, the Melodika."¹⁵⁸

Schubart also mentions the *Melodica* in his *Leben und Gesinnungen*, where he portrays it as perhaps the greatest achievement of his old friend:

One of my closest friends [in Augsburg] was Stein, whose organs, harpsichords, fortepianos, clavichords and especially the great invention of the Melodika long ago obtained for him a respected rank among German inventors and improvers of musical works of art.¹⁵⁹

After the *Leben und Gesinnungen*, I know of no more published reports that qualify as first-hand accounts. Instead, entries on the *Melodica* began to appear in compendia of music and technology from the latter part of

¹⁵⁷"Augsburg hat aber einen andern musikalisch-mechanischen Künstler; welcher dieser Stadt sehr viel Ehre macht: nemlich den Orgelbauer Hrn. J. A. Stein... Dieser Künstler hat ein Pfeifeninstrument erfunden, welchem er den Namen Melodica gab, und welches in der Bibliothek der schönen Wissenschaften XV. Band S. 106 beschrieben ist. Es war aber, als ich dort war, nicht im Stande daher ich es nicht hören konnte." *Beschreibung einer Reise durch Deutschland und die Schweiz im Jahre 1781: Nebst Bemerkungen über Gelehrsamkeit, Industrie, Religion und Sitten*, vol. 8 (Berlin, 1787), 39-40, http://books.google.se/books?id=MlUAAAAQAAJ&source=gbs_navlinks_s.

¹⁵⁸"Stein ist auch der Erfinder des göttlichen Instruments Meldika." Schubart, *Ideen*, 1:222-223.

¹⁵⁹"Einer meiner wärmsten Freunde war Stein, dessen Orgeln, Flügel, Fortepiano's, Klaviere und sonderlich die grose Erfindung der Melodika ihm längst einen angesehenen Rang unter den deutschen Erfindern und Verbesserern musikalischer Kunstwerke erworben haben." *Leben und Gesinnungen* 2:23-24.

the eighteenth century and on into the nineteenth century. Typically, these drew on the original published description by Stein and the 1777 report by Stetten. An entry for the *Melodica* in Heinrich Christoph Koch's 1802 music dictionary, for example, uses the *Neue Bibliothek* article, as do most others. More unusually, the *Melodica* entry in Krünitz's encyclopedia is taken from the version of Stein's article published in Augsburg.

The *Melodica* persisted in the published record because it was unusual, and probably even more so because the article published in the *Neue Bibliothek* made a strong claim for the extra-musical significance of the instrument that reached a broad circle of readers. In contrast to his other inventions, moreover, Stein's article clearly indicates that he did desire to produce the *Melodica* on a larger scale. Nevertheless, there is no evidence that the instrument itself actually found a wide audience, or indeed that Stein ever made more than a few prototypes. For this reason, Schubart's several descriptions of the *Melodica* are particularly significant, since they are the only published accounts of the sound and effect of the instrument by a musician who had actually seen and played it.

Schubart and the Melodica

Schubart lived in Augsburg for several months during 1774. In addition to befriending Stein and other prominent local persons, during this time Schubart must have become acquainted with Stein's *Melodica*. None of the language in the several reports that Schubart subsequently published about the *Melodica* comes either from Stein's published description or from Stetten's books. Instead, his reports are independent accounts that reflect his own impressions of the instrument, his own thoughts about what it could do, and perhaps also his conversations with Stein about it. Himself a musician, Schubart was precisely the kind of listener Stein imagined for the *Melodica*. As his writing demonstrates, he was alive to the power of rhetoric and relished the experience of being emotionally transported. He was also keenly interested in the question of the fine arts—their nature, their utility, the glory they could bring to the German people—and sympathetic to the project that had been undertaken by Stetten and others to support and promote the arts in Augsburg.

In 1774, Schubart published an article in the *Deutsche Chronik* lamenting the state of the fine arts in Germany, which, he believed, “still do not really progress!” In his analysis, the German people lacked neither “genius” or “industry”; they did, however, lack “encouragement,” both social and financial.¹⁶⁰ “Poverty and despisement,” Schubart suggests, “smother the flame

¹⁶⁰“Daß doch die schönen Künste in Deutschland nicht recht fortwollen! Ists Man-

of genius. The arts are children of abundance, and not of poverty.” The argument calls to mind the preface to the anonymously authored *Poly-Tono-Clavichordium* article of 1769, which argued that the advancement of the arts required “admirers, *Liebhaber*, and high benefactors.”¹⁶¹ Certainly, the position Schubart expresses is contiguous with Stetten’s and Merten’s efforts in Augsburg to advance the arts by establishing new political structures and social institutions; the article indicates, in other words, a continuity of conversation on subjects of common concern.

In the same article, Schubart also catalogues, as Stetten would do five years later, some of the city’s most outstanding artists: artists whom, he reminds the reader, “we still possess, in spite of all these obstacles.” In Augsburg, Schubart found a “great master in every branch of the fine arts”:

... a **Brander**, whose inventive genius one will never tire of admiring, and whom we rightly count among the **nobles** in the republic of the learned: a **Stein**, who has removed from the organ and the clavichord most of their imperfections; a **Degle**, who crowds up upon the **Desmarets** and **Grafs** in portraiture; a **Nilson** and **Haid**, who make invention, drawing, expression and tenderness in their works both precious and loveable.

And, as Stetten had done in the 1772 *Merkwürdigkeiten*, Schubart numbers these artists among the Augsburg’s foremost attractions: “No prince, no foreigner,” he claims, “who travels with any purpose comes to Augspurg without admiring these our ornaments.”¹⁶²

gel an Genie? An Fleiß? An Ermunterung?—An Genie hats den Deutschen nie gefehlt; unermüdeter Fleiß ist ihr Nationalcharakter; also muß es an Ermunterung und Belohnung fehlen... gewiß ists, daß Armuth und Verachtung die Flamme des Genies erstickt. Die Künste sind Kinder des Ueberflusses und nicht des Mangels.” “Von den bildenden Künste,” *Zweyte Beylage zur Deutschen Chronik* (Ulm), September, 1774, 17. Facsimile edition (Heidelberg: Lambert Schneider, 1975).

¹⁶¹“... so nehmen auch die Künsten zu, und kommen in Aufnahme, wo sie Verehrer, Liebhabere und hohe Gönner finden...” *Augsburgischer Intelligenz-Zettel*, “Von Erfindung eines Poly-Toni-Clavichordii.”

¹⁶²“Lieber will ich sagen, was wir all diesen Hindernissen zum Trotz noch besitzen. Ich will anfangen, wo ich lebe — nemlich bey **Augsburg**, das von ieder große Meister in allen Gattungen der schönen Künste aufzuweisen hatte. Ist gleich der jetzige Periode nicht mehr so blühend; so hat doch Augspurg noch einen **Brander**, dessen erfindrisches Genie man nie müde wird zu bewundern, und den wir mit Recht den **Edlen** in der Gelehrtenrepublik bezeichnen: einen **Stein**, der der Orgel und dem Klavikorde ihre meisten Unvollkommenheiten abrang; einen **Degle**, der im Portraitmalen sich dicht an die **Desmarets** und **Grafe** drängt; einen **Nilson** und **Haid**, die Erfindung, Zeichnung, Ausdruck und Anmuth in ihren Arbeiten gleich schätzbar und liebenswürdig macht. Kein Fürst, kein Ausländer, der zweckmäßig reist, kommt nach Augspurg, ohne diese unsre

As other Augsburg authors, too, had done, Schubart connects art to improvement. To Schubart, Stein qualified as a “master” of his art because he had “removed from the organ and the clavichord most of their imperfections.” Unlike—for example—Paul von Stetten, however, Schubart identifies Stein not just as an artist, but as a fine artist. Although Stetten does allude to an affinity between the fine arts and certain “refined” mechanical arts, he never calls Stein a fine artist. Schubart, in contrast, puts Stein in a group with visual artists: painters and copper engravers. The categorization implies that he thought Stein’s work was essentially similar to those professions, not just in the way it was executed, but in its very nature. It also implies that he considered Stein’s instruments, or at least his most important improvements, to be works of the fine arts, whose function, just like that of a portrait, was to provide an aesthetic experience.

In fact, Schubart’s several subsequent descriptions of the *Melodica* confirm that he thought about the instrument in precisely such a way. His first mention of the *Melodica* in the *Deutsche Chronik*, two years later in February 1776, follows neatly from his earlier presentation of Stein as an improver. Here, in the article on German inventions, he adduces Stein’s *Melodica*, along with several other musical instruments, to a list of inventions to serve as evidence of German ingenuity:

My heart laughs inside me when I consider everything that we Germans have already invented. . . Ha, majestic organ, you are our creation, and you too, sweetly cooing clarinet! We gave light and shade to the great harpsichord, and transformed it into the fortepiano; we enticed divine sounds out of glass, and raised the Melodika to the level of the human voice.¹⁶³

Here, Schubart’s language indicates that he had understood what Stein most wanted to communicate about the *Melodica*: that the instrument was designed to function as a voice. He suggests, too, that this property elevated

Zierden zu bewundern.” Schubart, “Von den bildenden Künste,” 18-19. Franz Joseph Degle (1724-1812) was a painter and portraitist who painted members of the Mozart family. Johann Esaias Nilson had made the engraving of Stein’s Barfüßer organ as well as the illustrations for Leopold Mozart’s *Violinschule* and some of the illustrations for Stetten’s *Ständebuch*. Johann Elias Haid (1739-1809) was a painter and engraver who specialized in mezzotint; his father, Johann Jacob Haid, also an engraver, had founded a publishing house where, for example, Stetten’s *Ständebuch* appeared.

¹⁶³“S Herz im Leib lacht mir, wenn ich so dran denke, was wir Teutsche alles schon erfunden haben. . . Ha, Maiestätische Orgel, du bist unser Geschöpf, und auch du, zärtlich girrendes Klarinet! Wir haben dem hohen Flügel Mittelintinten gegeben, und ihm zum Fortepiano umgeschaffen; wir haben Göttertöne aus’m Glase gelockt, und die Melodika bis zur Menschenstimme erhoben.” Schubart, “Von teutscher Erfindung,” 73-74.

it above other keyboard instruments, or perhaps even out of their realm altogether, as Stein had intimated in the original description.

The report on the *Melodica* that Schubart published two months later, in April 1776, was more substantial. It revealed no additional information about how the instrument worked. Instead, it described the potential users of the *Melodica*, and the effects they would be able to produce with it. Schubart writes:

[Stein] has listened to [*abgehört*] all the deficiencies in his *Melodica* and built an entirely new system that has so much simplicity and greatness that under the hands of a feeling player astounding effects must be produced. Only have patience! Soon Stein will step forward with his perfected invention, and place at the disposal of the player who has genius a work that has none of the so-insurmountable stubbornness of our harpsichords, fortepianos and organs, but to which, in the holy moment of inspiration, he can impart his spirit and his heart. Here deep shadow and sunlight are not juxtaposed, as with the fortepiano; rather, here all of the finest levels of color, whole, half, and middle tints, are provided. What may a player not now achieve, if only his head and heart are in the right place!¹⁶⁴

Schubart introduces this item of news by informing his readers that he is relaying a correspondence from Stein himself. Indeed, the skeleton of the article consists of information that Schubart surely would have learned from Stein: that Stein had listened to the first *Melodica* and detected shortcomings in it; that he had therefore continued to develop it; that he had devised an “entirely new system” of great “simplicity”; and that he planned to present his new instrument “soon.” The colorful rhetoric that fleshes out the report, however, must have been largely or wholly applied by Schubart. A phrase such as “the holy moment of inspiration” (“die heilige Geniestunde”), for example, is utterly characteristic of his style, and not at all of Stein’s.

¹⁶⁴“Er hat seiner Melodika alle Mängel abgehört, sich jezt ein ganz neues System gebildet, das so viel Einfachheit und Großheit hat, wodurch under den Händen eines gefühlvollen Spielers erstaunende Wirkungen hervorgebracht werden müssen. Nur Gedult! Bald wird Stein mit seiner vollendeten Erfindung hervortreten, und dem Spieler, der Genie hat, ein Werk hinstellen, das keine so unüberwindliche Hartnäckigkeit hat, wie unsere Flügel, Fortepiano’s und Orgeln, sondern dem er in der heiligen Geniestunde seinen Geist und sein Herz mittheilen kann. Hier ist nicht, wie bey dem Fortepiano, tiefer Schlagschatten und Sonnenlicht dicht bey einander, sondern hier sind alle auch die feinsten Farbenabstufungen, ganze, half und Mittelintinten angebracht.—Was kan nun der Spieler ausrichten, wenn er Kopf und Herz aufm rechten Fleck sitzen hat!” Schubart, “Musikalische Nachricht,” 232.

The notice, therefore, delivers not only Stein's news about his *Melodica*, but also Schubart's commentary on that news, and on the *Melodica* itself.

A good example of how Schubart's careful choice of words adds meaning to the narrative skeleton provided by Stein is the use of the verb *abhorchen* near the head of the passage. *Abhorchen* means "to listen," but in an active, even investigative way. An English cognate is "hearken," and one of the modern meanings of the German word is to auscultate—that is, to listen with a stethoscope.¹⁶⁵ In 1782, Krünitz's encyclopedia defined the root word, *horchen*, as "to seek to sense [*empfinden*] something with the hearing, by exerting all of the auditory nerves."¹⁶⁶ Schubart's choice of *abhorchen*, then, depicts Stein engaged in a particular kind of listening behavior, one that involved not just hearing, but making oneself sensible of a physical stimulus, via the nervous system, by bringing to bear a deliberate effort of the attention. The word situates the *Melodica* in the model which Stein and Bach had used, but shows a development of thought as well, from a listener whose attention may be engaged by sound, to a listener whose attention is actively directed.¹⁶⁷ Explicitly, the word *abhorchen* describes the way Stein is listening: in Schubart's scenario, Stein becomes the attentive, *empfindsam* audience for his own instrument, and this behavior allows him to sense the ways in which it may be improved. Implicitly, *abhorchen* also describes the kind of thing he is listening too: it constructs the *Melodica* as an instrument that produced not just any kind of sound, but a sound that could work upon the senses.

Near the close of the passage, Schubart comments more explicitly on the *Melodica*'s function when he likens the sound of the instrument to a picture executed in all the "finest levels of color." As I have noted, describing musical sound in terms of light and shadow or of shades of color was a common trope in music writing of the period, and one which Schubart frequently employs. The comparison, always an admiring one, drew upon an assumed similarity between music and the visual arts: a contemporary consensus that the fine

¹⁶⁵ Auscultation came into use as a technique of medical diagnosis at around the turn of the nineteenth century. It is pleasant to imagine Stein bent over the *Melodica*, diagnosing it as a physician would a patient (an image that only strengthens the likeness Stein had established between the *Melodica* and the voice-producing human body), but that meaning of the word *abhorchen* was probably not yet available to Schubart.

¹⁶⁶ "... mit Anstrengung aller Gehörnerven etwas durch das Gehör empfinden suchen." Krünitz, *Oeconomische Encyclopädie*, s.v. "Horchen" (1782).

¹⁶⁷ As a matter of fact, Jonathan Sterne has linked the early use of auscultation in medicine at the beginning of the nineteenth century, specifically, to a shift in conceptualizing hearing as an active behavior rather than a receptive one. *The Audible Past: Cultural Origins of Sound Reproduction* (Durham and London: Duke University Press, 2003), 100. Stein, in the *Melodica*, still seems to conceive of attention as a receptive quality, when he writes, for example, that sounds can "make us attentive."

arts worked in comparable ways, on artist and audience alike.¹⁶⁸ Schubart's use of the trope in his description of Ignaz von Beecke's compositional style, cited above, is one example. There, he praises Beecke for "painting the sentiments" in his keyboard music, and for the "lovely mixture of colors" in his compositions for other instruments. Similarly, in a 1774 review in the *Deutsche Chronik* of a concert in Augsburg by the horn player Michael Woeggel, Schubart writes that Woeggel's lips could "lay down their colors like a painter."¹⁶⁹

As these passages demonstrate, writers often spoke about musical light and shadow and musical colors in the same breath, and the metaphors were partially interchangeable. For Schubart and his contemporaries, light and shadow in music nearly always referred to dynamic contrast.¹⁷⁰ The notion of musical colors sometimes referred to dynamics, but it could also refer to other kinds of variation in sound.¹⁷¹ In Schubart's description of Beecke's highly colored instrumental compositions, for instance, he writes

¹⁶⁸Charles Avison's *Essay on Musical Expression*, first published in 1752, had famously likened music to painting in an extended conceit that influenced German writers, including Schubart, throughout the second half of the eighteenth century (a German translation appeared in 1778-9). Avison posited that the sound of music and the appearance of a painting worked upon the emotions of listener and viewer in the same way—noting, for example, that "A full chord struck, or a beautiful succession of single sounds produced, is no less ravishing to the ear, than just symmetry or exquisite colors to the eye." Charles Avison, *An Essay on Musical Expression*, 3rd ed. (London: Lockyer Davis, 1775): 2. Also in 1752, Johann Joachim Quantz used the metaphor of light and shadow at length in his *Versuch einer Anweisung die Flöte Traversiere zu spielen*, a flute treatise that was in many ways a counterpart to Bach's *Versuch*, and which Stein also cites briefly in his *Melodica* article. Quantz instructs his readers that, for instance, in a good performance (*Vortrag*), "light and shadow must be constantly maintained. Someone who always produces notes of the same strength or weakness, and, as people say, always plays in the same color; someone who does not know how to raise or moderate the note—that person will never move anyone very much": *Versuch einer Anweisung die Flöte Traversiere zu Spielen* (Kassel and Basel: Bärenreiter, 1953), 100. Richards, *The Free Fantasia*, 89-92, provides a review of Avison's influence in Germany and the persistence of the light and shadow metaphor in music writing during the mid-to-late eighteenth century.

¹⁶⁹"... das Andante zumalen, wo die Lippen Zeit hatten, die Thöne zu suchen, und wie der Mahler seine Farben aufzulegen, hat er mit ausnehmender Süßigkeit vorgetragen." "Letztern Mittwoch den 20sten...", *Deutsche Chronik* (Ulm), April 25, 1774, 64. Facsimile edition (Heidelberg: Lambert Schneider, 1975).

¹⁷⁰This was a departure from Avison, who had actually compared light and shadow to consonance and dissonance: "As the proper mixture of light and shade (called by the *Italians Chiaro-Oscuro*) has a noble effect in painting and is, indeed, essential to the composition of a good picture; so the judicious mixture of concords and discords is equally essential to a musical composition: as shades are necessary to relieve the eye, which is soon tired and disgusted with a level glare of light; so discords are necessary to relieve the ear, which is otherwise immediately satiated with a continued and unvaried strain of harmony." Avison, *An Essay*, 21.

¹⁷¹Cf. Dolan, "The Idea of Timbre," 100. Dolan also locates the origins of the concept

that “the instruments create. . . a lovely mixture of colors,” suggesting that the sounds of the different instruments represent different colors. Similarly, in his review of Woeggel’s colorful performance on the trumpet, Schubart may have tone color rather than dynamics in mind, since he remarks that Woeggel varies the sound of his trumpet so that “now it is a true trumpet tone, alarm and battle cry; now a flute, and very often a human voice.”

When applied to keyboard music, the metaphor of light and shadow could be used to describe the unique dynamic properties of the clavichord. For example, Bach notes in the *Versuch* that it is not possible to execute very brief “moments of shadow and light” on the harpsichord, but “on the clavichord this inconvenience falls away.”¹⁷² Increasingly as the century progressed, writers used the same metaphor to distinguish the fortepiano from the harpsichord as a dynamically (and by extension, aesthetically) capable instrument. As early as 1747, Charles Burney described the sound of one of the first grand pianos in London as having “a magnificent & new effect in the Chiar’oscuro of wch with a little use it was capable.”¹⁷³ Similarly, in the February passage from the *Deutsche Chronik* cited above, Schubart writes that giving “light and shade to the great harpsichord. . . transformed it into the fortepiano.” In the April notice, he assigns the properties of “sunlight” and “shadow” to the fortepiano, but not to the harpsichord or the organ. In a later essay entitled *Klavierrecepte* (Keyboard recipes), he embarks on an extended comparison of the clavichord, harpsichord, and fortepiano, in which he explains their differences in terms of the extent to which they allowed the player to create color in music. The harpsichord was “only monochromatic”; still, it had “a fine, extremely sharp contour,” and with no “middle colors” to “obstruct the flight of the fists,” it let the keyboardist develop a sure, quick technique and make a “drawing” that was “correct and strong.” The fortepiano, on the other hand, let the player “clothe” that drawing “with flesh, color, and garments” (and Schubart praises Stein’s fortepianos here especially). The clavichord, finally, possessed all of the “middle colors,” as well as “carrying and shaking” and the “*pizzicato* and *vibrato*” afforded by a

of *Klangfarbe*, a term which came into use first several decades later, in the rhetoric of this period. Ibid., 101-105.

¹⁷²“Wegen der Kürtze habe ich in den Exempeln hierüber das f. und p. häuffen müssen, ohngeacht ich wohl weiß, daß diese Art, alle Augenblicke von Schatten und Licht anzubringen, verwerflich ist. . . Spielt man diese Probe-Stücke auf einem Flügel mit mehr als einem Griffbrette, so bleibt man mit dem forte und piano, welches bey einzeln Noten vorkommt, auf demselben; man wechselt hierinnen nicht eher, als biß gantze Passagien sich durch forte und piano unterscheiden. Auf dem Clavicorde fällt diese Unbequemlichkeit weg. . .” *Versuch* 1, “Vom Vortrage,” par. 29, p. 131.

¹⁷³Cited in Michael Latham, “Pianos and Harpsichords for Their Majesties” *Early Music* 36, no. 3 (2008):360.

sustained sound; thus, it was most of all the clavichord that could sympathetically reproduce the player's own sentiments—or as Schubart famously put it, at the clavichord, “you will find the soundboard of your heart.”¹⁷⁴

In addition to using the idea of musical colors generally, Schubart and other writers frequently invoked, as Schubart does here, the notion of “middle colors.” The term, like Burney's “Chiar'oscuro,” is probably usually meant to refer to a specific technique from the visual arts: a method for making finely shaded prints from copperplate engravings known as mezzotint, developed in the mid-seventeenth century, but reaching its greatest popularity during the eighteenth. The idea of musical mezzotint meant seamless shading, usually of loudness and softness—a perfectly gradual *crescendo* and *decrescendo*. Quantz, for example, in a discussion of dynamic markings, says that “*mezzetinte*, or in-between colors” are the means by which “the dark is imperceptibly united with the light.”¹⁷⁵ In Augsburg, a traditional center for copperplate engraving, Stetten placed the profession among the fine arts; many specialists in mezzotint lived in the city and local authors frequently used the metaphor in music writing. Thus Mertens, in the eulogy for the Augsburg cantor Seyfert cited earlier in the chapter, alludes to the special aesthetic function of the *mezzotint* technique when he notes, “that which in the arts of drawing is the palpable [*fühlbar*] **Mezzotinto**, this [Seyfert] had, in music, completely in his power.”¹⁷⁶

In the *Deutsche Chronik* and the *Musikalische Rhapsodien*, Schubart uses the device to contrast the fortepiano with the *Melodica* and the clavichord, respectively. The piano only “juxtaposed” light and shadow, but the clavi-

¹⁷⁴“Beginne vom bekielten Flügel. Ist zwar nur einfarbig; hat aber feinen, äußerst scharfen Umriß. Nachhall und Tonverflökung, der leicht schwebende Träger, und die, wie Honig zerrinnende Mitteltinte, liegt da nicht in deinem Wege und hemmt der Fäuste Flug. . . Ist deine Faust gestärkt, deine Zeichnung richtig und stark, so kleide das Riesengerippe mit Fleisch, Farb' und Gewand. Das findest du auf dem Fortepiano. . . Hast du ein Steinisches Fortepiano, so laß dir wohl seyn. Wenn Stein's Fäuste zimmern, so ist sein Kopf auch dabei. Seine Instrumente sind die ersten der Welt. . . Mit dem Klavikord vollende deine Laufbahn. . . so das Klavier Stein's, oder Fritzen's, oder Silbermann's, oder Spath's Gemächt ist, weich und für jeden Hauch der Seele empfänglich, so findest du hier deines Herzens Resonanzboden. . . [D]ie Verzierungen der Kunst. . . im wollüstigen Hinschmachten der Mitteltinte, in Bund und Schwebung, im Tragen und Beben. . . im Pizzicato und Vibrato. . . Sieh', Spieler oder Spielerin, all' dieß liegt im Klavikorde. . .” “Klavierrecepte,” in *C. F. D. Schubart's, des Patrioten, gesammelte Schriften und Schicksale*, ed. Ludwig Schubart, vol. 6, *C. F. D. Schubart's vermischte Schriften, erster Teil* (Stuttgart: J. Scheible's Buchhandlung, 1839), 69-70.

¹⁷⁵“ . . . man muß hierbey wie in der Malerey verfahren; allwo man um Licht und Schatten auszudrücken, sich der sogenannten mezzetinte oder Zwischenfarben bedienet, wodurch das Dunkle mit dem Lichten unvermerkt vereiniget wird.” Quantz, *Versuch einer Anweisung*, 145.

¹⁷⁶Mertens, “Lobschrift,” 473.

chord had “middle colors,” and the *Melodica* offered “the finest levels of color, whole, half, and middle tints.” Both instruments were to the fortepiano as a mezzotint engraving was to a traditional engraving. According to the same model by which the fortepiano had greater aesthetic affordances than the harpsichord, because it offered the contrast between light and shadow, the *Melodica*, like the clavichord, was more aesthetically able than the fortepiano, because it offered infinite shades of color. Seen in this light, it is easy to understand why Stein found it important to point out to his readers that the *Melodica* did not work by adding and subtracting blocks of pipes; its identity depended upon its capacity for seamlessly graded sound.

In what is perhaps Schubart's most famous description of the *Melodica*, from the entry on Stein in the *Ideen zu einer Aesthetik der Tonkunst*, he references the mezzotint technique specifically. With the invention of the *Melodica*, he writes, Stein had

enabled the artist to express the wavering of the notes, the *Mezzotinto*, or rather the rising and falling of every note, with the greatest precision.¹⁷⁷

Although *mezzotint* most often referred to dynamic nuance, in this passage, it is actually possible that Schubart is referring to the *Melodica*'s flexible pitch, or perhaps even to pitch and dynamics at the same time; after all, according to Stein's description, the instrument coupled the two parameters together. Apparently, the word *Mezzotinto* here is to be read as synonymous with both “the wavering of the notes” (“Schweben der Töne”; *schweben* might also be understood as “suspension”) and “the rising and falling of notes”, and either or both of these might describe changes in either pitch or loudness. Both these parameters could, of course, be varied on the clavichord, as well by the voice. Finally, the conclusion of the passage indicates the effect on player and listener that this quality of *mezzotint* could have:

When the secret of this splendid instrument comes to be generally known, the *Clavier* player will verge closely upon the singer, and, like Orpheus, cause the trees to dance.¹⁷⁸

¹⁷⁷“Dadurch setzte er [Stein] den Künstler in den Stand, das Schweben der Töne, das Mezzotinto, oder vielmehr das Steigen und Sinken jedes Tons, äußerst genau auszudrücken.” *Ideen*, 1:223.

¹⁷⁸“Wenn das Geheimniß dieses herrlichen Instruments einmal allgemein ist, so wird der Clavierspieler dicht an den Sänger gränzen, und wie Orpheus die Bäume tanzen machen.” *Ideen*, 222-223.

Here, Schubart demonstrates again how thoroughly he had accepted Stein's conception of the *Melodica*. The *Melodica* was the keyboardist's missing voice; it was, moreover, an irresistible voice with which the keyboardist would be able to move even the most unreceptive, immovable (in Schubart's metaphor, literally wooden) listeners.

Earlier, in the *Leben und Gesinnungen*, Schubart had commented that it was above all the invention of the *Melodica* that had "obtained for Stein a respected rank among German inventors and improvers of musical works of art [*Kunstwerke*]." ¹⁷⁹ As his other texts make clear, *Kunstwerk* for Schubart here means a work of the fine arts specifically. Schubart saw the *Melodica*, then, as an instrument that afforded aesthetic experiences for both player and listener. It provided colors so that the keyboardist could not only sing, but also paint; thus, it was a technology with which making music could become the same kind of activity as painting, and listening to music could become like looking at a painting. Schubart's use of *Kunstwerk* overlaps with Stetten's *Kunstarbeiten*, but also extends it. For Schubart, the *Melodica* not only approached a work of the fine arts, but was also an indispensable tool for their practice.

5.5 The Claviorganum as an Instrument for Art

Because Paul von Stetten identified the Gothenburg claviorganum as a *Kunstarbeit*, he must have perceived the instrument, like Stein's other inventions, to be a work of the mechanical arts that nevertheless "approached" the fine arts. This chapter has developed a model for how music operated as a fine arts during Stein's and Stetten's time, and illustrated how that model could inspire the invention and reception of musical instruments using the example of Stein's *Melodica*. This section explores how it may have conditioned the design and use of the claviorganum.

It is convenient that the claviorganum—an extant instrument about which very little contemporary documentation survives—bears a number of similarities to the *Melodica*, an instrument that is no longer extant but which is survived by a substantial document trail. Like the *Melodica*, the claviorganum is a small, wing-shaped instrument of restricted tonal resources. Like the *Melodica*, it includes a single stop of organ flue pipes with an abbreviated bass compass, and as in the *Melodica*, the design of the

¹⁷⁹"...Stein, dessen Orgeln, Flügel, Fortepiano's, Klaviere und sonderlich die grose Erfindung der Melodika ihm längst einen angesehenen Rang unter den deutschen Erfindern und Verbesserern musikalischer Kunstwerke erworben haben." *Leben und Gesinnungen* 2:23-24.

claviorganum both separates that sound from, and encourages its combination with, the sound of a stringed keyboard instrument. And, although its installation in the claviorganum may not be original, a pedal-operated wind shaker would have allowed the player of the claviorganum, like the player of the *Melodica*, to modulate the dynamics and pitch of individual sustained notes. These similarities mean that it is possible to apply some conclusions about the *Melodica* directly to the claviorganum. As Schubart's reports attest, Stein continued to develop the *Melodica* until at least 1776; he would have begun working on the claviorganum at most about four years later, and so it is also reasonable to think that Stein might have perceived a continuity between the two instruments.

The aim of this section, however, is not really to establish whether, or how, the claviorganum resembles the *Melodica*. The aim, instead, is to ask whether, and how, the ways in which the *Melodica* was conceived and used as a tool for the fine arts apply to the claviorganum as well. The first part of the section looks at the timbres and the disposition Stein chose for the claviorganum. The second part discusses how the wind shaker built into the organ would have reinforced the aesthetic possibilities afforded by timbre and disposition, whether the device was made by Stein or a later addition by another builder.

Disposition and Sound

Patrick Alströmer received his *Fortepiano organisé* in Sweden in 1781, and Paul von Stetten's remark that the instrument was "built for Sweden" suggests that the instrument was directly commissioned by a Swedish buyer, who might have been Alströmer himself, or an agent acting for him. As I have mentioned, an organized piano would have had a basic identify and utility as a versatile continuo instrument. It is perfectly possible that Alströmer ordered an organized piano with no more specific idea in mind than that the instrument be suited for accompanying chamber music or for quiet accompaniment of singers at home. Equally, it is possible that Alströmer had more specific requests regarding the design and tonal capabilities of the instrument, but if so, nothing is presently known of what these might have been.

What is clear is that the specific way in which Stein executed the concept of a claviorgan included decisions about sound and disposition—whether or not they were wholly his own—that carried particular meaning within the contemporary model for *empfindsam* music-making that has been presented in this chapter. The disposition that Stein used (described more fully in chapter 1) consists of a organ with a stopped wooden 8' flute underneath

a grand piano, each playable from its own manual, and with the possibility to couple the manuals. The particular timbre of the organ; the inclusion of a piano, as opposed to a harpsichord; and the effect of the two instruments in combination are treated below.

The Sound of the Organ

The restricted specification of the organ with its stopped wooden pipes is not unique, but does stand in contrast to many other types of claviorganum with much larger specifications, such as earlier organ-harpsichords that commonly included principal plenum and reed stops, or later organ-pianos and orchestrions with large consorts of stops of widely varying timbre. Clearly, Stein's choice to include only a single soft stop was a deliberate one, and one that would have encouraged and supported a specific set of musical behaviors. The pipes of the claviorganum, moreover, are probably very similar to the pipes Stein used in the *Melodica*. As discussed above, the *Melodica* pipes must also have been flue pipes, likely stopped at 8' pitch, with a flute-like sound. Stein's choices for the claviorganum regarding both specification and pipe design, therefore, make his *Melodica* description especially relevant for understanding his concept for the claviorganum.

In that description, Stein discusses at length his choice of the type of "sounding bodies" to use for the *Melodica*. We learn that he chose to use flue pipes that sounded like flutes, for the ease with which their tone could be manipulated, but also for the inherent quality of their sound, which he experienced as enlivening and compatible with the application of the attention (as opposed to "spiky", numbing, or inducing "melancholy")—in short, because their sound was comparable to the sound of the voice. Nor was it a coincidence that that type of "sounding body" should possess such qualities, since these pipes produced sound in just the same way that a flute did: the *Melodica* player blew wind from the bellows into the pipes with his or her fingers, as a flautist blew into a flute. This method of sound production was closer to speech and song than any other that Stein had considered.

In much the same way as the pipes of the *Melodica*, the wooden register of the claviorganum, by virtue of its sustained sound, its timbre, and its breathy method of sound production, must have represented for Stein a set of flutes, and by extension, something very like a voice. By providing the claviorganum with such a stop, Stein furnished the player of the instrument with the possibility to produce, almost literally, a singing sound. The larger significance of that sound, moreover, would have been the same significance that Stein ascribes to it in the *Melodica* article: the sound was of a type that

encouraged musical attention and receptivity, and was the most effective tool for moving the sentiments of player and listener.

Beginning with Eva Hertz's seminal biography, and continuing in the modern literature, the claviorganum has rarely if ever been situated within the framework of what scholars have usually seen as a quest by Stein to create the ideal "Affekteninstrument"; in contrast to, for example, the combination of harpsichord and piano that he employed in the *Poly-Tono-Clavichordium* and the *Vis-à-vis*.¹⁸⁰ In fact, however, given the particular significance that Stein attached to the kind of organ sound that he built into the claviorganum, as evidenced in the *Melodica* article, it seems likely that his combination of organ and piano in the Gothenburg claviorganum represented to him an improvement as conscious and considered as any of his other musical inventions.

The Piano

Stein's claviorganum is one of the earliest known organ-piano combinations, simply because the piano itself was fairly new when it was built; it is also perhaps the very earliest documented combination of an organ and a grand piano. The presence of a piano in a claviorganum, of course, supports the ideal of a vocal, moving sound in very clear ways. The source material about Stein's instruments suggests two ways in particular that the piano of the claviorganum might have enabled performers and listeners to use the instrument not only as a tool for music, but as a tool for making art.

First of all, as discussed in the previous chapter, the hammer action that Stein built for the claviorganum, the German action, appears to have arisen out of his interest in designing a light and nimble action that allowed the player, among other things, to correctly execute even the most problematic trills described by Bach in the *Versuch*. The analysis of the *Versuch* earlier in this chapter demonstrated, meanwhile, that the proper execution of ornaments was an integral aspect of mastering a "good presentation," which in turn was necessary for players to move listeners and themselves. In other words, it is possible to understand the hammer action described in chapter four not simply as a means to virtuosity, but as a technology that enabled virtuosity as a means to an aesthetic end.

Second, it is quite clear from the readings of Schubart's *Melodica* texts presented above, as well as many other similar contemporary texts, that the dynamic qualities possessed by a fortepiano would have been widely

¹⁸⁰See, for instance, Michael Latham, "Swirling From One Level of the Affects to Another: The Expressive Clavier in Mozart's Time," *Early Music* 30, no. 4 (2002): 502-20.

understood as analogous to painterly light and shadow. The piano in Alströmer's claviorganum supported its players' conception of themselves as painting at the keyboard; and it supported listeners in a conception of their listening activity as fundamentally similar to viewing a painting.

The Combination of Organ and Piano

Both the *Melodica* text and the testimony of contemporary music writers like C. F. D. Schubart speak clearly to the aesthetic significance of the combined organ and piano sounds, for Stein and for contemporary listeners. The sustained, breathy sound of the wooden Gedackt 8' that Stein used in the organ was fundamentally similar to a singing voice, but, like any organ stop, it had the significant handicap of being unable to render *forte* or *piano* effects. Stein's decision to include only one stop in the organ, moreover, brought the dynamics problem to a head. The situation was analogous to that of the one-manual harpsichord described by Bach: on an organ with a larger specification, as on a two-manual harpsichord, the player could at least create terraced dynamic effects and dynamic contrasts.¹⁸¹ On the organ of the claviorganum, as on the one-manual harpsichord, this was impossible. The *piano* and *forte* of the piano, meanwhile, were understood as brush strokes of light and shadow. When the piano and organ were put together, therefore, the keyboardist had not only a voice, but a voice that could paint in sound.

If the statement of the Augsburg author who described the *Poly-Tono-Clavichordium* in 1769 may serve as a guide, such a function for the piano—to lend dynamic shading to the static sound of a partner instrument—would have been possible for listeners to perceive and understand. The *Poly-Tono-Clavichordium* combined a piano with a harpsichord, and the author observed:

The *Forte Piano* imparts to the harpsichord a most agreeable *Crescendo* and *Descrescendo* such that one believes the harpsichord possesses this quality of itself, even though it actually originates in the *Forte Piano*.

The statement suggests that listeners could correctly interpret the piano's shifts from loud to soft as insolubly integrated with—indeed, actually be-

¹⁸¹Ripin points out, for example, that precisely this capability began to be exploited in the second half of the eighteenth century to lend dynamic variation to the sound of the *harpsichord*, in organ-harpsichords with larger organ specifications: "By about 1770 a *clavecin organisé* was played in order to give dynamic changes by adding or subtracting organ stops." Edwin Ripin et al, "The Claviorgan," in *Early Keyboard Instruments*, The New Grove Musical Instrument Series (London: Macmillan, 1989), 188.

longing to—the sound of its partner instrument. It seems perfectly plausible that Stein also planned for the piano in the claviorganum to fill the same function. Seen in the context of his career, the claviorganum thus appears as one result of a long-term interest in ameliorating the dynamic inflexibility of the organ, and thus, as one of his many deliberate attempts to improve the existing keyboard instrumentarium.

The *Melodica* represented an early important essay at the problem; as mentioned above, the first announcement of that instrument specifically presented it as a solution to the “monotonous” noise of the organ, in which the “sustain of the note,” otherwise an asset, “always continued at the same strength.” Stein continued to labor with the *Melodica* concept at least until 1776, as evidenced by Schubart’s reports in the *Deutsche Chronik*. In 1777, Mozart famously quoted Stein to his father, describing the organ (his own organ in the Barfüßer Church, in fact) as an instrument that had “no *piano* nor *forte*, but always goes on in the same way.”¹⁸² Whether or not Stein was still actively developing the *Melodica* at that point, the dynamic problems presented by the technology of the organ were apparently still alive in his mind. In 1781, according to Nicolai’s report, a *Melodica* at Stein’s residence was unplayable, suggesting that Stein had either given up the problem, or was still struggling with a workable solution. Possibly, then, the claviorganum, finished in the same year, represented for him a different, more workable response to the challenge of how to make an organ that did not sound “monotonous” or always go on “in the same way.” Even the physical construction of the claviorganum may be read as a working-out or an embodiment of the use scenario Stein had recommended for the *Melodica*, in which its solo voice was placed on top of another keyboard instrument, and accompanied by it.

Certainly, it seems clear, regardless of whatever more specific ideas may have underlain Stein’s concept for the claviorganum, that the combination of organ and piano—of sustained sound and dynamic shading— would have provided for keyboardists the same kinds of affordances that Stein and Schubart described for the *Melodica*: the ability to execute Bach’s elements of presentation that were so necessary for singing at the keyboard; and the ability to paint with sound.

¹⁸²Wolfgang Mozart to Leopold Mozart, Augsburg, October 17, 1777, in *Mozart: Briefe*, 2:70.

The *Windschweller*

Stein's description of his *Melodica* suggests that he may have conceived of the type of organ register found in the claviorganum as the best way to emulate the effect of a singing voice at the keyboard. The combination of organ and piano suggest the possibility to play a singing melody on the organ, taking advantage of the organ's sustained sound and precise speech, while lending it dynamic variability with a piano accompaniment. The arrangement recalls Stein's suggestion that his *Melodica* could be placed on top of a stringed keyboard instrument, so that keyboardists could accompany themselves as they "sang."

The claviorganum, in its present state, includes another device that could have been used to lend dynamic variability to the organ's "voice," and also to change its pitch. This device is a so-called *Windschweller*, or wind shaker. It consists of a wooden flap mounted in the wind trunk below the pallet box, which, in its default position, would have rested "on the wind," roughly parallel to the long sides of the trunk, and thus not obstructed the flow of wind to the pipes. Gradually depressing a pedal for the left foot engaged a mechanism (partly broken now, but still in place) that would have pushed the flap into a perpendicular position across the trunk, reducing the flow of wind to the pipes, and producing a *decrescendo*. Releasing the pedal allowed the valve to move back toward the open position and increased the amount of air to the pipes again. The player would thus have been able to variably regulate the loudness and pitch of individual notes, or to shape a *crescendo* or *decrescendo* over a musical phrase.

The *Windschweller* of the claviorganum was described in more detail in chapter 2. There, I mentioned that, based on my examination, I was not able to conclude to my satisfaction whether the device was originally installed by Stein, or added later by another builder. This section, after a brief description of the use and sound of *Windschweller* in larger organs around the turn of the nineteenth century, examines both of those possible scenarios.

Windschweller Construction and Sound

The type of *Windschweller* installed in the claviorganum was one among a number of different kinds of devices that began to be installed in organs during the late eighteenth century in order to create dynamic variability in the sustained sound of the organ. An 1823 article in the *Allgemeine musikalische Zeitung* described the *Windschweller* as one of five basic ways to produce *crescendo* and *decrescendo*—the author lists two different types,

one which gradually increased the amount of wind to the pipes, and one which, as in the claviorganum, gradually reduced it.¹⁸³

According to the author, this latter type of *Windschweller* was actually the least satisfactory of all such devices. He reports that *Windschweller* of this type had, in fact, been installed in a local organ, but had been removed, “because it narrowed the main wind trunk, and by its nature produced a bad effect, and so was disadvantageous to the instrument.” The author opines, therefore, that “it is not worth imitating;” nevertheless, he chooses to “disclose its structure,” if only for “reasons of historical interest.”¹⁸⁴ The device he describes operates on the same principle as the device in the claviorganum: it consists of a “movable flap” in the main wind trunk, operated by a pedal, which pivoted about the middle upon “two brass pins, which were located in the side walls of the wind trunk for that purpose.” In its “resting position,” it lay “exactly in the middle of the wind trunk,” “oriented “parallel to the upper and lower walls”; that is, parallel to the direction of the flow of wind, so that “when it achieved a perpendicular orientation. . . it sealed the main wind trunk completely.”

The flap of the *Windschweller* described in the *AMZ* was not a solid piece of wood, as in the claviorganum; rather, part of it was constructed as an open frame covered with taffeta, which let some wind through when the flap was in the closed position. The article also describes the trackers, squares, and rollers which connected the *Windschweller* to a pedal; the solution is similar to the arrangement in the claviorganum, although the *Windschweller* in the *AMZ* was pulled, whereas the claviorganum *Windschweller* would, it appears, have been pushed.¹⁸⁵

¹⁸³[Christian Friedrich Gottlob] Wilke and Friedrich Kaufmann, “Ueber die Crescendo- und Diminuendo-Züge an Orgeln,” *Allgemeine musikalische Zeitung*, February 19, 1823, 113-22.

¹⁸⁴“Ersterer welcher den Pfeifen den Wind nach und nach entzieht, befand sich in hiesiger Orgel; da er aber den Hauptkanal verengte, und seiner Natur nach von sehr schlechter Wirkung ist, dem Werke also nachtheilig wurde, so ist er herausgenommen worden”; “Wiewohl er nicht nachahmungswerth ist, so theile ich doch, des Geschichtlichen wegen, seine Structur hier mit. . .” *Ibid.*, 115.

¹⁸⁵“Er bestand aus einer beweglichen Klappe, die im Hauptkanale so lag, dass sie, wenn sie eine perpendikuläre Richtung erhielt, sich an alle vier Wände desselben, an die zu dem Zwecke befestigten ledernen Versicherungsleisten, fest anschloss, den Hauptkanal also völlig verschloss. Diese Klappe, welche in ihrer, ihr bestimmten ruhigen Lage parallel mit der Ober- und Unterwand, gerade in der Mitte des Kanals lag, konnte, da sie mit ihrer Mitte auf zwey messingenen Stiften lief, die sich zu dem Zwecke in den Seitenwänden des Hauptkanals befanden, nach Willkühr, mittelst eines eisernen Trittes, der über dem Pedale lag, gedreht werden. Sie war fast bis zur Hälfte ihrer Grösse massiv aus Holz gearbeitet; von da aus lief sie in zwey Schenkeln, die an ihrem äussersten Enden mit einem Querholze verbunden waren, bis zu ihrer nöthigen Grösse fort, und bildete so einen Rahmen. Von dem massiven Theile aus bis zu dem Querholze der gedachten Schenkel war

The author judged the *Windschweller* with which he was familiar to be more or less unworkable, for two reasons. First of all, it produced an unpleasant, strangled sound, apparently because it choked off too much wind; possibly, also, the effect was too quiet overall. “It did indeed,” the author writes, “give rise to a *Decrescendo*, a *p* and *pp*, but—unfortunately, one that it was hardly possible to listen to. The notes were like the sighs of dying people, but ones who lacked the power and air to sound their anguish aloud.”¹⁸⁶ Secondly (and possibly another facet of the same problem, in the author’s mind), the device produced a pitch change in flue stops that the author found unacceptable. He explains, for example that:

When the Abbé Vogler made use of this stop on his Orchestrion, he could only use it for free reed stops; they tolerate stronger and weaker wind without the note moving, regarding its highness and lowness. But flue pipes do not tolerate it, for their pitch rises when the quality of the wind is greater, and fall when it is more scant, indeed, they even require a different kind of voicing with different degrees of wind.¹⁸⁷

As the the *AMZ* article points out, although the *Windschweller* of the

sie mit schwarzem Tafft überzogen. Am untersten nach innen hin und äussersten massiven Theile dieser Klappe befanden sich zwey befestigte Oesen, woran die Zugstange befestigt war, die durch den Boden des Hauptkanals auf Art eines Pampetenstockes durchging. Diese Zugstange stand mittelst eines Winkelhakens mit einer am Fussboden befestigten starken Welle in Verbindung, welche auf gleiche Weise mit dem vorhingenannten, über dem Pedale befindlichen eisernen Tritte zusammenhing; durch ihn konnte diese Klappe nach und nach aus ihrer horizontalen Lage bis zu einer perpendikulären Richtung gewendet werden, so, dass sie nun den Hauptkanal völlig verschloss; dass sie nicht über diese Richtung hinausgezogen werden konnte, verhinderte eine im Boden des Hauptkanals befestigte, $\frac{1}{4}$ ” starke Leiste, die sie festhielt. Ihre Bewegung war gleich der des Dachschweller, so dass die eine Hälfte stieg, indem die andere fiel. So konnte nun der Hauptkanal nach und nach verengt und zuletzt ganz geschlossen werden, den Pfeifen wurde dadurch der Wind allmählich entzogen und beym gänzlichen Verschliessen blieb ihnen nur noch so viel Wind übrig, als sich durch den seidenen Bezug dieser Klappe durchdrängen konnte.” *Ibid.*, 116.

¹⁸⁶“So entstand denn nun freylich ein *Decrescendo*, ein *p* und *pp*, aber—leider ein solches, das kaum anzuhören war. Es waren Töne, gleich dem Stöhnen mehrerer Sterbenden, denen aber Kraft und Luft gebricht, ihre Quaal laut werden zu lassen.” *Ibid.*, 116-17.

¹⁸⁷“Wenn der geheime Rath Abt Vogler sich dieses Zuges an seinem Orchestrion bediente, so konnte er ihn nur zu Rohrwerken mit durchschlagenden Zungen benutzen; sie ertragen stärkeren und schwächeren Wind, ohne im Tone, hinsichtlich der Höhe und Tiefe desselben, zu weichen. Die Labialpfeifen aber ertragen ihn nicht, denn sie steigen im Tone bey grösserer Qualität des Windes und fallen bey geringerer Qualität desselben, ja, sie verlangen sogar bey verschiedenen Graden Wind, auch eine verschiedene Intonation.” *Ibid.*, 117.

type described here was often referred to as a *Crescendo*, the name *Decrescendo* would be more accurate, because engaging it (moving it from its resting position) made the pipes softer, not louder. In this respect, the *Windschweller* in the claviorganum is apparently dissimilar to the *crescendo* mechanism of the *Melodica*. We know little about how that instrument worked, but it is possible to deduce from Stein's description that it was a *Crescendo* in the proper sense: it made the sound louder when it was "engaged" by pressure on the key, and the sound became softer as the pressure on the key decreased.

Original *Windschweller* from around the turn of the nineteenth century are preserved in two Swedish organs: a large instrument in Gammalkil Church by Pehr Schiörlin, and a smaller instrument by Pehr Strand, in the chapel of Rosersberg Castle outside of Stockholm.¹⁸⁸ In 2008, I inspected these instruments with a group of documentalists, organist, and builders, and thus had the opportunity to hear the effect that each *Windschweller* produced, and form an idea of how they could be used.¹⁸⁹

Both devices work according to the principles described in the *AMZ* article. At Gammalkil, the *Windschweller* is placed in the main vertical trunk that feeds the *Oberwerk*; it acts on that entire division, changing both the pitch and the volume of all the stops that are drawn. In the Rosersberg organ, which has only one manual, the treble and bass pipes are divided, and the *Windschweller* is placed in the main trunk that feeds the treble pipes. Thus, it changes the pitch and volume of only the upper register of whatever stops are drawn.

On both organs, the *Windschweller* is operated by means of an extra pedal key inserted in the pedalboard. Depressing the key engages the *Windschweller* and produces a continuous *decrescendo*: the further the key is pressed, the quieter the sound becomes. The accompanying change in pitch is quite noticeable, and initially difficult to listen to. I found, however, that after listening to the effect for only an hour or so, it was possible to learn to interpret the sound in a different way: instead of understanding it as "pipes out of tune," I was able to understand it, in the same way as a volume change, as a musically meaningful sound.

In both cases, the *Windschweller* is installed in such a way as to make it possible to use it to shape a melody, played above a "straight" accompani-

¹⁸⁸Niclas Fredriksson, "Ein teilweise revidiertes und komplettiertes Bild von Georg Joseph Vogler und seine Bedeutung für den Orgelbau in Schweden," in *Georg Joseph Vogler: Umbrüche im Orgelbau*, Vol. 2, ed. Uwe Pape (Berlin: Pape Verlag, 2007), 224.

