The Clavichord

The clavichord, forerunner of the piano, was one of the most important instruments in Western keyboard history until the first decades of the nineteenth century. Bernard Brauchli's comprehensive history fills a major gap in the literature on this instrument. Beginning with the earliest known references, he traces the clavichord's evolution up to the mid-nineteenth century, ending with a study of performance technique. The clavichord's structural developments (traced largely through an analysis of extant instruments), literary documentation (much of it presented here for the first time in English translation), treatises and iconographical sources are presented in chronological order. What emerges from this in-depth study of the various sources is an overview of the essential role this instrument played both socially and musically for more than four centuries, restoring the clavichord to the position it justly deserves in history.

Bernard Brauchli lives in Pully (Lausanne), Switzerland and is widely known in the field of early keyboard music through his many concerts, recordings and research, most notably on the clavichord. He has made numerous recordings for EMI and for Titanic Records (USA). He is artistic director of the Cambridge Society for Early Music (Boston, Mass.) and founder and president of the Festival Musica Antica a Magnano, the Corsi di Musica Antica a Magnano and, with Christopher Hogwood, founder of the International Centre for Clavichord Studies, all in Magnano, Piedmont, Italy.
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The Clavichord
Bernard Brauchli
Contents

List of plates  page ix
Acknowledgements  xvi
Foreword by Christopher Hogwood  xviii

Introduction  1

1  Origins of the clavichord  8
   The monochord  9
   The organistrum  13
   Bowed monochords and tromba marina  13
   The chekker  14
   The keyed monochord  16
   First references to the clavichord  16
   The psaltery and the tympanon  17
   The keyboard  18

2  The early clavichord: 1400 to the beginning of the sixteenth century  21
   Iconographical documents  21
   Early treatises  28
   Literary sources  44

3  The clavichord in the sixteenth century  55
   Extant sixteenth-century clavichords  56
   Iconographical sources  77
   Sixteenth-century treatises  84
   Literary sources  90

4  The clavichord in the seventeenth century  95
   Extant instruments  95
   Seventeenth-century iconographical documents  113
   Seventeenth-century treatises  116
   Literary sources  129
Contents

5 The clavichord in the eighteenth century 136
  England, France and Italy 137
  Germany and its neighbouring countries 144
  Sweden and other Scandinavian countries 176
  Spain and Portugal 185
  The New World 189
  Eighteenth-century treatises 192
  Eighteenth-century composers and the clavichord 213

6 The clavichord in the early nineteenth century 230
  Germany 231
  Sweden 233
  The Iberian peninsula 234
  Nineteenth-century treatises 236

7 Aspects of clavichord performance practice 253
  Hand and finger positions, as seen in early treatises and iconographical documents 253
  The Bębungen und Tragen der Töne 267
  Slurred notes 274
  Arpeggios 275
  Ornamentation 275
  Tempo 276
  Conclusion 278

Appendix 1 A comprehensive list of iconographical documents on the clavichord 281
Appendix 2 Technical terms in five languages 295
Appendix 3 Leopoldo Franciolini 297
Notes 299
Bibliography 361
Index 373
Plates

1.1 Anonymous (twelfth century), Guido of Arezzo and his Pupil Theobaldus at the Monochord page 11
1.2 Anonymous (twelfth century), Monochord played by Boethius. (By permission of the Syndics of Cambridge University Library) 11
1.3 Anonymous woodcut of a monochord from: Lodovico Fogliani, Musica theorica (Venice, 1529) 11
1.4 Anonymous woodcut of a monochord from: Michael Praetorius, Theatrum Instrumentorum (Wolfenbüttel, 1620) 12
1.5 Reconstruction of Michael Praetorius's monochord by Clifford Boehmer, 1980 12
1.6 Anonymous (Germany, c. 1380), Musician playing a Monochord. (Bildarchiv Foto Marburg) 14
1.7 Anonymous, Schema monocordi. Woodcut from: Johannes Aventinus (wrongly attributed to Nicolaus Faber), Musicae rudimenta (Augsburg, 1516) 15
1.8 Anonymous (thirteenth century), fresco with Psaltery (‘medio caño’) 18
1.9 Anonymous, Organ Keyboard and Pedalboard. Woodcut from: Michael Praetorius, Theatrum Instrumentorum (Wolfenbüttel, 1620) 19
2.1 Anonymous (Germany, c. 1400–50), Angel with Clavichord. (Photo Lothar Bemmann) 22
2.2 John Prudd, Musician-Angel (England, c. 1439–47) 22
2.3 Anonymous, Detail from: The Twenty-four Elders Making Music (Germany, 1448) 23
2.4 Anonymous, The Infant Jesus Making Music (Utrecht, c. 1475) 23
2.5 Master of Mary of Burgundy, The Adoration of the Lamb (Belgium, c. 1475) 24
2.6 Geertgen Tot Sint Jans, Detail from: Glorification of the Virgin (1489) 24
List of plates

2.7 Workshop of Martin Radeleff, Angel with Clavichord (c. 1495). (Photo Lothar Bemmann) 25
2.8 Anonymous, Musician-Angels (1425) 25
2.9 Adrian van Wesel, Adoration of the Magi (c. 1475–77). (Copyright Rijksmuseum-Stichting, Amsterdam) 27
2.10 Anonymous, Musician-Angels (first half of fifteenth century). (Foto Mas, Barcelona) 27
2.11 Anonymous, Angel with Clavichord (c. 1440) 28
2.12 Arnaut de Zwolle, Compositio Clavicordi (c. 1440–66). (Cliché Bibliothèque Nationale de France – Paris) 30
2.13 Diagram of distribution of the tangents on the strings. (Cliché Bibliothèque Nationale de France – Paris) 30
2.14 Reconstruction of de Zwolle's clavichord by Jean Maurer. (Copyright The Bate Collection of Musical Instruments, University of Oxford) 33
2.15 Workshop of Baccio Pontelli, intarsia of clavichord (c. 1479–82) 35
2.16 a. Plan of Arnaut's clavichord. (By permission of Oxford University Press) 37
   b. Plan of the clavichord of the Urbino intarsia. (By permission of Oxford University Press) 37
2.17 Reconstruction of the Urbino clavichord intarsia. (Copyright The Bate Collection of Musical Instruments, University of Oxford) 37
2.18 Attributed to Giovanni Maria Platini, intarsia of clavichord (1455–1500). (Copyright Ezio Quiresi, Cremona) 38
2