¹⁸⁹I would like to thank the other members of the group, Paul Peeters, Alf Åslund, Joel Speerstra, Niclas Fredriksson, and Mats Arvidsson, for making this instructive experience possible.

ment. Indeed, in Rosersberg, this is the only way in which it can be used. The situation in Gammalkil is more flexible. It is possible to place a solo voice on the Oberwerk, accompanied by the Hauptwerk, or to apply the *Windschweller* to more complete textures on the Oberwerk.

In Stein's Context

The evidence that the *Windschweller* in the claviorganum might originally have been installed by Stein consists mainly of the fact that the flap, visible inside the trunk, appears to be made of wood that matches the color and appearance of the inside of the wind trunk very closely. In addition, the bellows trunk does not show obvious signs of having been opened, which would probably have been necessary to insert the mechanism that is there now. Both circumstances indicate that the flap, at least, was originally placed in the trunk by Stein, although the possibility that it was originally intended for a different function—as a *Sperrventil*, for example—and later repurposed for a *Windschweller* cannot be excluded, since the left pedal, its opening in the kickboard, and the action that connects the pedal to the flap all seem to be of different material and workmanship than the rest of the instrument. Another explanation consistent with the surviving material is that Stein installed the flap as a *Windschweller*, but that the original mechanism was lost or broken, and subsequently replaced.

Among the basic types of *crescendo* devices that the AMZ article describes, the *Windschweller*, certainly, is the one that comes closest to producing the kind of flexible dynamics and pitch variability that Stein described as his ideal in the *Melodica* article. Several of the other types listed in the article were, in fact, explicitly rejected by Stein in that text. Swells such as the *Dachschweller* and *Jalousieschweller*, in which pipe registers are placed in a lidded box or behind a set of shutters, respectively, Stein had written, did not “pertain” to his objective, because this method of creating dynamic variation “reinforces all the tones at the same time and not each individual tone at the proper time and at the discretion of the player.” Similarly, he discarded the idea of a *Klaviaturschweller*, or register crescendo, whereby increasing pressure on the keys engages extra registers, since the effect thus created was “not a *crescendo*, but rather a stepwise reinforcement”—a criticism also offered by the AMZ author. Any of these devices might allow an organist to create some dynamic effects, but they did not offer the experience of painting with sound—they permitted an organist to mimic a singer, perhaps, but not actually to be one. The *Windschweller*, on the other hand, made possible a true variable *crescendo* on individual notes; moreover, it produced this effect in a more “natural” way,

modulating the sound by a real modulation of the wind on its way to the pipes.

In addition to *crescendo* and *decrescendo* effects, the *Windschweller* also permitted the execution of a *Bebung*. Bach counted this vibrato or shake on a single note among his elements of presentation, but noted that it was impossible to perform on any existing keyboard instrument except the clavichord. *Bebung* was, however, possible on the *Melodica*, and Stein, in the *Melodica* article, identifies *Bebung* as one of the specific means by which the player of his instrument could produce an effect that was “extraordinarily new, foreign and completely unexpected”—an effect of “light and shadow” at the organ.

It is certainly possible, therefore, to understand the *Windschweller* in the claviorganum in the context of Stein’s stated goals as an instrument builder, or even as an organ builder. Its dynamic affordances would have moved the claviorganum even closer to an instrument ideal for the execution of Bach’s elements of presentation—or, as Stein had put it in the *Melodica* article, an instrument that itself “possessed those properties.” Its presence might also indicate the clavichord repertoire as a possible repertoire for the claviorganum. Finally, in the context of the correspondences of the fine arts to which Stein alludes, and which Schubart elaborates, the *Windschweller* may be also read as a device that allowed the player of the claviorganum to create not just light and shadow (a capacity already provided in some measure by the piano), but also the even more moving, more artistic effect of musical *mezzotint*.

In a Swedish Context

It is easy to understand the particular reasons that Stein might have had for installing a *Windschweller* in the claviorganum. Equally, it is easy to make sense of the presence of such a device in the context of the Swedish organ soundscape that existed during Alströmer’s ownership of the instrument and during the next few decades. There is evidence that the sounds of such devices were positively received in that milieu, and the *Windschweller* in the Gammalkil and Rosersberg organs are, in fact, only two surviving examples of a more widespread building practice.

Records from the eighteenth and early nineteenth centuries document a number of *Windschweller* in Swedish organs. One early record of what sounds like a *Windschweller* in the 1761 organ in St. Klara in Stockholm by the builders Johan Gren and Petter Strähle describes

“... a new kind of Tremulant, consisting of a movable flap or

valve in the trunk of the Oberwerk, to which in the Pedal belongs a separate little raised key between *h* and *c*, as soon as it is moved with the foot, the sound quavers in the Oberwerk alone.”¹⁹⁰

Beginning in the 1790s, Swedish builders installed *Windschweller* in a number of new and existing organs, apparently often according to plans made in collaboration with the Abbé Joseph Vogler, who was attached to the royal court in Stockholm between 1786 and 1799.¹⁹¹ The organ in the Stockholm Cathedral, St. Nicolai, built during the years 1788-1798 by Olof Schwan, included a *Windschweller* for the Oberwerk. Vogler collaborated on the plan; so too did the church organist Johan Wikmansson, who documented the installation of the device, which, according to him, was “completely unknown” in Sweden at that time:

... a so-called *Windschweller* [*vädersvällare*] was constructed in the wind trunk for this manual, whose action is regulated by the left foot in the pedal. This *invention*, completely unknown in Sweden, by means of which the sound slowly disappears or increases, as desired, and with which a note in the weaker voices can be lowered so that it, in a way, unites or, so to speak, melts together with the tone that lies a half-step lower, has a highly astonishing effect. And I should also note that this *Schweller* with its entire action and everything else belonging to it was installed by Mr. Schwan at my persuasion, outside of the contract, and was not entered into the bill for the church.¹⁹²

As Niclas Fredriksson has pointed out, Wikmansson’s description clearly indicates that the *Schweller* in question modulated not only volume, but

¹⁹⁰Niclas Fredriksson, pers. comm. “[...] en ny art af Tremulant, bestående af en rörlig klapp eller ventil i öfwerwerkets Canal, som i Pedaln äger en apart litet uphögd claw emellan h och c, så ofta den röres med foten, swäfwar klangen allenast i öfwer werket.”

¹⁹¹Vogler’s connections with Swedish organ builders are reviewed in Fredriksson, “Ein teilweise revidiertes und komplettiertes bild.” On *Windschweller*, see 224ff.

¹⁹²The discussion of the quote and a German translation are in Fredriksson, “Ein teilweise revidiertes und komplettiertes Bild,” 247. The original Swedish is from Fredriksson, pers. comm. “. . . til denna Manual är en så kallad vädersvällare i Canalen anlagd hvars Mechanique regeras med vänstra foten i pedalen. Denne, en i Sverige aldeles okänd invention, hvarmedelst ljudet småningom försvinner eller ökes efter behag och hvarigenom en ton i de svagare stämmorne kan sänkas så at den lika som förenas eller så til sägandes sammansmälter med den näst under liggande halfva tonen, är af en högst surprenant värkan. Och bör jag [Wikmansson] äfven anmärka, at denne Svällare med hela dess Mechanique och öfrige tilbehör är af Herr Schvan på min persvation tilbygd utan Contractet och är icke i Räkningen Kyrkan påförd.”

also pitch.¹⁹³ While this had been a problem for the author of the *AMZ* article on *crescendo* devices, for Wikmansson, it was not a liability: on the contrary, he emphasizes the remarkable musical effect created when one note was allowed to “melt together” with another. It is, however, interesting that Wikmansson seems to hesitate, almost to stumble, as he seeks a way to explain what the *Windschweller* could do: let an upper note “in a way, unite,” or “so to speak, melt together” with a lower note. It does indeed seem that the effect was “completely unknown in Sweden,” or at least to him. (He was apparently so taken with the effect, moreover, that he convinced the organ builder Olof Schwan to install it for free, an action that Paul von Stetten would surely have interpreted as the perfect example of art executed not for “bread,” but for “honor.”) The organ built by Johan Everhardt the Younger for Strängnäs Cathedral, completed in 1804, also had a *Windschweller*, and a contemporary description corroborates Wikmansson’s impression of the device: the “invention” had “a striking effect, when it is made with the proper accuracy and strength.” It was better than the familiar Tremulant: “it makes the vibrato [*swäfnigen*] more pleasant and lovely, and does not create any noise, even though it is almost the same as the Tremulant in its construction,” and “its vibrato is more even and better graduated than that of the Tremulant.”¹⁹⁴

Pehr Schiörlin, the builder of the Gammalkil organ, installed *Windschweller* in a number of organs over a period of ten years or more, again apparently as a result of contacts with Vogler.¹⁹⁵ The original proposal for

¹⁹³Fredriksson, “Ein teilweise revidiertes und komplettiertes bild,” 227.

¹⁹⁴Fredriksson, pers. comm. “. . . den gör swäfnigen mer behaglig och skön, samt förorsakar intet buller, ehuru han til sin inrättning är nästa lika med Tremulanten”. Vädersvällaren är ”en invention som i de fleste större utländske Orgelverk, och nu äfven i det nya Verket i Stockholms Storkyrka, gör en frappant werkan, då den med wederbörlig noggrannhet och styrka förfärdigad. Dess sväfning är jämnare och bättre graderad än Tremulantens.”

¹⁹⁵Schiörlin proposed a *Windschweller* in a 1798 contract for an organ in Ramsberg, which was not built: Fredriksson, “Ein teilweise revidiertes und komplettiertes bild,” 237-38. In 1796, a proposal for additions to the organ in the German Church in Norrköping mentioned a “Crescendo Register” that was distinct from the “Tremulant”: Fredriksson, pers. comm. (“Tremulanten dirigeras med fötterna och sättas bevid Pedalen och Crescendo Register. Tremulanten värkar fort och långsam efter behag i alla 3 Claveren och Pedalen.”) His proposal for an organ in Vena, built in 1801-02, included the provision of a *crescendo* device for the Oberwerk, listed as “Dim. u. cresc”; Lundin, Olger, and Tor Lundin, *En Pehr Schiörlin Orgel: 1800-1940: i Vena Församlings Kyrka i Linköpings Stift och Kalmar Län samt: strödda uppgifter om dess föregångare, byggmästare, organister och kalkanter* (Järfälla: 2004). Finally, in 1809, Schiörlin added a dynamic wind device to the organ in the Mariestad Cathedral (Kölingared), likely a *Windschweller*: it was demonstrated to the church council that year “under the name of *crescendo vibrando* and *diminuendo*”: Fredriksson, pers. comm.

Gammalkil from 1802 lists a “Diminuendo. Crescendo,”¹⁹⁶ for the Oberwerk; this is the *Windschweller* that is preserved today. An addendum to the contract from 1807 gives more details. It describes the device as a “special *Windschweller*, which is regulated with a key in the pedal keyboard.”¹⁹⁷ A proposal for further work in 1827¹⁹⁸ directed that a “mechanism for *diminuendo* and *crescendo* by means of a movable box, which is raised over a part of the Oberwerk registers, should be removed, as it does not serve the purpose; but the mechanism for the *Dem.* and *Cresc.* in the trunk to the aforementioned Oberwerk will be repaired and kept.”¹⁹⁹ A few years previously, the AMZ article had dismissed *Windschweller* devices as more or less unusable; the decision in Gammalkil to preserve the *Windschweller* indicates, however, that the device was considered there to work well enough.

Assuming that the *Windschweller* in the claviorganum was not originally installed by Stein, or at least not in its present form, then it is not difficult to imagine that it might have been put in by a Swedish builder—if not one of the important Stockholm builders (the rough workmanship of the pedal mechanism makes this seem unlikely), then perhaps an amateur builder who had seen and heard such devices. Alströmer was, apparently, was not averse to modifying his “Instrument”: this is evidenced by the nameboard inlaid with a garland of flowers and a rhyming couplet in Swedish that looks like the the work of his acquaintance, the piano builder J. G. Högwall. The rough craftsmanship of the *Windschweller* seems, however, again to be at odds with the careful inlay work on Högwall’s nameboard, or the quality of his other instruments. It is also perhaps more likely, given that *Windschweller* did not begin to be built in Sweden until the 1790s, and then primarily in Stockholm, that the *Windschweller* in the claviorganum was installed after Alströmer sold the instrument in 1791.

Abbé Vogler played on Alströmer’s claviorganum in 1786, the year he arrived in Sweden. Vogler was, of course, famous for his practice of modifying the organs which he visited, and the fact that he collaborated with the Stockholm builders who began build *Windschweller* in the late 1790s is suggestive. There is, however, no evidence at present to indicate that Vogler was involved in modifying Alströmer’s claviorganum.

¹⁹⁶Fredriksson, pers. comm.

¹⁹⁷Ibid. “Särskilt Vädersväleri i Öfververket, som regleras med en knapp invid Pedalclaveret.”

¹⁹⁸Or 1828; *ibid.*

¹⁹⁹“... Meckaniken för Diminuendo och Cresc. medelst en rörlig Lådas upplyftande öfver en del Labialstämmor i Öfververket bör såsom utan ändamålets vinnande borttagas; men Meckaniken för Dim. Cresc. i Canalen till nämde Öfververk Repareras o bibehålles.” Fredriksson, pers. comm; in translation in “Ein teilweise revidiertes und komplettiertes bild,” 245.

The presence of *Windschweller* in a number of large Swedish organs from around 1800 is, nonetheless, instructive: it reveals that the devices were an accepted part of building practice during that period, and, according to contemporary descriptions, they were successful in their effect. As the sound of the surviving *Windschweller* in the Gammalkil and Rosersberg Castle organs confirms, the devices noticeably altered both dynamic level and pitch together; the two parameters were thus inextricably affectively linked, as in fact they had been in Stein's *Melodica*. The installation of a *Windschweller* in the claviorganum moved it, perhaps, even closer to the capabilities of the *Melodica*. The aesthetic function and meaning of Swedish *Windschweller* around 1800 were naturally somewhat different from the function and meaning of Stein's *Melodica* and claviorganum in the 1770s. Still, it is probably true that an addition of a *Windschweller* to the claviorganum by a Swedish musician or builder would not have represented a fundamental shift in the function of the instrument, but rather a corroboration and a reinforcement of Stein's original concept.

5.6 Summary

By the second half of the eighteenth century, both the notion of a coherent group of fine arts and the place of music in that group were firmly established. The particular mechanisms by which music functioned as a fine art, however, were still being negotiated, particularly for instrumental music, and most of all for keyboard music.

The discourse of *Empfindsamkeit* in the third quarter of the eighteenth century may be understood as an early conversation about aesthetics: it provided a model for how observers and listeners could respond to works of the fine arts. According to that model, the fine arts moved the sentiments by stimulating the senses, and to be *empfindsam* was to possess the capacity to be moved. This model was a necessary condition for the notion expressed by Paul von Stetten that musical instruments like Stein's could "approach" the fine arts: without the idea that the sensory stimulus of a sound could move the sentiments, the instrument which produced the sound could not be understood as a critical component of that process. The properties of a sound-producing device, in other words, took on new importance within a model in which it was held to be the physical manifestation of a sound that had the power to move the heart. Stein's instruments, therefore, "approached" the fine arts not because they offered any particular decoration or ornament for an onlooker to appreciate. Rather, it was because they were designed to afford musicians and audiences a particular kind of musical be-

havior: a behavior of *Empfindsamkeit*, that sought to move the sentiments with music, and be moved in turn; and in doing so, not just to make music, but to practice music (and more specifically, keyboard music) as a fine art.

Stein's *Melodica* is the instrument among his many inventions that is most explicitly anchored within the contemporary discourse of *Empfindsamkeit* and musical meaning. Stein's own description of the *Melodica*, published in a journal for art and aesthetics, details how he derived the instrument's form and function from his reading of C. P. E. Bach's *Versuch über die wahre Art das Clavier zu spielen*. There, Bach described how keyboardists could move the hearts of their listeners, but also identified the shortcomings in the existing keyboard instrumentarium—specifically, the ways in which they fell short of the ideal musical instrument, the human voice—that made that task more difficult. Bach's influence can be clearly traced in the musical culture to which Stein belonged in Augsburg, where it must have helped not only to shape Stein's own ideas about music, but also to shape an audience for inventions such as the *Melodica*. Stein's description makes his intentions for the instrument clear: every aspect of its form and construction is designed to afford to the *empfindsam* keyboardist, almost literally, a voice—and with it, an effective means to “play upon the heart.”

The *Melodica* text is remarkable for the way it records the transformation of written discourse into the physical substance of a musical instrument. A series of texts about the *Melodica* by C. F. D. Schubart published over the next few decades show how the instrument also projected the ideas on which it was based back into the world of written discourse. Schubart's reception of the *Melodica* indicates that he understood and accepted Stein's conception of the instrument; the *Melodica* did signify what Stein meant it to signify. In their use of the metaphor of light and shadow, in particular, Schubart's texts also underscore and amplify the fine arts function of the *Melodica*: Schubart understood the instrument as a tool for creating nuanced color and shading with music, and thus, unequivocally, as an aesthetic technology.

The notion that Stein's *Melodica* and the behaviors it was designed to afford were linked to an emerging aesthetic discourse suggests a historically specific explanation for its invention that may apply to his other instruments as well, including the claviorganum—and the claviorganum, perhaps, in particular, since it bears some striking similarities in construction and disposition to the *Melodica* as Stein described it. Against the background of the *Melodica*'s inspiration and reception, the combination of the claviorganum's Gedackt 8' organ register and the hammer action of the fortepiano appears specifically designed to provide the most important qualities of the singing voice—sustain, clear speech, and dynamic shading—and thus, like the *Melodica*, to support *empfindsam* musical behavior.

The claviorganum today also includes a *Windschweller*, or wind shaker, which may have been built by Stein, or may have been installed after the instrument came to Sweden. A number of such devices are known to have been placed in Swedish organs around the turn of the 19th century, so that the *Windschweller* in the claviorganum would not have been a unique or even unfamiliar feature of the musical landscape during that time. The device would have allowed the player to modulate the dynamic and pitch level of individual notes on the organ. If installed by a Swedish owner, therefore, it would have represented a modification that did not substantially alter the way in which Stein likely envisaged that the claviorganum would work as an aesthetic technology, but rather, extended and intensified it. That Patrick Alströmer, at least, also saw the claviorganum as a tool for art is evidenced by another modification: the nameboard, inlaid with a rhyming couplet in Swedish, which reads, translated:

See—here is a field for quick fingers/Where art lightly chases
cares away.

The function of the claviorganum as a location for the practice of the fine arts—as Stetten described them, the arts of leisure, of entertainment—is thus, quite literally, inscribed on the instrument.

Chapter 6

Exhibiting to the Public

Each of the two previous chapters took up one aspect of Paul von Stetten's art concept that he expresses explicitly in his writings, and considered how it might apply to Stein's musical inventions in general, and the claviorganum in particular. Chapter 4 examined the connection between the notion that art represented a rational process of improvement, and Stein's German action. Chapter 5 explored Stetten's contention that certain mechanical arts, among them musical instrument building, could approach the fine arts, and presented the claviorganum as a technology designed by Stein to afford specifically aesthetic behaviors, which were described at that time in the language of *Empfindsamkeit*.

This chapter investigates an aspect of Stetten's art concept that he expresses only tacitly, but which in many respects constitutes a foundation—even a precondition—for the ideas that have already been discussed. This is the notion that artworks, as a class of objects, were made for public display, and that such display, in turn, invited the critical evaluation of the viewing public. This chapter considers, in other words, the spaces—both virtual and real—and the social contexts in which Stein's instruments were displayed and evaluated as works of art.

The point of departure for this line of investigation is Stetten's remark, in his 1788 report, that Stein displayed two of his "newest works of art" in his home in 1783, in conjunction with a public art exhibition in Augsburg. A catalog from that exhibition is addressed to the "Augsburg public"; it explains that Stein's instruments were shown in his home, rather than in the exhibition locale, simply because the instruments were large and inconvenient to transport. Thus, although the physical setting in which the instruments were displayed was that of a private home, the cultural setting

was, in fact, that of a public exhibition: an event in which objects of various kinds were presented for the persual of a discerning audience.

Investigating this facet of Stetten's art concept helps to construct a historically specific explanation for Stein's musical inventions, because the phenomenon of public exhibition and critique went hand in hand with the emergence, during the eighteenth century, of an increasingly mobile, sociable, and literate public, a group which included members of the nobility as well as a burgeoning middle class.¹ Especially in Germany, the publication of newspapers and periodicals aimed at an amateur readership surged during the second half of the eighteenth century. Literacy rates increased as well, and books and periodicals were shared in reading societies, in public reading rooms, and in other public venues.² The distribution of periodicals was facilitated by the expansion and interlinkage of postal routes, a development which also enabled people to travel more easily and promoted a new kind of tourism.³ Public concerts, coffeehouses, theaters, and societies of all kinds provided new spaces for sociable interchange. Among Augsburg's "amusements and opportunities for recreation," for example, Paul von Stetten lists a weekly "public concert" and "several small society-concerts," as

¹My discussion of the public in this chapter relies on Thomas Broman, "The Habermasian Public Sphere and 'Science in the Enlightenment'", *History of Science* 36 (1998): 123-49. Broman, following Jürgen Habermas' classic study (*The structural transformation of the public sphere*, transl. by Thomas Burger with Frederick Lawrence [Cambridge, Mass., 1989]), identifies the "public" as the members of "civil society," which is defined, in turn, as a "society founded on exchange": a group whose members participated in economic transactions with one another. The public was both an object of state power and, because it was also self-aware, a counterweight to it, and the "public sphere" may be understood as the "set of discursive practices and institutions by means of which the self-conscious public comes into being" (125-26). Habermas' concept links together new cultural patterns of sociability, literacy, and, perhaps most importantly, critical discourse—"More than anything else, it is criticism that characterizes the life of the public sphere" (129)—on politics, famously, but also art and aesthetics (130-31) as well as science (the latter is Broman's primary concern). The development is usually agreed to have occurred during the 1760s and 1770s in German-speaking countries (n 10, 146). T. C. W. Blanning argues for the social heterogeneity of the public sphere in France in *The Culture of Power and the Power of Culture: Old Regime Europe 1660-1789* (Oxford: Oxford University Press, 2002), 181; judging from local writings, his conclusions seem certainly to be applicable to Augsburg society during this period as well.

²Broman, "The Habermasian Public Sphere," 127; Mary Sue Morrow, *German Music Criticism in the Late Eighteenth Century: Aesthetic Issues in Instrumental Music* (Cambridge: Cambridge University Press, 1997), 29-30; and Blanning, *The Culture of Power*, 143, 158-160. Blanning also identifies a shift in reading habits from "intensive" (reading the same thing over and over) to "extensive" (reading quickly and broadly).

³Klaus Beyrer, "The Mail-Coach Revolution: Landmarks in Travel in Germany Between the Seventeenth and Nineteenth Centuries," *German History* 24, no. 3 (2006): 375-86, especially 380-383; Blanning, *The Culture of Power*, 130-31.

well as eight local coffeehouses, where “the largest get-togethers for the male gender” took place.⁴ As the notion of a public came into being, so too did the idea that its members, well-read and well-provided with materials, spaces, and partners for critical discussion, should be qualified arbiters of taste and aesthetics: it became the job of the public to judge art.⁵ This chapter argues, therefore, rather than thinking of Stein’s instruments simply as musical or mechanical curiosities it is possible to understand them, during this period, as objects that participated in a new kind of cultural behavior: that of public exhibition and public critique.

Returning to the 1783 art exhibition, one might imagine that the occasion simply represented an expedient way for Stein to present his work to potential customers. It is doubtless true that public display would have been an effective method of advertisement. However, there is ample evidence that Stein’s presentation of his instruments for the public was about more than just advertising. They were made repeatedly available for examination and critique, in multiple venues. Moreover, at least in Augsburg, it was the instruments’ status as works of art that both made them available for public examination in the first place, and shaped the subsequent interaction between object and viewer.

The chapter begins with what might be called the vicarious exhibition of Stein’s most famous instruments—including the organ in the Barfüßer Church, in addition to his inventions—that occurred in the various articles published about them in papers and magazines when they were new. The second section describes how tourists in Augsburg could visit Stein’s home and see his instruments as part of a program of sightseeing, using Paul von Stetten’s two travel guides to the city, *Die vornehmsten Merkwürdigkeiten, der Reichs-Stadt Augsburg* (1772) and the *Beschreibung der Reichs-Stadt*

⁴“Ein öffentliches Konzert ist dermalen hier an den Mittwochen Abends in dem schönen Saale auf der Herren Kaufleute Stube. Außerdem sind noch kleine Gesellschafts-Konzerte, die im Winter in Gasthöfen, im Sommer in Gärten gehalten werden. . . Außerdem sind die stärksten Zusammenkünfte des männlichen Geschlechts, in den Caffeehäusern, deren acht sind. . .” Paul von Stetten, *Beschreibung der Reichs-Stadt Augsburg, nach ihrer Lage jetzigen Verfassung, Handlung und den zu solchen gehörenden Künsten und Gewerben auch ihrer andern Merkwürdigkeiten* (Augsburg: Conrad Heinrich Stage, 1788), 145, http://www.bibliothek.uni-augsburg.de/dda/urn/urn_uba001400-uba001599/uba001452/. On coffeehouses, see also Blanning, *The Culture of Power*, 159-61; and on public concerts, 161ff. As Blanning argues, public concerts were surely one of the most important new forms of sociability associated with the rise of the public sphere; because, however, public concerts are (which is intriguing) nowhere indicated in my material as display venues for Stein’s “works of art,” I do not address the topic in more detail in this chapter.

⁵Broman, “The Habermasian Public Sphere,” 130-31; Blanning, *The Culture of Power*, 110-11.

Augsburg (1788), as well as several travel diaries published by visitors to Augsburg. The third section describes the 1783 art exhibition and the place of Stein's instruments within it. The fourth section, finally, uses the idea of public exhibition to inform a discussion of Patrick Alströmer's display of the Gothenburg claviorganum to guests in his private home, and to suggest what their experience of seeing and hearing the instrument might have been like.

6.1 Stein's Instruments in the Press

As discussed in chapter 3, Stein's workshop notebook contains an undated list of stringed keyboard instruments that he had made in Augsburg after his arrival there in 1740 (or 1750). The list includes various types of instruments with their prices and the names of their buyers. The period of time that the list covers is uncertain, and neither can we be sure that it includes all of Stein's instruments and customers during that period.

The list does clearly indicate, however, that Stein sold his instruments to members of both the upper and the middle strata of society: to titled aristocrats as well as to merchants and musicians. Unsurprisingly, it also shows that people of modest connections tended to buy less expensive instruments. It is difficult to deduce from the names of the instruments listed very much about what they were like. Instruments that ranged in price from less than 75 to over 250 florins, for example, are all identified as "fortepianos." It seems reasonable to conclude, however, that the least expensive instruments on the list were clavichords, one-manual harpsichords, and perhaps square pianos or simply plain grand pianos. The most expensive instruments on the list, meanwhile—perhaps two-manual harpsichords, more lavishly decorated grand pianos, or even more elaborate combination instruments—were purchased by members of the nobility, not the middle class.

In other words, average citizens apparently did not constitute the primary buyer's market for Stein's most famous, most elaborate, and thus presumably most expensive instruments: his "works of art." (The *Melodica* might have been meant as an exception. It was smaller and simpler than the combination instruments, and according to Stein, was invented for the use of skilled and serious keyboardists.) Indeed, the historical record documents that Stein both displayed and sold his inventions mostly to the aristocratic class. He traveled to Paris to with the *Poly-Tono-Clavichordium* and the *Melodica*, for example, where he demonstrated the *Melodica* at the royal court. He found buyers in Paris for both instruments, although their iden-

tity is unknown. He also traveled with a *Vis-a-vis* instrument to Vienna in 1777, and presented that instrument, too, at court.⁶ He is known to have sold one *Vis-à-vis* instrument to a nobleman in Naples,⁷ and a *Saitenharmonika* to a count in Mannheim.⁸ His claviorganum, of course, went to Patrick Alströmer, a director of the East India Company in Gothenburg, who, though not originally from an aristocratic family, had held public office, was a favorite of Gustav III, and was elevated to the rank of baron (*friherre*, or *Freiherr*) in 1777.⁹

Although Stein certainly sold his inventions, then, more or less exclusively to members of the wealthiest classes, in another sense these instruments had a market much broader than just their wealthy purchasers. Evidence for this conclusion comes in the form of the very sources that transmit information about Stein's success in making sales to the aristocracy: that is, the descriptions of his instruments that appeared in magazines, newspapers, and pamphlets when the instruments were new. These reports have been analyzed in previous chapters for what they can reveal about how the instruments sounded and how they worked. But they also have much to say about the audience for whom the instruments were built: by the mere fact of their existence, but also in their language, their addresses to readers, and in the behavior of viewing and listening they describe.

These articles were more than just advertisements, although they may also sometimes have been that. They were news items; they were discussions about the nature of music and the function of musical instruments; and they were, perhaps above all, invitations for a discerning audience to inspect and evaluate, in person or vicariously, the objects being presented. Although not everyone could read newspapers, newspapers were, in theory, addressed to a universal readership;¹⁰ thus, as news items, the instrument descriptions were always implicitly addressed to a broad public. Sometimes, especially in their introductions or conclusions, they also address that public explicitly. The authors of the articles also address the categories of musical *Kenner*,

⁶Both journeys are documented by Stetten, *Kunst-Geschichte* 1779, 162. The journey to Vienna is confirmed by an advertisement in a Viennese paper, cited in Richard Maun-der, *Keyboard Instruments in Eighteenth-Century Vienna* (Oxford: Clarendon Press, 1998), 104, 147.

⁷John A. Rice, "Stein's 'Favorite Instrument': A Vis-à-Vis Piano-Harpsichord in Naples," *Journal of the American Musical Instrument Society* 21 (1995): 30-64.

⁸Heinrich Boßler, ed., "Aus einem Schreiben von Stuttgart," *Musikalische Real-Zeitung* (Speyer), July 29, 1789, 237. Facsimile edition (Hildesheim: Olms, 1971).

⁹Martin Fritz, "Patrick Alströmer: En kort biografi," in *Ekonomi och musik i 1700-talets Göteborg: En tidspegel utifrån en samtida dagbok* (Gothenburg: Göteborgs Stadsmuseum, 2005), 20-21.

¹⁰Broman, "The Habermasian Public Sphere," 127.

experts or professionals, and *Liebhaber*, educated enthusiasts. Often, the articles invite members of these groups to visit and view the instruments being described. Often, too, they discuss the extent to which an instrument might secure, or have already secured, the “approval” (“Beifall”) of these groups.

The texts, therefore, have two layers. First, they usually invite or describe a literal viewing of the instrument by interested observers. Second, the descriptions in and of themselves constitute a public presentation to interested readers who would never see the instruments in person. For these readers, the articles provided a kind of remote inspection as they described the instruments’ construction, their mechanical workings, and their musical capabilities.

The many entries on Stein’s instruments that began to appear a little later in dictionaries and encyclopedias, from the end of the eighteenth century and onwards, also constituted a public presentation, but of a slightly different kind. Continuing in the tradition of the Enlightenment encyclopedists, these repositories of universal knowledge were, like the news articles, intended to edify and educate the general reader. In the lexicons, however, the instruments served as immutable building blocks in the construction of grander histories—histories of music and musical instruments, or, depending on the dictionary, of technological progress and improvement. The news articles, in contrast, made Stein’s instruments available for immediate inspection and critique.

The Barfüßer Organ

Stein’s large organ for the Barfüßer church in Augsburg was first presented in the press in 1770, nearly fifteen years after its completion, in an anonymously authored article published in Augsburg and reprinted in Leipzig.¹¹ The article is addressed, in both versions, to all “lovers (*Liebhaber*) of beautiful and perfect organs”:¹² in other words, to a broad readership of musical enthusiasts. I cite the Augsburg version in the discussion that follows.

The article opens by announcing that a copperplate engraving is available for purchase with which these *Liebhaber* may familiarize themselves with a interesting new organ. With the aid of the engraving, the article promises,

¹¹“Orgelbaukunst,” *Kunstzeitung der Kayserl. Akademie zu Augsburg*, February 5, 1770, 41-45; Johann Adam Hiller, ed., “Nachricht. Von einer neu erbauten Orgel, aus dem 6ten Stück der Augspurgischen Kunst-Zeitung, den 5ten Febr. 1770,” *Musikalische Nachrichten und Anmerkungen* (Leipzig), March 12, 1770, 86-88, <http://books.google.se/books?id=vRdDAAAACAAJ&printsec=frontcover#v=onepage&q&f=false>.

¹²“... den Liebhabern schöner und vollständiger Orgeln. . .” “Orgelbaukunst,” 41.

organ enthusiasts “will obtain a quite clear idea of a work that does the greatest credit to the church in which it stands, and that will preserve the master who produced it from being forgotten by posterity for as long as the arts are treasured.”¹³ The instrument was Stein’s Barfüßer organ: the “excellent organ in the Evangelical Parish Church of the Minorites, which was made by Mr. **Georg Andreas Stein**, organ and instrument builder, and at present also the organist at this organ.” The engraving cost “36 kr” and is advertised as a depiction of the organ’s façade, drawn by Stein and engraved by the well-known “Mr. **Emanuel Eichel**, instructor at the School of Drawing at the Evangelical Gymnasium of St. Anna.”¹⁴

The presentation of the Barfüßer organ in this article begins, in other words, by inviting readers to participate in a literal viewing of the instrument, in the form of a visual representation that would provide them “quite a clear idea” of what it was like. The description of the organ that follows explains and elaborates on that visual representation. The rhetorical structure is one of explication, or uncovering. Step by step, the article moves the readers, or viewers, beyond the façade visible in the engraving, and exposes the interior workings of the instrument to their figurative gaze.

The author begins by addressing some visible elements of the façade: the division of the organ into Hauptwerk, Oberwerk, Brustwerk and Pedal, and the Pedal Principalbaß 16’ “of English tin,” which stood in the façade. Thereafter, aspects of the specification invisible from the outside are presented: the number of stops, for example (43), but also the concept underlying their selection. Stein assembled the specification, the author explains, by drawing on the best of both the French and German traditions, sensibly rejecting the “wit and faddishness” of the French as well as “German seriousness and stiffness.” Where a French builder would have put in “twelve or fifteen reed stops,” for example, the reader learns that the Barfüßer organ contains only five.¹⁵

The author makes a brief excursus in praise of Stein’s skill at playing his

¹³“... einen Kupferstich bekannt machen zu können, durch deßen Hülfe sie ziemlich deutliche Vorstellungen von einem Werke bekommen werden, welches der Kirche, in der es stehet, die größte Zierde giebt, und den Meister, der es verfertigt, bey der Nachwelt, so lange noch Künste werden geschätzt werden, vor der Vergeßlichkeit verwahren wird.” *Ibid.*, 41.

¹⁴Es ist solches der Prospect des fürtreflichen Orgelwerks in der Evangel. Pfarrkirche zu den Barfüßern, welches von Herrn **Georg Andreas Stein**, Orgel- und Instrumentenmacher, auch dermaligen Organisten bey diesem Werke, von 1755 bis 57. verfertigt, von ihm gezeichnet, und von Herrn **Emanuel Eichel**, Instructor der Zeichnungsschule an dem Evangel. Gymn. zu St. Anna, auf groß Folio in Kupfer gestochen worden. Das Blatt wird bey Herrn Director Nilson für 36 kr. verkauft.” *Ibid.*, 41-42.

¹⁵“...er hat sich weder von dem Witze und Modesucht der Franzosen verblenden, noch auch seine Lebhaftigkeit von der deutschen Ernsthaftigkeit und Steife ersticken

instrument, but quickly returns to presenting the organ itself, proposing to first “think a little about how the instrument is contrived.” This section illuminates several aspects of the organ’s inner workings. The “mechanism,” or action, is referenced: it “combines simplicity with sturdiness.” The construction is mentioned as well, in a way that presents the organ as susceptible of examination: “Screws are used everywhere, so that everything can be taken apart. Everything is arranged so that access is not blocked anywhere.”¹⁶

The particular and novel construction of the “bass windchest” (“Baßlade,” presumably in the pedal division) is also described. Here, rather than the traditional slider chest, Stein had installed a cone chest, a new type of construction “that was invented by Mr. Hausdörfer, former organ builder in Tübingen,” but which Stein had “improved even more. . . here and there.” The author even explains the advantage of this kind of chest: namely, that it had “been observed for a long time that many bass stops drawn together, even if they have two pallets, rob each other of wind,” a problem Stein’s improvements solved by giving “each pipe. . . its own wind.” The innovation “deserved attention,” the author suggested, for the “great utility” it provided in spite of having “nothing at all in common” with older windchest constructions—for demonstrating, that is, both utility and innovation.¹⁷ Finally, the author points out the “unusually large” bellows, which produce an “equality of the wind” that is “very noteworthy.”¹⁸

After this tour of the organ’s most remarkable features, the author turns to a discussion of the reactions that the instrument tended to induce in different kinds of observers. “Nothing delights the *Liebhaber* more,” the author remarks, “than the penetrating sharpness of the treble, which is perfectly provided by the difficult but extraordinarily beautiful Cornet stop.” “Sym-

laßen. . . Denn so würde man in Frankreich zwölf bis fünfzehn Zungenregister in dieses Werk gesetzt haben; da sie aber wenig Beständigkeit an sich haben, so hat Herr Stein nur fünf der schönsten hinein gebracht.” Ibid., 42.

¹⁶“ . . . wir wollen lieber von der Einrichtung dieses Werks etwas gedenken. Im dem Mechanismus ist Simplicität mit Dauerhaftigkeit verbunden. Ueberall sind Schrauben angebracht, damit man alles auseinander legen kann. Es ist alles so geordnet, daß nirgend der Zugang versperret ist.” Ibid., 43.

¹⁷“Man hat auch längstens wahrgenommen, daß die vielen zusammengezogenen Baßregister, ohngeachtet sie zwey Ventile haben, einander den Wind rauben; folglich den Ton matt und falsch machen. Dadurch wurde Herr Stein bewogen, eine andere Baßlade zu wählen, und zwar diejenige, welche Herrn Hausdörfer, ehemaligen Orgelmacher zu Tübingen, zum Urheber hat. Die Erfindung, welche von Herrn Stein noch da und dort ist verbessert, und zum allgemeinen Gebrauche zubereitet worden, verdient wegen ihres großen Nutzens Aufmerksamkeit, besonders weil sie mit der bisher bekannten Schleif- und jetzt veralteten Springlade gar nichts gemein hat.” Ibid., 43.

¹⁸“Es scheint uns auch bey diesem Werke die Gleichheit des Windes in vier außerordentlichen großen Bälgen sehr merkwürdig zu seyn. . .” Ibid.

pathetic [*Fühlende*] *Kenner*," however, were capable of evaluating the organ on more sophisticated grounds. Such listeners would, for example, "correctly admire. . . the individual, clear, and clean speech of the pipes"—which was, as discussed in the previous chapter, a prerequisite for a vocal, moving performance of the type described by C. P. E. Bach. They would also be able to appreciate the "beautiful and knowledgeable proportions" that governed the composition of the specification, and especially the mixture stops.¹⁹

The author also indicates that the admiration of the *Kenner*, in contrast to the naive response of the *Liebhaber*, represented an evaluation on aesthetic grounds. The design of the Mixture that they alone were capable of admiring, for example, is said to rest upon a special "insight into music" that Stein possessed, and which, according to the author, made Stein's work similar to that of a painter: "It is certain," he asserts, "that the organ builder without a knowledge of music is in the same dire straits as the painter who does not understand good drawing."²⁰ The *Kenner* are described as "führend"—that is, "sympathetic" in the sense of "feeling together with," or simply "feeling"—and the invocation of the painterly metaphor, which draws on the correspondence understood to exist among the fine arts, suggests that these "feeling" *Kenner* could be moved by the Barfüßer organ, or to the music that could be played upon it, as they would be by a painting or another work of the fine arts.

The tour of the organ concludes by stepping back to leave readers with a view of the whole picture: the "outer magnificence" of the organ, and its setting in the Barfüßer church. In describing the organ's overall appearance, readers are invited to "refer to [the] engraving," where they may observe the "beautiful wooden case, painted to look like walnut"; the "gilded decorations"; the "brightly polished pipes"; the "gallery. . . with an iron latticework decorated with gold and colors"; and the "sculpture-work, made from good drawings." Finally, the author notes that the Barfüßer Church also contained "many other sights for a *Liebhaber* of the arts,"²¹ a statement that

¹⁹"Nichts ergötzet den Liebhaber mehr als die durchdringende Schärfe des Discants, welche durch das mühsame, aber außerordentliche schöne Kornetregister. . . vollkommen erhalten worden. Fühlende Kenner aber bewundern mit Recht theils die einzelne deutliche und reine Ansprache der Pfeifen, theils die schöne und verständige Proportion, worzu die gute Ordnung der Mixturen und Cymbeln das meiste beyträgt." Ibid., 44.

²⁰" . . . Diesen Vortheil hat der Meister seiner Einsicht in die Musik zu verdanken. Es ist gewiß, daß der Orgelmacher ohne Kenntniß der Musik, eben so übel daran ist, als der Maler, der keine gute Zeichnung verstehet." Ibid.

²¹"Was den äußerlichen Pracht des Werkes anbetrifft, der alle unsere Augsbургische Orgeln übertrifft, so müßen wir uns auf unsern Kupferstich berufen. . . Das schöne auf Nußbaumart gemahlte Holzwerk, auf welchen die vergoldete Zierrathen mäßig, aber desto reizender angebracht worden; die großen hellpolierten Pfeifen; die in der Mitte zwis-

constitutes an implicit invitation for interested readers to visit the church, where they might see the organ for themselves.

The *Poly-Tono-Clavichordium*

Like the description of the Barfüßer organ, the description of Stein's *Poly-Tono-Clavichordium* was both by Hiller and in Augsburg.²² The Augsburg version, as I discussed in chapter 4, is particularly interesting for the long preface, absent in Hiller's version, which positions the description of the instrument itself within a discussion of larger issues: art, progress, welfare, and even morality. Once again, I cite the Augsburg version here.

This preface begins with an appeal in defense of the arts. It is addressed to members of "the enlightened public" ("dem erleuchteten Publico")—to a group of citizens, that is, that had been produced by the ideals of the Enlightenment, a rational, inquisitive, literate, and critical audience. The author urges this audience to grant artists like Stein "renown" and "esteem" ("Ruhm" and "Hochachtung") for their useful improvements and inventions. Supporting such artists was necessary, the author claims, to bring about continued advances in the arts, and, ultimately, greater welfare and prosperity for the city and for society at large.

The *Poly-Tono-Clavichordium* must have seemed the perfect example of an invention worthy of public attention and acclaim. At the moment of writing, the instrument had been completed, and stood in Stein's workshop in Augsburg, close at hand for readers of the local article. The description is based on the author's own examination, and it seems to tell the story of a visitor to Stein's shop, inspecting the instrument inside and out. It begins by presenting the basic disposition of the new invention, following more or less the contours of the *Poly-Tono-Clavichordium* as it would have presented itself to someone seeing it for the first time. The instrument consisted of a harpsichord and piano, "found together in one, and. . . separated from each

chen dem Haupt- und Oberwerk hervorstehende und mit einem künstlichen mit Gold und Farben verzierten eisernen Gitter. . . endlich die richtige und nach guter Zeichnung verfertigte Sculpturarbeit. . . Ueberhaupt hat diese Barfüßerkirche für einen Liebhaber der Künste viel Sehenswürdiges. . ." Ibid., 45.

²² *Augsburgischer Intelligenz-Zettel*, "Von Erfindung eines Poly-Toni-Clavichordii oder musikalischen Affecten-Instruments, und von Verbesserung eines neuen Orgelwerks," October 5, 1769; Johann Adam Hiller, ed., "Nachricht von Verbesserung des Pianofortinstruments," *Anhang zu den wöchentlichen Nachrichten und Anmerkungen die Musik betreffend* (Leipzig), July 24, 1769, 32, <http://books.google.se/books?id=ADc9AAAacAAJ&printsec=frontcover#v=onepage&q=&f=false>; and "Fortsetzung der Nachricht von Verbesserung des Pianoforte," *Anhang zu den wöchentlichen Nachrichten und Anmerkungen die Musik betreffend* (Leipzig), July 31, 1769, 40, <http://books.google.se/books?id=ADc9AAAacAAJ&printsec=frontcover#v=onepage&q=&f=false>.

other by a baseboard in the middle.” The harpsichord was the upper instrument, to which “the middle and upper keyboards are dedicated.” Its four registers are enumerated, and the way in which they are distributed between the two keyboards is explained. The piano was the lower instrument, the design of which was “contrived in such a way that from the outside it looks like the base of the harpsichord; the strings, then, face downwards,” and the lid, when open, “stands at a right angle to our ear.”²³

The author notes what seem like spontaneous physical impressions of how the *Poly-Tono-Clavichordium* sounded and how it felt to play, in particular with regard to the most novel part of the instrument: the piano. The opened piano lid directed “rays of sound” so that they were “conducted to our ear just as well as if the instrument were on top.”²⁴ The piano keyboard was

²³“Es befinden sich also zwey Instrumente in einem beysammen, und sind in der Mitte durch einen Boden von einander abgesondert. Das obere Instrument ist ein gewöhnlicher vierchörigter Flügel, wovon drey Saiten in 8 füssigen Einklange stehen, die 4te aber einen ganz gelinden 16 Fußton anspricht; das mittlere und obere Clavier sind diesem Flügel zugeeignet, wovon ersteres alle vier Doken zugleich, letzteres aber nur eine 8 füssige Saite allein nimmt. Das untere Instrument ist das sogenannte Pianoforte, und in der Bauart von aussen so eingerichtet, daß es den Fuß vom Flügel vorstellt; die Saiten sehn also unter sich. Der Dekel, welcher dieselben schließt, stellt sich, bey der Eröffnung, in eine solche abhängende flache Linie, daß er mit unserm Ohre zu rechtem Winkel steht.” *Augsburgischer Intelligenz-Zettel*, “Von Erfindung eines Poly-Toni-Clavichordii.”

²⁴“... die aufprallenden Tonstrahlen so gut in unser Ohr geführt werden, als wenn das Instrument oben wäre.” *Ibid*.

Laurenz Mizler also conceptualizes sound as “rays”, in an article on lacquering soundboards in clavichords and harpsichords entitled “Kurtze Nachricht, wie man Claviere und besonders Clavicimbel mit völlig aufgelösten Gummi Copal lackiren solle, daß sie viel besser als roh klingen,” in his *Musikalische Bibliothek*, vol. 2 (Leipzig, 1743), 267-268, [http://de.wikisource.org/wiki/Musikalische_Bibliothek_\(Mizler\)](http://de.wikisource.org/wiki/Musikalische_Bibliothek_(Mizler)). Mizler writes: “In music theory it is an accepted fact that the various tones come into being through varying quiverings of the air, or in short, through various vibrations. These various vibrations, which are caused by the strings, must bounce [against something] if the parts of the ear are to hear them sufficiently clearly, and [if] our mood [Gemüth] is to sense them [empfinden] properly.” He goes on to explain that rays of light reflect off of surfaces in the same way as do these “moving particles of air, or, so to speak, rays of sound [Tonstrahlen].” Sealing the surface of a soundboard, Mizler argues, makes it a smoother, better reflector. (“Es ist in der Tonlehre eine ausgemachte Sache, daß die verschiedenen Töne aus der verschiedenen zitternden Bewegung der Luft, oder kurz, aus den verschiedenen Vibrationen entstehen. Diese verschiedenen Vibrationen, so die Seyten verursachen, müssen aufprallen, wenn sie die Gliedmassen unserer Ohren recht deutlich vernehmen, und unser Gemüth wohl empfinden soll. . . Nun nehme ich wieder aus der Erfahrung vor bekannt an, daß die Aufprallung der Lichtstrahlen mit der Aufprallung der bewegten Lufttheilgen, oder, so zu sagen, Tonstrahlen, einerley Regeln hat.” The translation here is by Tilman Skowronek.) Especially interesting here is Mizler’s link between the ability to sense (*empfinden*) a sound and that sound’s being properly directed to the ear, a connection which suggests additional significance to the carefully worked-out angle of the *Poly-Tono-Clavichordium*’s lower lid.

“easy to play,” for “the slightest pressure on the keys touches the strings, and the strongest does not push them too far.” A few fairly specific details about the dimensions and the kinds of moving parts in the hammer action are adduced that seem likely to have been provided by Stein. However, the author emphasizes that all of these details are readily available for close examination, assuring the reader that, “whoever wishes to see the structure of the lower instrument in full can comfortably turn it over at will.” The author ends the description by explaining the different tonal effects made possible by combining the sound resources of the instrument in different ways.

The article concludes, finally, with an exhortation to readers to visit Stein’s workshop and examine the instrument for themselves: “Enough! Whoever wants to be persuaded [of the instrument’s excellence] must have seen all of its parts and heard it played, as I have done.” Eventually, perhaps, the *Poly-Tono-Clavichordium* would be sold to a wealthy customer and be placed in a setting where it was less available for inspection. In the meantime, members of the public could educate themselves about the new invention and “persuade” themselves both of its novelty and its utility by making their own examination and assessment, guided by the published description and, presumably, by Stein himself. Making such an examination, moreover, was framed by the author of the article not just as an enjoyable pastime, but as an important responsibility of “enlightened” citizens, who could advance the arts and benefit society by the exercise of their capable judgment.

The *Melodica*

As reviewed in chapter 5, the *Melodica* figured in a number of articles published during Stein’s lifetime. The existence of the instrument was first announced in the same article that introduced the *Poly-Tono-Clavichordium*. That announcement offered few details about the *Melodica*; it stated only that Stein was working on a new kind of organ, one in which the sound could be manipulated by the “stronger and weaker pressure of the fingers,” and promised that “a special description. . . will be given to the public as soon as he has produced it perfectly.” The latter statement indicates that presenting the instrument to the reading public was an integral part of its conception. The fact that Stein would not do so until he had perfected his invention implies, too, that the audience was expected to engage in a critical evaluation of the instrument he presented.

The promised presentation took the form of a long description, authored by Stein and published in 1772, once again both in a local version and in a

more widely distributed periodical. In the case of the *Melodica*, that periodical was the *Neue Bibliothek der schönen Wissenschaften und der freyen Künste*, a publication which, as mentioned above, addressed educated readers who were interested not only in music but also in the other fine arts, and in aesthetics as a field of philosophical inquiry. In the article published there, Stein described all the particulars of his new instrument: what it looked like, how it worked, how it sounded.

He was however, additionally—in fact, mainly—concerned with explaining why all of the features of his design were important, and he argued for his choices on aesthetic grounds. In citing books by C. P. E. Bach and Quantz, he situated his article, and his instrument, within a contemporary body of literature that examined how music worked, and how it should therefore be performed. In this way, the article constituted an invitation to learned readers to evaluate both the form and the function of the *Melodica*—not only the execution of the instrument, but its very concept—on the most fundamental level, and indeed, almost as a philosophical exercise.

The *Saitenharmonika*

The *Saitenharmonika* figures in two news items published in Bofler's *Musikalische Real-Zeitung*, in July and November of 1789.²⁵ Uniquely among news articles published about Stein's instruments, the latter of these reports describes not only the instrument itself, but also a specific scene in which it was demonstrated for a public gathering.

The July 29 issue of the magazine contained an excerpt from “a letter from Stuttgart,” in which an unnamed correspondent reports that Stein and his daughter Nannette had been in that city with the *Saitenharmonika*. Nannette had played the instrument there and had received an enthusiastic response:

Last week we had the pleasure of seeing Mr. **Stein** from **Augsburg** here in the company of his charming daughter, with his newly invented **Saitenharmonika**, which instrument he was taking to the Count of **St. Martin** in **Mannheim**. This *Saitenharmonika* attracted the admiration of all of the local *Kenner*, and the more so because the effect of the instrument was extremely

²⁵Heinrich Bofler, ed., “Aus einem Schreiben von Stuttgart,” *Musikalische Real-Zeitung* (Speyer), July 29, 1789, 237; and “Antwort auf die Anfrage wegen Herrn Steins neuerfundener Saitenharmonica, aus einem Brief des Herrn Pf. Christmanns an J.,” *Musikalische Real-Zeitung* (Speyer), November 4, 1789, 352-54, both in the facsimile edition (Hildesheim: Olms, 1971).

elevated by the enchanting playing of Mlle. Stein, who, according to the judgement of the *Kenner* themselves, in the skill and taste of her performance [*Vortrag*] now competes for the advantage with the famous Mrs. von Schaden.²⁶

The short report does not describe how the *Saitenharmonika* worked or what it sounded like. It does, however, mention the grounds for the positive appraisal made by the “local *Kenner*.” According to the correspondent, these musical connoisseurs admired the *Saitenharmonika* not primarily for its sound, nor for its mechanical ingenuity, but rather for its effect on listeners: its “Wirkung.” That effect, moreover, was not due to the sound of the instrument alone, but depended very much upon Nannette Stein’s manner of playing. It was “extremely elevated” by the “skill and taste of her performance” or “Vortrag”; that is, by the particular ways that she was able to, and chose to, manipulate the sound of the instrument. The description is precisely in accord with Bach’s discussion, in the *Versuch*, of the effects of the “gute Vortrag,” the “good performance” (or, in the translation I suggested as perhaps more appropriate in the context of the *Versuch*, the “good presentation”). The correspondent’s description indicates, in other words, that the Stuttgart *Kenner* evaluated the *Saitenharmonika* on specifically aesthetic grounds, following the contemporary model of how music functioned as a fine art that was described in chapter 5.

After excerpting this correspondence, the editors inquired whether any of their readers might be able to provide a “more detailed and clearer description” of the instrument for a future issue of the magazine. A few months later, on November 4, an answer to that query was published, authored by Johann Friedrich Christmann, who was, with Bößler, one of the editors of the magazine. Christmann’s report includes both a more detailed description of the *Saitenharmonika* itself and an account of another public

²⁶“Vorige Wochen hatten wir das Vergnügen, Herrn Stein aus Augspurg in Gesellschaft seiner liebenswürdigen Tochter mit seiner neuerfundnen Saitenharmonika hier zu sehen, welches Instrument er dem Grafen von St. Martin in Mannheim bringt. Diese Saitenharmonika hat die Bewunderung aller hiesigen Kenner auf sich gezogen, um so mehr, da die Wirkung dieses Instruments durch das bezaubernde Spiel der Mlle. Stein äusserst erhöht wurde, die nun in Fertigkeit und Geschmak des Vortrags nach dem Urtheil der Kenner selbst, mit der berühmten Frau von Schaden um den Vorzug streitet.” Bößler, ed., “Aus einem Schreiben,” 237. The keyboard maker Johann David Schiedmayer, who had worked for Stein, copied this passage into the workshop notebook that he had started to keep during his time with Stein: “Die Orgel in der Kirche zu den Barfüßern in Augsburg, ein Meisterwerk des berühmten Klavier- und Orgelbauers Johann Andreas Stein,” *Zeitschrift für Instrumentenbau* 23, no. 8 (1902): 19, http://daten.digital-e-sammlungen.de/bsb00004249/image_1.

demonstration of the instrument, this time in Stein's birthplace, the town of Heildelsheim.

In an echo of the brief item published in July, Christmann praises the *Saitenharmonika* repeatedly for the "effect" it had on listeners. "Its effect, dear friend," he introduces his account by saying, "its effect is beyond all description, and such that anyone must admit: No one but Stein could deliver such a masterpiece of mechanics." He goes on to describe the instrument, which looked like a normal grand piano, but included a plucked register, a so-called "German spinet" stop which could be played alone or in combination with the hammer action of the piano. He then reiterates: "the effect produced by the combination of these two can only be heard, but not described." He continues, describing how a "complete extinguishment of the tone" could be achieved when the "Forte piano at its softest is transferred to the spinet and, with a small pressure, made to die away completely." According to Christmann, the instrument, when used in this way, produced feelings in its audience that were "impossible to describe with words." For Christmann, the most noteworthy characteristic of the *Saitenharmonika* was its ability to move the emotions in an inner, ineffable way.

On Stein's demonstration of the *Saitenharmonika* in Heildelsheim, Christmann writes:

The instrument is now in **Mannheim**. On his journey there, the charming **Stein** found it impossible to resist visiting his nearby birthplace, an insignificant village in the Pfalz. He arrived with his skillful daughter, summoned his old acquaintances, the old men of the village, spent a cheerful day with them, unpacked his *Saitenharmonika*, and his daughter had then to play all day long, for young and old, Christians and Jews and Anabaptists alike, on this divine instrument.²⁷

Here, the scenario described appears to be a spontaneous gathering which probably should be understood to have included few or no musical *Kenner* or people of much musical accomplishment. The audience appears instead as a more naive group, including Stein's old friends and anyone else in the "insignificant" village who might have turned out to witness the exciting

²⁷"Das Instrument steht nun in Mannheim. Auf seiner Reise dahin konnte sich der lebenswürdige Stein unmöglich überwinden, seinen in der Nähe liegenden Geburtsort, ein unbedeutendes pfälzisches Dorf zu besuchen. Er kam mit seiner geschikten Tochter dahin, rief seine alten Bekannten, die Greisen des Dorft zu sich, machte sich mit ihnen einen vergnügten Tag, pakte sine Saitenharmonika aus und seine Tochter mußte dann Kleinen und Großen, Christen und Juden und Wiedertäufern den ganzen Tag über auf diesem göttlichen Instrumente spielen." Boßler, ed., "Antwort auf die Anfrage," 353.

novelty of a concert on an expensive and unusual instrument by a famous inventor. Nonetheless, the juxtaposition of Christmann's insistent repetition of the power of the *Saitenharmonika* to affect the feelings of its listeners with the tale of its presentation in Heidelberg seems to suggest that the reader should believe that its power would have operated even on these less sophisticated listeners. Alternatively, it is possible that Christmann intends the reader to understand a contrast between the sophisticated evaluation of the *Kenner* and the uncomplicated enjoyment of the Heidelberg audience.

6.2 Sightseeing in Augsburg

The news articles published about Stein's instruments constituted one kind of display of the instruments for the public in and of themselves. They also, however, typically contained an invitation, either implied or explicit, for readers to inspect and evaluate the instruments described in person, and there is evidence to suggest that many people actually did so.

Wolfgang Mozart's visit to Augsburg and to Stein's workshop in the fall of 1777 is often referenced for the detailed and enthusiastic account of Stein's pianos that Mozart later sent to his father. Mozart was certainly Stein's most famous visitor, but he was far from the only one. Two tourist guides by Paul von Stetten, published in 1772 and 1788, list Stein's workshop and his instruments among Augsburg's foremost attractions for visitors. These guides present Stein's instruments as works of art and his workshop as an artist's workshop. In that capacity, the shop and instruments represented attractions that could be examined and critiqued by visitors. Indeed, numerous authors of travel diaries from the late eighteenth century describe visiting Stein and his instruments. In contrast to the uniformly positive news items discussed in the previous section, these more personal accounts evidence a more critical attitude to the instruments on display. Typically, too, they evaluate the instruments within the framework Stetten suggests: that is, specifically as works of art.

Paul von Stetten's Travel Guides

In 1772, Paul von Stetten published the short guide *Die vornehmsten Merkwürdigkeiten, der Reichs-Stadt Augsburg* ("The foremost points of interest in the Free Imperial City of Augsburg"). It was a revised version of an earlier guide, and it was intended, Stetten wrote in the introduction, as a practical resource for visitors to what he called "one of the cities in Germany most worth seeing." He supposed that a "stranger" visiting Augsburg would be "eager to see the curiosities" of the city, and thus "require to know

what is really worth seeing.” Such a visitor “desires a guide,” Stetten wrote, “according to which he can satisfy his curiosity; for this purpose he uses a description of the place and the sights with it.”²⁸

Stetten’s guide was aimed at a broad audience, listing “only what is worth seeing and visiting for visitors of all professions and walks of life, and not from one class alone.”²⁹ Such sights included public and private buildings, gardens, factories, shops, and workshops, as well as paintings, book collections, scientific instruments, and natural curiosities. Stetten also imagined that travelers would be interested in visiting local personages, and so he notes that the new book provides up-to-date information on “learned men and artists whom every one who wants to travel usefully will not omit to visit.”³⁰

The *Merkwürdigkeiten* provided two different avenues by which visitors could get to know Augsburg. First of all, it contained lists of places to visit, and enumerated specific items of interest at each location. Augsburg’s many churches are listed, for example, with their most prominent decorations, especially their paintings. Second, the guide included lists of copperplate engravings that travelers could purchase as souvenirs. Among these were pictures of Augsburg’s famous places, as well as portraits of many of its more prominent citizens. Stetten explained: “Visitors often find enjoyment in taking with them with them engraved pictures of the city they have toured and its sights, so that they can remember what they have seen when they are gone.”³¹ The list of portraits, whose subjects included “local people of all classes,” was, he acknowledged, perhaps of greatest interest to the city’s own inhabitants. Nonetheless, he suggested that “a visiting *Liebhaber* may make use of it too,”³² and in particular, that it might be of interest to

²⁸“Jedem Fremden aber, welcher die Merkwürdigkeiten einer Stadt zu sehen begierig ist, dem liegt daran zu wissen, was wirklich sehenswert ist; er wünschet einen Leitfaden, nachdem er seine Neubegierde befriedigen kann; dazu dienet ihm die Beschreibung eines solchen Ortes, und der darinn enthaltenen Sehenswürdigkeiten.” Stetten, *Die vornehmsten Merkwürdigkeiten*, “Einleitung.”

²⁹“... das Sehens- und Besuchwürdige, für Fremde von allen Ständen und Lebensarten, nicht nur für eine Classe, ist hier angezeigt worden.” Ibid.

³⁰“Gelehrte und Künstler, die ein jeder der mit Nutzen reisen will, zu besuchen nicht unterlassen wird...” Ibid.

³¹“Fremde finden öfters ein Vergnügen daran, in Kupfer gestochene Vorstellungen von gesehenen Städten und ihren Merkwürdigkeiten mit sich zu nehmen, damit sie sich auch in der Abwesenheit des gesehenen wieder erinnern können...” Ibid.

³²Vielleicht ist sie den meisten Fremden gleichgültig. Bey Innwohnern möchte sie mehreren Beyfall finden. . . Allein auch der fremde Liebhaber kann sie nutzen. Es sind Arbeiten von vortrefflichen Meistern unter dieser Sammlung. . . Auch die Sammler der Theologen, der Rechtsgelehrten, der Aerzte, der Philologen, Schul-Lehrer, Künstler, finden hier einige Nachrichten, deren sie sich bedienen können.” Ibid.

“collectors of theologians, lawyers, doctors, philologists, schoolteachers and artists.” As Stetten pointed out, Augsburg, a traditional center of copper-plate engraving, was, “more than other cities, rich in such works.”³³ Thus, his invitation to tourists to purchase these engravings also supported an important local industry.

In 1788, Stetten looked back upon the *Merkwürdigkeiten* in the introduction of his second guide to the city, the much longer *Beschreibung der Reichs-Stadt Augsburg* (“Description of the Free Imperial City of Augsburg”). There, he notes that although the earlier book had limitations—“it contained, besides a description of the *Rathaus*, nothing but empty lists”—it had nevertheless been “received with acclaim” as “one of the first of those city guides which now belong to fashionable writing.”³⁴ From the vantage point of sixteen years later, however, he saw a need for an updated and more thorough treatment of his subject: a book that was not just “a list of sights” but rather, “a proper, though concise description of our city.”³⁵ The description, he thought, “should give an idea of the environs of our city, our government, our police, our institutions, our business, our arts and trades.”³⁶ Stetten intended the new book to be useful for citizens of Augsburg as well as travellers from abroad: he wanted not only to “furnish the citizen and inhabitant with a knowledge and a brief overview of the whole of his native city,” but also “to satisfy the curiosity of the inquisitive traveler, and to present the matter to him in the correct light.”³⁷

Like the *Merkwürdigkeiten*, the *Beschreibung* provides two different kinds of information. Roughly the first half of the book is given over to Stetten’s “brief overview” of the city’s history, government, and so on. The second half presents specific things to see and do. These are organized into categories such as “amusements and opportunities for recreation”; “important churches, schools, and public buildings, together with the works of art to be found in and on them”; “antiquities”; and “art collections.”

³³“Augsburg ist vor andern Städten reich an solchen Stücken.” Ibid.

³⁴“So allgemein sie auch war, denn sie enthält, außer einer Beschreibung des Rathhauses sonst nichts als leere Verzeichnisse, so war sie doch eine der ersten, jetzt zur Mode-Schriftstellerey gehörenden Städte-Beschreibungen, und wurde damals mit Beyfall aufgenommen.” Stetten, *Beschreibung*, “Einleitung.”

³⁵“...anstatt der Verzeichnisse von Merkwürdigkeiten, eine ordentliche, jedoch gedrängte Beschreibung unserer Stadt...” Ibid.

³⁶“Die Beschreibung soll einen Begriff geben, von dem äußerlichen unserer Stadt, von unserer Verfassung, unserer Policy, unseren Anstalten, unserer Handlung, unseren Künsten und Gewerben.” Ibid.

³⁷“Hier glaube ich genug gesagt zu haben, um Theils dem Bürger und Einwohner, eine Kenntnis und kurze Uebersicht des Ganzen von seiner Vaterstadt, verschafft zu haben, theils um die Wißbegierde des neugierigen Reisenden zu stillen, und ihm die Sache in seinem wahren Lichte vorzulegen.” Ibid.

It is clear from Stetten's introductory remarks that the *Beschreibung* was written against a backdrop of, and partly in response to, the burgeoning genre of the travel diary. There were, Stetten noted, "infinitely many travel-guides. . . appearing," and he was concerned that Augsburg did not always figure in these guides to its best advantage. Indeed, he opined, "in a flighty and often extremely partisan way, things are written in passing which, even where they are not completely false, still, are presented in an utterly false light." In the *Beschreibung*, therefore, he proposed to make a "true representation" of the city that, though it would not respond directly to any particular author or criticism, would still be "rebuttal enough."³⁸

Stetten names no names, but some context for his guides, with their heavy emphasis on artists and artworks, may be found, for example, in the travel diary of Johann Kaspar Riesbeck, who visited Augsburg in 1780 on a journey through southern Germany.³⁹ Riesbeck considered the city "truly beautiful," but found little to admire in Augsburg's politics, its industry, or its culture. Much of his criticism centers precisely around what he found to be inadequate support for the arts by the city's leaders. He portrays Augsburg as sadly diminished from its former glory, with little wealth remaining in its ruling families or in its merchant class. Next to the merchant class, the city's "copperplate engravers, wood carvers, and painters" were "the most eminent part of the employed population," but they were forced to spend their days turning out "products the equivalent of the petty wares that can be found in Nuremberg," saleable "pictures for prayer books and for the decoration of burghers' houses," simply "in order not to starve."⁴⁰ The ruling families, he says, understood little of art and cared less, preferring to feed their "horses and hounds" rather than the local artists.⁴¹ And the art academy Stetten had so proudly established appeared "to have no higher purpose than to educate good craftsmen while calling them artists,

³⁸"... als eben heut zu Tage, so unendlich viele Reise-Beschreibungen zum Vorschein kommen, darinn auf eine flüchtige, oft auch äußerst partheyische Weise, Dinge in den Tag hinein geschrieben sind, die wo nicht ganz und gar unrichtig, jedoch in völlig falschem Lichte vorgestellt sind. Ich begehre aber hier keine derselben zu widerlegen, die wahre Darstellung ist Widerlegung genug." Ibid.

³⁹Johann Kaspar Riesbeck, *Briefe eines reisenden Franzosen durch Bayern, Pfalz und einen Theil von Schwaben an seinen Bruder zu Paris* (Zürich: 1783).

⁴⁰"Nach diesen Krämern und Mäklern sind die Kupferstecher, Bildschnitzer und Maler der ansehnlichste Teil der beschäftigten Einwohner. Ihre Produkten aber sind der Pendant zur Nürnberger Quincaillerie [Kurzwaren]. Es gab immer einige Leuthe von Talent unter ihnen; da sie aber bei den kleinen Versuchen für die Kunst nie ihre Rechnung fanden, so mußten sie byi den Kapuziner-Arbeiten bleiben, um nicht zu verhungern. Sie versehen fast das ganze katholische Deutschland mit Bilderchen für die Gebethbücher und zur Auszierung der Bürgerhäuser." "Sechster Brief," in *ibid.*, 61.

⁴¹"Der Baron füttert lieber Pferde und Hunde. . . als Künstler. . ." Ibid.

and thus to keep the city's manufactures going."⁴²

Riesbeck ascribed part of the problem to the city's form of governance. "The patricians," he says, "who, together with a committee of merchants, rule the city like aristocrats, cannot stomach the notion that the plebeians might rise up above them by means of resources that they acquire through their own assiduity. They hate and persecute the diligence of their workshops because of a miserable jealousy."⁴³ The deeper root of the problem, however, he traced to "the depravity of the city as a whole." "Nine-tenths of the inhabitants," he writes, "are the most infamous scoundrels one can imagine, who are always ready to strangle themselves at the first sign of religious discrimination, who carry their weekly salary straight to the alehouse on Sunday and never think of the greatness of their ancestors before the beer is fermenting in their heads."⁴⁴ For Riesbeck, in other words, the lackluster situation of artists and the arts that he perceived in Augsburg was a signal of rot at the city's core: bad leadership, and a population lacking in self-respect and morale.

The stakes for Stetten and his travel guides, therefore, were high. In addition to what was surely a sincere interest in local artists and the arts, as one of the leaders of the city government he also had a vested interest in promoting the reputation of his city, and these two interests were inextricably linked. Praising and promoting the arts in Augsburg was a way to promote the reputation of the city to outside observers, and thus to increase the general welfare of its inhabitants. More than that, success in the arts signaled a sound government and an industrious, right-thinking population.

⁴²"Es hat sich zwar unter dem Schutz des Magistrates hier eine Künstlerakademie zusammengethan, die aber, so wie ihre Patronen, keinen höheren Zweck zu haben scheint, als unter dem Namen von Künstlern gute Handwerksleute zu bilden und die Manufakturen der Stadt im Gang zu erhalten." *Ibid.*, 62.

⁴³"Der Grund dieses widersinnigen Betragens liegt zum Teil in der Regierungsform. Die Patrizier, welche nebst einem Ausschuß der Kaufleute die Stadt aristokratisch beherrschen, können es nicht verdauen, daß der Plebejer durch die Mittel, die er sich durch seinen Fleiß erwirbt, das Haupt über sie empor heben soll. Sie hassen und verfolgen den Fleiß in seiner Werkstätten aus einer elenden Eifersucht..." *Ibid.* Stetten indeed contended, as discussed in chapter 3, that the city needed more legal provisions that would allow local artists to achieve recognition for their work.

⁴⁴"Der Hauptgrund dieser erbärmlichen Politik liegt in der Verderbtheit des Ganzen. Neun Zehnteile der Einwohner sind die infamste Kanaille, die man sich denken kann, das immer bereit ist, sich selbst auf das erste Signal aus Religionshaß zu erwürgen, das den Arbeitslohn einer Woche richtig auf den Sonntag in die Bierschenke trägt und an die Größe ihrer Vorfahren nicht eher denkt, als wenn das Bier in seinem Kopfe gärt." *Ibid.*, 63.

Visitors to the Barfüßer Organ

Unlike his stringed keyboard instruments, which must have remained in his workshop only until he had sold or delivered them, Stein's large organ in the Barfüßer church was an instrument that remained on permanent display. This circumstance, combined with the instrument's size and grandeur, made it one of Augsburg's foremost attractions, and Stetten listed it among the city's most worthy sights in both the *Merkwürdigkeiten* and the *Beschreibung*.

The organ appears twice in the former work. It is mentioned first in a section that lists the city's churches, in the entry for the Barfüßer church. There, in addition to several paintings, "the pulpit," and "the grillwork around the altar," Stetten lists "the new large organ by Mr. Stein."⁴⁵ The second mention of the organ comes among the lists of copperplate engravings. Here, the engraving by Eichel advertised in the 1770 article about the organ discussed above is included on a list of pictures of "Mechanical Pieces of Art" ("Mechanische Kunststücke"). The engraving is identified as "the large and artful **organ**, in the Evangelical Barfüßer Church, built by Mr. Joh. Andr. Stein, engraved by Mr. Eichel."⁴⁶ The list also includes two pictures of clocks, and two of fire engines. The entry for the engraving of the organ, however, is additionally marked with an asterisk, which was Stetten's way of indicating that he considered the engraving to have especially great artistic merit. (He writes in the introduction that the engravings listed in the *Merkwürdigkeiten* are "not [all] works of art—one would have to be blind to claim that—but there are many good works among them," including some "works by outstanding masters" that "[deserve] a place among other artworks many times over." In the case of these latter works, he had found it "impossible to refrain from marking these pictures" with an asterisk.⁴⁷) Thus, not only the organ, but also the engraving of it drawn by

⁴⁵"Zu den **Barfüßern**. Gemähld: das jüngste Gericht von Schönfeld; das Heil. Abendmahl auf dem Altar, von Eichler; einige Stücke aus der Geschichte Christi von Joh. Heiß und Isaac Fisches; die neue große Orgel von Hrn. Stein; die Kanzel; das Gitterwerk um den Altar." Stetten, *Merkwürdigkeiten*, 17.

⁴⁶"Die große und künstliche Orgel, in der Evangel. Kirche zu den Barfüßern, gebaut von Hr. Joh. Andr. Stein, gest. von Hr. Eichel." *Ibid.*, 80.

⁴⁷"Augsburg ist vor andern Städten reich an solchen Stücken. Nicht lauter Kunststücken,—man mußte verblendet seyn, wenn man dieses behaupten wollte,—doch sind viele gute Arbeiten darunter"; "Es sind Arbeiten von vortrefflichen Meistern unter dieser Sammlung. Was von Schönfeldt, Mayz, Hopfer, Fr. Frid. Franken, Eichler, Holzer, Desmarees und Hr. Anton Graf gemahlet, von Lucas Wolfgang, Philipp und Bartholme auch von Philipp Andreas Kilian, sodann von Matthäus Küfel, Elias Hainzelmann, Andr. Matthäus und Herrn Gust. Andr. Wolfgang, Herrn Nilson und Hr. Friedrich gestochen oder von El. Chr. Heis, Bernh. Vogel, G. Ph. Rugendas, Joh. Jac. und Hr. Joh. Elias

Stein, were identified as especially sightworthy.

The organ is mentioned only once in the *Beschreibung*: in the list of churches and other public buildings with their artworks, under the entry for the Barfüßer church. Stetten explains the reasoning behind that particular list by saying that “churches and public buildings are our galleries, in which the eye of the *Kenner* as well as the *Liebhaber* may delight, and where the student of art may study and collect ideas and treasures.” The list was a way to “bring together” The “architecture, statuary, and painted artworks and objects” in the various locations represented a “scattered” kind of art history; the list was an attempt to make them into a coherent collection, although they did not exist as such in reality.⁴⁸ These artworks scattered across public spaces were, Stetten, just as important as the proper art collections that were owned by private individuals—even more important, perhaps, since they were “no longer being bought or sold,” and so could “be neither altered nor divided and scattered in inheritances,” but rather, would “remain fast in their places,” so that they could “be seen by future generations.”⁴⁹

The *Beschreibung*, then, positions the Barfüßer organ within the framework of a permanent exhibition of art and art history for both amateurs and connoisseurs, an audience whose critical judgment Stetten both invites and anticipates. He introduces the local churches, for example, with a general disclaimer about what he considered to be their poor architecture: Rococo ornament applied to a Gothic framework. He writes, apologetically:

Regarding the construction of the churches, a general note is that they [almost] all... were built in the Middle Ages, when Gothic taste still reigned, and beautiful architecture on Greek and Roman patterns was not yet known in Germany. Although this taste, too, has some greatness, that is nevertheless not very

Haid, in schwarzer Kunst gearbeitet ist, verdienet vielmals unter Kunststücken eine Stelle. Man hat sich daher nicht enthalten können, dergleichen Bildnisses mit [asterisk] zu bezeichnen.” Ibid., “Einleitung.”

⁴⁸“Indessen sind Kirchen und öffentlichen Gebäude, unsere Gallerien, in welchen sich das Auge des Kenners und Liebhabers ergötzen, und der Kunstschüler studieren, Ideen und Schätze sammeln kann; es ist also wohl der Mühe werth, das in der Kunstgeschichte zerstreute und unvollkommene, von architectischen statuarischen und gemalten Kunstarbeiten und Gegenständen, in Zusammenhang und zu mehrerer Vollständigkeit zu bringen...” Stetten, *Beschreibung*, 157-58.

⁴⁹“Dergleichen Kunstarbeiten sind um so merkwürdiger, als sie außer dem Handel sind, und weder veränkert [sic?], noch durch Erbschaften vertheilt und zerstreuet werden können, sondern an ihren Stellen feste bleiben, und, außer was durch die Zeit verzehrt oder durch Zufall verheeret wird, auch von den Nachkommen beobachtet werden können.” Ibid., 158.

apparent in our churches. . . The inside decorations, especially the ones in plaster, in several of them are from the middle of this century; that is, unfortunately from a time when people failed to appreciate true beauty grounded in order and regularity, and revelled in grotesque volutes [*Schnacken*] and cluttered ornamental painting and gilding, which could now not possibly please the true *Kenner*.⁵⁰

The Barfüßer church itself is described in much more detail in the *Beschreibung* than in the *Merkwürdigkeiten*, and in the later work, Stetten also subjects the church to an aesthetic critique. The church had a large number of paintings, several of them “beautiful.” But the pulpit and the grillwork in front of the altar, already pointed out in the *Merkwürdigkeiten*, are now revealed to be built in “grotesque clamshell taste.” The “high altar” was “better.”⁵¹ The best architectural feature of all, however (oddly, perhaps, given the Rococo leanings of its ornaments) is Stein’s organ: “In this large and lofty church,” Stetten proclaims, “the architecture of the large organ built in 1756 by Mr. Johann Andreas Stein is especially noteworthy.”⁵² The only other local organ that Stetten suggests as sightworthy on its own merits is the “old and very beautiful” one in St. Anna’s.⁵³ He mentions two others, but only for the sake of referring to the paintings on or near them. The Barfüßer organ is presented, in contrast, as an artwork, outstanding among the other features of its church, something which itself might be “studied” and “delighted in.”

Mozart, of course, was the most famous visitor to the Barfüßer organ; he played on it during his stay in Augsburg in 1777. C. F. D. Schubart, whose impressions of the instrument were presented in detail in chapter 5, described the organ as “masterful,” and praised especially its tuning

⁵⁰“Von dem Bau der Kirchen ist überhaupts anzumerken, daß sie insgesamt. . . in mittleren Zeiten gebauet sind, wo noch Gothischer Geschmack herrschete, und schöne Architectur, nach griechischen und römischen Mustern, in Deutschland noch nicht bekannt war. Wenn schon auch jener Geschmack etwas großes hat, so fällt es doch bey unseren Kirchen. . . nicht sehr in die Augen. Die inneren Verzierungen, besonders die von Gypsarbeit, sind bey verschiedenen aus der Mitte dieses Jahrhunderts, das ist, leider aus einer Zeit, wo man das wahre in Ordnung und Regelmäßigkeit gegründete Schöne verkannte, und sich mit grotesken Schnacken und überhäufften Bemalungen und Vergoldungen weidete, die jetzt dem ächten Kenner unmöglich gefallen können.” *Ibid.*, 158.

⁵¹“Die Kanzel ist in groteskem Muschelgeschmack von Joh. Fridr. Rudolph gebaut. Der Beichtstuhl, und das eiserne Gitter vor dem Altare, sind von gleichem Geschmack. Besser ist der hohe Altar. Daran ist ein schönes Altar-Blatt. . .” *Ibid.*, 163.

⁵²“In dieser großen und hohen Kirche, ist an Architectur vorzüglich, die große im Jahr 1756. durch Hrn. Joh. Andreas Stein gebaute Orgel merkwürdig.” *Ibid.*

⁵³“ . . . der alten und sehr schönen, von Jahn von Doubraw erbauten Orgel. . .” 159.

and its skillful combination of timbres. Forkel, in his entry on Stein in the 1781 *Musikalischer Almanach*, refers to Stein's "excellent and sightworthy" organs, surely in reference most of all to the Barfüßer organ.⁵⁴ Friedrich Nicolai visited Augsburg in 1781 and made a trip to see and hear the organ. He found it "beautiful" in appearance, but could not evaluate its sound: "I heard [it], indeed," he reports, "but could not judge its particular advantages, because just then the organist was playing all the stops at once, very thunderously, and in a way not very suited for an organ."⁵⁵ Also in 1781, according to a published diary of his travels in and around southern Germany, the historian Philipp Wilhelm Gercken visited Augsburg and listened to the "large new organ by the famous local organ builder **Stein**." Gercken agreed with Stetten that the instrument was one of the "foremost" of the Barfüßer church's "attractions," among which he also noted its "very highly vaulted" architecture, "lovely paintings," and "many silver items." In a comment that mirrors the reactions of the *Liebhaber* described in the 1770 article about the organ, Gercken also reports that "it really does have a keen and excellent sound."⁵⁶

In September of 1821, the piano builder Johann Baptist Streicher, who was Nannette's son and Stein's grandson, visited Augsburg. Like Mozart, perhaps, Streicher made the trip more for business than for pleasure. He spent most of his stay in Augsburg seeing or working on musical instruments, and he returned several times to "the great instrument of the late *Stein* in the Barfüßer Church, the organ," where the organist "had the kindness to show us the instrument in its whole magnitude." He did, however, also take time to play the tourist, visiting sights that included the town hall, "a splendid building," of which he noted that "the halls are used to

⁵⁴"Ausser daß er vortrefliche und sehenswürdige Orgeln gebaut hat..." Johann Nicolus Forkel, *Musikalischer Almanach für Deutschland auf das Jahr 1782* (Leipzig: im Schwickertschen Verlag, 1781), 201, <http://www.archive.org/details/MusikalischerAlmanachFrDeutschlandAufDasJahr1782>.

⁵⁵"Er hat eine schöne Orgel in der evangelischen Kirche zu den Barfüßern gebauet, welche ich zwar hörte, aber ihre besondern Vorzüge nicht beurtheilen konnte, weil der Organist gerade mit vollem Werke, sehr rauschend, und eben nicht sehr orgelmäßig spielte." Friedrich Nicolai, *Beschreibung einer Reise durch Deutschland und die Schweiz im Jahre 1781: Nebst Bemerkungen über Gelehrsamkeit, Industrie, Religion und Sitten*, vol. 8 (Berlin and Stettin: 1787), 39, http://books.google.se/books?id=MfUAAAAQAAJ&source=gbs_navlinks_s.

⁵⁶"Die neue große Orgel von dem dasigen berühmten Orgelbauer **Stein** gehört unter ihre vornehmsten Merkwürdigkeiten, indem sie eine von den größten in Teutschland seyn soll. Sie hat auch wirklich einen scharfen und vortreflichen Klang." Philipp Wilhelm Gercken, *Reisen durch Schwaben, Baiern, angränzende Schweiz, Franken, und die Rheinische Provinzen u.a. in den Jahren 1779-1782*, vol. 1 (Stendal: D. C. Franzen, 1783), 215, http://books.google.com/books?id=sGMPAAAAQAAJ&dq=gercken+reise+durch+schwaben&source=gbs_navlinks_s.

preserve lovely pictures, both old and recent”; and the “*Academie* of the fine arts” on the second floor of the the so-called *Stadtmetzg*, the butchers’ guild house and sales hall. He also visited the cemetery where “the grandparents *Stein*” were buried. With regard to his impressions of the organ, the professional instrument builder Streicher certainly qualified as a *Kenner*, and his diary indeed reveals a more professional interest in the instrument. He noted, for example, that the instrument had 40 stops, and left a space to record the total number of pipes, which he did not fill in. In contrast to Gercken, and perhaps other *Liebhaber*, however, it was not the organ’s keen and penetrating sound that impressed him most. Instead, he writes of being “especially pleased by the exceedingly beautiful flute register.”⁵⁷

Workshops as Attractions

In addition to listing the Barfüßer organ as an attraction, both of Stetten’s guides also include Stein’s residence and the instruments that might be found there. In the *Merkwürdigkeiten*, Stein’s workshop appears among the destinations listed in the first part of the book, under the heading “Items of Art and other Curiosities” (“Kunstsachen und andere Curiositäten”), a list that includes several other artists’ homes (or workshops), as well as collections of books, paintings, scientific instruments, and rare objects of various kinds. The entry for Stein’s home points out a particularly interesting instrument that could currently be seen there:

Mr. J. A. **Stein** organ builder, makes organs, harpsichords, claviers, the Melodica of his own invention, among other things. At present one may also see there a harpsichord of special composition and effect; lives on the Lech [river; in the area known as *am vordern Lech*].⁵⁸

⁵⁷“Mittwoch 12t. Sept. . . gingen wir am Gottes Acker wo Grokeltern Stein begraben liegen ins Lug ins Land“; “Freitag. 14t. Sept. Wir gingen, das große Werk des seel: Stein in der Barfüßer Kirche, die Orgel zu besehen. . . Herr Lehmann hatte die Gefälligkeit, uns das Werk in seinem ganzen Umfange zu zeigen, es hat [] Pfeifen u 40 Register, ein Glockenspiel, u. Paucken. Besonders gefiel mir das überaus schöne Flöten-Register. . . .”; “Donnerstag 20t. Sept. . . . Nachmittag besuchten Onkel, Diacon mit Frau, und ich noch einmahl die Barfüßer Orgel. Dann besahen wir die Metzg, ein schönes dazu eingerichtetes Gebäude. . . Ober der Metzg im 1t Stock befindet sich, etwas sonderbar die Academie der bildenden Künste. . . . Da es noch Tag war, führte uns Onkel auf das Rathhaus, ein prächtiges Gebäude, vor welchem sich jetzt die Hauptwache befindet. Die Säle sind zur Aufbewahrung schöner Gemählde alter und neuer Zeit benutzt.” Uta Goebel-Streicher, ed., *Das Reisetagebuch des Klavierbauers Johann Baptist Streicher 1821-1822* (Tutzing: Hans Schneider, 2009), 33, 37-38.

⁵⁸“Hr. J. A. Stein, Orgelmacher, verfertiget Orgeln, Clavicembel, Claviere, die von ihm

This instrument was probably the *Poly-Tono-Clavichordium*, which had been described as a new kind of harpsichord in the article about it published three years prior. Stetten's note here confirms the suggestion made in that article that readers could see and hear the *Poly-Tono-Clavichordium* for themselves in Stein's home.

In the *Beschreibung*, an entry for Stein appears in a section about halfway through the book that lists the names of local citizens who worked at various occupations, and their workplaces—bankers, factory owners, manufacturers, shopkeepers, and so on. Stein appears under the subheading “Currently living artists” (“Jetzt lebende Künstler”) which is further subdivided into specific occupations. These begin with fine artists—including “painters,” “copperplate engravers and workers in *mezzotint*,” “draftsmen,” “sculptors,” and “musicians”—and progress to mechanical artists. A heading for “artists in the manufacture of physical and mathematical instruments” lists the clockmaker Franz Xaver Gegenrainer, who “makes, in addition to large clocks, excellent astronomical clocks, and also others with organ works, or Glockenspiels.”⁵⁹ The next heading is for “artists in the manufacture of musical instruments, organs, pianofortes, claviers, and harpsichords,” under which only two names appear: Stein's, and that of Matthäus Schauz, one of Stein's former journeymen, who had established his own workshop in Augsburg.⁶⁰

The *Beschreibung* also includes a street map of the city, and Stetten appends a letter and number to each of the names on his lists that allow readers to locate each man's residence or workplace on the map. He provides the same information for all of the buildings, shops, and other places of interest mentioned in the subsequent sections of the book. Artists like Stein, therefore, appear on the same terms as the schools or churches—as destinations that travelers may look up and visit. The entry on Stein does not mention any particular instruments on display at his home, but the descriptive heading indicates the variety of keyboard instruments a visitor might expect to see: “organs, pianofortes, claviers, and harpsichords.”

Friedrich Nicolai's account of his visit to Augsburg in 1781 provides an interesting example of how a visit to Stein could fit into a more general

erfundene Melodica u.a. Man sieht auch dermalen bey ihme ein Clavicembel von besonderer Zusammensetzung und Wirkung; wohnt am vordern Lech.” Stetten, *Die vornehmsten Merkwürdigkeiten*, 25.

⁵⁹“Künstler in Verfertigung physikalischer und mathematischer Instrumente. . . Franz Xav. Gegenreiner, Groß-Uhrmacher, verfertigt außer den großen Uhren, vortreffliche astronomische, zugleich aber auch andere mit Orgelwerken, oder Glockenspielen. D. 138.” Stetten, *Beschreibung*, 142.

⁶⁰“Künstler in Verfertigung musikalischer Instrumente, Orgeln, Pianoforte, Klavier, und Klavicembel. Johann Andreas Stein, B. 40. Matthäus Schauz. A. 10.” *Ibid.*, 143.

context of sightseeing, Nicolai describes his visit to Stein as one element of a broad-ranging inspection of the state of the mechanical arts in Augsburg, and especially those mechanical arts that Stetten had called “true” or “actual”: clockmaking, for instance, and the making of scientific instruments and musical clocks, as well as musical instruments. Nicolai praises the skill and industry of the Augsburg clockmakers, and he mentions Gegenrainer in particular, whom he calls a “most excellent artist,” and who, he relates, fixed his odometer, which had been “made unusable by the clumsiness of a worker in Vienna who thought much of himself but knew very little.” Nicolai’s interest in understanding the mechanical workings of that device is evident. He describes in detail the “mistake” which Gegenrainer “immediately discovered”: that the Viennese craftsman had “made the closing hook pointed, not square as it used to be, so that the instrument could not be bent back, and would have had to break if the wagon were pulled backward even by only a single movement of the rear wheel.”⁶¹

Nicolai also inquired into the local production of musical clocks, and made it his business to hear one, although here, he was less impressed with what Augsburg had to offer. Upon being informed that “there was certainly a great **artist** of this kind [in Augsburg], by the name of Eppinger,” he “hurried there, full of anticipation.” “But,” he says, “I found a musical clock [Flötenuhr] that was miserable beyond belief; it sounded like a common pennywhistle, did not keep the rhythm, and played a few short, miserable pieces. So in this Augsburg is very behind, and it seems that they do not know at all the value of such things there.”⁶²

He was, however, able to balance this disappointment with a positive judgment of Stein and his instruments, about which he writes at some length. He found Stein to be a “musical-mechanical artist who is a great

⁶¹“Einer der vorzüglichsten Künstler in dieser Art ist Hr. **Franz Xaver Gegenrainer**. Dieser geschickte Mann setzte auch meinen **Wegmesser**, der durch die Ungeschicklichkeit eines sich viel dünkenden und unwissenden Arbeiters in Wien war ganz unbrauchbar gemacht worden, wieder in Stand. Er entdeckte gleich den Fehler, den der unwissende Mensch in Wien begangen hatte, indem dieser den Schließhaken, nicht wie er vorher gewesen war, winkelrecht, sondern spitzig gemacht hatte: weshalb das Instrument nicht zurückgespannt werden konnte, und nothwendig würde haben zerbrechen müssen, wenn der Wagen nur um eine einzige Bewegung des Hinterrades wäre zurückgezogen worden.” Nicolai, *Beschreibung einer Reise*, 38.

⁶²“Ich erkundigte mich, ob man nicht auch in Augsburg **Flötenuhren** machte. . . Man sage mir, daß allerdings ein großer **Künstler** dieser Art, Namens, **Eppinger**, vorhanden wäre. . . Ich eilte voll Erwartung dahin. Ich fand aber eine Flötenuhr, die über allen Glauben elend war; sie hatte einen gemeinen Pfennigpfeifenton, ging im Takte unrichtig, und spielte einige kurze elende Stücke. Hierin ist man also noch in Augsburg sehr zurück, und man scheint daselbst gar noch nicht zu wissen, worin der Werth solcher Werke besteht.” *Ibid.*, 38-39.

credit to the city.”⁶³ Besides listening to the organ in the Barfüßer church, he also visited Stein’s home, where he had hoped to hear the Melodica, but found it was out of order. He was, however, able to listen to an instrument that sounds from his description as if it might have been a *Saitenharmonika*:

In the house of this artist, I heard him play on one of his *Fortepianos*. The instrument was in the shape of a *Flügel*; the *Fortepiano* stop was extremely soft and cajoling; the harp stop however a little hard and screechy. But the mistake was easy to change, for one needed only not to draw this stop, and be satisfied by the beautiful sound of the Fortepiano alone.⁶⁴

The combination of an apparently normal kind of fortepiano sound with a more piercing “harp stop” in a wing-shaped instrument is consistent with other contemporary descriptions of Stein’s *Saitenharmonika*, even though Nicolai, unlike Christmann and Reichardt, was left apparently unmoved by the result.

Nicolai also evaluated Stein’s musical knowledge and skills in the context of Augsburg’s musical culture. He heard two large musical performances during his stay in the city. One was a mass in St. Moritz’ Church, which he deemed “quite a good composition, soft and heart-stirring [*herzrührend*]”; but if the composition was moving, the sounding performance was not, for “the execution,” he says, “was bad beyond belief: no instrument in tune, and the players were very often not together.”⁶⁵ He also “heard a concert in a garden in front of the [Red] Gate,” featuring a female singer whose voice “was so strongly screeching and discordant” that he felt “amazed that the onlookers could endure it.” “Luckily,” he notes dryly, “a merciful audience conversed. . . so loudly that much of the singer’s false music. . . could not be heard.” The performances, he concludes, confirmed a “truth” of which he had become convinced of during his travels: namely, that “there are few

⁶³“Augsburg hat aber einen andern musikalisch-mechanischen Künstler; welcher dieser Stadt sehr viel Ehre macht: nemlich den Orgelbauer Hrn. **J. A. Stein**. . .” *Ibid.*, 39.

⁶⁴“Ich hörte aber in dem Hause dieses Künstlers ihn auf einem von seinen Fortepiano spielen. Das Instrument war in Form eines Flügels; das Fortepianoregister war überaus sanft und schmeichelnd; das Harfenregister aber ein wenig hart und kreischend. Doch der Fehler war leicht zu ändern, denn man durfte ja nur dies Register nicht anziehen, und sich nur des schönen Fortepianoton bedienen.” *Ibid.*, 40.

⁶⁵“Ich hörte in der St. Morizkirche eine Messe in Musik. Es war eine ziemlich gute Komposition, sanft und herzrührend; aber die Ausführung war über allen Glauben schlecht: kein Instrument rein gestimmt, und die Spielenden waren sehr oft nicht zusammen.” *Ibid.*, 155.

places in Germany where anyone knows what constitutes singing, and that even in these places only a few people really know.”⁶⁶

Nicolai contrasts his experience of these performances with that of hearing music played in Stein’s home, on Stein’s own instruments, by Stein and his daughter:

My sentiment [*Empfindung*] was completely different when I heard the famous instrument builder Mr. Stein play a double concerto by **Christian Bach** of London in his house on his lovely **Pianoforte** with his twelve-year-old daughter **Maria Anna**. The child, especially, played with such fire, such precision, the passages so roundly, that we listened with pleasure and admiration.⁶⁷

He then contrasts the musical understanding of Stein and his daughter with that of their Augsburg peers, asserting: “Poor taste may reign in the public concerts in Augsburg; but at least that is not because there are no people there who understand it better.”⁶⁸ Juxtaposed as it is with his earlier remarks, the implication of the assertion is that the specific thing which Stein and Nannette understood better than their peers was “what constitutes singing”—or, by extension, how to make keyboard music sing. Nicolai, then, gives the reader to understand that his positive experience of the music at Stein’s house—his “completely different” “*Empfindung*”—rested upon the vocal qualities of the keyboard music that he heard. Music played on Stein’s fortepiano was actually more vocal, and thus more moving, than the performance of a real singer. He judged Stein’s piano positively because it succeeded in producing for him an essentially aesthetic experience.

⁶⁶“Ich hörte auch ein Konzert in einem Garten vorm Thore. Es war stark genug besetzt. . . Es war eine weibliche Singestimme dabey, so stark schreyend und mißtönend, daß ich mich wunderte, daß es die Zuschauer aushalten konnten. Freylich akkompagnirten die Violinen tüchtig stark, und es redete ein gnädiges Publikum zwischen dem Singen und Spielen sowohl im Konzert- als in dem Nebenzimmern so laut dazwischen, daß man von den falschen Tönen der Sängerin und von den ungestimmten Geigen zum Glücke vieles nicht hörte. Die Sängerin ward indeß noch stärker beklatscht, als sie war beplaudert worden; welches mir die auf meiner Reise oft gefühlte Wahrheit wieder zu Sinne brachte, daß man an wenigen Orten in Deutschland weiß, was zum Singen gehört, und daß es selbst an diesen Orten nur wenige Personen recht wissen.” *Ibid.*, 155-56.

⁶⁷“Ganz anders war meine Empfindung, als ich den berühmten Instrumentenmacher Hrn. Stein in seinem Hause, auf seinem schönen **Pianoforte** mit seiner 12jährigen Tochter **Maria Anna**, ein Doppelkonzert von **Christian Bach** in Londen spielen hörte. Besonders die Kleine spielte mit solchem Feuer, mit solcher Genauigkeit, die Passagen so rund, daß wir es mit Vergnügen und Bewunderung anhörten.” *Ibid.*, 156-57.

⁶⁸“Wenn in den öffentlichen Konzerten in Augsburg ein schlechter Geschmack herrscht, so liegt es also wenigstens nicht daran, daß daselbst nicht Leute sind, die es besser verstehen.” *Ibid.*, 157.

Stein did not open his home to visitors only for sightseeing purposes. The shop also must have functioned as a buying showroom, for visitors not only viewed his instruments, but also purchased them. While Wolfgang Mozart's 1777 visit to Augsburg does not, perhaps, qualify as tourism, it does provide some insight into how Stein's home functioned in this role. When Wolfgang entered the house, he writes in a letter to Leopold, the first thing that struck his gaze was several new fortepianos by Stein. He was allowed to try them out, and afterwards, according to Wolfgang's account, Stein explained the advantages of his instruments, and the pains he took in building them. As a result of the demonstration, Wolfgang in fact broached the idea of purchasing one of the instruments to Leopold, although Leopold did not pursue the notion. In a letter to Wolfgang a few weeks later, Leopold also records an earlier visit to Stein's workshop by the Countess Maria Theresia Schönborn, the sister of the Archbishop Colloredo, that resulted in the commission of what must have been an unusually large or decorative instrument. Leopold had been told by the Countess von Lodon, he writes, that the Countess Schönborn "had gone through Augsburg because of the Stein instruments, found them infinitely better than the Spath instruments, and had ordered herself one for 700 fl."⁶⁹

I mentioned in chapter 3 that Tilman Skowronek has suggested that Stein's conversation about his pianos with Wolfgang Mozart may be understood something like a sales pitch.⁷⁰ Boalch, similarly, calls the mention of Stein and his workshop in the *Merkwürdigkeiten* an "advertisement."⁷¹ Both characterizations are surely accurate in one sense. The *Merkwürdigkeiten* informed people who were interested in musical instruments that they could view two novel instruments in Stein's shop, and such visits might have led to commissions or to sales. Similarly, Stein's sales pitch to Mozart might well have resulted in a sale, had Leopold had more money to spare. As I argued in chapter 3, however, it is also true that Stein's conversation with Mozart draws heavily upon upon themes of art and artistry; nor does

⁶⁹"Heute war ich bey der Gräfin von Lodron. . . [sie] fragte mich eine Menge wegen der PianoForte vom Stein, und ich erzehlte ihr was du mir davon geschrieben, sie gab dir aus dem Beyfahl der Gräfin Schönborn recht, die ihr erzehlt hätte, daß sie wegen den Steinischen Instrumenten über Augsp: gegangen, solche unendlich besser als die Spätischen gefunden, und für sich eines zu 700 fl. angefrümmt hatte." Leopold Mozart to Wolfgang Mozart, Salzburg, November 1, 1777, in *Mozart: Briefe*, 2:97. The sum of 700 florins is considerably greater than the prices of any of the instruments on the list in Stein's notebook.

⁷⁰Tilman Skowronek, *Beethoven the Pianist* (Cambridge: Cambridge University Press, 2010), 129-30.

⁷¹Donald H. Boalch, *Makers of the Harpsichord and Clavichord 1440-1840*, 2 ed. (Oxford: Clarendon Press, 1974), 172.

Stetten frame the information he presents to his readers as a buying opportunity, but rather as a guide to sightworthy attractions, to local works of art. It is likely that visitors to Stein's shop, even those who eventually became his customers, considered themselves not shoppers, but sightseers. One might indeed say that Stetten is advertising, but the subject of that advertisement is the city of Augsburg itself. Stein's instruments function as selling points in his advertisement specifically in their capacity as works of art.

6.3 The 1783 Art Exhibition

It seems, therefore, to have been both possible and expected for interested members of the public to visit Stein's home in order to inspect his instruments. This activity could be framed, and indeed promoted, as a kind of art tourism. As Stetten reported in 1788, however, on one occasion Stein also opened his home to the public in connection with an actual art exhibition, in 1783. This report reveals an additional context for inspection that was fundamentally similar to sightseeing, but intensified: more formal, more structured, more literal, and even more tightly linked to the notion of art as a substrate for the exercise of public review and critique. The exhibition context unequivocally defined the instruments as artworks, and defined as well the role and the expected behavior of their audience.

The art exhibition to which Stetten referred was an annual event arranged by the Augsburg art academy from 1781 until 1812. It occurred in conjunction with the yearly meeting of a "private society for the encouragement of the arts," whose members provided financial support to the academy. A report from the exhibition was published each year that listed the artworks that had been displayed along with the names of the prizewinners, and reprinted the remarks that had been delivered to the society of supporters. These reports, addressed to the "Augsburg public," were perhaps of greatest interest to local citizens, but they did also serve to bring news of the arts in Augsburg to a wider audience; they were, for example, reviewed each year in the *Neue Bibliothek der schönen Wissenschaften und der freyen Künste*.⁷²

The 1783 report confirms Stein's place both among the academy's financial supporters, and among that year's exhibitors. The remarks delivered

⁷²A notice of the 1783 report, for example, appeared as "Vermischte Nachrichten. Deutschland. Vierte Nachricht an das Augsburgische Publikum von der öffentlichen Ausstellung verschiedener Kunstarbeiten..." *Neue Bibliothek der schönen Wissenschaften und der freyen Künste* 29, no. 1 (1783): 145-47, <http://141.89.36.83/fea/digbib/projekt>.

that year look back upon the academy's first three years and ask for support for its continued existence; in doing so, they illuminate the purpose of the academy, and something of the role it played in Augsburg public life.

The Art Academy

The genesis of the Augsburg art academy was reviewed in chapter 3. Paul von Stetten had revived a much older institution in a new form during the late 1770s, and this new academy, like his books, was a way in which he sought to promote and support local artists. The restructured institution consisted of two parts: the academy proper, which offered instruction in the fine arts, and an adjunct branch, a drawing school, which taught draftsmanship to local craftsmen. It held a large number of books, pictures, prints, and plaster figures for instructional use (many donated by Stetten himself), so that Stetten mentions the institution in the *Beschreibung* as one of the attractions among the city's public buildings, a status confirmed by Johann Baptist Streicher's report. In addition to offering instruction for both fine and mechanical artists, the academy also arranged public lectures on art and aesthetics.

The report on the 1783 exhibition, at which Stein displayed his instruments, begins with a set of remarks addressed to the "benefactors and friends" of the academy: that is, the members of the private society who were its financial sponsors. The 1783 exhibition marked the end of what the anonymous author of the report describes as a three-year trial period for the academy, and the remarks comprise a plea to its sponsors for their continued support.

The argument illustrates clearly the precarious position occupied by the academy: poised between the fine and mechanical arts, between the pursuit of beauty, and the pursuit of utility. Without the support of public monies, and in the absence of a really wealthy patrician class,⁷³ the academy's continued existence depended primarily upon the goodwill of the Augsburg

⁷³The situation was described by Riesbeck, for example, who writes: "The famous Augsburg is not at all what it once was. There are no more Fuggers and Welsers here anymore, who can advance millions to the Emperor. In this large and beautiful city, which belongs to the first rank of German cities of commerce, there are not more than six houses that have a fortune of more than 200,000 guilders, and hardly fifteen that have 100,000. The great swarm of local merchants, a good part of whom must have large carriages, trudge along with a small capital of 30,000 to 40,000 guilders. . ." ("Das berühmte Augsburg ist das lange nicht mehr, was es war. Es giebt hier nun keine Fugger und Welser mehr, die den Kaysern Millionen vorschiesen können. In dieser großen und schönen Stadt, die unter den deutschen Handelsstädten in der ersten Reihe steht, sind nicht über 6 Häuser zu finden, die über 200000, und keine 15 die 100000 Gulden Vermögen hätten. Der grosse Schwarm der Kaufleute, wovon ein guter Teil Karossen haben

businessmen and merchants—who, judging from the remarks in the exhibition report, could only be convinced to invest in the fine arts if a practical benefit could be demonstrated.

The introductory remarks in the exhibition report thus draw on many themes familiar from Paul von Stetten's writings: concern over decline and stagnation in the arts, in contrast to Augsburg's more glorious past; patriotism, and the importance of progress and improvement for the common welfare; and the utility of the fine arts, for the refinement that a knowledge of these arts could bestow upon the mechanical arts. Thus, the author suggests:

For the citizen who loves his native city, it must be a delightful joy when he sees his fellow citizens happily progressing from one degree of culture to another, and his enjoyment must be twice as great when he notices that. . . the improvement is directed at objects that promote the general welfare, and have immediate influence on the improved economic condition of each and every fellow citizen. That the promotion and encouragement of the fine arts should be one such object surely requires no proof, especially in such a place as Augsburg, which can trace the magnitude of its welfare from that source from ancient times.⁷⁴

muß, schlept sich mit einem Kapitälchen von 30 bis 40000 Gulden herum. . .") Riesbeck, *Briefe eines reisenden Franzosen*, 60. Leopold Mozart also comments on the impoverishment of the patrician class and the disproportionate influence of the relatively wealthier merchants: "The begging of the Augsburg Patritiat is known to all the world, and every honest man of the world in Augsburg laughs about it; for that reason they are also *in the employ of the rich businessmen*, who can get anything they want from the government for their money." ("Die Betteley des Augsp: Patritiats ist aller Welt bekannt, und ieder ehrliche Weltmann in Augsp: lacht darüber; deswegen sind sie auch im Sold der reichen Kaufmannschaft, die fürs Geld von dern hungerigen Obrigkeit alles erhalten können.") Leopold Mozart to Wolfgang Mozart, Salzburg, October 18, 1777, *Mozart: Briefe*, 2:73.

⁷⁴"Dem Bürger, der seine Vaterstadt liebet, muß es eine entzückende Freude seyn, wenn er seine Mitbürger von einem Grad der Cultur zum andern glücklich fortgehen siehet, und doppelt groß muß sein Vergnügen seyn, wenn er bemerckt, daß die Fortschritte nicht blos in Verfeinerung unerheblicher Dinge bestehen, sondern daß die Verbeßerung auf Gegenstände gerichtet ist, die das allgemeine Wohl befördern, und auf den verbeßerten Nahrungstand dieses und jenes Mitbürgers ohnmittelbaren Einfluß haben. Daß die Beförderung und Aufmunterung der bildenden Künste ein dergleichen Gegenstand seye, bedarf wohl keines Beweißes, besonders an einem Orte wie Augsburg, welches in ehemaligen Zeiten aus den nehmlichen Quellen die Größe seines Wohlstandes herleiten konnte." "Vierte Nachricht an das Augspurgische Publikum, von der öffentlichen Ausstellung verschiedener Kunstarbeiten und jährlichen Austheilung der Preise bey der alten Stadt-Akademie, und der mit derselben, zu Ermunterung der Künste, verbundenen Privat-Gesellschaft. Mit der bey der öffentlichen Feyerlichkeit gehaltenen Rede" (Augsburg: 1783), 3.

Arguing for the practical utility of a fine arts academy was crucial to enlist continued financial support. It was necessary to argue that an academy dedicated to educating young people in the fine arts could produce real economic benefits, because “the artist must first be educated before one can achieve the secondary purpose of drawing advantage from his works.”⁷⁵

The author does also attempt an appeal, with less pragmatism and more flattery, to his readers’ notion of themselves as educated, cultured citizens in step with the modern world, and capable of appreciating the fine arts as such. He declares, for example:

‘Your own sensibility [*Empfindung*] and attention, honorable friends! Which you presently give to the visual arts is a pleasant proof that indifference and disdain have been supplanted, and that you relinquish to others the poor Gothic thought that artist academies would be a dispensable toy, and their consequences an object of the mere pastime of dalliance, or even wastefulness. For you it is no longer necessary to reckon up all of the advantages that accompany such an institution. The whole world seems to be in agreement that the arts must be treasured, if they are to flourish. . .’⁷⁶

The two arguments, finally, are bound powerfully together with the suggestion that a man of sensibility ought to find particular pleasure in spending money to promote the general welfare, as in the case of a donation to the art academy:

In honest men of feeling, it is one of the most pleasant sentiments to remedy the individual requirements of his fellow citizens, when the occasion arises, by the sacrifice of a dispensable sum; how soothing the thought must be to them, that they have contributed in some small measure to the education of the youth, to the encouragement of diligence in art, and by these

⁷⁵“Der Künstler muß erst gebildet seyn, ehe man die Nebenabsicht aus seinen Arbeiten Vortheil zu ziehen, erreichen kan.” *Ibid.*, 4.

⁷⁶“Ihre eigene Empfindung und Aufmerksamkeit, verehrungswürdige Freunde! Die sie dormalen den bildenen Künsten schenken, ist ein angenehmer Beweiß, daß Gleichgültigkeit und Geringschätzung verdrungen worden, und daß sie andern den armseligen gothischen Gedanken überlassen, ob wären Künstler Academien ein entbehrliches Spielwerk, und deren Folgen ein Gegenstand des blossen Zeitvertreibs der Tändeley, oder wohl gar Verschwendung. Bey ihnen ist es nicht mehr nothwendig alle Vortheile herzurechnen, die eine solche Anstalt begleiten. Die ganze Welt scheint darüber einig zu seyn, daß die Künste müssen geschäzet werden, wenn sie blühen sollen. . .” *Ibid.*, 9.

means necessarily to a consequent improvement of a part of the local economic condition.⁷⁷

Donors to the academy were, however, ultimately most interested to know how their money had been spent, before making a decision on whether to continue their support. The author assures readers that the monies donated over the initial three-year period have been responsibly spent or invested. To demonstrate the point, the prefatory remarks are followed by a complete accounting of the academy's finances to date. All of its sources of income and its expenses are itemized, and its "benefactors and friends" are listed by name, along with the amount they have donated. The donors are described as "local and foreign, spiritual and worldly, nobility and those from the middle classes,"⁷⁸ an assertion that is borne out by the alphabetical list of names that follows.

Stein is listed as one of the contributors, along with many members of Augsburg's patrician class, businessmen, and other artists both fine and mechanical. Members of the Stetten and Langenmantel families appear, for example; so too does Johann Heinrich Schüle, the owner of the famous local calico mill; the publisher Haid and the shopkeepers Fingerlin, and Zabeusnig, all familiar figures from the Mozart family letters; two members of the Rugendas family of copperplate engravers; and the mechanician Brandter. Sponsorship was not, however, universal: musicians such as Demmler and Friedrich Hartmann Graf are not listed, nor are any members of the Mozart family, for example, or Gegenrainer, the clockmaker. Stein's total contribution is listed as 18 florins, corresponding to an ongoing yearly payment of six florins. This was the most common contribution, although some sponsors' support had clearly only spanned one or two years (six or 12 florins), and a few had made much larger donations.

The academy did survive in the form established by Stetten for several decades. Over the years, the drawing school, especially, seems to have enjoyed particular success, probably because it offered a form of instruction of obvious practical benefit to local craftsmen. Writing on the state of the arts in Augsburg in 1804, Markus von Stetten described the school in some

⁷⁷"Es ist an sich schon bey rechtschaffenen Männern von Gefühl eine der angenehmsten Empfindungen, durch Aufopferung eines entbehrlichen Aufwands, bey sich ereignenden Gelegenheiten den einzelnen Bedürfnissen seiner Mitbürger abzuheffen; wie beruhigend muß nicht erst ihnen der Gedanke seyn, daß sie mit einem geringen Antheil zu Bildung der Jugend, zu Ermunterung des Kunstfleißes und dadurch nothwendig zu erfolgende Verbeßerung von einem Theil des allhiesigen Nahrungsstandes das ihrige beygetragen habe." *Ibid.*, 10.

⁷⁸"Hiesige und Fremde, Geist- und Weltliche, Vornehme und mittlern Standes..." *Ibid.*, 23.

detail. As it had been since its inception, it was “held on the mornings and afternoons of Sundays and holidays,”⁷⁹ and by 1804 at least, it was open not only to craftsmen, but also to the general public: “other people,” he says, “also have the opportunity to learn drawing here at a very cheap price, which runs at 15 kr. per month.”⁸⁰ Thus there were “usually a hundred or more students in this establishment.” He characterized the school as a “nursery” for Augsburg’s craftsmen: “carpenters, cabinetmakers, turners, potters, locksmiths, cartwrights, gold- and silversmiths.” After “the apprentice or . . . journeyman [had] learned the required practical skills [*Handgriffe*] from his master,” Markus von Stetten explains, the school offered them an “expedient opportunity to practice at drawing after good originals,” as well as a place to find inspiration and instruction in the principles of taste in the “‘idea magazines’ and other works of art” in its holdings.⁸¹

Above all, however, the instruction hewed to a practical purpose. Ideally, craftsmen would learn to make objects that were beautiful and tasteful; but, at the very least, they would learn the skills necessary to make saleable objects that met the demands of fashion. Stetten notes, for instance, that not all of the teaching materials at the school were themselves “models of good taste,” but even the bad ones served a purpose, he thought, because they taught the the craftsman to recognize “what the current taste consists of, whether that is good or bad”: “for his occupation must follow his daily bread, and may his inventions . . . be ever so much in accord with the principle of pure taste, if they are not in accord with fashion, he will have to starve with all his art.”⁸²

⁷⁹“Die mit der Akademie verbundene Zeichenschule, welche an den Sonn- und Feiertagen des Morgens und Nachmittags unter der Leitung der beiden sehr braven Lehrer Hauer und Tugendas [sic?] gehalten wird . . .” Markus von Stetten, “Ueber den gegenwärtigen Zustand der Künste in Augsburg,” *Der neue Teutsche Merkur* 2 (1804): 121.

⁸⁰“Außer den Handwerkern haben aber auch noch andere Personen hier Gelegenheit um einen sehr billigen Preis. der sich für den Monat auf 15 Kr. beläuft, das Zeichnen zu erlernen, auch befinden sich gewöhnlich hundert und mehrere Schüler in dieser Anstalt . . .” *Ibid.*, 123.

⁸¹“Diese Zeichenschule ist, wenn ich es so nennen darf, die Pflanzschule unserer Handwerker; denn wenn der Lehrjunge oder auch der Geselle von seinem Meister die erforderlichen Handgriffe erlernt hat . . .”; “Die Handwerker, vorzüglich die Zimmerleute, Tischler, Dreher, Töpfer, Schlosser, Stellmacher, Gold- und Silberarbeiter u. a. finden hier eine schickliche Gelegenheit, sich in dem Zeichnen nach guten Originalen und nach einer zweckmäßigen Anleitung zu üben, und auf diese Weise sich mit dem neuesten Geschmacke bekannt zu machen, in dem mehrere von den so vielen Ideenmagazinen, und andern Werken der Art, wie die Artistischen Blätter, in der Sammlung von Originalien der Akademie sich befinden.” *Ibid.*, 122-23.

⁸²“Ich will hiermit nicht sagen, daß jene Werke Muster eines guten Geschmacks sind. . . ; aber sie zeigen uns doch, worin gegenwärtig der herrschende Geschmack besteht, diesen, er mag nun gut oder nicht gut seyn, muß der Handwerker kennen, denn sein

In spite of its decidedly pragmatic leaning, Markus von Stetten nevertheless gave the drawing school “credit” for doing important work to raise the level of public taste in the city. “Through its efforts,” he says, “the repugnant taste for curlicues and embellishment which reigned in Augsburg, for only too long, was finally conquered.”⁸³ The remark recalls Paul von Stetten’s comments, in the *Beschreibung*, about the “clamshell taste” of mid-century Augsburgians, who had “revelled in grotesque volutes and cluttered ornamental painting and gilding.” By the last quarter of the century, Paul von Stetten had thought, that older style could “not possibly please the true *Kenner*,” someone who was able to “appreciate true beauty grounded in order and regularity.” Even the practical benefits of the drawing school, in other words, still coexisted with a more idealistic vision: that the art academy could succeed in educating and encouraging citizens in aesthetic connoisseurship.

Ultimately, the art academy’s constant re-negotiation of the relationship between luxury and utility represented in microcosm a larger issue grounded in the particular political situation that characterized Augsburg as a Free Imperial City. With no prince or court to provide patronage, the non-utilitarian fine arts suffered: visitors to the city almost universally disparaged the local musical culture, for example. Markus von Stetten analyzed the situation clearly with particular regard to music and concertizing:

The influence that a splendid court has on music, which has no impact on business and trade, upon which Augsburg solely relies, cannot be expected of a Free Imperial City; indeed it would have to be reckoned an inexcusable folly of a city such as Augsburg if she would take artists of that kind into her service, like the great courts. Therefore *Liebhaber* there must do their best, even if it should only be something mediocre. . . .⁸⁴

A few years earlier, Schubart (an ardent republican) had made a broader

Gewerbe geht nach Brod, und seine Erfindungen. . . mögen noch so sehr nach der Regel des reinen Geschmacks seyn, und sie sind nicht nach der Mode: so wird er mit aller seiner Kunst darben müssen.” *Ibid.*, 122.

⁸³“ . . . ihr gebührt vorzüglich die Ehre, daß durch sie der widrige Geschmack an den Schnirkeln und Zierrathen der in Augsburg nur zu lange der herrschende war, verlör.” *Ibid.*, 121-122.

⁸⁴“Von einer Reichsstadt kann der Einfluß auf die Tonkunst, welche keinen Einfluß auf Handlung und Gewerbe hat, durch welche Augsburg allein besteht, nicht erwartet werden, welche ein glänzender Hof auf dieselbe hat; ja es würde als unverzeihliche Thorheit einer Stadt wie Augsburg ist, angerechnet werden müssen, wenn sie, gleich großen Höfen, Künstler der Art in ihre Dienste nehmen wollte. *Liebhaber* müssen daher dort immer das Beste leisten, wenn auch nur etwas mittelmäßiges geleistet werden soll. . . .” *Ibid.*, 149-150

and more dire assessment. He believed the work of a handful of local artists—Johann Esaias Nilson, for example, and a few others—to be

the last gasps of the dying arts in Augsburg. . . Vienna and Berlin, München and Mannheim, Dresden, Leipzig, and a few other princely cities are all giant arms that wrest the riches and arts of the Free Imperial Cities for themselves, in that way to subjugate them without striking a blow. The most excellent minds are from Free Imperial Cities, but whenever they feel like it, they migrate to a princely city to earn honor and bread.

Chapter 3 traced Paul von Stetten’s careful construction, in his writings, of a concept of art that could encompass both fine and refined mechanical artworks, buttressed by ideological underpinnings common to both types of work. That construction may now also be understood, at least in part as, a response to the practical problem of instilling a perception of the fine arts as desirable and high-status professions into the political and economic framework of a society in which the obvious utility of the mechanical arts made the latter easier to support. The Augsburg art academy, with its annual exhibition of paintings alongside musical inventions, and its drawing school balanced on the fulcrum between honor and bread, may be understood in turn as a kind of real-world mirror of Stetten’s writings, built to address the same concern.

The Exhibition

Perhaps the clearest manifestation of the way the academy balanced between the fine and mechanical arts was the annual art exhibition for the works of its students. The academy provided instruction in how to produce works of art, and also how to appreciate it; in other words, it expanded the numbers of the critical public, at the same time as it built a substrate for their critical practice. Each year, students at the school as well as local artists were invited to exhibit their works of art: pieces whose production had been justified as being ultimately of economic benefit to the city, but which were judged and awarded prizes based on criteria that apparently had little do with immediate utility, and much more to do with aesthetic accomplishment.

As the 1783 exhibition report explained, two different kinds of work went on display. Students of the academy exhibited the “attempts” they had worked on during the year. These pieces were eligible for prizes in several different classes. Markus von Stetten confirmed that the situation in 1804 remained the same: “Each year in the spring,” he writes, “the best works of

the students of [the academy] are rewarded with silver medals, large and small, and their paintings, drawings, copperplate engravings, models, etc. are exhibited for viewing.”⁸⁵ This “public reward,” as the 1783 report put it, was understood to be not only an honorific, but also an “encouragement” to further industry and achievement.

In addition to students, local artists and *Liebhaber* could also exhibit their own work: according to the 1783 report, such would be the course of “an artist whose concern is not to work for daily bread alone, but chiefly for honor.” This artist would see the exhibition as “the best occasion for making his work known to the public”—but, apparently, not necessarily for making a sale.⁸⁶ Markus von Stetten’s description confirms: “besides the works of the students, the works of artists and dilettantes are also exhibited for viewing at the yearly exhibition; and the better works among these, too, if it is the wish of the artist or dilettante, receive a prize.”⁸⁷

The 1783 catalog includes a list of all the items on display. The title of the list confirms the main division and dual nature of the exhibition: it is a “list of all artworks and attempts submitted and exhibited, by artists for honor, and by art students for the achievement of prizes”⁸⁸ The artworks “exhibited by students, for prizes” were mostly drawings: their subjects included furniture and ornaments as well as animals and flowers. Some decorated objects were apparently also exhibited. These included, in the category of architecture, a decorated wooden bowl, and a “wooden clock case [or stand], worked in the antique style.”⁸⁹ The artworks “exhibited by artists, for honor” are divided into seven categories, among which are paintings, copper engravings, drawings, “mathematical art-instruments,” and finally, “musical art-instruments” (“Musicalische Kunst-Instrumente”).

Stein’s instruments are the only entry in the musical instrument category. Uniquely in the catalog, the entry consists not just of a short note, but of a

⁸⁵“Jährlich in dem Frühjahre werden die besten Arbeiten der Schüler dieser Anstalt mit silbernen größern und kleinern Medaillen belohnt und die Gemälde, Zeichnungen, Kupferstiche, Modelle u. s. w. derselben zur Schau aufgestellt.” *Ibid.*, 123.

⁸⁶“Der Künstler, dessen Sache es nicht ist, bloß um das tägliche Brod, sondern hauptsächlich nach Ehre zu arbeiten, hat unserer Anstalt bishero das Vergnügen gemacht, die als die schicklichste Gelegenheit anzusehen, seine Arbeiten bey dem Publikum bekannt zu machen.” “Vierte Nachricht,” 8.

⁸⁷“Nebst den Arbeiten der Schüler werden auch noch bei den jährlichen Ausstellungen die Arbeiten der Künstler und Dilettanten mit zur Schau aufgestellt; auch von diesen erhalten, wenn es der Wunsch des Künstlers oder Dilettanten ist, die bessern Arbeiten den Preis.” Markus von Stetten, “Ueber den gegenwärtigen Zustand,” 124.

⁸⁸“Anzeige aller, von Künstlern zur Ehre, und von Kunst-Schülern zu Erringung eines Prämiiums eingeliferten und ausgestellten Kunst-Arbeiten und Versuche.” “Vierte Nachricht,” 34ff.

⁸⁹“Uhrgestell von Holz, al antique gearbeitet. . .” *Ibid.*, 43.

rather long description of the instruments. The description was apparently written by Stein himself, and solicited by the author of the catalog, as it is introduced with the statement, “Mr. Johann Andreas Stein has been requested to let the following be inserted about this kind of artwork.” The entry reads:

Among those new inventions which because of their size and inconvenience are not actually on exhibit, but may be viewed by worthy *Liebhaber* in the residence of the inventor, are two musical instruments, of which the first is a so-called *Vis a vis* or *Doppelflügel* that, owing to its special action, can be played by one person at each side at the same time, by which means a large number of changes must arise, though indeed not from artifice, but from a natural exchange in the thing itself. The second is, to judge from its shape, a common *Forte Piano*, but is different from all instruments in regard to its sound. The *crescendo* and *decrescendo* are to such a degree that it tends gradually away from the most sublime *fortissimo*, dies away, and transforms itself into a complete nothingness.⁹⁰

The description is almost exactly the same as the one published by Stetten in 1788, and was clearly Stetten’s source. This earlier version of the text does, however, include a detail not preserved in Stetten’s later account: namely, the reason why the instruments were exhibited in Stein’s residence, and not at the academy with the rest of the exhibition. It was simply because they were large, and it was impractical to move them.

The implication of the statement, especially taken in the larger context of the way the exhibition as a whole was arranged, is that even though Stein’s instruments were not physically present at the academy’s main venue, they were still to be understood as an integral part of the exhibition. The invited audience consisted of “worthy *Liebhaber*”: the same group of people that would be expected to attend a public art exhibition, and also the same

⁹⁰“Von dergleichen Kunst-Arbeiten ist Hr. Joh. Andr. Stein folgendes einrücken zu lassen ersucht worden. Unter diejenige neue Erfindungen welche ihrer Größe und Unbequemlichkeit halben, nicht wohl ausgestellt, von würdigen Liebhabern aber in des Erfinders Behausung gesehen werden können, gehören zwey musikalische Instrumente, wovon das erste ein sogenannter Vis a Vis oder Doppelflügel der seiner besondern Mechanick wegen, von einer einzelnen Person zu beyden Seiten zugleich gespielt werden kann, wodurch eine Menge Veränderungen zwar nicht aus Künsteley, sondern einer natürlichen Verwechslung der Sache selbst, entstehen müssen. Das zweyte ist seiner Gestalt nach ein gemeines Forte Piano, in Betref des Tons aber von allen unterschieden. Das An- und Abwachsen ist in solchem Grad, daß es sich aus dem erhabensten Fortissime allmählich abneigt, abstirbt, und in ein gänzlichliches Nichts verwandelt.” Ibid., 38-39.

group of people that are repeatedly invited to view and visit Stein's instruments in other contexts. The notion that this audience would visit Stein's home utilized an established pathway for the inspection of art, familiar from the context of sightseeing. The audience for the art exhibition were encouraged to visit Stein's home and evaluate his instruments, in other words, in just the same way that they were encouraged to view and judge the paintings and sculpture on display in the main exhibition. Stein's instruments, moreover, in and of themselves—mechanical constructions designed to produce musical sounds that could evoke an aesthetic response—embodied the inherent tension between the mechanical and fine arts that the art academy, and the exhibition, sought to reconcile.

6.4 Patrick Alströmer's "Instrument"

What relevance might the public display of artworks in Augsburg, or in the contemporary press, have for Patrick Alströmer's clavichordium—an instrument that, unlike the *Poly-Tono-Clavichordium* or the *Melodica*, quickly found its home in a private residence?

Recurring brief mentions of the clavichordium in Alströmer's engagement diary during the ten years that he owned the instrument reveal that he often played it—or perhaps only displayed it—for the many guests who visited his home. Alströmer had moved to Gothenburg from nearby Alingsås in 1776; in Gothenburg, he worked with the family textile mill (the *Alingsåsväveri*); with the East India Company, of which he was a director; and with the governor's office, in addition to conducting various other business affairs. The diary documents Alströmer's business engagements, his attendance at numerous plays and concerts, and near-daily lunches and suppers at his home. The guests on the latter occasions are carefully listed. They typically included Alströmer's friends and family as well as business associates and visitors to the city: a mix of the aristocratic and the well-to-do middle class. In particular, the diary attests that Alströmer often became acquainted with traveling musicians spending time in Gothenburg, among whom Georg Joseph Vogler was the most famous.

In one sense, then, Alströmer's diary provides a unusually detailed record of the role the clavichordium played in his daily life. In another sense, however, the record is incomplete: the diary includes little or no information about the kind of music he played on the clavichordium, for example, nor how the instrument was received by the people who heard it. This leaves us to infer what we can about the circumstances of display in Alströmer's home, both from the physical material of the clavichordium itself, and from

what we know about how Stein's other instruments were exhibited and examined.

As I suggested in chapter 2, Paul von Stetten's characterization of the claviorganum as an artwork implies that had the instrument not already left Stein's workshop in 1781, it too would have been put on display alongside the *Vis-à-vis* and the *Saitenharmonika*. It is reasonable to think, therefore, that Alströmer's visitors would have adopted an attitude toward his new instrument similar to that of Nicolai, Reichardt, Gercken, and all of the other *Kenner* and *Liebhaber* who visited Stein's home in Augsburg. They would have seen the claviorganum as a mechanical and musical device that was not to be marveled at so much as examined and critiqued. In addition to representing Alströmer's economic and social standing, the claviorganum would also have represented his taste and judgment. More abstractly, but still importantly, because the claviorganum was an object that encouraged visitors to exercise, both independently and collectively, their own understanding, sensibility, and judgment, it also helped to construct and confirm them in the role of—to borrow a phrase from the description of the *Poly-Tono-Clavichordium*—members of an “enlightened public.”

Visiting the Claviorganum

Alströmer's diary entries provide three main kinds of information about the claviorganum: the days on which he played it (at least some of them); the names of the people for whom he played it; and the places where he did so. Alströmer had received the instrument by the fall of 1781 (the underside of the soundboard had been signed by Stein in February of the same year), and he owned it for ten years. The first period of his ownership overlapped with what Martin Fritz has characterized as “the absolute culmination of his life-cycle,” the years between 1777 and 1786, when he made a living as a head of the trading house Alströmer & Sahlgrenska and an East India Company director, entertained profusely, and entered vigorously into the social, artistic, and intellectual life of Gothenburg, where he lived.⁹¹

Alströmer did not place the claviorganum in his own house immediately. Rather, it seems first to have been placed in the home of his friend and colleague, Christian Ludvig Jöranson, an accountant who lived in Gothenburg and was a frequent guest in Alströmer's home.⁹² In the first two entries to

⁹¹Fritz, “Patrick Alströmer,” 17ff.

⁹²Christian Ludvig Jöranson (1738-1820) also became one of Sweden's most important writers on economics. He owned a house at Drottninggatan 35, just a few blocks from Alströmer's house. In 1785 he was registered resident at “4:e roten å nr 27.” Jan Ling, pers. comm.

mention the claviorganum, both written in November of 1781, Alströmer describes "trying it out" at Jöranson's home. On the afternoon of Sunday the 11th, he was

at the rehearsal for the Opera le Deserteur at Mr. Schindler's,
and at Mr. Jöranson's and tried out my *pianoforte organisé*...

On Friday the 30th, he spent the afternoon

with the French Brigadier Count Labran at a concert at Mr. Jöranson's, where my *Forte piano organisé* was tried out, and then with the same count at a concert at Mr. Hall's where we had supper.⁹³

Although the language in the entries does not make the circumstances perfectly clear, it would appear that Alströmer tried out his instrument on these occasions not alone, but in company: with Jöranson, at least, on November 11, and with the "French Brigadier Count Labran," and perhaps other members of the audience for the concert at Jöranson's home, on November 30.

Alströmer kept his new instrument "at Mr. Jöranson's" at least until July of 1782. This did not prevent him from presenting it to his own guests and colleagues. The entry from February 22, 1782 records that Alströmer had "dinner at home" with guests that included the "Russian Brigadier and *Kammarherr* Count Narisckkin," several other military officers and diplomats, as well as "Mr. Hall, Humble Listener, Professor Schwarzkopf, Jöranson, Podolijn, etc." Later that afternoon, "at Jöranson's," he "played for the visitors on my instrument."⁹⁴ (A few weeks earlier, on February 4, he had been "at a concert at Mr. Jöranson's, where my wife and daughters,

⁹³"... på repetitionen af Operan le Deserteur hos Hr Schindler, samt hos Hr Jöranson och proberade min pianoforte organisé"; "med Franske Brigadiern Comte Labran på Concert hos Hr Jöranson, hwarest min Forte piano organisé proberades, och sedan med sama Grefwe på Concert hos Hr Hall hwarest souperades." Alströmer diary, November 11 and 30, 1781. Jan Ling kindly provided me with a transcription of the diary. It has also been published in Bertil Anderson, Martin Fritz, Jan Ling, and Berit Ozolins, *Ekonomi och musik i 1700-talets Göteborg: En tidspegel utifrån en samtida dagbok* (Gothenburg: Göteborgs Stadsmuseum, 2005).

⁹⁴"middag hemma böd Ryske Brigadieren och Kammarherren Gref Narisckkin, Hr Czekalewsky, Conseiller d'Ambassade i Köpenhamn, Majoren wid Ammiralitetet Timacheff, och Consulat Secreteraren i Elseneur Artemieff, ÖfwersteLieut: Linderstedt, Delisle, Major Malmköld, Lieutenant Stapelmohr, Assessor af Dittmer, Öfwer Inspekt. Norn, Hr Hall, Auditeur Humble, Professor Schwarzkopf, Jöranson, Podolijn, Etc. e:m: hos Jöranson och spelte för de främmande på mitt Instrument." Alströmer diary, February 22, 1782.

[brothe] Clas, etc., were also.”⁹⁵The claviorganum is not mentioned, but it seems likely that it was played.) Several months later July 2, he had dinner and spent the evening “at Councillor Coopman’s, where the Countesses Lewenhaupt and Hamilton also were.” In between, in the afternoon, he “let them [the Countesses] hear my instrument and Mrs. Dorsetti as well as Lector Moberg’s bass voice at Jöranson’s.”⁹⁶

These are the first entries in the diary in which Alströmer uses the phrase “my instrument.” That phrase does not definitely identify the instrument in question as his “Fortepiano organisé,” but since it is “at Jöranson’s,” there can be little doubt that he is referring to the same instrument as in the previous entries. Throughout the rest of the diary, Alströmer almost always refers only to “my instrument,” except for the entry in which he records selling “my great Fortepiano organisé” to John Hall, and one subsequent entry in which he writes that he has been to Hall’s house to play what he now calls not “my,” but simply “the” instrument. In these and all of the excerpts that follow, therefore, Alströmer’s references to his “instrument” should almost certainly be understood to refer to his claviorganum.

On both occasions, Alströmer describes what sounds like a small, informal concert, performed by able musicians, in which he demonstrated his instrument to titled aristocrats and other dignitaries. On February 22, Alströmer, who was a good keyboardist, played, perhaps by himself. On July 2, he had the cooperation of two vocalists, “Mrs. Dorsetti,” a famous soprano, and the bass Lector Moberg. It is possible, of course, that the other guests on these occasions also had the chance to test out the instrument, but Alströmer seems to be describing a scenario that primarily had the character of a demonstration or presentation. Still, the July 2 gathering, at least, was not quite the same as a concert, for Alströmer says that he “let [the Countesses] hear his instrument,” suggesting that discovering the sounds of the new instrument, not just listening to pieces of music, would have been the primary focus of the afternoon.

By the beginning of 1783, Alströmer had moved the claviorganum to his own house in the center of Gothenburg, on the corner of Östra Hamngatan and Sillgatan (now Postgatan), where he kept it until at least the summer of 1785. Six diary entries from this span of time indicate that he continued to use the claviorganum in much the same way as he had begun. In five of the six entries, Alströmer specifically describes playing the instrument

⁹⁵“på en Concert hos Hr Jöranson, där min Hustru och döttrar, Clases Etc.. äfven woro,” Alströmer diary, February 4, 1782.

⁹⁶“middag och afton hos Rådman Coopman hwarest Grefwinnorne Lewenhaupt och Hamilton äfven woro. e:m: lät de höra mitt Instrument och Fru Dorcetti samt Lector Mobergs Basröst hos Jöranson. . .” Alströmer diary, July 2, 1782.

for or with others, whom he names: his audiences included a captain of cavalry named Lenck; the wife of a General Struchenfelt; "le Blanck's lady"; the "Chief Admiral Count Ehrenswärd" and his family (or members of his party); as well as unnamed "others." On February 9, 1783, he writes that he invited visitors for lunch, "made music on my instrument" in the afternoon, and then went with the visitors to a concert; presumably, the visitors heard him play.⁹⁷ On May 7, 1784, he reports accompanying two vocalists on the claviorganum in the afternoon: he "made music on my instrument," he writes, "while Lalin and his son sang."⁹⁸

In 1786, Alströmer's trading house went bankrupt, and he was also forced to resign from the directorship of the East India Company. He left Gothenburg and moved back to Alingsås. At some point early in 1786, he moved the claviorganum to the house of another friend, the merchant John Hall. Hall had two residences, a house in the city and a summer home just outside it; as I argued in chapter 1, Alströmer appears to have placed his instrument in Hall's city house. From this point on, Alströmer's diary entries indicate that he ceased, for the most part, to display the instrument to his associates; instead, he simply played on it—still usually with others, but now with his own friends or family.

The entry from April 23, 1786, is the first to document the move. On that day, Alströmer made visits in the afternoon, "and made music afterwards on my great instrument, which I have moved to Mr. Hall's."⁹⁹ During the summer of 1786, he mentions making music at Hall's often, and playing the claviorganum specifically several times: on May 8, he "made music with Mr. Perez"; on June 10, he "made music with Mr. Barberini on my instrument"; on June 27 he was "at Mr. Hall's" and "made music with Doctor Fischer"; on July 28 he went with Court Secretary Stenborg to Mr. Hall's and "made music on my instrument"; and on August 2, he "made music" at Hall's "with the children and on my instrument."¹⁰⁰ On each of these occasions, perhaps excepting the visit with Stenborg in July, Alströmer was playing music with

⁹⁷"böd Stallmästar Bruse, Hr Delile, alla 3 Baronerne Bennet, Hr Wale, Capitain Utfall, Archiater Leyonmarck, Cousin Berndt Silfwerschiöld, Swäger Nils S:d, Hr Podolijn. e:m: musicerade på mitt instrument, sedan med de Främmande till La Hays Academie de Musique." Alströmer diary, February 9, 1783.

⁹⁸"e:m: musicerade på mitt instrument, då Lalin och dess Son söngo. sedan på Comoedien, hwarest Le Cadi Dupé samt Annette och Lubin upfördes." Alströmer diary, May 7, 1784.

⁹⁹"e:m: visiter, samt musicerade sedan på mitt stora Instrument, som jag flyttat till Hr Hall." Alströmer diary, April 23, 1786.

¹⁰⁰May 8: "hos Hr Hall, hwarest musicerade med Hr Perez. . ." (this entry does not mention the claviorganum specifically, but it seems likely that they used it). June 10: "hos Hr Hall och musicerade med Hr Barberini på mitt Instrument." June 27: "hos Hr Hall, hwarest musicerade med Doctor Fischer. . ." July 28: "med HofSecret.Stenborg hos

others, not for them, and the gatherings must have been smaller and less grand.

After 1786, mentions of the claviorganum in the diary become much more sporadic; over the next three years, there are only four. On January 2, 1787, Alströmer reports that three of his cousins “heard my instrument” at Hall’s in what must have been an informal gathering. A few weeks later, on January 22, he records for the first and only time that someone else played the claviorganum: he was “at Mr. Hall’s” in the afternoon, “where Abbé Vogler played on my instrument.” On August 23, 1788, he visited Hall’s house “with Greta” and played the instrument himself. Finally, on October 13, 1789, he “let the mill owner [*Brukspatron*] Groen hear my instrument at Hall’s”; here, the language suggests, perhaps, the kind of exhibition of the instrument that he had done in previous years.¹⁰¹

After 1789, only two more entries mention the claviorganum. The first one documents the sale of the instrument to John Hall on August 16, 1791. “Today,” Alströmer writes, “I sold my great *Fortepiano organisé* to Mr. Hall for 450 dollars [*Riksd.*].”¹⁰² The following year, one final entry describes, once again, using the instrument to accompany a singer. On June 19, 1792, Alströmer spent the evening “at Mr. Hall’s, where Court Secretary Casten and his wife were. I played on the instrument, and Casten sang small airs.”¹⁰³

Overall, the evidence of the diary indicates, first of all, that Alströmer used the claviorganum consistently, over a period of about a decade. The people who heard Alströmer’s instrument seem to have exemplified the new public: they consisted of a mix of classes—aristocrats, merchants and businessmen, and professional musicians—that also represented both *Kenner* and *Liebhaber*. More specifically, it appears that between 1781 and 1786, Alströmer was able to use the instrument in what might be called a professional capacity, presenting it to important visitors and business associates as he entertained them in his home, in a context that blurred the boundaries between his social and his business life. After 1786, when Alströmer’s

Hr Hall och musicerade på mitt Instrument.” August 2: “hos Hr Hall. . . musicerade där med Barnen och på mitt Instrument.” Alströmer diary.

¹⁰¹January 2: “f:m: kl 10 afreste till Götheborg med Cousinerne Britte Marie, Friedrica och Ulrica Hierta. e:m: fölgde jag dem till Fru Hall hwarest de hörde mitt Instrument.” January 22: “e:m: hos Hr Hall hwarest Abbé Vogler spelte på mitt Instrument”; Alströmer had also lunched with Vogler. August 23: “f:m: expedierade posten. ute i affairer, samt hos Hr Hall med Greta och spelte på mitt Instrument.” October 13, 1789: “f:m: visiter och ute i affairer, samt lät BruksPatron Groen höra mitt Instrument hos Hall.” Alströmer diary.

¹⁰²“I dag sålde jag mitt stora Fortepiano organise ´ till Hr Hall för 450 Riksd.” Alströmer diary, August 17, 1791.

¹⁰³“afton hos Hr Hall där HofSecretair Casten och dess Fru woro. Jag spelte på Instrumentet, och Casten söng små Airer.” Alströmer diary, June 19, 1792.

finances collapsed, the diary indicates, unsurprisingly, that he used the claviorganum much more in a private capacity: less for display, and more for simply making music.

Looking and Listening

The news articles about Stein's instruments and the published accounts of visitors to Stein's home all suggest that the experience of examining musical artworks like the claviorganum included both visual and aural inspection. Looking at the instrument to understand how it worked was paired with listening critically to judge how well it could produce music that could move the sentiments. Thus, although his diary is silent on the matter, it seems reasonable that guests in Alströmer's home would have had the chance both to look carefully at the claviorganum inside and out, and to listen to it. There is one unpublished contemporary account that provides a detailed glimpse into such an encounter: the meeting of a group of *Kenner* and *Liebhaber* with a combination instrument by Stein. This is the letter by the Austrian diplomat and amateur musician Norbert Hadrava, describing the arrival of Stein's *Vis-à-vis* in Naples in 1789—possibly, the same instrument that had he exhibited in Augsburg in 1783.

Hadrava had acted as the agent for the purchase of the *Vis-à-vis* by a Neapolitan nobleman.¹⁰⁴ When the instrument arrived in Naples, it was Hadrava who first inspected it, and then demonstrated it to other *Kenner* and *Liebhaber*. Hadrava describes the impression the instrument made immediately upon its arrival:

When it arrived here, you can imagine, dear friend, how everyone came running to see the instrument. . . One could not from the exterior shape form any conception of it, but because nothing of this kind had been seen here before, at the beginning everyone was satisfied to see the exterior, to touch it, and to measure it. . .

Shortly thereafter, "after talk of the instrument had spread" through the city, a concert was arranged at which Hadrava was to demonstrate the new instrument to an audience that included "various critics," among them the "Kapellmeister Paisiello." Before the concert began, Hadrava "opened Stein's splendid instrument and invited Paisiello and others to inspect it but

¹⁰⁴The history of the transaction and the context for Hadrava's letter are reviewed in Rice, "Stein's 'Favorite Instrument.'" The translated excerpts from the letter that follow are also Rice's, on 57-64.

not to touch the keys.” Only “after everyone was satisfied with seeing the instrument only” did he sit down to play. Thus, Hadrava’s account documents both that the new instrument was an object of discussion, among a broad audience (“everyone”) as well as particular “critics,” and that both groups began by “looking,” “touching,” and even “measuring” the instrument. Interestingly, this visual inspection was actually formally orchestrated, on at least one occasion, by Hadrava himself, when he “opened. . . the instrument” and had his audience look their fill before anyone began to “touch the keys.”

Alströmer’s clavichord was constructed in a way that would have facilitated, and perhaps even encouraged, a visual inspection. Its construction, moreover, provides a kind of structure to the inspection, so that discovery may go from a superficial examination of the outside of the case, to a deeper exploration of the instrument’s inner workings. One can open the instrument in layers, with each new level of examination requiring greater skill and knowledge.

The experience of viewing, or investigating, the clavichord would have been structured on the most basic level by its clearly defined public and private aspects. The veneered front and bent side are the finished, public sides, while the spine side, typically for a private side, is made of unfinished pine. Thus, the instrument would have stood against a wall, and could only have been viewed from the front and from the bent side. The public face of the instrument, although decorated with a few restrained moldings, is still quite plain. The organ is completely enclosed underneath the piano, with no façade. When the instrument is completely closed, there is little to look at.

The areas of the instrument most easily exposed for examination are all signaled by the presence of keys, hooks, and latches in those finished surfaces—decorative pieces of hardware that not only allow but invite handling, all found on the public side. The first step in an examination would almost certainly have been to unlock and remove the key cover, exposing the two manuals and the inlaid nameboard. The front flap of the lid could then be folded back, exposing the operation of the dampers and the moderator stop on top of the wrestplank, with their mechanism executed in walnut and brass, as well as the engraved soundboard label. The lid, secured with a latch, could then be opened; it is veneered on the inside as well as the outside, indicating that it is designed to stand open in public, thus making a completely public space out of the entire soundboard and wrestplank.¹⁰⁵

¹⁰⁵Pianos and harpsichords in the 18th and early 19th centuries often have lids that are unfinished on the inside, signaling that they were usually played with the lids down.

The most obvious route to the inside of the organ is via the pair of bentside doors, which may be opened and closed with a lock and key. Opening the bentside doors reveals most of the pipes, in something like a view of the organ's façade: the bass pipes, stacked vertically on top of each other; the tenor rank, arrayed horizontally with mouths facing downwards; and the treble rank, cleverly installed upside down below the windchest. Certainly, the bentside doors provide the necessary access for a tuner, but the highly visible lock and key encourage operation by a layperson, suggesting that the doors were also expected to function as the most important window into the lower level of the instrument.

The public side of the instrument also offers a deeper level of inspection, in the form of two removable panels that are easy to lift off, although there is no visible cue that they can be opened, and so they are not as immediately inviting as the bentside doors. Removing the panel on the right keycheek side of the the case provides a view of the bellows with the wind trunk in the background. The removable kickboard on the front of the case also opens onto the bellows; from here the pedal and rolling lever that operate the bellows may also be seen. Like the bentside doors, these panels were necessary to provide access for a builder, but they also would have made it easy for interested laypeople to get a sense of the arrangement of the instrument. Although they require a certain knowledge of the instrument, they are lightweight; they are finished with veneer and thus "touchable," and it is not possible to break anything in the process of removing them. The damper rail cover also belongs to this second level of inspection. It has a finished surface, is easy to handle, and doing so poses no threat to the mechanism of the piano. Generally speaking, the second level exposes more moving parts to the eye: the bellows and the parts that operate it, and the motion of the dampers.

Entering more deeply into the instrument requires more knowledge and skill. It is not difficult to remove the piano keyboard in order to inspect the hammer action; the two keyboards slide out together as a single unit, with the organ keyboard, underneath, acting as the "sledge" that was otherwise commonly used to lift a keyboard with German or Viennese action into place. The procedure is not obvious, however, to someone who does not know the system, and it carries the risk of damaging the piano hammers if done incorrectly. With the keyboard out, the playing action of the organ is also made partially visible inside the case; the tops of the brass stickers can be seen extending from the pallet box. In order to follow the path of the organ action further, it is necessary to unscrew the pallet box cover;

Laurence Libin, "An Open and Shut Case?" *Early Music* 15, no. 1 (1987): 76.

this exposes the pallets and the path of the wind from the bellows, through the pallet box, into the windchest. Neither action seems particularly likely in the context of a polite examination, although both are available from the public side of the instrument and might certainly have been carried out without too much difficulty. The final act of uncovering, the removal of the piano from atop the organ case to expose the complete workings of the organ, was perhaps feasible, but also seems unlikely.

The private, spine side of the organ case has two panels. One long panel at the rear of the instrument is presently nailed on, and probably was so originally, since there is no evidence of any catches or latches that might have secured them. This panel conceals the long bodies of the bass pipes; there would be little need to ever access the tops of these pipes from the spine, since their stoppers can be reached from the bentside doors. The spine side also once had a removable panel, now missing, at the front that opened onto the wind trunk and the bass end of the bellows. Like the nailed-on panels, it would have been inaccessible when the instrument was placed against a wall, so that this view of the inside of the instrument was not available to casual inspection.

Returning to the account of Stein's *Vis-à-vis* in Naples, Hadrava also provides some insight into how listeners reacted to hearing music played on the new instrument. His first comment describes an informal moment during his early trials with the instrument:

I can say that all listeners, from the most exalted to the lowliest, were delighted. . . on account of the excellent and unexpected effect of the instrument. The astonishing contrast between forte and the softest piano, the true pianoforte and the harpsichord, and then the uniting of both in a *tutti*, are certainly effects that are most striking, moving, and surprising. I must confess, dear friend, that when I played for the second time among a few listeners in the owner's salon, the servants. . . standing in the antechamber approached the salon with an indescribable attentiveness and silence, listened, and broke out in a loud cry after hearing the unexpected and surprising effect of the instrument.

Here, Hadrava describes what must be understood as an uneducated response by neither *Kenner* nor *Liebhaber* but "servants" who simply happened to be in the vicinity of the salon where he was playing. Even in these unsophisticated listeners, however, the sound of the *Vis-à-vis* physically drew them in, invoked "an indescribable attentiveness," and, after a few moments, actually moved them to another physical response, a "loud cry." The

account is reminiscent of Christmann's description of Nannette Stein playing on a *Saitenharmonika* for Stein's old friends in Heidelberg—there too, the mere sound of the instrument ineluctably produced an almost visceral response, even in naive listeners without musical understanding. Within the space of "a few days," Hadrava continues, the instrument had been universally judged "an extraordinary wonder," even though "none of those who heard it could describe it exactly but could only express their pleasure and surprise." Again, the description recalls Christmann's, by whose account even the *Kenner* were unable to describe the sound of the *Saitenharmonika* in words, and thus judged it solely by the response it produced in them. According to Hadrava, the power of the *Vis-à-vis* to produce an emotional response was so great that "the owner of the instrument, despite his small knowledge of music, was so enchanted by the wonderful action of this musical creation that while I was playing—in the middle of my sonata—he embraced me with real joy."

Hadrava also describes in some detail the musical program that followed the initial inspection of the *Vis-à-vis* at the lunch concert. Hadrava had composed music for the instrument himself. He describes playing his *Adagio* in a way that highlighted the instrument's powers of sustain:

I sat at [one] side of the *vis-à-vis Flügel*, and I played the *Adagio* of my sonata in the presence of Paisiello and all the other listeners, but very softly, so that one could notice the sustaining of the tones and the reverberation of the harmony, together with the precise lifting of the fingers where necessary. . .

Although Hadrava had obviously put together a program that was designed to show off the instrument in a particular way, he also indicates that the members of the audience could influence the demonstration, based on their evaluation of what they had seen and heard. For example, he relates that "Someone in the group hit upon the idea that this instrument was designed for two persons, and this effect had not yet been heard," and so "Paisiello decided immediately to join with me in improvisation." "Afterwards," he says, "we sat down to lunch, during which music was the main topic of conversation": in other words, even though the remarkable effect of the *Vis-à-vis* on the feelings of the audience had been impossible to describe in words, the instrument still sparked a prolonged discussion about music in which the entire group seems to have taken part.

Many of the general characteristics of the gatherings that Hadrava describes may well be applicable to Alströmer's music-making for guests on his claviorganum. Especially striking in his account are the presence of a mixed audience, including both naive and "critical" listeners; the power of the new

instrument's unexpected, "surprising" sound to move all of these listeners, in a way that words could not describe but yet gave rise to lively conversation; and the indications that the instrument, in this way, mediated a collective experience, one that was the same for "everyone." Hadrava writes very specifically about the music that he played on the *Vis-à-vis*; there is no comparable information about the music that Alströmer played for his guests. We do know the names of some other musicians who performed on these occasions, presumably accompanied by the claviorganum: in every case, they were vocalists (the special case of Abbé Vogler excepted). Thus, the sounds that Alströmer's audiences would have heard were all vocal—the sustained, breathy, and dynamically flexible sounds of the claviorganum itself, as well as actual singing—and these were, of course, the kinds of sounds which listeners would probably have been predisposed to find most moving. It is easy to imagine a mixed gathering of the nobility and the upper class at Alströmer's house, opening the various windows into Alströmer's unusual new instrument and peering inside, experiencing together an emotionally moving musical performance, calling to hear the various timbres of the instrument used in different ways and combinations, and afterwards, sharing their opinions of the instrument over lunch or dinner.

6.5 Summary

This chapter has examined various contexts in which the musical inventions of Johann Andreas Stein were put on display: in newspapers and magazines; as attractions for tourists visiting Augsburg; in the formal space of a public art exhibition. I have suggested that the modes of inspection and critique documented in those settings may also apply to the way people encountered musical instruments in more private spaces, as in the case of Patrick Alströmer's claviorganum. I have also suggested that Stein's instruments could—indeed had to be—displayed in this fashion because of their contemporary identity as "works of art": because, that is, they belonged to a category of objects that invited and required the scrutiny of a critical public audience.

Stein sold his inventions to wealthy aristocrats, but it is clear that he also presented them to a much broader audience, one whose existence depended on emerging cultural patterns of literacy, mobility, sociability, and critique. The demands of this audience certainly must have influenced the kinds of instruments that Stein chose to invent. It is also to be expected, however, that the instruments did as much for the public as the public did for the instruments. They provided entertainment, if nothing else, and per-

haps education as well. More abstractly, the fact that they were displayed repeatedly, in various forms and venues, suggests that one of the most important functions of “instruments with funny names,” whether by Stein or by other builders, was that they provided a compelling focus for public discourse and attention, with important results. As chapter 5 showed, for example, new musical instruments were certainly inspired by public conversations about great topics such as art and aesthetics. Equally, however, in their role as artworks on exhibit, new instruments provided a space for the conversations on these topics to continue and develop. Furthermore, the opportunities for discussion and evaluation that they afforded helped to solidify and affirm the notion and the formation of the public itself, in a dynamic relationship that might best be understood as a co-construction of instrument and audience.

Chapter 7

Conclusion

Johann Andreas Stein (1728-1792), an organ builder by training, worked for the highly regarded Silbermann family in Strasbourg before settling in Augsburg in 1749. The workshop notebook that he began to keep during his travels records a mix of practical and theoretical study. He made sketches of instruments and noted down work methods, but also made notes on his readings in music history and theory—the notebook mentions, for example, Mattheson, Kircher, and Sorge.

Stein was probably mostly occupied with organ building during his first decade or so in Augsburg, a period highlighted by the completion of his grand organ for the Barfüßer Church in 1757. He became the organist at the Barfüßer Church; he also played in local music groups, for a time under the leadership of the local cantor J. G. Seyfert, who had been a student of C. P. E. Bach. During the 1760s, Stein lent his expertise to a local builder of musical automata, and at least one of their joint creations played music by Bach. Beginning in 1769, Stein began to present to public audiences a string of musical inventions—“instruments with funny names”—which appeared spaced throughout the next decades: the *Poly-Tono-Clavichordium* in 1769; the *Melodica* in 1772; a *Vis-à-vis* in 1777; the *Saitenharmonika* in 1783. The reports published about his inventions, often unsigned, probably stem mostly from him; with their references to Adlung, Quantz, and Bach, they appear to reflect a continuing engagement with texts on music. Stein became less active as an organ builder as his career progressed, and the fame that he achieved during his lifetime and after his death was mostly for his inventions, as well as for his highly regarded fortepianos.

The Gothenburg claviorganum (GM4478) can be securely dated to 1781. It is almost certainly the same instrument as a “*Clavecin organisé* built for

Sweden” by Stein that is reported by Paul von Stetten the Younger in 1788. It is, as well, almost certainly the same as the “Fortepiano organisé” that was acquired by the Gothenburg businessman Patrick Alströmer in 1781, and which makes sporadic appearances in Alströmer’s engagement diary over the next decade.

As an organ-piano combination, the Gothenburg claviorganum is, as far as is known, unique in Stein’s output. The piano of the claviorganum, aside from its short scale in the bass, displays a continuity of construction and design with Stein’s other surviving fortepianos. It contains the earliest known extant example of Stein’s famous *Prellzungenmechanik*, or German action, which he used, with incremental adjustments, in all of his subsequent extant pianos. Perhaps the most notable feature of the organ is a *Windschweller* or wind shaker installed in the wind trunk that appears to be part original, part alteration.

Stein’s claviorganum has not usually found a place in scholarly narratives about his musical inventions. This is probably partly because the notion of a claviorgan (an organ combined with a stringed keyboard instrument) was not a new one, and partly because no long published description ever appeared about the claviorganum, in contrast to most of Stein’s other inventions. The position of the claviorganum, however, deserves to be reconsidered. For one thing, the piano itself was still such a novelty in 1781 that Stein’s instrument was likely one of the first organ-pianos ever built (although the combination soon became more common). More importantly, Paul von Stetten indicated that he perceived a fundamental kinship between the claviorganum and other inventions by Stein, when he identified all of these instruments as “works of art.”

Systems of the arts, along with the meaning of the word “art” itself, shifted during the eighteenth century, as critics and philosophers formulated new theories about aesthetics and the fine arts. Stetten, both a historian and a governor of Augsburg, wrote prolifically about the arts in that city. His writings illustrate—and in fact certainly helped to shape—the ongoing, messy, but above all pragmatic ways in which that broad shift was negotiated in the local context in which Stein lived and worked.

Stetten’s texts demonstrate an admixture of new thought and old, but the concept of art that he expresses is consistent in the way that it collects and organizes what had always been recognized as prestige-bearing activities. Fundamentally, Stetten saw art as skilled work, with an element of intellectual labor, as opposed to what he calls mere *Handwerk*. But he also recognized the new ascendancy of the fine arts, the arts of leisure and beauty, over the mechanical arts, and he claimed that only those mechanical artists who executed their work with a refinement approaching the fine

arts really deserved their title. An true artist's motivation, Stetten believed, was honor, not money; but that honor derived from producing useful works, improvements, or inventions that could be shown to provide real benefits for society—and the fine arts no less than the mechanical, he argued, had practical uses. Stetten's writings indicate, moreover, that defining art and identifying artists was a pressing economic and social concern: both because artists could bolster the reputation and prosperity of their city with their production, and because art was multiply linked with status in a world in which social distinctions were clearly demarcated and regulated, but at the same time somewhat flexible.

Johann Andreas Stein was a personal friend of Stetten's, and for Stetten, he was also the archetype of an artist. Stein's notebook bears witness to the learned approach he brought to his work, and his inventions brought renown, visitors, and presumably money to his city. Equally, Stein himself participated in the institutions and the discourse of art recorded in Stetten's texts. He paid yearly dues to the local art academy that Stetten established, and his own presentations of himself and his work play upon the same themes that so occupied Stetten—notably in conversation recorded by Wolfgang Mozart, but also in the published descriptions of his instruments.

In a 1769 article, for example, an unnamed author, probably guided by Stein, presented both Stein's newly invented *Poly-Tono-Clavichordium* and his soon-to-be-completed *Melodica* as "improvements." The author calls the *Poly-Tono-Clavichordium*—a harpsichord-piano combination—an improvement to the piano, and the *Melodica*—a small organ whose sound became louder or softer in response to the variable pressure of the fingers—an improvement to the organ. A short preface to the description of the instruments argues that innovation, and improvement even more so, were essential components of art. Similarly, in 1779 Paul von Stetten would claim: "In improvement, the artist is found."

The *Poly-Tono-Clavichordium* article locates that instrument's status as an improvement mainly in its mechanical aspects, and most of all in the new kind of hammer action that it contained. The description of that action is not detailed enough to deduce its precise arrangement. It is, however, unlikely to have been the same as the German action preserved in the piano of the Gothenburg clavichord. The direct antecedents of the German action have been much discussed, but never established, and it may never be possible to do so. From a reading of the *Poly-Tono-Clavichordium* article, however, it is possible to surmise something of the action's significance for Stein and for other onlookers. For the author and readers of the *Poly-Tono-Clavichordium* article, Stein's new hammer action represented utility and

benefit, reason and intellect, and progress and forward thinking. Stein's own workshop notebook, meanwhile, shows him in fundamental agreement with this framing of his work. In addition to several sketches that seem to show conceptual rearrangements of the basic elements of a hammer action, the notebook contains a list of written-out instructions for making changes to an existing action—it is unclear which one—which he titled "Improvement of the Fortepiano."

The *Poly-Tono-Clavichordium* article makes it clear that the new instrument's mechanical improvements had musical functions. Its simplified hammer action, for example, was supposed to be lighter and easier to play, and the article suggests that the new action was conceived in response to C. P. E. Bach's comment, in his influential *Essay on the True Way to Play Keyboard Instruments*, that certain ornaments were impossible to perform correctly on the piano because of the piano's difficult touch. In 1772, Stein's own description of *Melodica* makes his inspiration from Bach explicit. It also demonstrates with remarkable clarity his intention for that new invention to fulfill not only a musical function but also a specifically aesthetic one.

The aesthetic discourse of the day theorized music, like the other fine arts, as a stimulus to the senses that had the power to move the sentiments of a perceptive, receptive—*empfindsam*—listener. Stein's *Melodica* article shows him absorbing that notion from Bach and distilling it into the form of a new kind of pipe organ, altered and refined to more perfectly imitate that most powerfully moving of musical instruments, the human voice. The result was a technology tailored for a group of users that Stein identifies as "keyboardists with *Empfindung*." Texts by C. F. D. Schubart repeatedly compare the sound of the *Melodica* to singing, but also to *mezzotint*: middle colors, or seamless gradations of musical light and shadow. The conceit relied on a perception of fundamental similarities uniting what had only recently emerged as the group of the fine arts, and it indicates that Stein's contemporaries understood the *Melodica*'s unique affordances: it was a voice for keyboardists, and as such, a way for them to practice making music as a fine art.

The Gothenburg claviorganum bears strong similarities to the *Melodica* in a number of respects: in the combination of organ and stringed keyboard (the *Melodica* could be placed atop another keyboard for accompaniment); in the disposition of the organ itself; and, at least as the claviorganum exists today, in the presence of a wind shaker for the organ. The example of the *Melodica* suggests that Stein might have designed the claviorganum, too, to provide to keyboardists the most affective qualities of the human voice. In the claviorganum, for example, the hammer action of the piano would have added dynamic contour to the sustained and breathy sound of the

organ; thus, the aural characteristics of the combination of organ and piano may well be compared to those of the *Melodica* (which included a special mechanism to make its pipes sound louder or softer), and this similarity sheds light on the organ-piano combination's contemporary significance.

In his engagement diary, Patrick Alströmer, the apparent first owner of the claviorganum, documented his use of the instrument throughout the 1780s. In the formal, abbreviated entries, he is nearly silent about the music he played on claviorganum, and offers no opinion or commentary on the instrument. While it is hard to know whether Alströmer read the same meaning in the claviorganum that Schubart did in the *Melodica*, he surely appreciated his instrument's aesthetic affordances: the nameboard of the claviorganum calls it, literally, a "field" for art.

What the diary provides, instead, is a record of the specific occasions upon which Alströmer played his claviorganum, and the people he played it for. Stein's musical inventions, exotic and expensive, have always been understood to be showpieces. Recognizing their status as artworks, however, sheds new light upon the particular conditions under which the inventions were displayed, and upon the kind of reaction they might have elicited from their audience. Alströmer, his guests, critics such as Schubart, and indeed Stein himself all inhabited a newly emerging cultural space, staked out by the increasingly literate, mobile, and sociable members of the middle and upper classes, that Habermas identified as the public sphere. It was within that sphere, so to speak, that Stein's works of art found their audience.

Stein displayed all of his inventions to this new public, in a variety of venues: sometimes quite formally, as at the 1783 exhibition of the Augsburg art academy; but also more casually, for tourists visiting Augsburg; and even figuratively, in the articles he published in newspapers, magazines, and as separate leaflets. Those articles frequently express the wish that the instruments they describe might meet with the approval of their audience, and these were not empty words. Members of the public were expected to make aesthetic judgments about art; thus Stein's works of art, including his claviorganum, were intended to be inspected and evaluated on aesthetic grounds by a critical audience.

All of these results suggest that during the second half of the eighteenth century, changing notions and practices of art were a significant influence on keyboard instrument design, and this influence was exercised through multiple channels that reflected the complexity of art as a social and philosophical category. In Augsburg, Johann Andreas Stein participated in a local conversation about art that remained deeply pragmatic, rooted in the prevailing economic and political conditions—art stood for progress and benefit—but, at the same time, took in new cultural ideas that gave birth

to new behaviors of sensing, viewing, and criticizing art. That conversation shaped the instruments that Stein invented, and his inventions, in turn, supported and advanced the conversation. Stein's 1781 clavichord signified useful improvement by virtue of its innovative hammer design; its sound was designed, by imitating the affective qualities of the human voice to provoke an aesthetic response in musicians and listeners; and it was, in itself, a public object that encouraged critical curiosity and evaluation.

I would like to close, finally, by suggesting a few directions for further work. Given the tight connection that I have demonstrated between the specific conditions in Augsburg and Stein's building practice, it would be instructive to learn more about the relationship between art and instrument building in other environments during this period: at courts in Germany, for example, or in other European countries. And although I argued at the beginning of this dissertation for the utility of a micro-study such as I have carried out here, it would also be fascinating to broaden the scope of the question. I have focused in this study on unusual musical inventions, because it was those instruments which Paul von Stetten called "works of art." However, as the much of the material I have presented shows, the reciprocal influence between musical instrument building and aesthetic discourse, in particular, must also apply to an instrument as mainstream as the piano itself. To the best of my knowledge, this is a perspective that has been little explored, at least for the piano during this period, but which seems singularly relevant, given the rapid changes in the piano's form that, like its sudden widespread adoption, occurred concomitant with a fundamental cultural shift toward a more modern conception of the nature of music and art.

Appendix A

Transcriptions and Translations

This appendix provides transcriptions and translations of the most important descriptions of Johann Andreas Stein's musical inventions that were published during his lifetime. It also includes selections from Paul von Stetten's writings on Stein and the arts in Augsburg, and some of Christian Friedrich Daniel Schubart's texts about Stein and especially the *Melodica*.

In Chapter 1, under the heading "Sources," these publications are grouped by topic, and their relationship to one another is discussed. Here, they are presented in chronological order by date of first publication, with the exception of Schubart's *Leben und Gesinnungen* and *Ideen zu einer Aesthetik der Tonkunst*, which were first published posthumously but appear here ordered according to the date of writing.

Each published article or book is presented under a separate heading. For reasons of space, the headings use an abbreviated reference to the author (or editor) and title of the source. More information and a brief summary of the content of the source are provided at the beginning of each section. Complete citations can be found in the Bibliography. Where multiple excerpts from a source are given, the translation of each excerpt follows directly after the transcription.

In the transcriptions, page or column numbers are given in brackets at the beginning of the page to which the number refers. In the translations, corresponding numbers are inserted at the approximately correct locations. In sources with no page numbering, a note in brackets marks the beginning of each new page.

For clarity, footnotes in the original sources have usually been removed, unless they are of particular relevance to the analysis in the preceding chapters.

1769. Hiller, "Improvement of the Pianoforte"

Johann Adam Hiller, editor of the *Wöchentliche Nachrichten und Anmerkungen, die Musik betreffend* in Leipzig, printed this article about Stein's newly *Poly-Tono-Clavichordium* in two parts, on July 24 and July 31. The article begins with an explanation of why the new instrument is needed, and concludes with a description of the instrument's appearance and sound. The second part of the article promises that a conclusion was to follow, but this seems not to have appeared.

Nachricht von Verbesserung des Pianofortinstruments.

[32] Ein mit Rabenkielen befiederter und gut mensurirter Flügel hat sich schon von langen Zeiten her, als das brauchbarste Instrument zum Accompagniren, zu Handstücken und Concerten bewiesen. Was man ihm etwan vorwerfen könnte, ist, daß man, wenn nicht eine doppelte Claviatur vorhanden ist, das *forte* und *piano* nicht anders als durch Vermehrung oder Verminderung der Stimmen, auf eine sehr unvollkommene Weise, ausdrücken vermag.

Das Instrument, das den Nahmen des Fortepiano führt, so wie es bisher nur **Silbermann** verfertigt hat, und zu welcher Classe man eine Menge da und dort, theils nachgemachter, theils selbst erfundener Instrumente nicht zählen muß, ist für die meisten Liebhaber ungemein reizend, zumal wenn es gedämpft gebraucht wird. So angenehm aber auch dieses Instrument unter gewissen Umständen, und wenn man es in einiger Entfernung hört, seyn mag, so wird man doch auch vielleicht kein anders sobald überdrüssig. *Mr. Daquin*, ein braver organist bey *Notre Dame* zu Paris, sagte daher, als wir uns mit einander auf einem Silbermannischen Fortepiano ein Vergnügen machten; "Der Flügel is das Brodt, und das Fortepiano eine leckerhafte Speise, die man bald überdrüssig wird." Es ist dasselbe auch nicht so gut zur Begleitung einer Musik, als zu einem Concert oder Solo zu gebrauchen. Man hat sich außerdem bisher beschwert, daß es hart zu tractiren sey, wie denn auch Herr Bach in seinem Versuche über die wahre Art das Clavier zu spielen, anmerkt, daß nicht alle Manieren gleich gut darauf heraus zu bringen wären. Gewiß ein schlimmer Umstand für die Musik, wenn sie nicht alles ausdrücken kann! Wie ist nun diesem Instrumente zu helfen? Es wäre zu wünschen, daß die Instrumentmacher mehr musikalische Einsichten hätten, und mehr mit einer für die Musik empfindbaren Seele arbeiten möchten; sie würden alsdann an ihrem Mechanismo so lange verändern, bis sie einem Instrumente die Vollkommenheit geben, die den Kenner auch in Kleinigkeiten befriedigte, und der Musik in keinem Stücke

mehr nachtheilig wäre.

Ein geschickter Orgel- und Instrumentmacher, der zugleich Organist an der evangelischen Barfüßerkirche zu Augsburg ist, Herr **Johann Andreas Stein**, hat an der Verbesserung der Mängel, die sich bey dem Pianoforte finden, seit zehn Jahren gearbeitet, und ein Instrument zu Stande gebracht, das von Kennern sehr gelobt und bewundert wird.

Die Fortsetzung folgt künftig.

News of the Improvement of the Pianoforte Instrument.

[32] A properly scaled harpsichord quilled with raven feathers has long proven itself to be the the most useful instrument for accompaniment, for playing solo pieces, and for concertos [or ensemble music; *Concerten*]. What one may perhaps reproach it for is that, if there are not two manuals available, one cannot express *forte* and *piano* except in a very imperfect way, by adding and subtracting stops.

The instrument that bears the name of *Fortepiano*—in the form in which only **Silbermann**, as yet, has manufactured it, and to which class one need not reckon a multitude of instruments made hither and yon, sometimes imitations, sometimes [their makers'] own inventions—is uncommonly delightful for most *Liebhaber*, especially when it is used with damping. As pleasant as this instrument may be under certain circumstances, and if one hears it from some distance, however, there is perhaps no other instrument that one grows weary of so soon. That is why *Mr Daquin*, a good organist at *Notre Dame* in Paris, said when we were entertaining one another at a Silbermann fortepiano: "The harpsichord is bread, and the fortepiano a delicious dish that one soon grows weary of." It is also not as good for accompaniment as it is for use in a concerto or a solo. In addition, until now people have complained that it is too hard to play, and thus Mr. Bach notes in his *Versuch über die wahre Art das Clavier zu spielen*, that not all the ornaments can be produced equally well on it. Certainly a bad state of affairs for music, if she cannot express everything! How might this instrument be helped? It would be desirable for the instrument builders to have more musical insight, and to work more with a soul sensitive to music; they would then alter their mechanism until they had bestowed upon an instrument the perfection that would satisfy a connoisseur even in its small details, and would no longer be detrimental to the music in any way.

A skilled organ and instrument maker who is also the organist at the Evangelical Barfüßer Church in Augsburg, Mr. Johann Andreas Stein, has been working on improving the shortcomings to be found in the pianoforte for ten years, and has produced an instrument that will be much praised

and admired by connoisseurs.

To be continued.

Fortsetzung der Nachricht von Verbesserung des Pianoforte.

[40] Der etwas stumpfe Ton des Fortepiano brachte besagten **Herrn Stein** auf die Gedanken, ihm einen scharfen Zug zuzugesellen, und gewissermaßen den Flügel mit dem Fortepiano zu verbinden. Diese Verbindung aber bestehet weiter in nichts, als daß beyde auf einem Claviere gekoppelt werden können; denn jedes hat seinen besondern Körper und Saiten. Es ist dieses Werk demnach nicht von der Gattung derjenigen, wo die Hämmer und Docken einerley Saiten mit einander gemein haben, und eine abschauliche Musik hervor bringen, weil der Anschlag der Hämmer eine ganz andere Mensur, und andere Saiten verlangt, als die Docken. Es befinden sich also zwey Instrumente in einem beysammen, und sind in der Mitte durch einen Boden von einander abgesondert. Das obere Instrument ist ein gewöhnlicher vierhörigter Flügel, wovon drey Saiten in 8füßigen Einklange stehen, die 4te aber einen ganz gelinden 16Fußton anspricht; das mittlere und obere Clavier sind diesem Flügel zugeeignet, wovon ersteres alle vier Docken zugleich, letzteres aber nur eine 8füßige Saite allein nimmt. Das untere Instrument is das Pianoforte, und in der Bauart von außen so eingerichtet, daß es den Fuß vom Flügel vorgestellt; die Saiten sehn also unter sich. Der Deckel, welcher dieselben schließt, stellt sich, bey der Eröffnung, in eine solche abhängende flache Linie, daß er mit unserm Ohre zu rechtem Winkel steht, wodurch die aufprallenden Tonstrahlen so gut in unser Ohr geführt werden, als wenn das Instrument oben wäre. Das dritte oder unterste Clavier ist ihm zugeeignet, und so leicht spielen, daß eine jede Hand bequem darauf fortkommt.

Der Mechanismus ist so simpel, daß das ganze Werk bloß in zwey kleinen Stücken, in einem Tangenten und Hämmerlein von außerordentlicher Leichtigkeit bestehet. Die Fertigkeit läßt sich darauf schließen, da das Hämmerlein nur einen Raum von $\frac{1}{2}$ Pariser Zoll zu durchwandern hat. Der geringste Druck der Tasten berührt die Saiten, und der stärkste übertreibt sie nicht; ein kritische Umstand!

Der Beschluß folgt künftig.

News of the Improvement of the Pianoforte, continued.

[40] The rather dull sound of the *Fortepiano* inspired the aforementioned **Mr. Stein** to join with it a keen register, and to connect the *Flügel* with the

Fortepiano in a somewhat better way. This connection, however, consists in nothing more than that both can be coupled to one keyboard, for each one has its own case and strings. Accordingly, this instrument is not of that type in which the hammers and jacks have all of their strings in common with one another, and produce an abominable music because the attack of the hammers requires a completely different scaling and different strings than the jacks. Thus, two instruments are found together in one, and are separated from each other by a baseboard in the middle. The upper instrument is an ordinary *Flügel* with four choirs, three strings of which sound in unison at 8' pitch, while the fourth speaks with a very mild 16' tone; the middle and upper keyboards are dedicated to this *Flügel*, of which the former takes all four jacks at once, while the latter takes only one 8' string alone. The lower instrument is the *Pianoforte*, and its design is contrived in such a way that from the outside it looks like the base of the harpsichord; the strings, then, face downwards. The lid that closes the *Pianoforte* positions itself, when opened, along just such a declining shallow line [*abhängende flache Linie*] that it stands at a right angle to our ear, whereby the rays of sound bouncing off the lid are conducted to our ear just as well as if the instrument were on top. The third or lowest keyboard is dedicated to it, and is so easy to play that any hand can get on comfortably with it.

The mechanism is so simple that the whole work consists of only two small pieces, a tangent [*Tangent*] and a small hammer of extraordinary lightness. The skill with which it is done may be inferred from the fact that the little hammer has only to travel through a space of $3\frac{1}{2}$ Parisian inches. The slightest pressure on the keys touches the strings, and the strongest does not push them too far: a crucial condition!

The conclusion to follow.

1769. "Invention of a Poly-Tono-Clavichordium"

This unsigned article appeared in the Augsburg *Intelligenz-Zettel* on October 5. It begins with an argument for the importance of innovation and improvement in the arts, and, with reference to Adlung, the particular artistry of the organ builder, whereupon it announces the invention of Stein's *Poly-Tono-Clavichordium* and promises that Stein will also soon present another invention, a new kind of organ (the *Melodica*). The article then describes the construction and sound of the *Poly-Tono-Clavichordium*.

Von Erfindung eines Poly-Toni-Clavichordii oder musikalischen Affecten-Instruments, und von Verbesserung eines neuen Orgelwerks.

So wie das Reich der Wissenschaften in unseren erleuchteten Zeiten sich ausbreitet, so nehmen auch die Künsten zu, und kommen in Aufnahme, wo sie Verehrer, Liebhabere und hohe Gönnere finden; denn dieses ist gleichsam der brennende Zunder, zu Anfeuerung der so edlen Ehrbegierde und Erfindungskraft witziger und sinnreicher Köpffe, als deren Fleiß und mancherley nützlichen Erfindungen man die Aufnahme der Künsten und Wissenschaften zu danken hat, und dadurch sie allerdings Ruhm und Hochachtung bey dem erleuchteten Publico verdienen.

Nicht aber nur bloß neue Erfindungen alleine, womit ein Künstler die Gränzen seiner Wissenschaften erweitert, sondern auch, wenn die schon bekannten: oder neu erfundenen Sachen, verbessert, vollkommener, brauchbarer und nützlicher gemacht werden, befördern die Aufnahme der Künsten, und machen einem solchen Künstler Ehre; denn durch das Letztere wird öfters mehr, oder eben so viel Nutzen geschafft, als durch das Erstere: weil das Berbesserte [sic], wenigstens vor dem Alten jederzeit mehr Beyfall findet.

Unter die Zahl solcher neuen Erfindungen und nützlichen Verbesserungen verdienet nun auch gesetzt zu werden, eine besonders neue Art, eines gleichsam vollständigen Musik-Instruments, so die Stelle vieler Claviere, Flügel und anderer Saitenspiel zugleich vertritt, nebst einer neuen Orgel mit Aushaltung des Tons ohne einförmiges Geräusche u.a. welche von einem hiesigen Künstler, der schon als ein geschickter Tonkünstler, Organist, Instrument- und Orgelmacher zugleich, berühmt ist, endlich nach vieler Mühe und Arbeit zu Stande gebracht worden ist.

Ein aufmerksamer Orgelmacher, an sich selbst betrachtet, ist kein einfacher Künstler: er muß weit mehr von Künsten und Wissenschaften besitzen, wenn er anderst alle Theile seiner Arbeiten mit einer ausgebreiteten Gründlichkeit erkennen, anordnen und rühmlich zu Stande bringen will. Er muß, wann ich es kurz fassen will, nicht nur ein Tonkünstler von Geschmacke, der mehr als ein musikalisches Gehör besitzt, seyn, sondern er muß zugleich ein Gießer, ein Kistler, ein Drechsler, ein Baumeister, ein Mechanicus, ein Geometer zur Abtheilung der Messuren, und zur Verjüngung, Vergrößerung, Berechnung und Verwandlung der geometrischen Figuren, und auch ein Zeichner, und besonders ein ehrlicher Mann seyn; der mit seiner künstlich zusammengesetzten Arbeit, gleichsam durch Wind und taubes Zinn, Vergnügen und Andacht ausbreitet; indeme die Menge der Orgelstimmen, welche eine andächtige Gemeine in Bewegung setzen, zwar

unbegliederte Töne, aber dennoch im Chorale eine vielfache Davids-Harpfe einer ganzen vielfältigen Kapelle sind, welche in uns den Dank, das Lob, die Ehrfurcht, die Trauer, die Freudigkeit u.a. gleich rege machen; und durch sachte und melancholische Gedakten, durch allerley anmuthige Flöten und Pfeiffen, durch lustige und durchdringende Mixturen und Cymbeln, durch singende Cornete, durch freudige und laute Trompeten, durch schluchzende Tremulanten, durch heroische Posaunen, durch brummende Fagots, durch schmachtende Menschen-Stimmen, durch laute und nachdrückliche Principale, von einer Stufe der Affecten zur andern, den Geist ermuntern, und das Herz durch harmonische Zerstreungen gleichsam Himmelwärts empor heben.

Ein solcher Künstler nun, der bey Verfertigung dergleichen vollständigen Orgeln- Clavieren- und Flügel-Instrumenten, es nicht bey dem alten bewenden läset, sondern sich auch zugleich dahin bestrebet, mehr mit einer für die Musik empfindbaren Seele zu arbeiten, und durch seine darinn erlangte Habilität, dergleichen Orgeln und Instrumenten zu verbessern, und mit neuen mechanischen Zusätzen vollkommener, angenehmer und bequemer zu machen suchet, wird niemals was unternehmen, daß diesen seinen Absichten nicht gemäß, folglich allemal was Nützlichendes, was Vollkommeneres zu Stande bringen.

Denen Musik-Verständigen ist es bekannt, daß bishero es immer an einem vollständigen mit Saiten bespannten Instrument noch gefehlt hat, das, zumalen im forte und piano, gleichsam so viel als ein ganzes Orgelwerk, leistet,—Und daß selbst an denen Orgeln, so verbessert sie auch bißhero geworden sind, noch immer ihr starkes, einförmiges und öfters undeutliches Geräusche, womit sie die Kirchen anfüllen, ein Anstoß des musikalischen Gehörs gewesen ist, und solches von Musik-Liebhabern, auch nur von mittelmäßiger Einsicht, jedesmal als ein Gebrechen, angesehen worden ist; weil die Aushaltung des Tons in einer gleichen Stärke fortgegangen, und niemals, nach einem feinen Traitement, gemildert werden konnte.—Diesen beyden Mängeln ist nunmehr abgeholfen worden.

Der so berühmte als geschickte Orgel- und Instrumentmacher dahier, der zugleich Organist an der hiesigen Evangel. Barfüßerkirche ist, Herr Johann Andreas Stein, hat mit Zuziehung eines berühmten hiesigen Mechanici, nicht nur ein dergleiches vollständiges musikalisches Instrument, mit Verbindung dreyer Clavieren, und eines besondern neuen Flügels, Piano forte genannt, zu Stande gebracht, womit von einer Stufe der Affecten zur andern, die harmonische Züge gleichsam ausgedruckt werden können, und daher das vollständige musikalische Affecten-Instrument oder Poly-Tono-Clavichordium genennt worden; von dessen Struktur und Bauart gleich nachhero gedacht werden solle;—sondern er hat sich auch seithero mit

Verbesserung einer Orgel beschäftigt, wo denen obangezeigten Mängeln abgeholfen worden, so daß die Proportion in Haltung des Tons, das Piano und Forte zum stärkern und schwächern **[new page]** Druck des Fingers, wie bey einem blasenden Instrument, sich gleich verhält, ohne das der Ton höher oder tiefer wird, und ohne daß durch den stärkern Druck des Claviers mehr Pfeiffen ansprechen; davon eine besondere Beschreibung dem Publico mitgetheilt werden solle, sobald solche von ihm vollends zu Stande wird gebracht worden seyn.

Was nun das neue von ihm erfundene bereits fertige Poly-Tono-Clavichordium betrifft, so ist solches, wie gesagt, eine künstliche Zusammensetzung von Clavieren mit Verbindung des beliebten Forto-Piano-Flügels [sic], womit sanfte, lärmende, sachte und melancholische, freudige und schmachtende Harmonien herfürgebracht, und Symphonien und Concerten wie Solo, mit forte und piano so anmuthig darauf gespielt werden können, daß es einer complete Musik mit mehrern Instrumenten nicht unähnlich zu seyn scheint.—Das hiermit verbundene einzelne Instrument, das den Namen des Fortepiano führet, ist bißhero nur von Silbermann in Dresden verfertigt worden, welches Bartolomeus Cristofoli, Claviermacher zu Padua, zuerst erfunden haben solle; dessen sich aber, als erster Erfinder dieses Instruments, Herr Christoph Gottlieb Schröter, Organist in Nordhausen, zugeeignet. [note a): s. *Musica mechanica organoedi*, p. 115.] Dieses, da es hart zu tractiren, und eben nicht alle Manieren gleich gut darauf herauszubringen waren, hat gedachter Herr Stein, nach zehnjährigen Versuchen und Bearbeitungen, in seinem Mechanismo abgeändert, denen dabey befindlichen Mängeln abgeholfen, dem stumpfen Ton desselben einen scharfen Zug zugesellt, und einigermassen den dazu gehörigen Flügel mit dem Fortepiano besser verbunden, und sodann einige Claviers zu Erreichung seiner Absichten, noch zugesetzt; daraus denn dieses vollkommene musikalische Affecten und Forte-Piano-Instrument, oder Poly-Clavichordium entstanden ist.

Diese vorhin gedachte Verbindung aber bestehet weiter in nichts, als daß beyde auf einem Claviere gekoppelt werden können; denn jedes hat seinen besondern Körper und Saiten. Es ist dieses Werk demnach nicht von der Gattung derjenigen, wo die Hämmer und Doken einerlei Saiten mit einander gemein haben, und eine unannehmliche Musik hervor bringen, weil der Anschlag der Hämmer eine ganz andere Mensur, und andere Saiten verlangt, als die Doken. Es befinden sich also zwey Instrumente in einem beysammen, und sind in der Mitte durch einen Boden von einander abgesondert. Das obere Instrument ist ein gewöhnlicher vierchörigter Flügel, wovon drey Saiten in 8 füssigen Einklange stehen, die 4te aber einen ganz gelinden 16 Fußton anspricht; das mittlere und obere Clavier sind diesem Flügel

zugeeignet, wovon ersteres alle vier Doken zugleich, letzteres aber nur eine 8 füssige Saite allein nimmt. Das untere Instrument ist das sogenannte Pianoforte, und in der Bauart von aussen so eingerichtet, daß es den Fuß vom Flügel vorstellt; die Saiten sehn also unter sich. Der Dekel, welcher dieselben schließt, stellt sich, bey der Eröffnung, in eine solche abhängende flache Linie, daß er mit unserm Ohre zu rechtem Winkel steht, wodurch die aufprallenden Tonstrahlen so gut in unser Ohr geführt werden, als wenn das Instrument oben wäre. Das unterste als das 3te Clavier ist ihm zu geeignet, und so leicht zu spielen, daß eine jede Hand bequem darauf fortkommt.

Der Mechanismus ist so simpel, daß das ganze Werk bloß in zwey kleinen Stücken, in einem Tangenten und Hämmerlein von aus-[**new page**] serordentlicher Leichtigkeit bestehet. Die Fertigkeit läßt sich daraus schliessen, da das Hämmerlein nur einen Raum von $3\frac{1}{2}$ Pariser Zoll zu durchwandern hat. Der geringste Druck der Tasten berührt die Saiten, und der stärkste übertreibt sie nicht;—Fürwahr, ein leichter und doch dauerhafter Mechanismus!

Der Zug, welcher die Demmung oder Staccato macht, und sonst zu beiden Seiten des Claviers eine Beschäftigung der Hände war, wird hier durch eine kleine unvermerkte Bewegung des Knies bewürkt; welches in der That ein sehr groser Vortheil ist, wenn man einzelne Noten, Passagen und Manieren scharf abstoßen oder stokiern kan, ohne die Hände vom Clavier zu bringen. Das Stimmen desselben macht keine Schwürigkeit, weil die Saiten ganz unter das vordere Clavier geführet sind, wo man ohnehin leicht zukommen kan; wer aber Lust hat, das untere Instrument nach seiner Structur völlig zu sehen, der kan nach Belieben es bequem umschlagen.—

Die Verbindung dieses viel thönigten Instruments ist nach seiner Bauart so beschaffen, daß die schweresten Sachen leicht, und zwar so piano und so forte darauf gespielt werden können, daß es einer completen Music mit mehreren Instrumenten nicht unähnlich gleichet: indeme durch den zusammen gesetzten Mechanismus dieses Poli-Tono-Clavichordii, im Spielen, jenes bald diesem sein Schmeichelhaftes und Pathetisches, dieses aber bald jenem sein Sanftes und Geläufiges, gibt, und sodann das Forte Piano Instrument dem Flügel zugleich das Crescendo und Decrescendo auf die angenehmste Art mittheilet, so daß man nicht anderst glaubt, als daß der Flügel selbst diese Eigenschaft habe, da es doch blos vom Ersten herkommt. Der Flügel hingegen gibt dem Forte-Piano-Instrument, wann es ohngedämpft gespielt wird, eine sanfte affectuose Annehmlichkeit, und reißt jenen gleichsam von einer Stufe der Affecten zur andern, in fremden Ton-Arten mit fort, ohne das Ohr zu beleidigen.

Man kan demnach hieraus leicht begreifen, daß sich durch das Ab- und Zuziehen der obern 4 Registern sowohl als durch die Wahl von 3 Clavieren,

wie auch durch das Abwechseln der Hände, und durch das gedämpfte und ungedämpfte Forte-Piano-Instruments, sehr viele Veränderungen auf diesem neu-erfunden Politono Chavichordio [sic], anbringen lassen; besonders aber ist diejenige Art von Melodien, wo man aus dem Flügel den gelinden 16 fusigen Ton spielt, und mit dem Forte-Piano ganz allein verbindet, dem Baß aber auf einem andern Clavier nimmt,—ein überaus einnehmendes Wesen für ein musikalisches Gehör.—Genug! Wer davon überzeugt seyn will, mus solches nach allen seinen Theilen, so, wie ich, gesehen, und zu spielen gehört haben.

On the invention of a *Poly-Tono-Clavichordium* or musical *Affekt*-Instrument, and on the improvement of a new organ.

The realm of the sciences expands, in these enlightened times; and so, too, are the arts on the rise, and gain acceptance, wherever they find admirers, *Liebhaber*, and high benefactors—for this is (so to speak) the lighted tinder which fires the noble ambition and the inventive power of clever and ingenious minds, whose industry and whose many useful inventions are to be thanked for the general acceptance of both the arts and the sciences, and for which they certainly deserve renown and the esteem of the enlightened public.

Not only, however, do new inventions, with which an artist broadens the boundaries of his science, promote the acceptance of the arts, and do credit to such an artist—but also when familiar things or new inventions are improved, made more perfect, more useable, more serviceable. For just as much use is often had from the latter as from the former, since something that has been improved always finds, at least, more approval than that is old.

Now, among the number of such new inventions and useful improvements, there deserves to be placed an especially new kind of musical instrument: complete, as it were, so that it stands in for many claviers, harpsichords, and other stringed instruments simultaneously, which has finally been produced after much effort and work by a local artist who is already famous as a skilled musician and organist as well as a instrument and organ builder—and in addition to this, a new organ that has, among other things, a sustained tone without monotonous noise.

An attentive organ builder, taken in himself, is no simple artist: he must master much more of the arts and sciences if he wishes, in a different way, to perceive all the parts of his works with wide-ranging rigor, to arrange them,

and to complete them with esteem. To put it briefly: not only must he be a musician of taste, possessing more than just a musical ear, but he must also be at once a caster; a carpenter; a turner; a master builder; a mechanician; a geometer, for calculating the scalings and for scaling up and scaling down, calculating and transforming the geometrical diagrams; and a draftsman as well; and especially an honest man, who with his artfully assembled work spreads pleasure and devotion by means, so to speak, of air and barren tin—for the multitude of organ stops that move a devout congregation, structureless sounds indeed, are nevertheless, in a chorale, a multipartite David's harp of an entire, varied orchestra, that quickly [or equally; *gleich*] stir up in us thanks, praise, reverence, sorrow, joyfulness, etc., and that, with soft and melancholy stopped pipes, with all manner of charming flutes and pipes, with merry and piercing mixtures and cymbals, with singing cornets, with clear and joyous trumpets, with sobbing tremulants, with heroic trombones, with humming bassoons, with languishing vox humanas, with clear and emphatic principals, encourage the spirit from one level of the *Affekten* to another, and by means of harmonic diversions, lift up the heart, so to speak, toward heaven.

Now, an artist such as this, who, when making complete organ- *Clavier*- and *Flügel*-instruments of this kind, does not settle for what is old, but also strives at the same time to work more with a soul that is sensible of music, and with the skill thereby acquired seek to improve those organs and instruments and make them more perfect, more pleasant, and more comfortable by means of new mechanical additions, will undertake nothing that does not correspond to these, his intentions; hence will always produce something useful, more perfect.

It is well-known to those knowledgeable about music that a perfect stringed instrument has, until now, always still been lacking—one which, especially as regards *forte* and *piano*, accomplishes just as much as an entire organ. And, that even when it comes to organs—as much as they have been improved thus far—their strong, monotonous, and often unclear noise, with which they fill the churches, has been an offence to the musical ear; and this has always been considered a deficiency by *Musik-Liebhaber*, even those of only average insight, for the sustain of the note always continued at the same strength and could never be softened by a nice touch. Both of these shortcomings have now been remedied.

The organ and instrument maker here, Mr. Johann Andreas Stein, who is as famous as he is skillful, and is also the organist at the local Evangelical Barfüßer Church, has, in consultation with of a famous local mechanician, not only created a complete musical instrument of this kind, with a combination of three keyboards and a special new *Flügel*, called *Piano forte*,

with which the harmonic traits can be expressed, so to speak, from one level of the *Affecten* to another, and therefore is named the complete musical *Affecten-Instrument* or *Poly-Tono-Clavichordium*, the structure and construction of which will be considered in a moment; but he has also busied himself since then with making improvements to an organ, in which the shortcomings indicated above have been remedied, so that the proportion during the sustain of the note, the *piano* and *forte* on stronger and weaker [new page] pressure of the fingers, remains the same, as in a wind instrument, without the tone rising or falling, and without the stronger pressure on the keyboard causing more pipes to speak—a special description of which will be communicated to the public as soon he has produced it perfectly.

Concerning the *Poly-Tono-Clavichordium* newly invented by him, and already finished, it is, as mentioned, an artful assembly of keyboards to which the popular *Forte-Piano-Flügel* is connected, with which soft, noisy, gentle and melancholy, joyful and languishing harmonies may be produced, and upon which symphonies and concertos as well as solos may be played with *forte* and *piano*, so gracefully that it seems not unlike a complete ensemble of several instruments. The separate instrument that has been joined to it, which bears the name of *Fortepiano*—which was first supposed to have been invented by Bartolomeus Cristofoli, keyboard instrument maker in Padua, but to which Mr. Christoph Gottlieb Schröter, organist in Nordhausen, has dedicated himself as its first inventor—has so far only been made by Silbermann in Dresden. [note a: *Musica mechanica organoedi*, p. 115.] Because this instrument was hard to play, and indeed not all ornaments could be played on it equally well, the aforementioned Mr. Stein, after ten years of trials and adaptations, has changed it in its mechanism, remedied the shortcomings to be found in it, joined a keen register to its dull tone, and connected the *Flügel* that belongs to it with the *Fortepiano* in a rather better way, and then added a few more keyboards to achieve his purposes; from all of which then arose this perfect musical *Affecten-* and *Forte-Piano-Instrument*, or *Poly-Clavichordium*.

This previously mentioned connection of instruments, however, consists in nothing more than that both can be coupled to one keyboard, for each one has its own case and strings. Accordingly, this instrument is not of that type in which the hammers and jacks have all of their strings in common with one another, and produce an unpleasant music because the attack of the hammers requires a completely different scaling and different strings than the jacks. Thus, two instruments are found together in one, and are separated from each other by a baseboard in the middle. The upper instrument is an ordinary *Flügel* with four choirs, three strings of which sound

in unison at 8' pitch, while the fourth speaks with a very mild 16' tone; the middle and upper keyboards are dedicated to this *Flügel*, of which the former takes all four jacks at once, while the latter takes only one 8' string alone. The lower instrument is the so-called *Pianoforte*, and its design is contrived in such a way that from the outside it looks like the base of the harpsichord; the strings, then, face downwards. The lid that closes the *Pianoforte* positions itself, when opened, along just such a declining shallow line that it stands at a right angle to our ear, whereby the rays of sound bouncing off the lid are conducted to our ear just as well as if the instrument were on top. The third and lowest keyboard is dedicated to it, and is so easy to play that any hand can get on comfortably with it.

The mechanism is so simple that the whole work consists of only two small pieces, a tangent [*Tangent*] and a small hammer of extraordinary [new page] lightness. The skill with which it is done may be inferred from the fact that the little hammer has only to travel through a space of $3\frac{1}{2}$ Parisian inches. The slightest pressure on the keys touches the strings, and the strongest does not push them too far: truly, a simple and yet sturdy mechanism!

The register that activates the damping or staccato, and was otherwise a job for the hands on both sides of the keyboard, is operated here by means of a small, un-noticed movement of the knee; which is indeed a very great advantage, if one can play single notes, passages, and ornaments sharply detached or staccato without removing the hands from the keyboard. The tuning of this instrument poses no difficulty, because the strings are led all the way under the frontmost keyboard where one has easy access anyway; but whoever wishes to see the structure of the lower instrument in full can comfortably turn it over at will.

The combination of this many-toned instrument is in its construction so constituted that the most difficult things may be played upon it easily, and indeed so *piano* and so *forte*, that it quite resembles a complete ensemble with several instruments: in the way that, as a result of the assembled mechanism of this *Poly-Tono-Clavichordium*, when it is played, one instrument gives the other its cajoling and pathetic qualities, while the latter gives the former its soft and fluent qualities, and furthermore the *Forte Piano Instrument* imparts the *crescendo* and *decrescendo* to the *Flügel* in the most pleasant way, so that one cannot believe otherwise than that the *Flügel* itself has this property, when it is in fact only produced by the first instrument. The *Flügel*, on the other hand, gives the *Forte-Piano-Instrument*, when it is played undamped, a soft, affecting pleasantness, and carries it along from one level of the *Affekten*, so to speak, to another, into distant keys, without insulting the ear.

Accordingly, one can easily understand from this description that very many registrations may be applied on this newly-invented *Politono Clavichordium*, by engaging and disengaging the upper four registers as well as by choosing among the three keyboards, and also by alternating the hands and by using the *Forte-Piano-Instrument* damped or undamped; something special, however, is that kind of melody where one plays the soft 16' stop from the *Flügel* and couples it completely alone to the *Fortepiano*, but takes the bass on another keyboard—an extremely engaging entity for a musical ear. Enough! Whoever wants to be persuaded must have seen all of its parts and heard it played, as I have done.

1770. “Organ Building Art”

This article about Stein’s organ for the Barfüßer church appeared in the Augsburg *Kunstzeitung der Kayserl. Akademie*. It advertises a new engraving of the organ, drawn by Stein himself; praises Stein’s skill as an organist; and describes the instrument’s construction and sound as well as its setting in the church.

Orgelbaukunst.

[41] Wir freuen uns den Liebhabern schöner und vollständiger Orgeln einen Kupferstich bekannt machen zu können, durch dessen Hülfe sie ziemlich deutliche Vorstellungen von einem Werke bekommen werden, welches der Kirche, in der es stehet, die größte Zierde giebt, und den Meister, der es verfertigt, bey der Nachwelt, so lange noch Künste werden geschätzt werden, vor der Vergeßlichkeit verwahren wird. Es ist solches der Prospect des fürtrefflichen Orgelwerks in der Evangel. Pfarrkirche zu den Barfüßern, welches von Herrn **Georg Andreas Stein**, Orgel- und Instrumentenmacher, auch dermaligen Organisten bey diesem Werke, von 1755 bis 57. verfertigt, von ihm gezeichnet, und von Herrn **Emanuel Eichel**, Instructor der Zeichnungsschule an dem Evangel. Gymn. [42] zu St. Anna, auf groß Folio in Kupfer gestochen worden. Das Blatt wird bey Herrn Director Nilson für 36 kr. verkauft. Die Register sind in das Haupt- Ober- und Brustwerck nebst dem Pedal eingetheilet, welche, wenn das Brustwerck erst wird vollendet worden seyn, zusammen 43 Züge ausmachen, worzu noch 4 Nebenzüge zu setzen sind. Der Principalbaß im Pedal, so im Gesichte stehet, ist von englisch Zinn, 16 Fuß, davon die größte Pfeife $21\frac{1}{2}$ Schuh lang ist. Herr Stein hat die Wege der geschickten Nachahmer betreten; er hat sich weder von dem Witze und Modesucht der Franzosen verblenden, noch auch seine Lebhaftigkeit von der deutschen Ernsthaftigkeit und Steife ersticken lassen.

Er hat beyde Nationen geprüft, von ihnen das Gute behalten, und, mit Vermischung seiner eigenen Gedanken, ein vortrefliches Ganzes herausgebracht, welches allezeit einen Beweis seines guten Geschmacks in der Musik, den er mit der grösten Fertigkeit verbunden hat, abgeben wird. Denn so würde man in Frankreich zwölf bis fünfzehn Zungenregister in dieses Werk gesetzt haben; da sie aber wenig Beständigkeit an sich haben, so hat Herr Stein nur fünfe der schönsten hinein gebracht, und damit seinen Zweck vollkommen erreicht. Wir wollen hiervon nicht mehr sagen; denn einen jeden Kunstverständigen wird bekannt seyn, daß ohne dieselben weder Deutlichkeit noch Stärke in einem großen Werke erhalten werden kann. Es ist übrigens ein wahres Vergnügen, diesen Meister auf seinem Lieblingswerke spielen zu hören. Bald erwecket er die erhabensten Empfindungen, wenn er durch langgezogene [43] und durch die Macht der Stimmen verstärkte Töne heiliges Schauern in dem Tempel, wo von der Majestät des Unendlichen geredet worden, verbreitet; bald bringt er durch eine verständige Mischung der Stimmen sanftere und dem Herzen angenehme, reizende, und mit der daselbst gepredigten Liebe des Heylandes übereinkommende Empfindungen hervor; bald bewundert man auch die Fertigkeit der laufenden Finger an ihm. Doch, wir wollen lieber von der Einrichtung dieses Werks etwas gedenken. Im dem Mechanismus ist Simplicität mit Dauerhaftigkeit verbunden. Ueberall sind Schrauben angebracht, damit man alles auseinander legen kann. Es ist alles so geordnet, daß nirgend der Zugang versperret ist. Man hat auch längstens wahrgenommen, daß die vielen zusammengezogenen Baßregister, ohngeachtet sie zwey Ventile haben, einander den Wind rauben; folglich den Ton matt und falsch machen. Dadurch wurde Herr Stein bewogen, eine andere Baßlade zu wählen, und zwar diejenige, welche Herrn Hausdörfer, ehemaligen Orgelmacher zu Tübingen, zum Urheber hat. Die Erfindung, welche von Herrn Stein noch da und dort ist verbessert, und zum allgemeinen Gebrauche zubereitet worden, verdient wegen ihres großen Nutzens Aufmerksamkeit, besonders weil sie mit der bisher bekannten Schleif- und jetzt veralteten Springlade gar nichts gemein hat. Es ist überhaupt sehr gut, wenn jede Pfeife ihre eigenen Wind hat. Es scheint uns auch bey diesem Werke die Gleichheit des Windes in vier außerordentlichen großen Bälgen sehr merkwürdig zu seyn, die bey vollen Griffen, [44] auch nicht einmal bey Stockierung des sechszehentel Noten, worinn Herr Stein eine sonderbare Fertigkeit und Deutlichkeit besitzt, in eine zitternde Bewegung können gebracht werden. Nichts ergötzet den Liebhaber mehr als die durchdringende Schärfe des Discants, welche durch das mühsame, aber außerordentliche schöne Kornetregister, so Herr Stein nach Art der besten französischen Meister erst kürzlich noch dazu verfertigt hat, vollkommen erhalten worden. Fühlende Kenner aber bewundern mit Recht theils die

einzelne deutliche und reine Ansprache der Pfeifen, theils die schöne und verständige Proportion, worzu die gute Ordnung der Mixturen und Cymbeln das meiste beyträgt. Hier hat sich Herr Stein besonders als einen der geschicktesten Meister gezeigt. Wir wollen ein Exempel anführen. Jedermann weis, oder sollte doch wenigstens wissen, wie verdrießlich der bekannte Octavensprung ist, der durch die Mixturen entstehet, und welchen man ohne große Aufmerksamkeit aus den mehresten Orgeln heraus hören wird. Diesem hat unser Herr Stein glücklich abgeholfen. Denn bey einer achtfachen Mixtur repetiren auf einer Taste nicht alle Fache, sondern die Repetition ist künstlich vertheilet worden. Dasjenige Fach, welches früher klein wird, repetiret auch früher, u.s.f. Diesen Vortheil hat der Meister seiner Einsicht in die Musik zu verdanken. Es ist gewiß, daß der Orgelmacher ohne Kenntniß der Musik, eben so übel daran ist, als der Maler, der keine gute Zeichnung verstehet. In der Musik aber wird dem Herrn Stein, der in der Phantasie unerschöpflich ist, der Neid selbst das [45] Lob der Gründlichkeit und Anmuthigkeit nicht absprechen können. Was den äußerlichen Pracht des Werkes anbetrifft, der alle unsere Augsburgerische Orgeln übertrifft, so müssen wir uns auf unsern Kupferstich berufen, den man sehen muß, um sich von demselben eine deutliche Vorstellung zu machen. Man beobachtet daran die vollkommenste Symmetrie, mit einer edlen und nicht gothischen Verzierung. Das schöne auf Nußbaumart gemahlte Holzwerk, auf welchen die vergoldete Zierrathen mäßig, aber desto reizender angebracht worden; die großen hellpolirten Pfeifen; die in der Mitte zwischen dem Haupt- und Oberwerk hervorstehende und mit einem künstlichen mit Gold und Farben verzierten eisernen Gitter, welches der jüngere **Birkenfeld**, nach dem besten französischen Geschmacke, verfertigt hat, versehene Gallerie, auf welche man durch eine in der Orgel angebrachte Treppe steigt, und bey Musiken den Trompeten und Paucken Platz giebt; endlich die richtige und nach guter Zeichnung verfertigte Sculpturarbeit, die von Herrn **Habermann**, einem geschickten hiesigen Bildhauer ist, geben diesem Werke ein prächtiges Ansehen. Ueberhaupt hat diese Barfüßerkirche für einen Liebhaber der Künste viel Sehenswürdiges, von dem wir noch eines und das andere anführen würden, wenn wir nicht schon zu viel gesagt hätten.

Organ Building Art.

[41] We are pleased to make known to all *Liebhaber* of beautiful and perfect organs, a copperplate engraving with whose help they will obtain a quite clear idea of a work that does the greatest credit to the church in which it stands, and that will preserve the master who produced it from being forgotten by posterity for as long as the arts are treasured. It is the façade

of the excellent organ in the Evangelical Parish Church of the Minorites [the Barfüßer Church], which was made by Mr. **Georg Andreas Stein**, organ and instrument builder and at present also the organist at this organ, between 1755 and 1757, drawn by him, and engraved in copper by Mr. **Emanuel Eichel**, instructor at the drawing school at the Evangelical Gymnasium [42] of St. Anna, on a large Folio. The sheet is sold by Mr. Director Nilson for 36 kr. The stops are divided into the Hauptwerk, the Oberwerk, and the Brustwerk, as well as the Pedal, which, as soon as the Brustwerk is completed, will make up a total of 43 stops, with an additional four accessory stops. The Principalbaß in the Pedal, which stands in the façade, is of English tin, 16', of which the largest pipe is $21\frac{1}{2}$ feet long. Mr. Stein has followed the path of the skillful imitator; he has neither let himself be blinded by the wit and faddishness of the French, nor let his liveliness be choked by German seriousness and stiffness. He has tested both nations, taken the good from each, and, by mixing them with his own thoughts, created from them an excellent whole, which will evermore constitute a proof of his good taste in music, which he has combined with the greatest skill. For whereas in one France would have put twelve or fifteen reed stops in this organ, Mr. Stein, because they are not very stable, has only put in five of the most pleasing, and thus perfectly achieved his purpose. We will not say any more of this here, for it will be known to everyone who understands art that without these stops neither clarity nor strength can be had in a large organ. It is, incidentally, a true pleasure to hear this master play this, his favorite organ. Now he arouses the most exalted feelings when, with long, sustained [43] notes strengthened by the power of the stops, he spreads holy shivering in the temple where the majesty of the eternal is spoken of; now, he elicits, with a judicious mixture of stops, softer, sweeter feelings, pleasant to the heart, and in accordance with the love of the Savior preached there; now, one admires as well the skill of his running fingers. But—we would rather think a little about how the instrument is contrived. The mechanism combines simplicity with sturdiness. Screws are used everywhere, so that everything can be taken apart. Everything is arranged so that access is not blocked anywhere. It has also been observed for a long time that many bass stops drawn together, even if they have two pallets, rob each other of wind; as a result they make the tone dull and false. Mr. Stein was moved, therefore, to choose a different kind of bass windchest: namely, the kind that was invented by Mr. Hausdörfer, former organ builder in Tübingen. The invention, which was improved even more by Mr. Stein here and there, and prepared for general use, deserves attention for its great utility, especially because it has nothing at all in common with the previously known slider chest and the now antiquated spring chest. It is simply very good if

each pipe has its own wind. It seems to us that in this organ the equality of the wind in the four unusually large bellows is also very noteworthy; full chords [44] cannot produce a trembling movement, and neither can the piling-up of sixteenth notes, at which Mr. Stein possesses a particular skill and clarity. Nothing delights the *Liebhaber* more than the penetrating keenness of the treble, which is perfectly provided by the difficult but extraordinarily beautiful Cornet stop that Mr. Stein has only recently added, according to the method of the best French masters. Sympathetic *Kenner*, however, correctly admire partly the individual, clear, and clean speech of the pipes, partly the beautiful and knowledgeable proportions, to which the good arrangement of the mixtures and cymbals contribute the most. Here especially Mr. Stein has shown himself to be one of the most skilled masters. We will give an example. Everyone knows, or at least should know, how vexatious the familiar octave leap is that originates from the mixtures, and which one may hear without paying much attention from most organs. Herr Stein has happily remedied this. For in an eight-rank mixture, not all the ranks repeat on one key, but rather the repetition has been artfully divided. That rank which gets smaller earlier also repeats earlier, and so on. The master may thank his insight into music for this advantageous arrangement. It is certain that the organ builder without a knowledge of music is in the same dire straits as the painter who does not understand good drawing. In music, however, even jealousy will not be able to deny Mr. Stein, whose imagination is inexhaustible, [45] the praise of thoroughness and grace. Concerning the outer magnificence of the organ, which exceeds all of our other organs in Augsburg, we must refer to our engraving, which one must see in order to get a clear idea of the instrument. One observes in it the most perfect symmetry, with a noble and not Gothic decoration. The beautiful wooden case, painted to look like walnut, to which the gilded decorations have been applied in moderation, but therefore all the more enchantingly; the large, brightly polished pipes; the gallery projecting from between the Hauptwerk and Oberwerk, with an iron latticework decorated with gold and colors made by **Birkenfeld** the Younger according to the best French taste, to which one ascends via a stairway placed in the organ, and which provides a place for the trumpets and timpanis in ensemble music (*Musiken*); finally the true correct sculpture-work, made from good drawings by Herr **Habermann**, a skilled local carver—all these give the organ a magnificent appearance. In general, this Barfüßer Church has much that is worth seeing for a *Liebhaber* of the arts, about which we would still add one thing or another, if we had not already said too much.

1772. Stein, "Description of a *Melodica*"

Beschreibung eines neuerfundenen Clavierinstrumentes, *Melodica* genannt, von Johann Andreas Stein, Orgel-Instrumentenmacher, und Organisten bey der evangelischen Kirche zu den Barfüßern in Augspurg.

[106] Schon mehr als 15 Jahre lang bin ich mit Untersuchung der Musik, welche auf die Seele wirket, beschäftigt. Unsere öffentliche Concerte, und oft eben so viele Privatmusiken in jeder Woche, verschaffen mir hinlängliche Gelegenheit darzu.

Es kostete mich nicht viele Mühe zu entdecken, daß nur diejenigen Instrumenten auf das Herz spielen können, deren Ton beweglich, biegsam, zu- und abnehmend ist, kurz, die Eigenschaften besitzen, welche **Bach** die Gegenstände des Vortrags mit Recht nennet. "Die Gegenstände des Vortrags," sagt er, "sind die Stärke und Schwäche der Töne, ihr Druck, Schnellen, Ziehen, Stoßen, Beben, Brechen, Halten, Schleppen und Fortgehen." Siehe **die wahre Art das Clavier zu spielen**, S. 117. §. 3.

Ich bin von dieser Wahrheit vollkommen überzeugt. In der Singstimme stecken alle diese Eigenschaften in höchsten Grade. Die Violine, die Flöte, die Oboe, und noch einige andre sind [107] Nachahmerinnen derselben in der That, wie es andere Instrumente zu seyn bloß wünschen.

Ich habe gesagt, daß nur die unbestimmten Instrumente, oder noch deutlicher zu reden, die in keiner Temperatur, wie die Orgel und alle Clavierinstrumente, eingeschränkten, vermögend sind, unsere Seele zu reizen; wo die Erhöhung und Erniedrigung eines jeden einzelnen Tones willkürlich ist, um die bekannten Differenzen der \sharp und \flat im enharmonischen Geschlechte rein zu haben. Es ist wahr, daß viele Tonkünstler diese Differenzen vor Spiegelfechterey und als unnütz ansehen, allein, ich versichere Sie, daß empfindsame Zuhörer nicht so freygebig mit ihrem Bravo sind, sie verlangen vorher vielmehr Genugthuung. Glauben Sie mir, als einem Manne, den seine Profession, so wie seine Neigung, berechtigt hat, von Jugend auf sein Augenmerk auf die Harmonie und die reine Einstimmung zu richten.

Doch dieses ist es noch nicht alles, warum wir variable Töne haben müssen. Es kömmt noch der neue Umstand darzu, daß alle Virtuosen von der rechten Art, die zwischen der 3ten und 4ten 6ten und 7ten Stufe einer Octave liegende halbe Töne in der ordentlichen diatonischen Durtonleiter weit über ihre bestimmten Intervallen hinauf erheben; und eben so verfahren sie in der aufsteigenden weichen Tonleiter zwischen der 2ten und 3ten, wie auch 6ten und 7ten Stufe; im Absteigen erniedrigen sie im Gegentheile von oben herunter die 1ste und 2te die 2te und 3te 5te und 6te Stufen

so [108] stark, daß alle diese erhöhte und erniedrigte Intervallen gegen einen temperirten Flügel sehr differiren.

Diese außerordentliche Vermehrung und Verminderung, sammt dem reinen Einstimmen der Töne sind es, die uns aufmerksam machen, dem Ohre schmeicheln und bis an unser Herz reichen.

Die Violine hat diese Eigenschaft, Töne willkürlich zu verändern, am allervollkommensten. Der Spieler kann sogar seine ganze Scala, vermöge der geschickten Applicatur, verrücken, wo er hin will. Diesen Vortheil hat nur die Posaune mit der Violine gemein. Allein, diese Umstände, die wir mit Recht Schönheiten nennen, erfodern [sic] gute Talente, ein schnelles reines Gehör, und hauptsächlich ein eigenes empfindsames Herz. Ich habe angemerkt, daß bey allen Spielern, die bewegliche Töne auf ihren Instrumenten haben, ihre Töne erst in dem Augenblicke rein einstimmen, da sie uns dieselben vortragen. Die Probe ist sehr leicht bey einem Violinisten zu machen. Man nehme ihm seinen Bogen aus der Hand, und ersuche ihn, einen Ton, besonders in der Höhe, blind zu greiffen, ohne etwas zu hören und ohne zu verrücken; und nun höre man diesen nur noch gegriffenen Ton gegen dem Flügel: man wird erstaunen, daß er zu ganzen Vierten und halben Tönen fehl gegriffen habe. Da nun diese geschickten Leute bey dem wirklichen Abspielen ihrer Concerte gar nicht fehl greifen, so müssen wir den oben gemachten Schluß festsetzen.

[109] Da ich also hinlänglich erwiesen habe, daß nur diejenigen Instrumente auf das Herz spielen können, deren Ton beweglich, biegsam u.a. ist, so fragt es sich, was wir dann mit Clavierinstrumenten anfangen? Das *Clavicordium* müssen wir einigermäßen ausnehmen.

In Wahrheit, ich bin sehr ungehalten über diese Instrumente, um so mehr, weil ich selbst kein anderes spiele, noch gelernt habe. Ich habe immer den Clavieristen sehr bedauert. Er muß große vorzügliche Geschicklichkeit besitzen, um die Schwierigkeiten seines Instruments zu übersteigen, und doch einem Violinisten oder Flötenspieler, was die wahre Wirkung betrifft, nachstehen. Es ist wahr, daß ein vortrefflicher Bach auch auf einem Flügel den Affekt einigermäßen ausdrücken kann; aber mehr durch die Ausführung des Stückes selbst, als durch die besondre Art seiner Töne. Allein, wer ist auch allemal ein Bach? oder was würde ein Bach erst spielen, wenn sein Instrument obige Vortheile hätte? Dieses traurige Geschick hat mich oft sehr beunruhiget. Die Hochachtung für so viel geschickte Personen, die sich diesem Instrumente widmen, hat mich angefeuert, der Sache weiter nachzudenken, um vielleicht dem Clavieristen sein Instrument mit obigen in gleiche Vorzüge zu setzen.

Ich habe alle klingende Körper durchgedacht. Meine Forderungen waren diese:

1) Einen Ton zu finden, der sich wachsend von der ersten Schwäche bis auf die höchste Stär- [110] ke auf und herunter treiben ließ, ohne an sich selbst zu steigen oder zu fallen; der immer in seinem Verhältnisse gegen andere blieb, und sein *forte* und *piano* ganz der Gewalt des Spielers überließ;

2) Der bey Gelegenheit dennoch zu steigen und zu fallen fähig wäre;

3) Der eine schnelle Ansprache hätte;

4) Dessen Ton willkührlich lang fortsänge, und, wie der Spieler will, bebte. Bey den Saiten sahe ich gleich alle Hoffnung verloren. Ich gerieth auf die Materie des Glases, womit eben die heutige so beliebte *Harmonica* pranget. Ich gestehe es, das Zu- und Abnehmen der Töne war mir sehr erwünscht, allein die langsame Ansprache, wodurch Kleinigkeiten verloren gehen, und der gar zu bestimmte Ton seiner Höhe und Tiefe, nach der sich¹ folglich im Spielen nicht einstimmen läßt, sondern in eine Temperatur eingeschränkt seyn müßte, waren mir nicht anständig. Zu dem kam, daß ich schon die Unmöglichkeit, solches in eine Claviatur zu bringen, voraussah, weil uns noch in der ganzen Naturlehre keine Materie bekannt ist, die mit dem lebendigen Fleische des Fingers durch die Bewegung mit dem Glase gleiche Wirkung hat; zu dem kam ferner die entsetzliche Höhe des Glockenwerks, und dann endlich der Ton selbst. Er war mir nicht solid, zu spitzig, und in das Ohr stechend; er macht schläfrig und melancholisch; kurz, in einer Viertelstunde sind wir von dieser Musik ganz betäubt und taumelnd.

[111] Nun war mir nichts mehr übrig, als den Ton der Flöte auszuforschen. Ich fand bald, daß dieses meinem Endzwecke am nächsten wäre. Der Ton ist solid, schnell, ansprechend und haltend.

Ich fieng also an auf die Moderation des Windes zu denken, und wie solche durch den mehr oder wenigern Druck des Fingers bewirket werden könnte, und ich sah mich endlich durch die Erfindung eines neuen Instruments für meine Mühe belohnt.

Nun will ich es also beschreiben. Nur bitte ich noch vorher die Absicht anzuhören, für welche es in der Musik, und bey dem Clavierspieler bestimmt ist. Man weiß schon, wie sehr bisher die Claviere, und was sich dahin rechnen läßt, oder eben so gespielt wird, von einem großen Theile sind mißhandelt worden: ja, selbst Bach ist noch immer nicht so glücklich gewesen, von dem großen Haufen entweder gelesen, oder befolget zu werden. Und wenn es meinem Instrumente auch so gehen sollte, so—wäre ich selbst mit meiner Erfindung unzufrieden. Meine Absicht war, dem Clavieristen ein Instrument zu verschaffen, wodurch er seinen Geist auszudrücken vermögend, und mit der Violine oder Flöte gleiche Vortheile hätte. Man beliebe mich wohl zu

¹The intended punctuation is probably: "... Ton, seiner Höhe und Tiefe nach, der sich...".

verstehen. Mein Spieler hat hier nicht mit einer Hand voll Tönen, sondern mit der Bildung einer einfachen Melodie zu thun; und in Wahrheit, diese Bildung wird sein ganzes Nachdenken beschäftigen.

[112] Es ist aber darum nicht unmöglich, auf diesem Werke vollstimmig zu spielen, sondern ich behaupte nur, daß man es aus verschiedenen Ursachen wider seinen Zweck brauchen würde, wenn man vollstimmig darauf spielen wollte.

1) Würde man dieses Affekteninstrument wieder zur Orgel herunter setzen, und dazu ist es nicht gemacht.

2) Erfordert das vielstimmige Spielen bestimmte Töne, dieses Werk aber hat, wie die natürliche Flöte, unbestimmte Töne. Und der vortrefliche Quanz hat schon in seinem Flötenwerke gesagt: "zwo Flöten stimmen selten, und drey gar nicht zusammen."

3) Weil unsere ganze Aufmerksamkeit, wie ich oben gesagt, ohnehin nicht weiter als auf die Bildung einer einzigen Melodie hinreicht. Ich habe diesen Umstand an großen Clavierspielern wahrgenommen, besonders bey den Fugen, wo verschiedene Themata über einander weglafen, wo sich das eine, welches die Aufmerksamkeit begleitet, gegen das andere, welches matt und verlassen erscheint, sehr auszeichnet.

Dieß sind meine Gründe, aus denen man nun leicht einsehen wird, daß ich mein neues Instrument gar recht mit dem Namen *Melodica* belegt habe. Damit man sich aber auch selbst accompagnieren könne, so habe ich dem Werke die Gestalt eines kleinen Flügels von $3\frac{1}{2}$ Schuh lang gegeben, und es zu Aufsetzen bey einem andern [113] Instrumente gerichtet, wodurch die ganze Musik sehr erhoben wird.

Der Ambitus bestehet in $3\frac{1}{2}$ Octaven, von dem untersten *g* der Violine anfangend bis in das 4te gestrichene *c* um so wohl alle Violin- als Flötenconcerte einzuschließen.

Das Tractament des Claviers ist wie ein Clavicordium. Der Fall ist nicht tiefer als ein schwacher Messerrücken. Hierinn steckt eben der Vortheil zur Geläufigkeit. Der Ton selbst is sehr schön und körnigt, und einer Flöte *a bec* vollkommen gleich, wo nicht übertreffend. Der Anspruch ist augenblicklich da; ohne daß der Eintritt des Windes bemerkt wird, wie gemeinlich in den Orgelpfeifen, bey geschwind gestoßenen Noten.

Es war dieses eben keine der geringsten Schwürigkeiten, eine Pfeife so zu machen, daß sie bey starkem und schwachem Winde gleich gut anspräche.

Was das Tractament im musikalischen Verstande betrifft, so läßt sich jeder Ton von der ersten Schwäche bis auf das höchste *forte*, durch den minder- oder mehrern Druck des Fingers treiben, auch zu gleicher Zeit langsam oder geschwinde beben.

Hier muß ich sagen, das der Ton bey dem stärksten *forte* sich ein wenig

erhöht und erhöhen muß, um, wie oben gesagt, seine Töne rein einstimmen zu können. Wann aber Stellen vorkommen, wo der Ton *forte* und absolut nicht steigen soll, so ist eine kleine unmerkliche Bewegung für das [114] linke Knie angebracht, vermitteltst deren der Ton wohl *fortissime* gemacht wird, allein kein Haar aus seiner Stelle rücket.

Im Ganzen hat es den wahren Chorton, läßt sich aber vermitteltst einer Schraube einen viertel Ton darüber oder darunter erhöhen oder erniedrigen, und so wie bey dem Ausziehen der Flöte zu allen Instrumenten stimmen. Das verdrückliche Steigen bey der natürlichen Flöte, wann sie warm wird, fällt hier ohnehin weg.

Es ist begreiflich, daß dieses Werk mit einem Blaßbalge versehen sey, und daß er bey dem *forte* mehr Luft in die Windlade schaffen müsse, als bey dem gewöhnlichen Anspruche. Inzwischen aber beschäftigt die Compression eben so wenig als überhaupt der ganze Blaßbalg weder den Spieler, noch den Calcanten, sondern sie geschieht mit Hülfe der Federkraft. Man hat diese deswegen angebracht, um die Aufmerksamkeit des Spielers nicht mit der Regierung des Blaßbalges zu beschäftigen.

Ich habe mir alle Mühe gegeben, diese *Melodica* so einfach zu machen als möglich: erstlich um der Dauer willen, zweytens den Preiß derselben nicht gar zu sehr zu erhöhen, und die Sache gemeinnütziger zu machen. Ein jedes musikalisches Genie wird dieses Instrument ohne Schwierigkeit spielen, und für andere habe ich es nicht gemacht.

Der Effekt ist in der That außerordentlich neu, fremd und völlig unerwartet. Man stelle sich z. E. nur ein Violinconcert, mit allen seinen Druckern, Schleifern, Bindungen, Bebungen, [115] kurz mit Schatten und Licht von einem Organisten zu hören vor, so hört man ungefähr diese *Melodica*. Ich will aber gerne gestehen, daß die Violine und die Flöte auch noch Vortheile vor diesem Instrumente voraus haben. Eine so dreuste Behauptung wage ich nicht. Die Sache verhält sich wie mit allen Instrumenten. Es hat immer eines vor dem andern in seiner Art einen Vorzug. Ich sage nur so viel, daß es mit der Flöte am besten zu vergleichen sey.

Zuletzt wird noch eine Frage entstehen, die ich zum voraus beantworten will: Ob dieser Gedanke auch bey einer ordinären Kirchenorgel anzubringen sey? Ja. Man müßte ihnen ein besonderes Clavier zuordnen, und seine einfachen Melodien auf dem andern Claviere accompagniren. Es ist wahr, man würde Wunder thun und sich die Aufmerksamkeit der ganzen Versammlung zuziehen. Es scheint in der That, daß wir erst jetzo den Zeitpunkt erlebt haben, in welchem die sogenannte *vox humana* in der Orgel keine Satyre mehr ist.

Die Herrn Orgel- und Instrumentenmacher sind bis hieher so freygebig mit dem Worte **natürlich** gewesen, wann sie der Welt in öffentlichen

Nachrichten ihre Geschicklichkeit in Verfertigung einer natürlichen Menschenstimme bekannt gemacht, oder eine natürliche Flöte Travers angekündigt haben. Ich versichere Sie, daß mich bey dem Worte **natürlich** allemal ein Schauer überfällt, wenn ich es von ihnen bey solchen Gelegenheiten höre. Es hat mich nun 15 Jahre beschäf- **[116]** tigt, und nun bin ich so weit gekommen, daß ich einsehe, wie weit ich noch dazu habe. Noch ein paar Anmerkungen! Das, was hin und wieder in Orgeln durch Ansprechung mehr oder weniger Pfeifen im *unisono* durch den mehr- oder wenigern Druck des Clavis bewirket worden, ist keine Anwachsung, sondern eine stufenmäßige Verstärkung, und gehöret nicht hieher. Ein ganzes Register Pfeifen, in einen besondern Kasten eingesperrt, welcher durch eine Bewegung mehr oder weniger eröffnet wird, folglich das *piano* und *forte* auf diese Art hervorbringt, gehört auch nicht daher, weil es alle Töne zugleich und nicht jeden einzeln zur gehörigen Zeit und nach der Willkühr des Spielers verstärkt.

Ich empfehle also meine *Melodica* allen Clavieristen, die Empfindung haben. Ihnen zu Liebe habe ich gearbeitet, und ihnen zu Liebe werde ich noch ferner arbeiten, besonders wenn sie meine Bemühungen durch ihren Beyfall belohnen und aufmuntern.

**Description of a newly-invented keyboard instrument,
named the *Melodica*, by Johann Andreas Stein,
organ-instrument builder and organist at the Evangelical
Barfüßer Church in Augsburg.**

[106] For more than 15 years I have been occupied with investigating music that has an effect upon the soul. Our public concerts, and, often, an equal amount of private music-making every week, provide me with sufficient opportunities to do so.

It did not cost me much effort to discover that only those instruments can play upon the heart whose sound is mobile, flexible, increasing and decreasing—in short, which possess the properties that Bach correctly calls the elements of presentation. “The elements of presentation,” he says, “are the loudness and softness of tones, their pressure, quick release, legato, staccato, vibrato, arpeggiation, holding [prolongation; *Halten*], slowing down, and proceeding.” See **the true way to play keyboard instruments**, p. 117., § 3.

I am completely convinced that this is true. All of these properties can be found in the singing voice to the highest degree. The violin, flute, oboe, and a few others are **[107]** imitators of the voice in fact, as other instruments

only wish to be.

I have said that only the undetermined instruments [*die unbestimmten Instrumente*]¹—or to speak even more clearly, the instruments that are not restricted to any one temperament, as the organ and all keyboard instruments are—are capable of stirring our souls; where the raising and lowering of every individual note is discretionary, in order to have the familiar differences between enharmonically related sharps and flats be pure. It is true that many musicians regard these differences as shadow-boxing, and unnecessary, but I assure you that sensible listeners are not so generous with their "Bravo"; they demand much more gratification first. Believe me, as a man whose profession as well as his inclination has qualified him ever since his youth to direct his attention to harmony and pure intonation.

This, however, is not yet the entire reason why we must have variable tones. There is, in addition, the new circumstance that all virtuosos of the right kind raise the semitones that lie between the 3rd and 4th, 6th and 7th steps of an octave in the regular diatonic major scale far over their defined intervals; and they do the same in the ascending minor scale between the 2nd and the 3rd as well as the 6th and the 7th step; when descending, in contrast, they lower, starting from the top, the 1st and 2nd, 2nd and 3rd, 5th and 6th steps so [108] strongly that all of these raised and lowered intervals differ very much from a tempered harpsichord.

This extraordinary augmenting and diminishing, along with the pure intonation of the notes, is what makes us attentive, caresses the ear, and reaches into our hearts.

The violin has this property of alternating the notes at will most perfectly of all. By dint of skillful fingering, the player can actually shift his whole scale wherever he wishes. Only the trombone has this advantage in common with the violin. But these cases, which we rightly name beauties, require good talent, quick pure hearing, and most of all a sensitive heart of one's own. I have observed that for all players who have flexible notes on their instruments, their notes are intonated purely first in the moment in which they perform them for us. The test is very easy to make in the case of a violinist. Take his bow out of his hand, and ask him to stop a note, especially a high one, blind, without hearing anything and without shifting, and then listen to this still-stopped note compared to the harpsichord: you will be amazed that he has stopped incorrectly by as much as an entire quarter- or semitone. Now, because these skillful people do not stop incorrectly while really playing in their concerts, we must come to the conclusion drawn above.

[109] Since I have sufficiently demonstrated that only those instruments whose tone is mobile, flexible, etc. can play upon the heart, the question

arises: where to begin with keyboard instruments? The *clavichord* we must make some exception for.

In truth, I am very impatient with these instruments, the more so because I myself neither play nor have learned to play any others. I have always felt very sorry for the keyboard player. He must possess great, superb skill to surmount the difficulties of his instrument, and still ranks behind the violinist or flautist as far as true effect is concerned. It is true that an excellent Bach can express an *Affekt* to some extent even on a harpsichord—although more through the execution of the piece itself than through the special quality of his tone. But who can always be a Bach? Or what would a Bach play, if only his instrument had the aforementioned advantages? This sad fortune has often much troubled me. My respect for so many skillful people who dedicate themselves to this instrument has encouraged me to think further on the subject, in order perhaps, for the keyboardist, to place his instrument alongside the ones mentioned above, with the same merits.

I have thought through all sounding bodies. My requirements were these:

1) to find a sound that could be made to drift, increasing gradually, from the initial *piano* up to the highest *forte*[110] and back again, without itself rising or falling; that always maintained its relationship to other notes, and that relinquished its *forte* and *piano* completely to the control of the player;

2) that nevertheless would be capable of rising and falling at times;

3) that would have a quick speech;

4) whose sound would continue to sing as long as desired, and would shake, as the player wished. In strings I saw immediately that all hope was lost. I came across the material glass, which, indeed, the *Harmonica* boasts of, that is so popular these days. I acknowledge that the *crescendo* and *decrescendo* of the notes was very welcome to me, but both the slow speech, with which small details are lost, and the tone that is far too fixed (regarding its highness and lowness) and as a consequence cannot be intonated while playing but would have to be restricted to one temperament, were not suitable for me. In addition, I could already predict the impossibility of using such a material in a keyboard instrument, since in all of physical science (*Naturlehre*) no material is known to us that has the same affect as the motion of the living flesh of the finger on glass; and further there was also the terrible high pitch of the bell-work, and then finally the sound itself. I thought it was not firm, it was too spiky, and prickly to the ear; it makes one sleepy and melancholy; in short, after a quarter of an hour we are completely numbed and staggering from this music.

[111] Nothing now remained for me to do but to investigate the tone of the flute. I soon found that this would be the closest to my final aim. The tone is firm, quick, responsive, and sustained.

I began, therefore, to consider the moderation of the wind, and how it could be affected by the greater or lesser pressure of the finger, and finally I saw myself rewarded for my efforts with the invention of a new instrument.

I would now like to describe it. I ask only that [the reader] first listen to the purpose for which it is intended, in music and for the keyboard player. We already know how very much, until now, keyboards, and everything that may be counted as one or played in the same way, have been mistreated by a large proportion of people: indeed, even Bach was not always lucky enough to be either read or followed by the masses. And if the same should happen with my instrument, then—I myself would be dissatisfied with my invention. My intention was to furnish the keyboardist with an instrument with which he would be capable of expressing his spirit, and would have the same advantages as the violin or the flute. Please, understand me correctly. My performer is not concerned with a hand full of notes, but rather with the formation of simple melodies—and in truth, this formation will occupy his thoughts completely.

[112] That does not mean, however, mean that it is impossible to play polyphonically on this instrument, but rather I claim only that if one wanted to play polyphonically on it, one would use it in a way contrary to its purpose, for several reasons:

1) One would reduce this *Affekt*-Instrument to an organ again, and it is not made for this purpose.

2) Polyphonic playing demands notes with fixed pitches, but this instrument, like the natural flute, has notes with variable pitch. And the excellent Quantz has already said in his work on the flute that "two flutes together are seldom in tune, and three never are."

3) Because our whole attention, as I have said above, does not suffice for more than the formation of a single melody anyway. I have observed this circumstance with great keyboardists, especially in fugues in which different themes run away one after the other, where one that claims the attention stands out very much over another that appears dull and forsaken.

These are my grounds, on the basis of which it will now be easy to realize that I have bestowed upon my new instrument the name *Melodica* very correctly. In order that one can also accompany oneself while playing it, however, I have given the instrument the shape of a small harpsichord, $3 \frac{1}{2}$ feet long, and constructed it to be placed on top of another [113] instrument, by which means the entire music is very much elevated.

The compass consists of $3 \frac{1}{2}$ octaves, beginning from the lowest g of the violin up to e^4 , in order to include both all violin and all flute concertos.

The touch [*Tractament*] of the keyboard is like a clavichord. The keyfall is not deeper than the back of a slender knife. This also provides the advantage

of fluency. The tone itself is very lovely and pithy, and exactly like that of a recorder, if not superior. The speech is there in an instant, without the entrance of the wind being noticeable on quickly played notes [or detached notes: *bey geschwind gestoßenen Noten*], as is usual in organ pipes.

This was, indeed, not the least of my difficulties: to make a pipe in such a way that it would speak equally well with both strong and weak wind.

Concerning the touch in a musical sense, every tone may drift from the first *piano* up to the highest *forte*, by means of the lesser or greater pressure of the finger, and also tremble slowly or quickly at the same time.

Here I must say that the pitch rises a little at the strongest *forte*, and must rise, in order to be able to intonate its notes purely, as mentioned above. But if there are places where the note must be *forte* and absolutely must not go up, then a small, unnoticeable movement for the [114] left knee is provided, by means of which the note is indeed made *fortissimo*, but moves not a hair from its place.

As a whole it has the true *Chorton*, but may be raised or lowered a quarter-tone above or below that by means of a screw, and in this way may be tuned to all instruments, as when the flute is pulled out. The troublesome way that the natural flute rises when it gets warm disappears here in any case.

It is understandable that this instrument should be provided with a bellows, and that the bellows must supply more air to the windchest for the *forte* than for normal speech. But nevertheless, the compression occupies neither a player or a calcant—just as little, in fact, as does the entire bellows—but rather occurs with the help of a spring action. This has been installed so that the attention of the player does not have to be occupied with controlling the bellows.

I have made every effort to make this *Melodica* as simple as possible: first of all for the sake of sturdiness, second of all so as not to raise the price very much, to make the thing useful for more people. Every musical spirit will play this instrument without difficulty, and I have not made it for others.

The effect is certainly extraordinarily new, foreign and completely unexpected. If you just imagine, for example, hearing a violin concerto from an organist, with all its emphases, appoggiaturas, slurs, vibratos [115]—in short, with light and shadow—then you hear something like this *Melodica*. I will gladly admit, however, that the violin and the flute still also have advantages over this instrument. I do not venture such a presumptuous claim. The situation is the same as it is with all instruments. One always has some merit that another of its kind does not. I say only this much: that it may best be compared with the flute.

Finally, another question will come up, which I want to answer in ad-

vance: whether this concept could also be installed in an ordinary church organ. Yes. One would have to arrange a special keyboard for it, and accompany its simple melodies on the other keyboard. It is true, one would perform miracles, and attract to oneself the attention of the entire congregation. It seems indeed that we have only now lived to see the time when the so-called *vox humana* in the organ is no longer a satire. The Messrs. Organ- and Instrumentmaker have hitherto been so generous with the word **natural**, when they brought their skill in manufacturing a natural human voice to the attention of the world in public notices, or advertised a natural traverse flute. I assure you that a shudder always comes over me at the word **natural** when I hear it used on such occasions. It has now occupied me for 15 years, [116] and I have now come far enough that I realize how much further I have to go. A few more remarks! That which now and then is effected in organs by having more or fewer pipes speak in unison by means of greater or lesser pressure on the key is not a *crescendo*, but rather a stepwise reinforcement, and does not pertain here. A whole register of pipes held in a special case that is opened a greater or lesser amount with a movement, and as a result produces *piano* and *forte* in this way, does not pertain here either, because it reinforces all the tones at the same time and not each individual tone at the proper time and at the discretion of the player.

I therefore recommend my *Melodica* to all keyboardists who have sentiment. I have worked for their sake, and for their sake I will work on, especially if they reward and encourage my efforts with their approval.

1772. Stetten, *Merkwürdigkeiten* (excerpts)

Stetten's short guide to Augsburg for visiting tourists, *Die vornehmste Merkwürdigkeiten, der Reichs-Stadt Augsburg*, included an introduction that explained the book's utility and the kinds of sights that Stetten expected visitors to be interested in, which is excerpted here, followed by the listings for Stein and the Barüßer organ.

Einleitung.

Die Reichs-Stadt **Augsburg** in Schwaben, ist seit ihrer Erbauung für eine der **sehenswürdigsten** Städte von Deutschland gehalten worden. . .

[new page] . . . Jedem Fremden aber, welcher die Merkwürdigkeiten einer Stadt zu sehen begierig ist, dem liegt daran zu wissen, was wirklich sehenswürdig ist; er wünschet einen Leitfaden, nachdem er seine Neubegierde befriedigen kann; dazu dienet ihm die Beschreibung eines solchen Ortes,

und der darinn enthaltenen Sehenswürdigkeiten. Diese aber muß von Zeit zu Zeit erneuert werden. Die Zeiten und Umstände ändern sich. Nicht alles was vor 200. Jahren merkwürdig gewesen, ist es noch jetzt. Gebäude, öffentliche Gemälde, zerfallen, vergehen oder leiden sonst Veränderungen. Dinge, die damals als die Kunst noch in der Wiege lag, für Wunderwerke gehalten wurden, sind es jetzt nicht mehr. Bücher- und Kunstsammlungen werden verkauft, zertheilt, zerstreuet, und es entstehen andere. Gelehrte und Künstler, die ein jeder der mit Nutzen reisen will, zu besuchen nicht unterlassen wird, sterben, und andere treten [sic] an ihre Stelle.

[new page] Diese sind die Ursachen, welche zu einer verbesserten und veränderten Auflage, der ohnehin ausgegangenen Beschreibung der Augsburgischen Merkwürdigkeiten, Anlaß gegeben haben. Geschichte und Verfassung müssen in andern Schriften gesucht werden, nur das Sehens- und Besuchwürdige, für Fremde von allen Ständen und Lebensarten, nicht nur für eine Classe, ist hier angezeigt worden. . .

Fremde finden öfters ein Vergnügen daran, in Kupfer gestochene Vorstellungen von gesehe- **[new page]** nen Städten und ihren Merkwürdigkeiten mit sich zu nehmen, damit sie sich auch in der Abwesenheit des gesehenen wieder erinnern können; und aufmerksamen Innwohnern, zumalen solchen, die etwas auf ihr Vaterland zu halten pflegen, macht es eine Gemüths-Ergötzung dergleichen zu sammeln. Beeden ist, mit einer Anzeige von demjenigen was da ist, gedienet. Augsburg ist vor andern Städten reich an solchen Stücken. Nicht lauter Kunststücken,—man mußte verblendet seyn, wenn man dieses behaupten wollte,—doch sind viele gute Arbeiten darunter, und auch die schlechten sind dem Liebhaber der vaterländischen Geschichte nicht verwerfungswürdig. Hievon nun ist eine Verzeichnis beygefüget, die Fremden und Hiesigen angenehm seyn kann.

Der dritte Zusatz enthält eine Anzeige von in Kupfer gestochenen Bildnissen, hiesiger Personen aus allen Ständen. Vielleicht ist sie den meisten Fremden gleichgültig. Bey Innwohnern möchte sie mehreren Beyfall finden. Es giebt viele Liebhaber hier, von denen **[new page]** sie gesammelt werden. Jedem Sammler ist es angenehm zu wissen was vorhanden ist, und was mithin ihm noch abgeht. Es ist auch angenehm, die Bildnisse von Personen zu sehen, die uns aus der Geschichte, oder auch nur aus der Ueberlieferung bekannt sind. Gesetzt sie haben wenig Aehnlichkeit, so ist man auch getäuscht zu werden nicht unzufrieden. Für diese ist demnach eine solche Verzeichniß nicht überflüssig. Allein auch der fremde Liebhaber kann sie nutzen. Es sind Arbeiten von vortrefflichen Meistern unter dieser Sammlung. Was von Schönfeld, Mayr, Hopfer, Fr. Frid. Franken, Eichler, Holzer, Desmarees und Hr. Anton Graf gemahlet, von Lucas Wolfgang, Philipp, und Bartholme auch von Philipp Andreas Kilian, sodann von Matthäus

Küfel, Elias Hainzelmann, Andr. Matthäus und Herrn Gust. Andr. Wolfgang, Herrn Nilson und Hr. Friedrich gestochen oder von El. Chr. Heis, Bernh. Vogel, G. Ph. Rugendas, Joh. Jac. und Hr. Joh. Elias Haid, in schwarzer Kunst gearbeitet ist, verdienet vielmals unter Kunststücken eine Stelle. Man **[new page]** hat sich daher nicht enthalten können, dergleichen Bildnisses mit * zu bezeichnen. Auch die Sammler der Theologen, der Rechtsgelehrten, der Aerzte, der Philologen, Schul-Lehrer, Künstler, finden hier einige Nachrichten, deren sie sich bedienen können.

Beede Anzeigen sind wohl noch nicht vollständig. Sollten sich bey Liebhabern abgehende Stücke finden, so werden sie von dem Verleger gebethen, ihm solche bekannt zu machen, und er wird alsdann nicht ermangeln, bey einer folgenden Auflage dieser wenigen Bogen, die immer von Zeit zu Zeit eine Erneuerung nöthig haben werde, solche einzurücken.

Introduction.

Ever since it was built, the Free Imperial City of Augsburg in Swabia has been held to be one of the cities in Germany most worth seeing. . .

[new page]. . . Every stranger, however, who is eager to see the curiosities of a city requires to know what is really worth seeing. He desires a guide with which he can satisfy his curiosity; for this purpose he uses a description of the place and the sights contained within it. This must, however, be renewed from time to time. Times and circumstances change. Not everything that was notable 200 years ago is still notable today. Buildings, public paintings fall down, decay, or else suffer changes. Things which were held to be wondrous works long ago when art was still in its infancy are wondrous no longer. Book and art collections are sold, divided, scattered, and new ones are started. Learned men and artists whom every one who wants to travel usefully will not omit to visit, die, and others take their place.

[new page] These are the reasons that have occasioned an improved and altered edition of the *Beschreibung der Augsburgischen Merkwürdigkeiten*, in any case out of print. History and government must be sought in other writings: only what is worth seeing and visiting for visitors of all professions and walks of life and not from one class alone, has been listed here. . .

Visitors often find enjoyment in taking with them engraved pictures **[new page]** of the city they have toured and its sights, so that they can remember what they have seen when they are gone; and for attentive inhabitants, especially those are accustomed to hold their native country in high esteem, collecting them makes a pleasant pastime. Both are served by a list of which such pictures exist. Augsburg is, more than other cities, rich in such works.

They are not all works of art—one would have to be blind to claim that—but there are many good works among them, and for the *Liebhaber* of their native country's history, even the bad ones are not worthy of rejection. A list of them is attached, which may be agreeable for both visitors and locals.

The third part contains a list of the copperplate engraving portraits of local people of all walks of life [*Ständen*]. Perhaps this will be uninteresting to most visitors. It may receive much acclaim from inhabitants of the city. There are many *Liebhaber* here who [new page] collect them. For every collector it is nice to know what is available, and consequently what he is still lacking. It is also nice to see portraits of people who are known to us from history, or even only from oral tradition. Even supposing they do not bear much resemblance, one will nevertheless be content to be misled. For these [collectors], therefore, such an index is not superfluous. But a visiting *Liebhaber* may make use of it too. There are works by outstanding masters in this collection. That which is painted by Schönfeldt, Mayz, Hopfer, Fr. Frid. Franken, Eichler, Holzer, Desmarees and Mr. Anton Graf; engraved by Lucas Wolfgang, Philipp, and Bartholme and also by Philipp Andreas Kilian, likewise by Matthäus Küfel, Elias Hainzelmann, Andr. Matthäus and Mr. Gust. Andr. Wolfgang, Mr. Nilson, and Mr. Friedrich; or executed in mezzotint by El. Chr. Heis, Bernh. Vogel, G. Ph. Rugendas, Joh. Jac. and Mr. Joh. Elias Haid deserves a place among other artworks many times over. [new page] It has therefore been impossible to refrain from marking these pictures with an *. Collectors of theologians, lawyers, doctors, philologists, schoolteachers and artists, too, will find some information here that may be of use to them.

Die Evangelischen Kirchen- und Schulgebäude.

[17] Zu den **Barfüßern**. Gemälde: das jüngste Gericht von Schönfeld; das Heil. Abendmahl auf dem Altar, von Eichler; einige Stücke aus der Geschichte Christi von Joh. Heiß und Isaac Fisches; die neue große Orgel von Hrn. Stein; die Kanzel; das Gitterwerk um den Altar.

The Evangelical Church and School Buildings.

[17] The **Barfüßer** Church. Paintings: Armageddon by Schönfeld; the Lord's Supper on the altar, by Eichler; a few pieces from the life of Christ by Joh. Heiß and Isaac Fisches; the new large organ by Mr. Stein; the pulpit; the grillwork around the altar.

Kunstsachen und andere Curiositäten.

[25] Hr. J. A. **Stein**, Orgelmacher, verfertigt Orgeln, Clavicembel, Claviere, die von ihm erfundene *Melodica* u.a. Man sieht auch dermalen bey ihme ein Clavicembel von besonderer Zusammensetzung und Wirkung; wohnt am vordern Lech.

Items of art and other curiosities.

[25] Mr. J. A. **Stein** organ builder, makes organs, harpsichords, clavichords, the *Melodica* of his own invention, among other things. At present one may also see there a harpsichord of special composition and effect; lives on the Lech [river; in the area known as *am vordern Lech*].

Mechanische Kunststücke.

[80] * Die große und künstliche **Orgel**, in der Evangel. Kirche zu den Barfüßern, gebaut von Hr. Joh. Andr. Stein, gest. von Hr. Eichel.

Mechanical pieces of art.

[80] * The large and artful **organ**, in the Evangelical Barfüßer Church, built by Mr. Joh. Andr. Stein, engraved by Mr. Eichel.

1776. Schubart, *Deutsche Chronik* (excerpts)

Christian Friedrich Daniel Schubart began writing the *Deutsche Chronik*, a weekly periodical, when he lived in Augsburg in 1774; it continued to appear until 1777. Two articles reporting that Stein was continuing to improve his *Melodica* appeared in 1776. The first article places Stein's invention in a patriotic narrative about German ingenuity; the second one describes the effect of the instrument itself.

Von teutscher Erfindung. (February 1)

[73]. . . 'S Herz im Leib lacht mir, wenn ich so dran denke, was wir Teutsche alles schon erfunden haben. Wenn der Ausländer uns phlegmatische Kerls nennt, uns Genie und Witz abspricht, und uns gern unter der Sklavenheerde der Nachahmer zum Thor 'naustreiben möchte;—und wir dann da stehen, und auf die Brust schlagen und sprechen: Habt ihr auch erfunden, was wir erfunden haben? so muß er uns mit Ehrfurcht ansehen, und Gott danken,

wenn wir nur Kameraden mit ihm seyn wollen. Der Kerl hat 's Pulver nicht erfunden, pflegt man im Sprichwort von einem dummen Menschen zu sagen; **aber wir habens erfunden**. Die ganze Geschützwissenschaft ist Unser; die Buchdruckerkunst Unser; die Erfindung des Papiers Unser; die Kupferstecherkunst und Sammetstich und Holzschnitt sind Unser;—Ha, Majestätische Orgel, du bist unser Geschöpf, und auch du, zärtlich girrendes Klarinet! Wir haben dem hohen Flügel Mittelintinen gegeben, und ihm zum Fortepiano umgeschaffen; wir haben Göttertöne aus'm Glase [74] gelockt, und die Melodika bis zur Menschenstimme erhoben. Wir haben Göttergebäude hingethürmt, und den Riß, wie Gott, als er Welten schuf, aus uns selber genommen—der Sklave der Säulenordnungen nennt sie gothisch; aber der Seher, der wie **Göthe** sieht, bleibt staunend vor diesen Gebäuden stehen, und bemerkt die lichthellen Züge altteutscher Geisteskraft. Und noch giebts große Seelen unter uns, die so lang in die Nacht hinschauen, bis es dämmert, oder bis ein Flämmlein auffährt, das den umnachteten Pfad beleuchtet. Eben dieß stete Hinschauen, eben diese Geduld und dieß Haren, das den Erfinder und Entdecker charakterisirt, ist unser Eigenthum, und hebt uns über alle Nationen der Welt empor. **Wir, wir** warfen unsere großen Seelengeburten, rauh und glühend, vor die Welt hin, und ließen andern Nationen nur Schlosserarbeit, die Arbeit, die feurige Masse zu **kühlen**, und zu **feilen**...

[75] ... Das der teutsche Erfindungsgeist noch nicht verdustet ist, beweist die neuliche herrliche Erfindung der Notenmaschine. 'S hat sie zwar schon ein Berliner Künstler angefangen; aber, wie **Burney** bermerkt, unvollendet stehen lassen. Man fantasirt oft aufm Klavier, und fantasirt sich in die Schäferstunde des Genies nein [sic], und denkt am End: möchtest doch das Ding auf Noten haben! Geschwind diese Notenmaschine applicirt, und so has du alles auf'm Blatt, was du fantasirt hast.

Steins erfindrischer Kopf ruht auch nicht; denn der brüet noch immer über der großen Erfindung seiner Melodika, um ihr den höchstmöglichen Grad der Vollkommenheit zu geben.

Heil allen Erfindern und Entdeckern teutschen Geschlechts! Hätt' ich doch Genie und Ausharren genug, um eine Chronik teutscher **Erfindungen** schreiben zu können!

On German invention. (February 1)

[73] ... My heart laughs inside me when I consider everything that we Germans have already invented. When the foreigner calls us phlegmatic men, denies our genius and wit, and would gladly push us out the door among the slavish hordes of imitators;—and we then stand there, and beat

our breasts and say, "Have you invented what we have invented?" Then he must look upon us with awe, and thank God if we will only consent to be his comrades. "The man didn't invent [gun]powder" is a proverb one uses about stupid people; but **we have invented it**. The entire science of artillery is ours; the art of printing is ours; the invention of paper is ours; the arts of engraving and mezzotint and woodcuts are ours;—Ha, majestic organ, you are our creature, and you too, sweetly cooing clarinet! We gave light and shade to the great harpsichord, and transformed it into the fortepiano; we enticed divine sounds out of glass, [74] and raised the *Melodika* to the level of the human voice. We piled up buildings fit for the gods, and like God creating the world, drew the plan from ourselves—a slave to the regime of columns calls them Gothic, but the seer who sees as Goethe does stands transfixed, marvelling, before these buildings, and perceives the radiant features of the old German strength of spirit. And there are still great souls among us, who look into the night until the dawn breaks, or until a little flame flares up that lights the benighted path. Precisely this constant looking, precisely this patience and this abiding, which characterizes inventors and discoverers, is our property, and raises us up over all the nations of the world. **We, we** cast the great deliveries of our souls, raw and glowing, before the word, and left to other nations only metalwork, the work of **cooling** and **filing** the fiery mass. . .

[75] . . . That the German inventive spirit has not yet evaporated is evidenced by the splendid new invention of the Notation-Machine (*Notenmaschine*). An artist in Berlin already began it, indeed, but as Burney observed, left it unfinished. One often improvises [fantasirt] on the clavichord [*Klavier*], and improvises oneself into the critical moment [*Schäferstunde*] of the genius, and thinks at the end: but you would like to have the thing notated! Quickly apply the Notation-Machine, and you will have everything that you have improvised on a piece of paper.

Nor is **Stein's** inventive mind at rest; for he is still brooding on the great invention of his *Melodika*, in order bestow upon it the greatest possible degree of perfection.

Hail, all inventors and discoverers of the German race! If I only had genius and perseverance enough that I could write a Chronicle of German **inventions!**

Musikalische Nachricht. (April 8)

[232] Mein Freund Stein giebt durch mich dem Publikum folgende Erklärung wegen seiner *Melodika*:

Das erste Instrument dieser Art, das alle Kenner in Paris in Erstaunen

setzte, nennt Stein bloß einen Versuch. Er hat seiner Melodika alle Mängel abgehört, sich jezt ein ganz neues System gebildet, das so viel Einfachheit und Großheit hat, wodurch under den Händen eines gefühlvollen Spielers erstaunende Wirkungen hervorgebracht werden müssen. Nur Gedult! Bald wird Stein mit seiner vollendeten Erfindung hervortreten, und dem Spieler, der Genie hat, ein Werk hinstellen, das keine so unüberwindliche Hartnäckigkeit hat, wie unsere Flügel, Fortepiano's und Orgeln, sondern dem er in der heiligen Geniestunde seinen Geist und sein Herz mittheilen kann. Hier ist nicht, wie bey dem Fortepiano, tiefer Schlagschatten und Sonnenlicht dicht bey einander, sondern hier sind alle auch die feinsten Farbenabstufungen, ganze, half und Mittelintinen angebracht.—Was kan nun der Spieler ausrichten, wenn er Kopf und Herz aufm rechten Fleck sitzen hat!

Musical news. (April 8)

[232]My friend Stein gives to the public through me the following explanation regarding his *Melodica*:

The first instrument of this kind, which astounded all of the *Kenner* in Paris, Stein calls only an attempt. He has listened to all the shortcomings in his Melodica and built an entirely new system that has so much simplicity and greatness, as under the hands of a feeling player must produce astonishing effects. . . Only have patience! Soon Stein will step forward with his perfected invention, and place at the disposal of the player of genius a work that has none of the so-insurmountable stubbornness of our harpsichords, fortepianos and organs, but to which, in the holy moment of inspiration, he can impart his spirit and his heart. Here deep shadow and sunlight are not juxtaposed, as with the fortepiano; rather, here all of the finest levels of color, whole, half, and middle tints, are provided. What may a player not now achieve, if only his head and heart are in the right place!

1778-79/1791-92. Schubart, *Leben* (excerpts)

The excerpts from Schubart's *Leben und Gesinnungen* given here are from the section in the second volume on Augsburg, where he journeyed in 1774. He reminisces about Hieronymus Mertens and Paul von Stetten, the warm friendship he struck up with Stein, giving readings and music lessons, and finally being forced to leave the city after a falling-out with the Catholic leadership. From Augsburg Schubart went to Ulm; in 1777 he was arrested and imprisoned in the fortress of Hohenasperg, where he dictated the *Leben und Gesinnungen* to a fellow prisoner.

XVII.

[19] . . . Kunst, Geschicklichkeit, Gewerbsamkeit, Kunstfleiß, Aufklärung und Schönheit der Sitten zeichnet die Lutheraner in **Augsburg** so merklich vor ihren Mitbürgern den Katholiken aus, daß man nirgends mehr als hier die Wohlthat der Reformazion kennen lernt. Und doch behaupten die Katholiken einen so augenscheinlichen politischen Vorzug über die Lutheraner, daß man ohne ihre Unterstützung in **Augsburg** ohnmöglich fortkommen kann. . .

[20] . . . Rektor **Mertens** wurde frühe mein Freund. An seiner Seite sah ich die dasige Stadtbibliothek, die sonderlich einige von **Rißte** zum Theil benutzte sehr kostbare griechische Handschriften hat. Der Eifer dieses Mannes für Litteratur und Erziehungswesen verdient den Dank seiner Stadt und den Beifall seiner Zeitgenossen. Seine reiche Gelehrsamkeit und schöne Gaben erheben ihn zum Rang der **Bertholins, Ehinger, Wolfe** und andrer wichtigen Männer seiner Vaterstadt. Das **Augsburgische** Gymnasium hat ihm beinahe seinen iezigen Flor allein zu danken. Man darf es mir glauben, daß ich auch hier meiner Neigung folgte, und die edlen Männer dieser Stadt aussuchte, auch mich herzlich freute, so oft meine Wünschelruthe über dem Golde einer deutschen Biederseele zuckte. Unter diesen Seelen verdient **Paul von Stetten** vorzüglich genannt zu werden. Seine schönen Schriften, womit er unser Vaterland unterrichtet und ergötzt, sind nur schwache Gips- [21] abdrücke eines tausendmal schönern Stempels. Er ist ein Fluß, der still und tief in seinem Bette fließt, die Felder seiner Vaterstadt wässert und befruchtet, und nie braußt, als wenn sich ihm hartnäkiger Frevel und die Klippe des Wahns entgegen sezt. Sein ruhiger Charakter macht ihn zum Gefühl der Schönheit und Wahrheit vorzüglich geschickt, und giebt seinen Beurtheilungen über die Werke des Geistes viel Bestimmtheit und Richtigkeit. Sein Auge für die schönen Künste ist gesalbt und scharfblickend; doch scheint er die Grazie des Kleinen leichter zu bemerken, als das Göttliche des Großen. Sein Herzenscharakter stellt ihn auf die goldne Linie der Sanftmüthigen; vom denen Christus das Haupt und Johannes sein Nachfolger ist. Daher kommt die Stille, Herzengüte, Freundschaft und Wohlwollen, die in sanftesten Lichte sein Antlitz verklären. Er ist noch eine Zierde seiner Stadt. Seine und überhaupt des ganzen **Stettenschen** Hauses vaterländische Thaten haben ihnen schon läng- [22] stens einen ansehnlichen Plaz im Bildersaale der **Augsburgischen** Patrioten erworben. Auch ich hatte ihrer stillen und lauten Unterstützung manches Gute zu danken.

So verschrien diese Stadt ist wegen des merklichen Heruntersinkens von ihrem alten Glanze, sonderlich wegen der Abnahme des reine Künstlergeschmacks, so sind doch noch einige ziemlich helle Spuren davon anzut-

effen.

Der so große unternehmende Geist **Schülen's**, der tausend Hände in Arbeit setzt und durch geschmackvolle Pracht die vornehmsten Fremden zur Bewunderung reizt, [23] die ansehnliche Kaufmannschaft, worunter noch Manche den Glanz des alten Reichthums ausstrahlen, so viele Juwelire, Silberarbeiter und Künstler von aller Art, didurch ihren kostbaren Vorrath, durch Erfindung und Geschmack laut genug zeugen, daß noch Spuren des alten Geistes in ihnen glänzen; geben dem denkenden Fremdling reichen Stoff zur Unterhaltung, und sonderlich zur patriotischen Anmerkung, was der Deutsche vermag, er werde unterstützt oder nicht, er sei frei oder ein Sklave.

Einer meiner wärmsten Freunde war Stein, dessen Orgeln, Flügel, Fortepiano's, Klaviere und sonderlich die grose Er- [24] findung der **Melodika** ihm längst einen angesehenen Rang unter den deutschen Erfindern und Verbesserern musikalischer Kunstwerke erworben haben. Ich habe seine meisterhafte Orgel in der Barfüßer Kirche mehrmalen mit Entzücken gespielt. Wie unnachamlich rein gestimmt! Welche schlaue Verbergung der den Orgeln so natürlichen Gebrechen! Welche liebliche Register! Welch ein brausender, diker, die zahlreichste Festgemeinde tragender, durchschneidender Baß!— Man kann nichts hinreissenderes hören, als eine mit andern Instrumenten begleitete Orgelsonate, oder auch ein Konzert auf dieser Orgel vorgetragen. Auch hört' ich in dieser Kirche den schönsten, übereinstimmendsten Choralgesang, der so mächtig die ganze Seele faßt, und sie an ihre Unsterblichkeit mahnt. Das wahre kirchliche Pathos, die Enharmonie der alten Griechen, das Psalmengejauchz der Chöre Assaphs, die unbeschreibliche Vielfachheit in **Einem**, ist allein noch in unserm Choralgesange einigermaßen [25] übrig. Ich und **Stein**, dessen musikalischer Geschmack vortrefflich ist, lauschten oft über die Blumengeländer der Orgel hinunter, und tranken die Töne der Gemeinde auf. "O" sprach ich oft in der Begeisterung zu ihm: "wann schmilzt einmal ein deutscher Assaph alles Große, Schöne und Edle der heutigen Musik, alle Vollkommenheiten der blasenden Instrumente, den schneidenden Zinken und die Hallposaune ja nicht zu vergessen, die Kraft der Orgel und aller Saiteninstrumente, mit diesem himmlischen Tönen der Gemeinde zusammen, und bildet daraus das fürchterliche **Ganze**, das ich immer in meiner Seele herumtrage und nirgends dargestellt finde!"—"So mag's im Himmel zugehen," sagte Stein, die Gluth dieses Gedanken fühlend, "auf dieser Welt wirst Du nur Theile dieses idealischen Ganzen finden."

[26] Da deklamier' ich ihm die himmlischen Strofen unsers ersten Sängers, der, obgleich kein Tonkünstler von Profession, doch all dieß fühlte, ahndete...

[27]..“Das ist herrlich,” sagte **Stein**; “Du sollst doch nächstens was hören, das Dir gefallen soll!” Am Chorfreitag holte mich **Stein** ab, und gieng mit mir ins Dom. Die Priester mit einigen Chorknaben sangen, da das erhabene Miserere von **Allegri** und [28] einen Psalm nur mit einem Rückpositive begleitet, so trefflich, so in die Einheit Einer Himmelsempfindung verflößt, so in der vollen vierstimmigen Kraft und mit so auf der Herzenswage abgewogenen Tönen, daß ich Opern- und Kammerstil, alle Schnörkel, Läufe, Vorschläge, Kadenzen, und all den asiatischen Schmuck der neuesten Tonkunst darüber vergaß. Noch haltt es in meiner Seele nach, so mächtig drang es ein. . .

[35] . . . Die beständige Thätigkeit, in der ich mich herumtrieb, ein auf alle Seiten gewandter Blick, die häufigen Gelegenheiten zum Verdienst für mich, der ermunternde Liebe meiner Freunde, machte mir Augsburg immer angenehmer; ja ich fühlte wieder ein Analogon von Ruhe meines Herzens, je mehr ich mich der Ordnung und allgemeinen Brauchbarkeit näherte. Nirgends war ich beschäftigter als hier. Ich gab Lektionen auf dem Fortepiano, und hatte das Glück in kurzer Zeit ein paar tüchtige Subjekte zu [36] bilden, die sich öffentlich mit Beifall hören ließen. Ich spielte auf Orgeln, Flügeln und Klavieren allenthalben mit Beifall; ich gab Vorlesungen über die schönen Wissenschaften und Künste, hatte gelehrte und Künstlerversammlungen in meinem Hause, las die neuesten Schriften und Partituren, benutzte Gemählde, Kupferstiche, Holzschnitte, Medaillen, Handzeichnungen, Gebäude—Manufakturen, Bibliotheken, Kunstsäle, gab Fremden Besuch, nahm Besuch, und schrieb dabei meine Chronik mit immer wachsendem Beifall fort;—machte auch Vorreden, Einleitungen zu andern Werken, Gelegenheits- und andere Gedichte häufig, bald gut bald schlecht, nachdem meine Seele gestimmt war. . .

[38] Einer meiner hervorstechendsten Charakterzüge war es, daß ich nichts für mich allein behalten konnte, es sei Geld oder Wonnegefühl über eine schöne Naturszene, über ein Kunststück, oder ein treffliches Buch. Ich mußte mitteilen, oder bersten. Wenn ich vom **Luginsland** aus, die schöne [39] Gegend um Augsburg mit trunknem Auge maß, wenn ich eine neue schöne Komposition vor mir liegen hatte, oder wenn ich in meinen Lieblingen las; so drang ich mit feurigem Ungestüm auf den blickenden, oder horchenden Freund, und ruhte nicht, bis er mir Beifall zuglühete, oder wie ein Pagodenkopf zuwakelte. Daher entstanden die **Lesestunden**, die ich zu Augsburg in Privathäusern und öffentlichen Sälen anstellte, und damit eine merkliche Revolution im Geschmacke veranlaßte. Ich las anfangs die neusten Stücke von **Göthe**, **Lenz**, **Leisewitz**, und die Gedichte aus den Musenalmanachen mit eingestreuten Erklärungen vor, und da ich großen Beifall erhielt; so wählte ich Klopstoks *Messias*, um an einem wichtigen Beispiel zu sehen, ob sich die

Ideen der Alten auch auf deutschen Boden verpflanzen ließen, und ob ein Rhapsode auch unter [40] uns sein Glück machen würde. Mein Odeum war der schöne Musiksaal auf dem Bekenhause, und da ich nebst einer natürlichen Anlage zum Vorlesen, mich von Jugend auf darin übte, auch meinen Autor fast auswendig wußte: so war ich kein schlechter Rhapsode. Der Erfolg war über meine Erwartung groß. Mit jedem neuen Gesange vermehrten sich meine Zuhörer; der Messias wurde reissend aufgekauft; man saß in feierlicher Stille um meinen Lesestuhl her; Menschengefühle erwachten, so wie sie der Geist des Dichters wekte. Man schaurte, weinte, staunte, und ich sah's mit dem süßesten Freuden gefühl im Herzen, wie offen die deutsche Seele für jedes Schöne, Große und Erhabene sei, wenn man sie aufmerksam zu machen weiß. . .

[53]Mitten unter diesen glänzenden Bekanntschaften. . . war der Boden unterminirt, auf dem ich stand,—mit Pulver gefüllt—und schon wurde die Lunte geschwungen, welche die Mine entzündete, und mich armen Pilgrim in die Luft sprengen sollte. Ich saß an einem ruhigen Abend unter einem Chor trauter und bewährter Freunde. Ein [54] fremder Kavalier besuchte mich. Ich spielte einige Fantasien auf meinem Steinischen Klavier mit Empfindung. Vertraulichkeit und helle Freundschaft leuchteten alle Gesichter herunter. So arg ich war, so brütete ich doch nichts Böses gegen irgend einen Menschen in der Welt. Dieß machte mich sicher, denn ich maß alle Menschen nach mir.—Plötzlich wurde mein Haus von Soldaten umstellt; einige drangen die Treppen herauf; ein Abgeordneter vom regierenden Bürgermeister Katholischer Seits, trat ins Zimmer, und kündigte mir Arrest an. Zugleich nahm er alle meine schriftliche Sachen hinweg, und wollte sogar den Anwesenden die Taschen aussuchen. Der Kavalier setzte sich in sehr derben Ausdrücken gegen eine so unverschämte Zumutung, nahm Abschied und ging mit der ganzen Gesellschaft weg. Ich blieb allein—bei einigen Soldaten, die mich im Zimmer bewachten; die übrigen waren an die Treppen und Haus- [55] thür gepflanzt. Ein alter ehrlicher Kerl, den ich zur Bedienung angenommen hatte, wurde in die Eisen geschleppt, und wegen meiner, wie in ein peinliches Examen genommen. Meine Freunde, die eine ansehnliche Partei bildeten, machten Lärm, und die ganze Stadt kam in Bewegung. Noch in der Nacht drängte sich der Eisenberg, an dem ich wohnte, von Menschen an, die alle den Tag erwarteten, um einen Verbrecher der schrecklichsten Art vorführen zu sehen. Denn man gab mir im Unsinn des ersten Larms die teuflischsten Dinge Schuld. Die Kaufleute evangelischer Seits, waren die ersten, die sich meiner annahmen. Sie brachten mir durchs Fenster einige Burgunderflaschen zu. Nach einer schlaflosen Nacht kam mein Verleger zu mir, der für seinen Autor bereits einen harten Kampf gekämpft, und die Freiheit erhalten hatte, daß man mich besuchen dürfte.—Und nun

stand mein Tisch in einem Augenblick voll von Speisen und Trank, die mir meine Freunde [56] zutrug; und in alle Taschen wurde mir Geld gesteckt. Nichts war mir rührender, als der Anblick eines vierzehnjährigen Klavierschülers von treflicher Anlage, der mich besuchte, sein Geschenk auf den Tische legte, sich plötzlich wandte, kein Wort sprach, einige gebrochne Töne aus dem Klavier herausängstete und—laut zu weinen anfieng. Ich drückte ihn fest an mein Herz, den blühenden, gefühlvollen Jüngling, nezte seine Stirne mit meinen Thränen, und nahm Abschied von ihm.

XVII.

[17] ... Art, skill, industry [Gewerbsamkeit], assiduity in the arts, enlightenment and the beauty of their customs distinguish the Lutherans in Augsburg so considerably over their fellow citizens the Catholics, that one nowhere more than here comes to know the boon of the Reformation. And yet the Catholics hold such an obvious political advantage over the Lutherans that without their support it is impossible to get anywhere in Augsburg...

[20] ... Rector **Mertens** became my friend early on. At his side I saw the local city library, which notably has several very valuable Greek manuscripts partly used by **Rifste**. This man's zeal for literature and the educational system deserves the thanks of his city and the acclaim of his contemporaries. His rich scholarship and fine gifts elevate him to the rank of **Bertholin**, **Ehinger**, **Wolfe**, and other important men of his native city. The **Augsburg** gymnasium has nearly only him to thank for its present thank him alone for the way it is presently flourishing. You may well believe that I here, too, followed my inclination and sought out the noble men of this city, and rejoiced sincerely whenever my divining rod twitched over the gold of a worthy German soul. Among these souls **Paul von Stetten** especially deserves to be mentioned. His beautiful writings, with which he educates and delights our homeland, are only the weak plaster [21] impressions of a stamp that is a thousand times more beautiful. He is a river that flows still and deep in its bed, that waters and fertilizes the fields of its homeland, and never roars except when intractable outrages or cliffs of delusion set themselves against it. His peaceful character makes him especially adept at feeling beauty and truth, and gives his judgments of the works of the spirit great decision and correctness. His eye for the fine arts is anointed, and keen; although he seems to notice the grace of small things more readily than the divinity of great ones. The character of his heart places him among the golden ranks of the meek; of whom Christ is the head and Johannes is his successor. Thence come the tranquility, the kindheartedness, the friend-

ship, and the benevolence that transfigure his countenance in the softest light. He is still an ornament to his city. His deeds and the deeds of the entire **Stetten** house have long since won for them [22] an eminent place in the portrait gallery of the **Augsburg** patriots. I too have had both his quiet and his audible support to thank for many good things. As notorious as this city is for its strange decline from its former splendor, yet there are still some very bright traces of that splendor to be met with.

Schüle's spirit, so greatly enterprising, which puts a thousand hands to work and with tasteful magnificence stirs the most elegant strangers to admiration; [23] the eminent society of businessmen [*Kaufmannschaft*], many of whom still emanate the splendor of the old prosperity; so many jewelers, silversmiths, and artists of every kind, who with their precious inventory, with invention and taste show loudly enough that traces of the old spirit still glint within them: all these give the thoughtful stranger rich material for entertainment, and especially for the patriotic observance of what a German can do, whether he is supported or not, whether he is free or a slave.

One of my warmest friends was Stein, whose organs, harpsichords, fortepianos, clavichords, and especially the great invention of [24] the **Melodika** long ago obtained for him a respected rank among German inventors and improvers of musical works of art.

I played his masterful organ in the Barfüßer Church many times with enchantment. How incomparably purely tuned! What a clever concealment of the flaws that naturally belong to the organ! What lovely stops! What a booming, thick, penetrating bass, that supports the largest festival congregation!—One can hear nothing more ravishing than an organ sonata accompanied with other instruments, or a concerto, performed on this organ. In this church I also heard the most beautiful, most concordant choral song [*Choralgesang*], that grips the whole soul so powerfully, and reminds it of its immortality. The true churchly pathos, the enharmony of the ancient Greeks, Assaph's choir's exultation of psalms, the indescribable multiplicity in **One**, only still remain a little in our choral song. [25] I and **Stein**, whose musical taste is excellent, often listened over the balustrade of the organ, and drank in the music of the congregation. "Oh," I often spoke to him in my excitement. "when will a German Assaph fuse together everything that is great, beautiful and noble in the music of today, all the perfections of the brass instruments, even the biting Zink and the Hallposaune, the power of the organ and all the stringed instruments, with this heavenly music of the congregation, and build out of it that terrible **Whole** that I always carry in my soul and find enacted nowhere?"—"That may happen in heaven," said Stein, feeling the fire of this thought, "but in this world you will only find

fragments of that ideal whole.”

Then I declaimed to him the heavenly verses of our first singer, who, although he was no musician by profession, still felt, intuited all of this. . .

[27] . . . “That is wonderful,” said **Stein**, “But soon you will hear something that will please you!” On Good Friday **Stein** fetched me and went with me to the cathedral. There the priests sang with some of the choir-boys the sublime Miserere of **Allegrì** and [28] a hymn only accompanied by a Rückpositiv, so splendidly, so transported into the unity of one divine sentiment, with such full, four-voiced strength, and with notes so weighed upon the scale of the heart, that I forgot about opera and chamber styles, all flourishes, runs, appoggiaturas, cadences, and all the Asiatic decoration of the newest music. It is still resonating in my soul, so powerfully did it penetrate. . .

[35] . . . Nowhere was I busier than here [in Augsburg]. I gave lessons on the *Fortepiano*, and had the good fortune to educate a few diligent students in a brief time, [36] who performed publicly to acclaim. I played on the organ, harpsichord and clavichord, everywhere to acclaim; I gave lectures about the sciences and the fine arts, had gatherings for scholars and artists in my house, read the newest writings and scores, availed myself of paintings, copperplate engravings, woodcuts, medals, freehand drawings, buildings—manufacturing houses, libraries, art halls, visited strangers, received visitors, and on top of everything wrote my Chronicle to ever-increasing acclaim;—gave readings, introductions to other works, frequently casual and other poems, sometimes good, sometimes bad, according to the temperament of my soul. . .

[38] . . . One of my most conspicuous characteristics was that I could keep nothing for myself, whether money or the blissful sensation of a beautiful scene from Nature, a piece of art, or an excellent book. I had to share it, or burst. When, from the *Lug ins Land*, I measured the beautiful countryside around Augsburg with intoxicated eyes, when I had a beautiful composition lying before me, or when I read in my favorites; then with fiery vehemence I pressed in on the looking or listening friend, and did not rest until he glowed with acclaim for me, or shook like the top of a pagoda [*wie ein Pagodenkopf zuwakelte*]. Thence arose the **reading hours** that I undertook in Augsburg, in private houses and public halls, and with which I initiated a remarkable revolution in taste. At first I read the newest pieces by **Göthe**, **Lenz**, **Leisewiz**, and the poems from the *Musen Almanach* with explanations sprinkled in, and when I received great acclaim, I chose Klopstock’s *Messias*, to see, with an important example, if the ideas of the ancients could also be planted in German soil, and if a rhapsody [40] would do well among us also. My theater was the beautiful music hall in the Beckenhaus,

and because, in addition to having a natural talent for reading aloud, I had also practiced at it since I was a youth, and knew my author almost by heart, I was no mean rhapsodist. The success was great beyond my expectations. With every new song my listeners increased; the *Messias* was rapidly sold out; people sat in ceremonial stillness around my reading chair; human feelings awoke, as the spirit of the poet aroused them. People shivered, cried, marveled, and I saw it with the sweetest feeling of joy in my heart, how open the German soul may be for everything beautiful, grand, and sublime, if one knows how to make it attentive. . .

[53] In the middle of these shining acquaintanceships. . . the floor on which I stood was undermined—filled with powder—and the fuse was brandished that would ignite the mines and blow me, the poor pilgrim, to pieces. I sat one peaceful evening among a group of trusted and proven friends. A [54] foreign cavalier was visiting me. I was playing some fantasies on my Stein clavichord, with *Empfindung*. Intimacy and bright friendship shone down from every face. As angry as I was, still I nursed no hard feelings against any person in the world. This made me feel safe, for I measured all people according to myself.—Suddenly my house was surrounded by soldiers; some pushed up the stairs; a deputy from the Catholic side entered the room and placed me under arrest. He took all of my written things away at once, and even wanted to search the pockets of those present. The cavalier opposed such a shameless impertinence in very rough terms, took his leave, and left with the whole company. I was alone—with some soldiers who stood guard in the room; the others were stationed on the stairs and at the house [55] door. An honest old man whom I had taken into service was clapped in irons and taken, as if in an embarrassing examination. My friends, who made up a respectable party, raised the alarm, and the whole city was set in motion. Before the night was over, the *Eisenberg*, where I lived, was pressed with people, all waiting for the next day, to see a criminal of the most terrible kind paraded. For in the nonsense of the first alarm, I was blamed for the most diabolical things. The businessmen of the Evangelical side were the first to adopt me. Through the window, they brought me some bottles of Burgundy. After a sleepless night my publisher came to me, having already fought a hard fight for his author, and obtained the freedom to visit me.—In the blink of an eye my table was covered with food and drink that my friends [56] had brought me; and money was pressed into all my pockets. Nothing was more moving than the look on the face of a fourteen-year old clavichord student of excellent ability, who visited me, placed his gift on the table, then suddenly turned away, spoke not a word, fearfully played a few broken notes on the clavichord and—began to weep loudly. I pressed him tightly to my heart, the blossoming, passionate youth,

wet his brow with my tears, and bid him farewell.

1779. Stetten, *Der Mensch* (excerpts)

Der Mensch in seinen verschiedenen Lügen und Ständen was an illustrated children's book that contained a system of human occupations and pursuits. The entry on the art of the organ builder and the definition of the fine arts in the entry on drawing are given here.

Der Orgelbauer oder Instrumentenmacher.

[114] Es ist unter den schönen Künsten keine, welche zu ihrer Ausübung mehrere Instrumente [115] nöthig hat, als die eben daher so genannte Instrumentalmusik. Unter diesen nimmt sich das mechanische Kunstwerk aus, welches unter dem Namen der Orgel bekannt ist, und von dem Orgelbauer erbauet wird. Dieser muß verschiedene Künste verstehen, die in seiner Arbeit sich vereinigen. Die Orgeln bestehen nämlich aus großen hölzernen Kästen, welche durch daran bevestigte Blaspälge, die aufgetreten oder gezogen werden, mit Wind angefüllet sind. Auf diesen stehen Röhren von Zinn oder Holz, von verschiedener Höhe und Weite, diese heißen Pfeifen und werden durch Berührung der an dem Kasten angebrachten Claves, auf eine künstliche Weise geöffnet. Durch den in solche eindringenden Wind, werden die Töne auf eine bestimmte Art hervor und an das Gehör gebracht. Zu deren Verfertigung sind vielerley Werkzeuge nöthig. Der Orgelbauer muß arbeiten wie der Schreiner, folglich braucht er auch dessen Instrumente; er muß aber auch die Pfeifen von Zinn gießen und schlagen, und folglich die Arbeiten des Zinngießers verstehen. Ueber dies macht er Claviere, Clavicembal, Piano forte u.d.g. Diese letztern Instrumente haben keine Pfeiffen, sondern sind mit Dratsaiten bezogen, welche durch Berührung der durch Claves bewegten, an die Docken bevestigten Federkiele oder Hämmer, [116] die lieblichsten Töne aus dem Resonanzkasten hervorbringen.

The organ builder or instrument maker.

[114] There is no fine art which requires so many instruments for its execution [115] as instrumental music—hence its name. Of these, that mechanical work of art distinguishes itself that is known by the name of the organ, and built by the organ builder. The organ builder must understand many arts, which are united in his work. For organs consist of large wooden chests [*Kasten*] that are filled with wind by means of bellows fastened to them, which are tramped or pulled. Upon these chests stand tubes of tin

or wood, of various heights and breadths; these are called pipes, and are opened in an artful way, by touching the keys which are attached to the chests. The notes are produced and brought to the ear in a particular way by the wind that enters into these pipes. Their production requires tools of many kinds. The organ builder must do the work of the joiner, and so he needs the joiner's instruments; but he must also cast and hammer the pipes out of tin, and so understand the work of the tin casters. In addition to this, he makes clavichords, harpsichords, pianofortes etc. These latter instruments have no pipes, but rather are strung with wire strings, which, when they are touched by the quills or hammers that are fastened on the jacks and set in motion by the keys, [116] elicit the loveliest notes from the soundboard.

Die Zeichnende Künste.

[117] Alle diejenigen Künste, Gewerbe und Handwerker, welche wir bisher vor uns gehabt haben, dienen theils zu den nothwendigen Bedürfnissen des Menschen in Kleidung, Speise, Trank, Wohnung und Vertheidigung, oder zu edlern Künsten und den Wissenschaften, und zwar zum Theil auf mittelbare, zum Theil auf unmittelbare Weise. Sie werden mechanische [118] Künste genennet, weil es bey deren Erlernung und Ausübung grösten theils auf gewisse Handgriffe und Vortheile ankommt. Indessen sind sehr viele darunter, welche eine besondere Verfeinerung annehmen und sich dadurch den schönen Künsten nähern, wie dieses von einigen Arten der Metall- und Holzarbeiten bekannt ist. Wer ihnen diese zu geben weiß, der verdient den Namen eines Künstlers, die übrigen sind Handwerksleute, sie mögen sich mit mechanischen oder schönen Künsten nähren. Die schönen Künste haben nicht die eigentliche Bedürfnisse, sondern das Vergnügen der Menschen, zu ihrem Gegenstande. Sie suchen die Natur nachzuahmen und so vorzustellen, wie sie am schönsten ist. Das geschiehet nun auf verschiedene Weise.

The arts of drawing.

[117] All of those arts, trades and craftsmen that we have thus far considered serve either the essential needs of man for clothing, food, drink, living quarters, and defense, or else the nobler arts and the sciences; and indeed sometimes in indirect ways, sometimes direct. They are called mechanical [118] arts, because their learning and execution mostly depends upon specific practical manipulations and advantages. There are, however, very many among them that assume a special refinement and in this way

approach the fine arts, as is familiar from some kinds of metal- and wood-working. Whoever knows how to give them this [refinement] deserves the name of artist; the remainder are craftspeople, regardless of whether they earn their bread with the mechanical or the fine arts. The fine arts have as their object not the actual needs of human beings, but rather their enjoyment. They seek to imitate nature and to present it at its most beautiful. And this is done in several ways.

1779. Stetten, *Kunst-Geschichte 1 (excerpts)*

The first volume of Paul von Stetten's great biographical history of the arts in Augsburg, the *Kunst- Gewerb- und Handwerks-Geschichte der Reichs-Stadt Augsburg*, includes entries on Stein and on the automata maker Joachim Eppinger, who worked with Stein. Both are excerpted here.

Orgelbaukunst.

[158] Die großen musikalischen Maschinen, die uns unter dem Namen Orgeln bekannt sind, so wie auch die kleinern Instrumente, die wir Flügel, Clavicembel, Claviere, Piano forte u.d.gl. nennen, gehören allerdings unter die wichtigen Hervorbringungen der Mechanik. Gleichwie die Erfindung unter diejenigen gehöret, welche dem menschlichen Verstand Ehre machen, eben so gehört auch kein gemeiner Verstand dazu, dergleichen Erfindungen nachzuzahlen und zu verbessern; in diesem, nämlich in der Verbesserung, bestehet der Künstler: dann der Orgelbauer, der bey dem stehen bleibet, was er von seinem Lehrmeister gelernet hat, ist ein bloßer Handwerksmann. . .

[160] . . . Wir haben heut zu Tage in der Orgelbaukunst einen Mann, der seine Vorgänger bey weitem übertrifft, nämlich Herrn Johann Andreas Stein. Er ist von Heidelberg aus der Churpfalz gebürtig, und kam im Jahr 1750. hieher. Er hielte für nöthig, sich in der Theorie der Mechanik vest zu setzen, und wurde darinn [161] so stark als in der Praxi. In den Jahren 1755. und 56. erbaute er die große Orgel in der evangelischen Kirche zu den Barfüßern, die ihm wegen des Tones, Mechanismus, und schöner architectischer Verhältnisse viele Ehre macht. Im Jahr 1758. reißte er nach Paris, und machte sich mit den vornehmsten Künstlern daselbst bekannt. Diese Reise gab ihm zu Ausarbeitung eine vortrefflichen Instrumentes Gelegenheit. Es ist ein ungemein verstärktes Clavicembel, dem er den Namen Poly-Toni-Clavicordium beylegte, ein Werk, welches den Beyfall aller Kenner erhielt. [note x: Eine umständliche Beschreibung desselben findet man in dem Augsbürgischen Intelligenzblatt vom 5. Octob. 1769. so wie von der Orgel in der Barfüßerkirche in dem 6. St. der akademischen Kunstzeitung.

1771.] Indessen baute er im Jahr 1766. eine neue große Orgel in der katholischen Kirche zum H. Kreuz, arbeitete aber zu gleicher Zeit an der Erfindung eines Orgelwerkes, welches dem Tone der Flöthe überaus nahe kömmt, dabey aber dennoch etwas eigenes hat, dadurch es sich von allen anderen Instrumenten unterscheidet. Er gab ihm den Namen Melodica, und ließ sich darauf zum erstenmale 1771. in dem Concerte auf der Herren Geschlechter-Stuben hören. [note y: Die Beschreibung der Melodica is sowohl besonders gedruckt, als auch in der Bibliothek der schönen Wissenschaften eingerückt, im XIII. B. 1. St. 106. S.] Im Jahr 1773. reißte Herr Stein auf Ermunterung des Herrn Hauptmann Beecke von Oettingen, seines vertrauten Freundes und [162] Gönners, eines der stärksten Clavierspieler in Deutschland, mit den angezeigten Instrumenten abermals nach Paris, und hatte das Glück, nicht nur zu beyden Liebhaber und Käufer zu finden, sondern auch sich auf letzerm, nämlich auf seiner Melodica, vor dem Könige und dem ganzen Hofstaate in dem Zimmer der damaligen Madame la Dauphine mit völligem Beyfalle hören zu lassen. Außer diesen wichtigen Instrumenten hat Herr Stein viele Claviere, Piano forte u.d.gl. immer mit schönen Verbesserungen verfertigt. Im Jahr 1777. reißte er auch mit einem abermals neu erfundenen großen Flügel, der zwey einander gegenüberstehende Claviere hat, und also von zweyen Personen zu spielen war, nach Wien, und machte sich auch bey dem kaiserlichen Hofe unter vielem Beyfall bekannt. Er gehöret überhaupts unter die Genies, die immer auf die Vervollkommnung arbeiten, und denen es das größte Vergnügen ist, etwas Gutes und Schönes gemacht zu haben: gesetzt auch, daß ihnen ihre Mühe nicht nach Verdiensten belohnet würde. Ihm haben wir viel von der izt unter uns herrschenden Liebhaberen zu Musik, und zu der unschuldigen Ergötzlichkeit an Concerten zu danken. [note z: geb. 1728]

The art of organ building.

[158] The large musical machines that are known to us by the name of organ, as well as the smaller instruments which we call *Flügel*, *Clavicembel*, *Claviere*, *Piano forte* etc., certainly belong among the important creations of mechanics. Just as invention belongs among those things which do credit to human understanding, it also requires no mean understanding to imitate and improve those same inventions. The artist consists in this, namely in improvement: for the organ builder who stops at what he has learned from his master is a mere craftsman. . .

[160]. . . Today we have a man who far surpasses his predecessors in the art of organ building: namely, Mr. Johann Andreas Stein. He is a native of Heidelberg in the *Churpfalz*, and came here in 1750. He found it needful

to establish himself in the theory of mechanics, and became [161] just as strong in this as in practice. In 1755 and 1756 he built the large organ in the Evangelical Barfüßer, which does him great credit in its sound, its mechanism, and its beautiful architectural proportions. In 1758 he traveled to Paris and acquainted himself with the foremost artists there. This journey gave him the opportunity to work out an excellent instrument. It is an uncommonly strengthened harpsichord which he gave the name of *Poly-Tono-Clavichordium*, a work which received the praise of all musical *Kenner*. [note x: An elaborate description of the same may be found in the Augsburg *Intelligenzblatt* of October 5, 1769, as also one of the organ in the Barfüßer Church in nr. 6 of the academy's *Kunstzeitung*.] Meanwhile, he built, in 1766, a large new organ in the Catholic Church of the Holy Cross; but at the same time he worked on the invention of an organ that would come exceedingly close to the sound of the flute, but nevertheless also had something of its own, with which it distinguished itself from all other instruments. He gave it the name *Melodica*, and performed upon it for the first time in 1771, in the concert in the *Herren Geschlechter-Stuben*. [note y: The description of the *Melodica* is both specially printed and included in the *Bibliothek der schönen Wissenschaften*, vol. 13, nr. 1, p. 106.] In 1773 Mr. Stein traveled, at the encouragement of Mr. *Hauptmann* Beecke von Oettingen—his trusted friend and [162] patron, one of the strongest keyboard players in Germany—to Paris once again, with the previously mentioned instruments, and had the good fortune not only to find *Liebhaber* and buyers for both of them, but also to perform upon the latter instrument, namely his *Melodica*, for the king and the entire court in the chamber of the then-Madame la Daupine, to perfect acclaim. Besides these important instruments, Mr. Stein has made many clavichords, pianofortes, etc., always with lovely improvements. In 1777 he also traveled to Vienna with another newly invented large *Flügel*, which has two keyboards that face each other, and thus was to be played by two people, and made himself known to the imperial court as well, amongst much acclaim. He belongs absolutely among those geniuses who always work toward perfection, and for whom the greatest pleasure is to have made something good and beautiful—even if their effort should not be rewarded as it deserves. We have him to thank for many of the *Liebhaber* of music now prevalent among us, and for the innocent pleasure of concerts. [note z: born 1728].

Die Kunst, sich selbst bewegende Bilder u. d. gl. zu verfertigen.

[191] Vor einigen Jahren verlohren wir an Joachim Eppingern einen Mann, welcher seinen Gaben nach, ein anderer Vaucanson hätte werden können, wofern er in seiner Jugend einiger Anleitung in der Theorie genossen hätte. Er war eines Bauern Sohn aus Baiern, und in jüngern Jahren selbst ein Bauer, sein eigentliches Geburtsort aber ist mir unbekannt. Allein ein Trieb seines Genies leitete ihn an, hölzerne Uhren zu verfertigen, er verließ seyn Gut, und setzte sich in de Stadt. Hier machte er mit Herrn Stein, dem Orgelbauer, Bekanntschaft, er erhielt von ihm guten Rath, und da er ihm folgte, brachte er es auch immer weiter. Im Jahr 1764. machte er ein artiges selbst spielendes Orgelwerk, welches durch den Zug eines Gewichtes sehr hübsche musikalische Stücke, nach den Tonarten verschiedener Instrumente spielte, und auch bey den Kennern der Musik Beyfall erhielt. Noch besser war dasjenige, welches er im Jahr 1768. zu Stand brachte. Es war ebenfalls ein künstliches musikalisches Instrument, mit Trat-Saiten bezogen, von zwo Walzen, die durch Gewicht und Räder in Bewegung gebracht [192] wurden. Es spielte unter andern ein schweres Präludium von Seyfert, und ein sehr künstliches presto von Herrn Bach zu Hamburg, mit größter Richtigkeit und Reinigkeit. Sein größtes Kunststück machte er im Jahr 1769. Es war eine Vaucansonsche Nachahmung, ein Bild des Hirten-Gottes Pan, welcher einige Stücke auf seiner Flöthe von Rohren spielte. Die ansteckende Krankheit, die uns so viele würdige Männer entrissen, nahm uns auch diesen. Wann man seine Geburt, seine Erziehung, seinen ersten Stand, seine wenige Wissenschaft von andern Dingen, und seine aus dem allen fließende rohen Sitten betrachtet, so ist er allerdings zu bewundern. Auser diesem machte er auch allerley Kleinigkeiten, Orgelwerke zu Uhren, singende Vögel, kleine Orgeln, die Vögel abzurichten u.d.gl.

The art of making pictures and similar things that move by themselves.

[191] Several years ago we lost, in Joachim Eppinger, a man whose gifts could have made him another Vaucanson, if in his youth he had enjoyed some instruction in theory. He was the son of a farmer from Bavaria, and in his younger years himself a farmer, but his actual birthplace is not known to me. An impulse of his genius, however, led him to make wooden clocks; he left his property and settled in the city. Here he became acquainted with Mr. Stein, the organ builder, received good advice from him, and, as he followed him, advanced ever further. In 1764 he made an agreeable self-

playing organ, which played very handsome musical pieces that sounded like different instruments, by means of being pulled by a weight, and which also met with the approval of musical *Kenner*. The one which he made in 1768 was still better. It was also an artful musical instrument, strung with wire strings, with two cylinders set in motion by means of weights and wheels. [192] It played, among other things, a difficult Prelude by Seyfert, and a very artful presto by Mr. Bach of Hamburg, with the greatest correctness and cleanness. He made his greatest piece of art in 1769. It was a Vaucansonian imitation, an image of the shepherds' god Pan, who played several pieces on his panpipe. The infectious disease that has torn so many worthy men from us took this one as well. Considering his birth, his upbringing, his first position in life, his small knowledge of other things, and his rough customs which were a result of all these things, he is certainly to be marveled at. In addition, he also made all kinds of small things, organs for clocks, singing birds, small organs for training birds, etc.

1783. Report from the Augsburg Art Academy Exhibition (excerpt)

The catalog from the 1783 exhibition of art by the Augsburg art academy included the following entry for a group of Stein's instruments, shown at his home.

G. Musicalische Kunst-Instrumente.

[37] Von dergleichen Kunst-Arbeiten ist Hr. Joh. Andr. Stein folgendes einrücken zu lassen ersucht worden. Unter diejenige neue Erfindungen welche ihrer Größe und Unbequemlichkeit halben, nicht wohl ausgestellt, von würdigen Liebhabern aber in des Erfinders Behausung gesehen werden können, gehören zwey musikalische Instrumente, wovon das erste ein sogenannter Vis a Vis oder Doppelflügel der seiner besondern Mechanick wegen, von einer einzelnen Person zu beyden Seiten zugleich ge- [38] spielt werden kann, wodurch eine Menge Veränderungen zwar nicht aus Künsteley, sondern einer natürlichen Verwechslung der Sache selbst, entstehen müssen. Das zweyte ist seiner Gestalt nach ein gemeines Forte Piano, in Betref des Tons aber von allen unterschieden. Das An- und Abwachsen ist in solchem Grad, daß es sich aus dem erhabensten Fortissime allmählich abneigt, abstirbt, und in ein gänzlichliches Nichts verwandelt.

G. Musical art-instruments.

[37] Mr. Johann Andreas Stein has been requested to let the following be inserted about this kind of artwork.

Among those new inventions which because of their size and inconvenience are not actually on exhibit, but may be viewed by worthy *Liebhaber* in the residence of the inventor, are two musical instruments, of which the first is a so-called *Vis a vis* or *Doppelflügel* that, owing to its special action, can be played by one person at each side at the same time, [38] by which means a large number of changes must arise, though indeed not from artifice, but from a natural exchange in the thing itself. The second is, to judge from its shape, a common *Forte Piano*, but is different from all instruments in regard to its sound. The *crescendo* and *decrescendo* are to such a degree that it tends gradually away from the most sublime *fortissimo*, dies away, and transforms itself into a complete nothingness.

1784-85/1806. Schubart, *Ideen* (excerpts)

Schubart composed the *Ideen zu einer Aesthetik der Tonkunst*, like the *Leben und Gesinnungen*, in confinement. The first volume contains entries about famous musicians in Augsburg and other cities in Germany. The entry on Stein is given here. It includes special praise for Stein's *Melodica*. The second volume begins with an extended essay on the properties of various keyboard instruments, similar in concept to the essay entitled "Klavierrecepte" published shortly thereafter (see below). It includes a section on the *Melodica*, given here, in which the instrument receives more qualified praise.

Augsburg.

[222] Stein, ein vorzüglicher musikalischer Kopf, mechanisch und psychologisch betrachtet. Sein Geschmack ist vortrefflich. Er spielt selbst nach Bedürfnis nicht übel, und kennt alles Große, besonders was das Clavier- und Orgelspiel betrifft: als Mechaniker aber hat er schwerlich seines Gleichen in Europa. Seine Orgeln, Flügel, Fortepiano's und Clavikorde sind die besten, die man kennt. Stärke mit Zartheit, Tiefsinn mit Hoheit, Dauer mit Schönheit gepaart,—diesen Stempel drückt er allen seinen Instrumenten auf. Dieß ist jedoch noch das Wenigste. Stein ist auch der Erfinder des göttlichen Instruments Melo- [223] dika. Dadurch setzte er den Künstler in den Stand, das Schweben der Töne, das Mezzotinto, oder vielmehr das Steigen und Sinken jedes Tons, äußerst genau auszudrücken. Wenn das

Geheimniß dieses herrlichen Instruments einmal allgemein ist, so wird der Clavierspieler dicht an den Sanger granzen, und wie Orpheus die Baume tanzen machen.

Augsburg.

[222] Stain [sic], a first-rate musical mind, speaking both mechanically and psychologically. His taste is excellent. He does not play badly himself when the need arises, and he knows everything important, especially about clavier and organ playing; as a mechanician, however, he has hardly an equal in Europe. His organs, harpsichords, fortepianos, and clavichords are the best anyone knows of. Strength paired with delicacy, profundity with grandeur, durability with beauty—he places this stamp on all his instruments. But that is yet the least of it. Stein is also the inventor of that divine instrument, the *Melodika*. [223] With it, he has enabled the artist to express the wavering of the notes, the *Mezzotinto*, or rather the rising and falling of every note, with the greatest precision. When the secret of this splendid instrument comes to be generally known, the *Clavier* player will verge closely upon the singer, and, like Orpheus, cause the trees to dance.

Vom Flugel oder dem Claviere.

[296] VI. *Melodika*. Diese grosse Erfindung Stein's fullt all' die angegebenen Mangel des Claviers aus. Es hat Mittelintinen (Schwebung), Zerfliessungen der Tone, welche durch Stahlfedern an den Tasten angebracht sind, mit einem Wort, ganz [297] die Eigenschaften, da es Slavim vom Spieler ist, ohne jemahls den Spieler zum Slaven zu machen. Der Finger des Spielers herrscht als Scepter. Die Tangenten sind wie Brei, oder lassen sich zerkneten wie Teig. An der Claviatur dieses eine Stahlfeder angebracht, die der leisesten Beruhung gehorcht.—Dieses Instrument wurde beinahe das vollkommenste seyn, wenn es nicht ganz und gar auf Pfeifen reducirt ware. Der hochste Vortrag besteht allein auf dem besten Vortrag des Flotenspielers,—und dann weiter nichts.—Es ist also ein Instrument, womit man nur **farben**, aber nie neue Melodien schaffen kann;—herrlicher Tusch, ohne Rucksicht auf gute Zeichnung.

On the *Flugel* or the *Clavier*.

[296] VI. *Melodika*. This great invention of Stein's fills in all of the shortcomings of the clavier. It has middle colors (wavering), dissolution of the notes, that are affixed on the keys with steel springs; in a word, it has com-

pletely [297] those properties, that it is the slave girl of the player, without ever making the player a slave. The finger of the player reigns like a scepter. The keys are like porridge, or let themselves be kneaded like dough. A steel spring is fixed to the keyboard that obeys the softest movement.—This instrument would be well-nigh the most perfect of all, were it not completely and utterly reduced to pipes. The greatest performance consists only in the best performance of the flautist,—and then no further.—Thus it is an instrument with which one can only paint in colors, but never create new melodies;—splendid ink, without regard for good drawing.

1786. Schubart, “Klavierrecepte”

This essay, first published in 1786 in the third volume of Schubart’s *Musikalische Rhapsodien*, constructs an extended conceit that compares the various keyboard instruments to different forms of the visual arts. The harpsichord, piano, and clavichord are addressed.

Klavierrecepte.

[69] I. Beginne vom bekielten Flügel. Ist zwar nur einfarbig; hat aber feinen, äußerst scharfen Umriß. Nachhall und Tonverflößung, der leicht schwebende Träger, und die, wie Honig zerrinnende Mitteltinte, liegt da nicht in deinem Wege und hemmt der Fäuste Flug. Das stärkt die Faust, und gibt ihr Schwalbeneile. Will mir gar nicht behagen, daß die polichromatischen Spielwerkzeuge den monochromatischen Flügel ganz und gar verdränge.

II. Ist deine Faust gestärkt, deine Zeichnung richtig und stark, so kleide das Riesengerippe mit Fleisch, Farb’ und Gewand. Das findest du auf dem Fortepiano; ist gar feiner Natur, folglich auch feiner Behandlung. Leise Berührung, abglitschende Bestreifung der Tasten, leichter Faustflug bringt da Tonfülle hervor; starker Anschlag, faulgewälzte Hände, Finger, die nicht schnellen und kitzeln, sondern drücken und bohren, quetschen, würgen, erdrosseln die Töne. Hast du ein **Steinisches** Fortepiano, so laß dirs wohl seyn. Wenn Stein’s Fäuste zimmern, so ist sein Kopf auch dabei. Seine Instrumente sind die ersten der Welt. Sie vereinigen Dauer mit Schönheit, Stärke mit An- [70] muth, Leichtigkeit mit Nachdruck; herrschen nicht über den Spieler, sondern beugen sich unter seines Geistes Goldstab. Pantalons wären auch nicht übel, wenn sie nicht so gerne in den Mißton blecherner Kühschwellen abarteten.

III. Mit dem Klavikord vollende deine Laufbahn. Kannst zwar nicht Concerte mit starker Begleitung darauf spielen; denn es hagelt und wettet nicht, wie das Fortepiano; kannst auch nicht, umfluthet von vielen Hörern,

damit rasen, und ihr Bravo-gekreisch, dem Wellengemurmel gleich, damit überschreien. Aber, so das Klavier **Stein's**, oder **Fritzen's**, oder **Silbermann's**, oder **Spath's** Gemächt ist, weich und für jeden Hauch der Seele empfänglich, so findest du hier deines Herzens Resonanzboden. Wer am Klavikorde nach einem Flügel schmachtet, hat kein Herz, ist ein Stümper; steht am Rheinstrom, und sehnt sich—nach einem Krebsbache. Süße Schwermuth, schmachtende Liebe, Abschiedswehen, Seelengelispel mitt Gott, schwüle Ahnung, Blicke ins Paradies durch jäh zerrissnes Gewölk, süßes Thränengeriesel, und dann die Verzierungen der Kunst im doppelten und dem unter den Fingern hinsterbenden Trillern, in den schmeichelnden Vorschlägen, im wollüstigen Hinschmachten der Mitteltinte, in Bund und Schwebung, im Tragen und Beben, in der halben und ganzen Berührung, im Pizzicato und Vibrato—dieser überraschenden Saiten- und leisen Tastenbestreifung. Sieh', Spieler oder Spielerin, all' dieß liegt im Klavikorde. Darum sehne dich nicht, wenn du [71] allein, vom Monde beschienen phantasiert, oder dich fühlst in der Sommernacht, oder Frühlingsabende feierst; ach, da sehne dich nicht nach dem Flügelgestöse. Sieh, dein Klavikord athmet ja so sanft, wie dein Herz.

Keyboard recipes

[69] I. Begin with the quilled harpsichord. It is admittedly only monochromatic; but it has a fine, extremely sharp contour. Neither reverberation and the flow of notes, the lightly hovering carrier [*Träger*], or the middle colors that run like honey lie in your way and obstruct the flight of the fists. This strengthens the fist, and gives it the speed of a swift. It would not please me at all if the polychromatic toys were completely to supplant the monochromatic harpsichord.

II. If your fist be strengthened, your drawing correct and strong, then clothe the great skeleton with flesh, color and garments. This you will find at the **Fortepiano**; it is of a very fine nature, and consequently also a fine treatment. Quiet touch, a slithering-off light brushing of the keys, the easy flight of the fist—this produces fullness of sound; strong attack, lazily shifted hands, fingers that don't flip and tickle, but press and drill—these crush, strangle, choke the notes. If you have a **Stein** fortepiano, be satisfied. When Stein's fists are doing carpentry, his head is present too. His instruments are the best in the world. They unite sturdiness with beauty, strength with grace, [70] lightness with emphasis; they do not rule over the player, but bow under the golden staff of his spirit. Pantalons would not be bad either, if they did not so easily degenerate into the dissonance of tinny cowbells.

III. Complete your journey with the clavichord. Admittedly, you cannot play concerts [*Concerte*] with strong accompaniment on it; for it does not hail and storm like the fortepiano; you also cannot, when surrounded by many listeners, rush with it, and with it outscram their shrieks of “Bravo,” like the babbling of waves. But, if the clavier is made by Stein or Fritsche or Silbermann or Spath, soft and receptive to every breath of the soul, then here you will find the soundboard of your heart. Whoever sits at the clavichord and pines for a harpsichord has no heart, is a bungler, stands on the banks of the Rhine and yearns—for a crab creek. Sweet melancholy, languishing love, the pain of departure, the soul’s whisperings with God, languorous foreboding, glimpses of paradise through a sudden rent in the clouds, the sweet trickling of tears, and then the embellishment of art in the doubled trill and the trill that dies under the finger, in the cajoling *appoggiaturas*, in the voluptuous languishing of the middle colors, in the union und wavering, in the carrying and shaking, in the half- and whole touch, in the *pizzicato* and *vibrato*—of this surprising light brushing of strings and quiet keys. See, player or playeress, all this lies in the clavichord. So do not yearn, when you [71] improvise alone, lit by the moon, or are in the summer night, or celebrate a spring evening; oh, do not yearn then for the harpsichord’s pounding. See, your clavichord breathes as softly as your heart.

1788. Stetten, *Kunst-Geschichte 2* (excerpt)

In this second volume of the *Kunst-Geschichte*, Stetten updates the entry on organ building from the first volume with a text that incorporates the entry for Stein’s instruments from the 1783 report from the exhibition of the Augsburg art academy (see above). He also mention Stein’s workman, Matthäus Schauz, who had set up his own shop in the city.

Orgel- und Instrumentenbau-Kunst

[56] Unter die neuesten Kunstarbeiten unseres berühmten Herrn **Steins** gehören ein nach Schweden verfertigtes Clavecin organise [sic], sodann ein sogenannter *Vis à vis* oder Doppelflügel, der seiner besondern Mechanik wegen, von einer einzelnen Person zu beiden Seiten zugleich gespielt werden kann, wodurch eine Menge Veränderungen, und das nicht aus Künstley, sondern einer natürlichen Verwechslung der Sachen selbst,² entstehen;

²The 1783 text by Stein on which this text is based reads “Verwechslung der Sache selbst.” I have chosen not to change my translation, “an exchange of the thing itself.”

ferner ein seiner Gestalt nach gemeines, im Ton aber verschiedenes Piano forte. Das An- und Abwachsen ist in solchem Grad, daß es sich aus dem erhabensten Fortissime, allmählich abneigt, und in gänzlich nichts verwandelt. Der Künstler hat bey Gelegenheit der 1783. gewesenen Ausstellung der Kunstarbeiten, beyde letzere in seinem Hause den Liebhabern vorgelegt.

Ein Schüler von Herrn Stein, Hr. Matthäus Schauz von Sontheim an der Brenz, hat sich im Jahr 1783. hieher gesetzt, und verfertigt gute Piano forte, Claviere und andere dergleichen Instrumente.

Organ- and Instrument-Building Art

[56] To the newest works of art by our famous Mr. Stein belong a *Clavecin organisé* built for Sweden, as well as a so-called *Vis à vis* or *Doppelflügel* that, owing to its special action, can be played by one person at each side at the same time, by which means a large number of variations arise, and not from artifice, but from a natural exchange in the thing itself; further, a *Piano forte* that is common, to judge from its shape, but which is different in its sound. The *crescendo* and *decrescendo* are to such a degree that it tends gradually away from the most sublime *fortissimo*, dies away, and transforms itself into a complete nothingness. The artist presented both of the latter instruments to *Liebhaber* in his house on the occasion of the 1783 exhibition of artworks.

A student of Hr. Stein, Mr. Matthäus Schauz of Sontheim an der Brenz, settled here in the year 1783, and makes good *Piano fortes*, *Claviere*, and other such instruments.

1788. Stetten, *Beschreibung* (excerpts)

Stetten's second guide to Augsburg, the *Beschreibung der Reichs-Stadt Augsburg* includes the following brief mentions of Stein and his workman Matthäus Schauz, as well as Stein's organ in the Barfüßer Church.

Anzeige itzt lebender Künstler.

[140] Künstler in Verfertigung musikalischer Instrumente, Orgeln, Pianoforte, Klavier, und Klavicembel.

Johann Andreas Stein, B. 40.

Matthäus Schauz. A. 10.

because I do not think that Stetten intended a change of meaning.

List of currently living artists.

[140] Artists in the manufacture of musical instruments, organs, pianofortes, claviers, and harpsichords.

Johann Andreas Stein, B. 40.

Matthäus Schauz. A. 10.

Barfüßer-Kirche.

[163] In dieser großen und hohen Kirche, ist an Architectur vorzüglich, die große im Jahr 1756. durch Hrn. Joh. Andreas Stein gebaute Orgel merkwürdig.

Barfüßer Church.

[163] In this large and lofty church the architecture of the large organ built in 1756 by Mr. Johann Andreas Stein is especially noteworthy.

1789. Boßler, *Saitenharmonika* notices

The following two reports about Stein's *Saitenharmonika* were published in Heinrich Boßler's *Musikalische Real-Zeitung* in 1789. The first, a brief passage in a longer article that appeared on July 29, reported that Stein had brought the instrument to Stuttgart on his way to deliver it to a buyer in Mannheim. Boßler queried readers for more information, and published a more substantial article on November 4 that described Stein's visit with the *Saitenharmonika* to his hometown of Heidelberg. That article provides details about the workings and sound of the instrument. Both articles mention the effective way in which Stein's daughter, Nannette Stein, demonstrated the novel sound of the *Saitenharmonika* to admiring audiences.

Aus einem Schreiben von Stuttgart. (July 29)

[237] Vorige Wochen hatten wir das Vergnügen, Herrn **Stein** aus **Augspurg** in Gesellschaft seiner liebenswürdigen Tochter mit seiner neuerfundenen **Saitenharmonika** hier zu sehen, welches Instrument er dem Grafen von **St. Martin** in **Mannheim** bringt. Diese Saitenharmonika hat die Bewunderung aller hiesigen Kenner auf sich gezogen, um so mehr, da die Wirkung dieses Instruments durch das bezaubernde Spiel der **Mlle. Stein** äuserst erhöht wurde, die nun in Fertigkeit und Geschmack des Vortrags nach

dem Urtheil der Kenner selbst, mit der berühmten Frau **von Schaden** um den Vorzug streitet.

From a letter from Stuttgart.

[237] Last week we had the pleasure of seeing Mr. **Stein** from **Augsburg** here in the company of his charming daughter, with his newly invented **Saitenharmonika**, which instrument he is taking to the Count of **St. Martin** in **Mannheim**. This Saitenharmonika attracted the admiration of all of the local *Kenner*, and the more so because the effect of the instrument was extremely elevated by the enchanting playing of **Mlle. Stein**, who, according to the judgement of the *Kenner* themselves, in the skill and taste of her performance now competes for the advantage with the famous Frau **von Schaden**.

Antwort auf die Anfrage wegen Herrn Steins neuerfundener Saitenharmonica, aus einem Brief des Herrn Pf. Christmanns an J..

[352]—Alles was ich Ihnen von diesem Instrumente schreiben kann, besteht kurz darinn: es ist das Einzige in seiner Art. In seines äusserlichern Form und Größe ist es einem gewöhnlichen Steinischen Flügel vollkommen ähnlich, vortrefflich im antiken Geschmack gearbeitet: aber sein Effekt, l. Fr. sein Effekt is über alle Beschreibung und so, daß jeder gestehen muß: Niemand als Stein konnte ein solches Meisterstück der Mechanik liefern. Es besteht in einem ganz vortrefflichen, zweifach bezogenen Fortepiano, als Grundlage der ganzen Harmonie. Sie kennen den soliden Ton dieser Instrumenten; Sie wissen, daß die Bildung desselben blos in dem mehr oder wenigerin Druk des Fingers besteht: nichtsdestoweniger blieb uns doch noch immer bei dem Pianissimo eine Lücke auf das völlige Nichts, und diese Lücke hat [353] Herr Stein ausgefüllt. Er gab dem Instrument noch eine Saite mehr, die durch eine sehr elastische Materie in Bewegung gesetzt und zum Klang gebracht wird. Diese Veränderung, die Stein zur Ehre seiner Nation nicht englische harfe; sondern ein uraltes deutsches Spinetchen nennt, ist so angebracht, daß es sowohl ganz allein, als in Verbindung mit dem Forte Piano kann gespielt werden, und in diesem Fall theilt das genannte Spinet dem Forte piano eine vortreffliche Schärfe mit. Eben so kann auch das letztere für sich allein gespielt werden. Der Effekt, den dieser beiden Verbindung hervorbringt, läßt sich nur hören, aber nicht beschreiben. Noch viel sonderbarer ist das völlige Erlöschen des Tons. Es entsteht, wenn dort das Forte Piano in seiner grösten Schwäche dem Spinet übertragen und durch einen

kleinen Druk zum völligen Absterben gebracht wird. Was der Zuhörer dabei fühlt, kann ich Ihnen unmöglich mit Worten schildern. Das Instrument steht nun in Mannheim. Auf seiner Reise dahin konnte sich der liebenswürdige Stein unmöglich überwinden, seinen in der Nähe liegenden Geburtsort, ein unbedeutendes pfälzisches Dorf zu besuchen. Er kam mit seiner geschickten Tochter dahin, rief seine alten Bekannten, die Greisen des Dorft zu sich, machte sich mit ihnen einen vergnügten Tag, pakte sine Saitenharmonika aus und seine Tochter mußte dann Kleinen und Großen, Christen und Juden und Wiedertäufern den ganzen Tag über auf diesem göttlichen Instrumente spielen. Herr von B. sein gegenwärtiger Besitzer bezalte für dasselbe nicht nur die akkordirte 100 Lous d'or; sondern machte noch überdies dem Herrn Erfinder ein Geschenk mit einem Faß Rheinwein und gab ihm Ersaz der Reisekosten. Die merkwürdige Biographie diese grosen Mechanikers werden Sie mit der Zeit in meinem Wörterbuche finden.

**Reply to the inquiry about Mr. Stein's newly invented
Saitenharmonica, from a letter from the Rev. Mr.
Christmann to J.**

[352]—Everything that I can write to you of this instrument consists, in short, of this: it is the only thing of its kind. In its outward form and size it is completely similar to a usual Stein *Flügel*, excellently worked in the antique taste: but its effect, dear friend, its effect is beyond all description, and such that anyone must admit: No one but Stein could deliver such a masterpiece of mechanics. It consists of a perfectly excellent, double-strung *Fortepiano*, as the basis of the entire harmony. You know the solid sound of these instruments; you know, that the formation of that sound consists simply in the greater or lesser pressure of the finger: nonetheless, there still always remained for us a gap between the *pianissimo* and absolute nothingness, and that gap [353] Mr. Stein has now filled. He gave the instrument one more string, which is set in motion and made to sound by a very elastic material. This variation, which Stein, in honor of his nation, calls not an English harp but an ancient German spinet, is installed in such a way that it can be played both completely alone and together with the *Forte Piano*, and in that case the aforementioned spinet imparts to the *Forte piano* an excellent sharpness. In the same way, the latter can also be played by itself. The effect produced by the combination of these two can only be heard, but not described. Even more extraordinary is the complete extinguishment of the sound. It arises when the *Forte piano* at its softest is transferred to the spinet and, with a small pressure, made to die away completely. What the

listener then feels is impossible for me to describe to you with words. The instrument is now in **Mannheim**. On his journey there the admirable Stein could not possibly resist visiting his place of birth, an unimportant village in the *Pfalz*, which lay nearby. He came there with his skillful daughter, called his old friends, the elders of the village, to him, spent an enjoyable day with them, unpacked his *Saitenharmonika*, and his daughter then had to play the divine instrument all day long for small and large, Christians and Jews and Anabaptists. Mr. von **B.**, its owner there, not only paid the agreed-upon 100 Louis d'or for it; but also made the Mr. Inventor besides a present of a cask of Rhenish wine, and reimbursed him for his travel costs. The noteworthy biography of this great mechanician you may find later in my dictionary.

Bibliography

Adelung, Johann Christoph. *Grammatisch-kritisches Wörterbuch der hochdeutschen Mundart, mit beständiger Vergleichung der übrigen Mundarten, besonders aber der oberdeutschen*. 4 vols. Vienna: Bauer, 1811. <http://lexika.digitale-sammlungen.de/adelung/>.

Adlung, Jakob. *Musica Mechanica Organoedi*. 2 vols. Berlin: Friedrich Wilhelm Birnstiel, 1768. Facsimile edition Christhard Mahrenholz, ed. Kassel: Bärenreiter, 1961.

Akrich, Madeleine. (1992). "The De-scription of Technical Objects." In *Shaping Technology/Building Society: Studies in Sociotechnical Change*, edited by Wiebe E. Bijker and John Law, 205-24. Cambridge, Massachusetts: MIT Press, 1992.

Allgemeine deutsche Biographie. S.v. "Stein: Joh. Andreas St.," by Hans Michael Schletterer. Vol. 35. Leipzig: Historische Commission bei der Königl. Akademie der Wissenschaften, 1893, 599-601.

Augsburgischer Intelligenz-Zettel. "Von Erfindung eines *Poly-Toni-Clavichordii* oder musikalischen *Affecten*-Instruments, und von Verbesserung eines neuen Orgelwerks." October 5, 1769.

Augsburgische Ordinari Postzeitung. "Bekanntmachung." July 4, 1792. <http://www.bibliothek.uni-augsburg.de/dda/dr/ztg/ordpost/>.

Avison, Charles. *An Essay on Musical Expression*. 3rd ed. London: Lockyer Davis, 1775. [http://imslp.org/wiki/An_Essay_on_Musical_Expression_\(Avison,_Charles\)](http://imslp.org/wiki/An_Essay_on_Musical_Expression_(Avison,_Charles)).

Bach, Carl Philip Emanuel. *Essay on the True Art of Playing Keyboard Instruments*. Edited and translated by William J. Mitchell. New York: W.W. Norton and Company, 1949.

———. *Versuch über die wahre Art das Clavier zu spielen*. Berlin: 1753 (part 1) and 1762 (part 2). Facsimile edition Lothar Hoffmann-Erbrecht, ed. Leipzig: Breitkopf & Härtel, 1957.

Badisches Landesmuseum Karlsruhe and Franziskanermuseum Villingen-Schwenningen, eds. *Silbermann: Geschichte und Legende einer Orgelbauer-*

familie. Ostfildern: Jan Thorbecke Verlag, 2006.

Baekström, Arvid. "De Hallska auktionerna 25/9 1807-15/8 1832." *Göteborgs historiska museum årstryck*, 1956-57.

Barry, Wilson. "The Lodewyk Theewes Claviorganum and its Position in the History of Keyboard Instruments." *Journal of the American Musical Instrument Society* 16 (1990), 5-41.

Bátori, Ingrid. "Paul von Stetten der Jüngere: Augsburgischer Staatsmann in schwieriger Zeit." *Zeitschrift des historischen Vereins für Schwaben und Neuburg* 77 (1983): 103-124.

Bédos de Celles, Dom Francois. *L'Art du facteur d'orgues*. 4 vols. Paris: L. F. Delatour, 1766.

Beyrer, Klaus. "The Mail-Coach Revolution: Landmarks in Travel in Germany Between the Seventeenth and Nineteenth Centuries." *German History* 24, no. 3 (2006): 375-386.

Bédos de Celles, Dom Francois. *L'art du facteur d'orgues*. 4 vols. Paris: L. F. Delatour, 1766-68.

Biester, J. E. "Deutsche Chronik auf das Jahr 1774: Herausgegeben von M. Christ. Friedrich. Dan. Schubart..." *Allgemeine deutsche Bibliothek* 27, no. 2 (1776): 594-595.

Birkett, Stephen, and William Jurgenson. "Geometrical Methods in Stringed Keyboard Instrument Design and Construction." *The Galpin Society Journal* 14 (2001): 242-84.

———. "Why Didn't Historical Makers Need Drawings? Part II: Modular Dimensions and the Builder's *Werkzoll*." *The Galpin Society Journal* 15 (2001): 183-239.

Blanning, T. C. W. *The Culture of Power and the Power of Culture: Old Regime Europe 1660-1789*. Oxford: Oxford University Press, 2002.

Boalch, Donald H. *Makers of the Harpsichord and Clavichord 1440-1840*. 2nd ed. Oxford: Clarendon Press, 1974.

Boßler, Heinrich, ed. "Aus einem Schreiben von Stuttgart." *Musikalische Real-Zeitung* (Speyer), July 29, 1789, 237. Facsimile edition Hildesheim: Georg Olms, 1971.

———. "Aus einem Briefe von Nürnberg," *Musikalische Real-Zeitung* (Speyer), August 26, 1789, 271. Facsimile edition Hildesheim: Olms, 1971.

———. "Antwort auf die Anfrage wegen Herrn Steins neuerfundener Saitenharmonica, aus einem Brief des Herrn Pf. Christmanns an J." *Musikalische Real-Zeitung* (Speyer), November 4, 1789, 352-54. Facsimile edition Hildesheim: Georg Olms, 1971.

———. "**Orgelbaukunst** aus Paul von Stettens Kunstgeschichte der Stadt Augsburg." *Musikalische Real-Zeitung* (Speyer), May 12, 1790, 148. Facsimile edition Hildesheim: Georg Olms, 1971.

Broman, Thomas. "The Habermasian Public Sphere and 'Science in the Enlightenment.'" *History of Science* 36 (1998): 123-149.

Burney, Charles. *Tagebuch einer musikalischen Reise*. Edited by Eberhardt Klemm. Wilhelmshaven: Heinrichshofen's Verlag, 1980.

Clinkscale, Martha Novak. *Makers of the piano 1700-1820*. Oxford: Oxford University Press, 1993.

Cole, Michael. *The Pianoforte in the Classical Era*. Oxford: Clarendon Press, 1998.

Cowart, Georgia J. "Sense and Sensibility in Eighteenth-Century Musical Thought." *Acta Musicologica* 56, no. 3 (1984), 251-266.

"Die Orgel in der Kirche zu den Barfüßern in Augsburg, ein Meisterwerk des berühmten Klavier- und Orgelbauers Johann Andreas Stein." Pts 1-4. *Zeitschrift für Instrumentenbau* 23, nos. 6-9 (1902): 133-37, 163-167, 187-93, 298. http://daten.digital-sammlungen.de/bsb00004249/image_1.

Dolan, Emily I. "The Origins of the Orchestra Machine." *Current Musicology* 76 (2003): 7-23.

———. "The Idea of Timbre in the Age of Haydn." PhD diss., Cornell University, 2006.

———. "E. T. A. Hoffmann and the Ethereal Technologies of 'Nature Music.'" *Eighteenth-Century Music* 5, no. 1 (2008): 17-26.

Elferen, Isabella van. "'Ihr Augen Weint!' Intersubjective Tears in the Sentimental Concert Hall." *Understanding Bach* 2 (2007): 77-94. http://www.bachnetwork.co.uk/ub2_contents.html.

Engländer, Richard. *Johann Gottlieb Naumann als Opernkomponist (1741-1801): Mit neuen Beiträgen zur Musikgeschichte Dresdens und Stockholms*. Leipzig: Breitkopf & Härtel, 1922.

Farr, James R. "Cultural Analysis and Early Modern Artisans." In *The Artisan and the European Town*, edited by Geoffrey Crossick, 56-74. Aldershot: Scholar Press, 1997.

Fischer, Karl August. "Johann Andreas Stein, der Augsburger Orgel- und Klavierbauer." *Zeitschrift des Historischen Vereins für Schwaben und Neuburg* 50 (1932): 149-177.

Fontana, Eszter. "Mozarts 'Reiseclavier.'" In *Die Klangwelt Mozarts: Eine Ausstellung des Kunsthistorisches Museum Wien*, edited by Gerhard Stadner, 73-78. Vienna: Kunsthistorisches Museum Wien, 1991.

Forkel, Johann Nikolaus. *Musikalischer Almanach für Deutschland auf das Jahr 1782*. Leipzig: Schwickertschen Verlag, 1781. http://commons.wikimedia.org/wiki/Category:De_Musikalischer_Almanach_für_Deutschland_auf_das_Jahr_1782.

Fredriksson, Niclas. "Ein teilweise revidiertes und komplettes Bild von Georg Joseph Vogler und seine Bedeutung für die Orgelbau in Schweden."

In *Georg Joseph Vogler*, edited by Uwe Pape, 203-254. Berlin: Pape Verlag, 2007.

Frisk, Anna, Sverker Jullander, and Andrew McCrea, eds. *The Nordic-Baltic Organ Book: History and Culture*. Gothenburg: Göteborg Organ Art Center, 2003.

Anderson, Bertil, Martin Fritz, Jan Ling, and Berit Ozolins. *Ekonomi och musik i 1700-talets Göteborg: En tidspegel utifrån en samtida dagbok*. Gothenburg: Göteborgs Stadsmuseum, 2005.

Gagliardo, John D. "The Structure of German society, 1650-1800." In *Germany Under the Old Regime: 1600-1790*, 152-176. London: Longman, 1991.

Gábry, G. "Das Reiseklavichord W. A. Mozarts." *Studia Musicologica Academiae Scientiarum Hungaricae* 10 (1968): 153-162.

Gerber, Ernst Ludwig. *Historisch-biographisches Lexikon der Tonkünstler and Neues historisch-biographisches Lexikon der Tonkünstler*. Leipzig: Breitkopf, 1790-92 and 1812-14. Facsimile edition Othmar Wessely, ed. 4 vols. Graz: Akademische Druck- und Verlagsanstalt, 1969.

Gercken, Philipp Wilhelm. *Reisen durch Schwaben, Baiern, angränzende Schweiz, Franken, und die Rheinische Provinzen u.a. in den Jahren 1779-1782*. Vol. 1, *Von Schwaben und Baiern*. Stendal: D. C. Franzen, 1783. http://books.google.com/books?id=sGMPAAAAQAAJ&dq=gercken+reise+durch+schwaben&source=gbs_navlinks_s.

Gibson, James. *An Ecological Approach to Visual Perception*. Boston: Houghton Mifflin, 1979.

Gleich, Clemens von. *A Checklist of Harpsichords, Clavichords, Organs, Harmoniums*. Checklists of the Musical Instrument Collection of the Haags Gemeentemuseum, 3. The Hague: Haags Gemeentemuseum, 1989.

Goebel-Streicher, Uta. *Das Reisetagebuch des Klavierbauers Johann Baptist Streicher 1821-1822*. Tutzing: Hans Schneider, 2009.

Grosses vollständiges Universallexicon aller Wissenschaften und Künste. Halle and Leipzig: Johann Heinrich Zedler, 1732-1750. <http://mdz10.bib-bvb.de/~zedler/zedler2007/index.html>.

Grünsteudel, Günther. "Wallerstein—das 'Schwäbische Mannheim': zur Geschichte der Wallersteiner Hofkapelle." *Rosetti-Forum* 2 (2001): 19-28.

Habermas, Jürgen. *The Structural Transformation of the Public Sphere*. Translated by Thomas Burger and Frederick Lawrence. Cambridge, Mass.: MIT Press, 1989.

Harding, Rosamond E. M. *The Piano-Forte: Its History Traced to the Great Exhibition of 1851*. London: Heckscher, 1978.

Heckel, Johann Christoph. *Beschreibung der Steinischen Melodica, eines neuerfundene Clavierinstruments*. Augsburg: 1772.

Helenius-Öberg, Eva. *Svenskt klavikordbygge 1720-1820: Studier i hantverkets teori och praktik jämte instrumentens utveckling och funktion i Sverige under klassisk tid*. Stockholm: Almqvist & Wiksell, 1986.

Hertz, Eva. "Johann Andreas Stein (1728-1792): eine Beitrag zur Geschichte des Klavierbaus." PhD diss., Albert-Ludwigs Universität zu Freiburg, 1937.

Hess, Albert G. "The transition from harpsichord to piano." *The Galpin Society Journal* 6 (1953): 75-94.

Hilaire-Pérez, Liliane. "Diderot's Views on Artists' and Inventors' Rights: Invention, Imitation and Reputation." *British Journal for the History of Science* 32 (2002), 129-150.

Hiller, Johann Adam. "Von der Nachahmung der Natur in der Musik." In *Historisch-Kritische Beyträge zur Aufnahme der Musik*, edited by Friedrich Wilhelm Marpurg, vol. 1, part 6, 515-543. Berlin: Verlag Joh. Jacob Schützens sel. Wittwe, 1755. http://commons.wikimedia.org/wiki/File:Historisch-Kritische_Beytr%C3%A4ge_zur_Aufnahme_der_Musik_Bd.1.pdf.

———, ed. "Nachricht von Verbesserung des Pianofortinstruments." *Anhang zu den wöchentlichen Nachrichten und Anmerkungen die Musik betreffend* (Leipzig), July 24, 1769, 32. <http://books.google.se/books?id=ADc9AAAACAAJ&printsec=frontcover#v=onepage&q=&f=false>.

———. "Fortsetzung der Nachricht von Verbesserung des Pianoforte." *Anhang zu den wöchentlichen Nachrichten und Anmerkungen die Musik betreffend* (Leipzig), July 31, 1769, 40. <http://books.google.se/books?id=ADc9AAAACAAJ&printsec=frontcover#v=onepage&q=&f=false>.

———. "Nachricht. Von einer neu erbauten Orgel, aus dem 6ten Stück der Augspurgischen Kunst-Zeitung, den 5ten Febr. 1770." *Musikalische Nachrichten und Anmerkungen* (Leipzig), March 12, 1779, 86-88. <http://books.google.se/books?id=vRdDAAAACAAJ&printsec=frontcover#v=onepage&q&f=false>.

Hogwood, Christopher. "Burney, Bach, and the Bachists." In *C. P. E. Bach Studies*, edited by Annette Richards, 221-64. Cambridge: Cambridge University Press, 2006.

Huber, Alfons. "Mozart's Reiseclavier." In *De Clavicordio V: Proceedings of the V International Clavichord Symposium*, 25-38. Magnano: Musica Antiqua Magnano, 2002.

Janaway, Christopher. "Arts and Crafts in Plato and Collingwood." *The Journal of Aesthetics and Art Criticism* 50, no. 1 (1992): 45-54.

Kinsky, Georg. *Katalog des musikhistorischen Museums von Wilhelm Heyer in Cöln*. Edited by Wilhelm Heyer. Vol. 1, Leipzig: Breitkopf & Härtel, 1910.

Kircher, Athanasius. *Musurgia Universalis*. Rome: 1650. <http://num->

.scd-ulp.u-strasbg.fr:8080/465.

Klaus, Sabine K. *Studien zur Entwicklungsgeschichte besaiteter Tasteninstrumente bis etwa 1830: Unter besonderer Berücksichtigung der Instrumente im Musikinstrumentenmuseum im Münchner Stadtmuseum*. 2 vols. Tutzing: Hans Schneider, 1997.

Koch, Heinrich Christoph. *Musikalisches Lexikon*. Frankfurt:1802. Facsimile edition Nicole Schwindt, ed. Kassel: Bärenreiter, 2001.

König, Johann Ulrich. "Musikalische Merckwürdigkeiten des Marchese Scipio Maffei, Beschreibung eines neuerfundenen Clavicins, auf welchem das *piano* und *forte* zu haben, nebst einigen Betrachtungen über die Musicalische Instrumente, aus dem Welschen ins Teutsche übersetzt." In *Critica Musica*, edited by Johann Mattheson, 2:235-42. Hamburg: 1725.

Koster, John. "Foreign Influences in Eighteenth-Century French Piano Making." *Early Keyboard Journal* 11 (1993): 7-38.

———. "Two Early French Grand Pianos." *Early Keyboard Journal* 12 (1994): 7-37.

———. "Grand Piano (Originally Saitenharmonika?), Johann Andreas Stein, Augsburg, 1783." In *Keyboard Musical Instruments in the Museum of Fine Arts, Boston*, 133-46. Boston: Museum of Fine Arts, 1994.

———. "The Compass as Musical Tool and Symbol." In *Musiciens, facteurs et théoriciens de la Renaissance*, edited by Florence Gétreau, 11-32. Musique, Images, Instruments 5. Paris: CNRS Éditions, 2003.

Kölle, M. "Die Orgelbauerfamilie Stein: Leben und Wirken einer badischen Instrumentenmacherfamilie über drei Generationen." In *Die Orgelstadt Karlsruhe innerhalb der Orgellandschaft am Oberrhein*, edited by Michael Gerhard Kaufmann and Martin Karis, 29-32. Karlsruhe: Badische Landesbibliothek, 2001.

Kristeller, Paul Oskar. "The Modern System of the Arts: A Study in the History of Aesthetics Part I." *Journal of the History of Ideas* 12, no. 4 (1951): 496-527.

———. "The Modern System of the Arts: A Study in the History of Aesthetics (II)." *Journal of the History of Ideas* 13, no. 1 (1952): 17-46.

Krünitz, Johann Georg. *Oeconomische Encyclopädie*. 242 vols. Berlin: Pauli, 1773-1858. <http://www.kruenitz1.uni-trier.de/>.

"Kunst- Gewerb- und Handwerksgegeschichte der Reichstadt Augsburg verfaßt von Paul von Stetten den iungeren..." *Neue Bibliothek der schönen Wissenschaften und der freyen Künste* 24, no. 2 (1780): 256-270. <http://141.89.36.83/fea/digbib/view?did=c1:12157&p=1>.

Kunstzeitung der Kayserl. Akademie zu Augsburg. "Orgelbaukunst." February 5, 1770, 41-45.

Lagerberg, Carl. "Berättelse för år 1906 rörande Göteborgs musei His-

toriska Afdelning och Myntkabinett." *Göteborgs museum Årstryck*, 1907, 27-40.

Latcham, Michael. "The Check in Some Early Pianos and the Development of Piano Technique Around the Turn of the 18th Century." *Early Music* 21, no. 1 (1993): 29-43.

———. "The Sound of Some Late Eighteenth Century Keyboard Instruments." *Jaarboek Haags Gemeentemuseum*, 1993, 30-41.

———. "The Pianos of Johann Andreas Stein." In *Zur Geschichte des Hammerklaviers*, edited by Monika Lustig, 15-49. Michaelstein: Institut für Aufführungspraxis, 1996.

———. "Mozart and the Pianos of Gabriel Anton Walter." *Early Music* 15, no. 3 (1997): 383-400.

———. "Mozart and the Pianos of Johann Andreas Stein." *The Galpin Society Journal* 51 (1998): 114-53.

———. *The Stringing, Scaling and Pitch of Hammerflügel Built in the Southern German and Viennese Traditions 1780-1820*. 2 vols. Munich: Musikverlag Katzbichler, 2000.

———. "Swirling From One Level of the Affects to Another: The Expressive Clavier in Mozart's Time." *Early Music* 30, no. 4 (2002): 502-20.

———. "Franz Jakob Spath and the Tangentenflügel, an Eighteenth-Century Tradition." *The Galpin Society Journal* 57 (2004): 150-70.

———. "The Apotheosis of Merlin." In *Music of the Past—Instruments and Imagination*, edited by Michael Latcham, 271-98. Bern: Peter Lang, 2006.

———. "Pianos and Harpsichords for Their Majesties." *Early Music* 36, no. 3 (2008): 359-96.

———. "Johann Andreas Stein and the Search for the Expressive Clavier." In *Bowed and Keyboard Instruments in the Age of Mozart*, edited by Thomas Steiner, 133-216. Bern: Peter Lang, 2010.

Latour, Bruno. "Visualisation and Cognition: Drawing Things Together." *Knowledge and Society: Studies in the Sociology of Culture Past and Present* 6 (1986): 1-40. <http://www.bruno-latour.fr/articles/1986.html>.

Lelie, Christo. *Van piano tot forte: Geschiedenis en ontwikkeling van de vroege piano*. Kampen: Kok Lyra, 1995.

———. *Reassembling the Social: An Introduction to Actor-Network-Theory*. Oxford: Oxford University Press, 2005.

Libin, Laurence. "An Open and Shut Case?" *Early Music* 15, no. 1 (1987): 76.

———. "The Instruments." In *Eighteenth-Century Keyboard Music*, edited by Robert Marshall, 1-32. New York: Schirmer Books, 1994.

Ling, Jan. "Apollo Gothenburgensis: Patrick Alströmer och Göteborgs

musikliv vid 1700-talets slut.” *Svensk tidskrift för musikforskning* 81 (1999): 53-94.

———. “En akademibroder musicerar: något om Patrik Alströmer och svenskt musikliv vid 1700-talets slut.” *Kungliga Vitterhets historie och antikvitets akademiens årsbok*, 2001, 88-105.

Lipowsky, Felix Joseph. *Baierisches Musik-Lexikon*. Munich: Jakob Giel, 1811. <http://personen.digitale-sammlungen.de/pnd/bsb00000279.html>.

Lippman, Edward. *A History of Western Musical Aesthetics*. Lincoln: University of Nebraska Press, 1992.

Long, Pamela O. *Openness, Secrecy, Authorship: Technical Arts and the Culture of Knowledge From Antiquity to the Renaissance*. Baltimore and London: Johns Hopkins University Press, 2001.

———. “The Craft of Premodern European History of Technology: Past and Future Practice.” *Technology and Culture* 51, no. 3 (2010): 698-714.

Lundin, Olger, and Tor Lundin. *En Pehr Schiörlin orgel 1800-1940 i Vena församlings kyrka i Linköpings stift och Kalmar län samt strödda uppgifter om dess föregångare, byggmästare, orgelnister och kalkanter*. Järfälla: 2004.

Matzenauer, Sabine. “Zur Restaurierung eines Piano-Fortes von J.A. Stein: Erhaltene Instrumente im Vergleich.” In *Zur Geschichte Des Hammerklaviers*, edited by Monika Lustig, 50-57. Michaelstein: Institut für Auführungspraxis, 1996.

Matzenauer, Sabine, and Joppig, Günther. “Johann Andreas Steins Hammerflügel im Münchner Stadtmuseum.” *Das Musikinstrument* 7 (1992): 4-14.

Maunder, Richard. “Mozart’s Keyboard Instruments.” *Early Music* 20, no. 2 (1992): 207-19.

———. *Keyboard Instruments in Eighteenth-Century Vienna*. Oxford: Clarendon Press, 1998.

McGee, David. “Making Up Mind: The Early Sociology of Invention.” *Technology and Culture* 36 (1995): 773-801.

Merath, Siegfried. *Paul von Stetten der Jüngere: Ein Augsburger Patrizier am Ende der Reichsstädtischen Zeit*. Augsburg: Hans Rösler Verlag, 1961.

Mertens, H.A. “Lobschrift auf Herrn Johann Gottfried Seyfert, ehemaligen Director des evangelischen Musikchors in der Reichsstadt Augsburg.” *Journal von und für Deutschland* 5, no. 12 (1788): 468-86. <http://www.ub.uni-bielefeld.de/diglib/aufkl/journdeut/journdeut.htm>.

Meyer, Hermann. “Orgeln und Orgelbauer in Oberschwaben.” *Zeitschrift des Historischen Vereins für Schwaben* 54 (1941): 213-360.

Mizler, Laurenz. “Kurtze Nachricht, wie man Claviere und besonders Clavicimbel mit völlig aufgelösten Gummi Copal lackiren solle, daß sie

viel besser als roh klingen." In *Musikalische Bibliothek*. Volume 2. Leipzig: 1743. [http://de.wikisource.org/wiki/Musikalische_Bibliothek_\(Mizler\)](http://de.wikisource.org/wiki/Musikalische_Bibliothek_(Mizler)).

Morrow, Mary Sue. *German Music Criticism in the Late Eighteenth Century: Aesthetic Issues in Instrumental Music*. Cambridge: Cambridge University Press, 1997.

Mozart: Briefe und Aufzeichnungen; Gesamtausgabe. Edited by Ulrich Konrad. 7 vols. Munich: Deutscher Taschenbuch Verlag, 2005.

Nicolai, Friedrich. *Beschreibung einer Reise durch Deutschland und die Schweiz im Jahre 1781: Nebst Bemerkungen über Gelehrsamkeit, Industrie, Religion und Sitten*. Vol. 8. Berlin and Stettin: 1787, 39-40. http://books.google.se/books?id=MiiUAAAAQAAJ&source=gbs_navlinks_s.

Ovitt, George. *The Restoration of Perfection: Labor and Technology in Medieval Culture*. New Brunswick and London: Rutgers University Press, 1987.

Owen, Barbara. "Pleasing for Our Use": David Tannenburg's Moravian Organs." In *"Pleasing for Our Use": David Tannenberg and the Organs of the Moravians*, edited by Carol A. Traupman-Carr, 49-67. Bethlehem: Lehigh University Press, 2000.

Palmer, Frances. "Merlin and Music." In *John Joseph Merlin: The Ingenious Mechanick*, 85-110. London: Greater London Council, 1985.

Pollens, Stewart. *The Early Pianoforte*. Cambridge: Cambridge University Press, 1995.

Porter, James I. "Is Art Modern? Kristeller's 'Modern System of the Arts' Reconsidered." *The British Journal of Aesthetics* 49, no. 1 (2009): 1-24.

Powell, Ardal. *The Flute*. New Haven: Yale University Press, 2002.

Pursell, Carroll W. "Technologies as Cultural Practice and Production." *Technology and Culture* 51, no. 3 (2010): 715-22.

Quantz, Johann Joachim. *Versuch einer Anweisung die Flöte Traversiere zu Spielen*. Berlin: Hans-Peter Schmitz, 1789. Facsimile edition Kassel: Bärenreiter, 1953.

Reichardt, Johann Friedrich. *Vertraute Briefe aus Paris Geschrieben in den Jahren 1802 und 1803*. Vol. 1, Hamburg: B. G. Hoffmann, 1804. http://books.google.se/books?id=1MEWAAAAYAAJ&printsec=frontcover&hl=sv&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false.

Rice, John A. "Stein's 'Favorite Instrument: A Vis-à-vis Piano-Harpsichord in Naples." *Journal of the American Musical Instrument Society* 21 (1995): 30-64.

Richards, Annette. *The Free Fantasia and the Musical Picturesque*. Cambridge: Cambridge University Press, 2001.

———. "Picturing the Moment in Sound: C. P. E. Bach and the Musical Portrait." In *Essays in Honor of Christopher Hogwood: The Maestro's Di-*

rection, edited by Thomas Donahue, 57-89. Lanham, Maryland: Scarecrow Press, 2011.

Riesbeck, Johann Kaspar. *Briefe eines reisenden Franzosen durch Bayern, Pfalz und einen Theil von Schwaben an seinen Bruder zu Paris*. Zürich: 1783. [http://www.bsb-muenchen-digital.de/\protect\\$\relax\sim\\$web/web1037/bsb10377783/images/](http://www.bsb-muenchen-digital.de/\protect$\relax\sim$web/web1037/bsb10377783/images/).

Ripin, Edwin, Howard Schott, John Barnes, Grant O'Brien, William Dowd, Denzil Wraight, Howard Ferguson, and John Caldwell. *Early Keyboard Instruments*. The New Grove Musical Instrument Series. London: Macmillan, 1989.

Rose, Malcolm. "The History and Significance of the Lodewijk Theewes Claviorgan." *Early Music* 23, no. 4 (2004): 577-93.

Schaefer, Marc, ed. *Das Silbermann-Archiv: Der handschriftliche Nachlass des Orgelmachers Andreas Silbermann*. Winterthur: Amadeus Verlag (Bernhard Päuler), 1994.

Scheller, August, del., and Gottlob Rugendaß, sculps. "Friedensgemälde 1756: Neue Orgel in der Barfüßerkirche." In *Samlung aller Denkmale des Westphälischen Friedens, welche vom Jahr 1650 an, biß 1789; hauptsächlich in biblischen Friedens-Gemälden, der Evangelischen Schuljugend zu Augsburg sind ausgetheilt worden*. Augsburg: 1790. <http://media.bibliothek.uni-augsburg.de/node?id=38248>.

Schiedmayer, Johann Lorenz, and Carl Dieudonné. *Kurze Anleitung zu einer richtigen Kenntniss und Behandlung der Forte-Pianos*. Stuttgart: G. Hasselbrink, 1824. Facsimile edition Tübingen: 1994.

Schletterer, Hans Michael. *Joh. Friedrich Reichardt: Sein Leben und seine Werke*. Augsburg: J. A. Schlosser, 1865.

Schmid, Ernst Fritz. "Mozart und das geistliche Augsburg, insonderheit das Chorherrnstift Heilig Kreuz." *Zeitschrift des Historischen Vereins für Schwaben und Neuburg* 55-56 (1942): 40-202.

Schott, Howard. "From Harpsichord to Pianoforte: A Chronology and Commentary." *Early Music* 13, no. 1 (1985): 28-38.

Schubart, Christian Friedrich Daniel. "Schweden." *Deutsche Chronik*, November 21, 1774, 537-39. Facsimile edition Heidelberg: Lambert Schneider, 1975.

———. "Von teutscher Erfindung," *Deutsche Chronik*, February 1, 1776, 73-75. Facsimile edition Heidelberg: Lambert Schneider, 1975.

———. "Musikalische Nachrichten," *Deutsche Chronik*, April 8, 1776, 232. Facsimile edition Heidelberg: Lambert Schneider, 1975.

———. "Tonkunst." *Vaterlandschronik*, April 7, 1789. <http://books.google.se/books?id=YF4AAAAAcAAJ&printsec=frontcover&hl=sv>.

———. *Schubart's Leben und Gesinnungen: Von ihm selbst, im Kerker*

aufgesetzt. Edited by Ludwig Schubart. 2 vols. Stuttgart: Gebrüder Mäntler, 1791-93. <http://resolver.sub.uni-goettingen.de/purl?PPN312428359>.

———. *C. F. D. Schubart's Ideen zu einer Aesthetik der Tonkunst*. Edited by Ludwig Schubart. Vol. 5 of *C. F. D. Schubart's, des Patrioten, gesammelte Schriften und Schicksale*. Stuttgart: J. Scheible's Buchhandlung, 1839.

———. "Klavierrezepte." In *C. F. D. Schubart's vermischte Schriften, erster Teil*, Ludwig Schubart. ed. Vol. 6 in *C. F. D. Schubart's, des Patrioten, gesammelte Schriften und Schicksale*. Stuttgart: J. Scheible's Buchhandlung, 1839.

Schueller, Herbert M. "Correspondences Between Music and the Sister Arts, According to 18th Century Aesthetic Theory." *The Journal of Aesthetics and Art Criticism* 11, no. 4 (1953): 334-59.

Seifert, Hans-Ulrich. "Dewey Meets Krünitz: A Classificatory Approach to Lexicographic Material." In *Allgemeinwissen und Gesellschaft*, edited by Paul Michel, Madeleine Herren, and Martin Rüesch, 95-104. 2007. <http://www.enzyklopaedie.ch/kongress/aufsaeetze/seifert.pdf>.

Shiner, Larry. *The Invention of Art: A Cultural History*. Chicago: University of Chicago Press, 2001.

Skowronek, Tilman. *Beethoven the Pianist*. Cambridge: Cambridge University Press, 2010.

Snyder, Kerala J., ed. *The Organ as a Mirror of Its Time: North European Reflections, 1610-2000*. Oxford: Oxford University Press, 2002.

Staier, Andreas, and Schornsheim, Christine. *Mozart am Stein Vis-à-vis*. Harmonia Mundi, HMC 901941. 2007.

Stein, Johann Andreas. "Beschreibung eines neuerfundenen Clavierinstrumentes, Melodica genannt, non Johann Andreas Stein, Orgel-Instrumentmacher, und Organisten bey der evangelischen Kirche zu den Barfüßern in Augspurg." *Neue Bibliothek der schönen Wissenschaften und der freyen Künste* 13, no. 1 (1772): 106-16. <http://141.89.36.83/fea/digbib/projekt>.

Sterne, Jonathan. *The Audible Past: Cultural Origins of Sound Reproduction*. Durham and London: Duke University Press, 2003.

Stetten, Paul von. *Die vornehmsten Merkwürdigkeiten, der Reichs-Stadt Augsburg*. Augsburg: Conrad Heinrich Stage, 1772. http://www.bibliothek.uni-augsburg.de/de/dda/urn/urn_uba000200-uba000399/uba000211/index.html.

———. *Der Mensch in seinen verschiedenen Lagen und Ständen für die Jugend geschildert*. 2 vols. Augsburg: 1779. Facsimile edition Helmut Gier, ed. *Ständebuch*. Nördlingen: Dr. Alfons Uhl, 1998.

———. *Kunst-, Gewerb- und Handwerks-Geschichte der Reichs-Stadt Augsburg*. Augsburg: Conrad Heinrich Stage, 1779. <http://www.bibliothek>.

uni-augsburg.de/de/dda/urn/urn_uba000200-uba000399/uba000209/.

———. *Kunst-, Gewerb- und Handwerks-Geschichte der Reichs-Stadt Augsburg: Zweiter Theil oder Nachtrag*. Augsburg: Conrad Heinrich Stage, 1788. http://www.bibliothek.uni-augsburg.de/de/dda/urn/urn_uba000200-uba000399/uba000210/.

———. *Beschreibung der Reichs-Stadt Augsburg, nach ihrer Lage jetzigen Verfassung, Handlung und den zu solchen gehörenden Künsten und Gewerben auch ihrer andern Merkwürdigkeiten*. Augsburg: Conrad Heinrich Stage, 1788. http://www.bibliothek.uni-augsburg.de/dda/urn/urn_uba001400-uba001599/uba001452/.

Stetten, Markus von. "Ueber den gegenwärtigen Zustand der Künste in Augsburg." *Der neue Teutsche Merkur* 2 (1804): 111-52. <http://www.uni-bielefeld.de/diglib/aufkl/neuteutmerk/index.htm>.

Streicher, Andreas. "Nekrolog." *Allgemeine musikalische Zeitung* 35, no. 23 (1833): 373-380.

Sulzer, Johann Georg. *Allgemeine Theorie der Schönen Künste*. 2 vols. Leipzig: M. G. Weidemanns Erben und Reich, 1771. <http://www.zeno.org/Sulzer-1771>.

Ternhag, Gunnar. "Musikinstrumentforskning på nytt" and "Organologi: systematik, morfologi och kulturanalys." In *Musikinstrument berättar: Instrumentforskning idag*, edited by Stefan Bohman, Dan Lundberg, and Gunnar Ternhag, 9-17, 18-52. Hedemora: Gidlund, 2007.

Théberge, Paul. *Any Sound You Can Imagine: Making Music/Consuming Technology*. Middletown, Connecticut: Wesleyan University Press, 1997.

Thulin, Otto. *Musikinstrument*. Historiska Avdelningens Vägledning. Gothenburg: Göteborgs museum, 1931.

"Vermischte Nachrichten: Deutschland; Vierte Nachricht an das Augsbürgische Publikum von der öffentlichen Ausstellung verschiedener Kunstarbeiten und jährlichen Austheilung der Preise bey der alten Stadt-Akademie, und der mit derselben, zur Ermunterung der Künste verbundenen Privat-Gesellschaft, mit der, bey der öffentlichen Feyerlichkeit gehaltenen Rede." *Neue Bibliothek der schönen Wissenschaften und der freyen Künste* 29, no. 1 (1783), 145-147. <http://141.89.36.83/fea/digbib/projekt>.

Vierte Nachricht an das Augspurgische Publikum, von der öffentlichen Ausstellung verschiedener Kunstarbeiten und jährlichen Austheilung der Preise bey der alten Stadt-Akademie, und der mit derselben, zu Ermunterung der Künste, verbundenen Privat-Gesellschaft. Mit der bey der öffentlichen Feyerlichkeit gehaltenen Rede. Augsburg: 1783.

Wenke, Wolfgang. "Das Clavecin Royal—Eine Dresdener Variante des Hammerklaviers." In *Zur Geschichte des Hammerklaviers*, edited by Monika Lustig, 111-16. Michaelstein: Institut für Aufführungspraxis, 1996.

Wessel, Stephen. "The Claviorganum in England." *The English Harpsichord Magazine* 1, no. 8 (1977). <http://www.harpsichord.org.uk/EH/Vol1/No8/claviorganum.pdf>.

Wilke [Christian Friedrich Gottlob], and Friedrich Kaufmann. "Ueber die Crescendo- und Diminuendo-Züge an Orgeln." *Allgemeine musikalische Zeitung*, February 19, 1823, 113-122.

Williams, Peter. "The Earl of Wemyss' Claviorgan and Its Context in Eighteenth-Century England." In *Keyboard Instruments: Studies in Keyboard Organology, 1500-1800*, edited by Edwin M. Ripin, 77-87. New York: Dover Publications, Inc., 1977.

Wilson, Mick. "How Should We Speak About Art and Technology?" *Crossings: eJournal of Art and Technology* 1, no. 1 (2001). <http://crossings.tcd.ie/issues/1.1/Wilson/>.

Zande, Johan van der. "Orpheus in Berlin: A Reappraisal of Johann Georg Sulzer's Theory of the Polite Arts." *Central European History* 28 (1995): 175-208.

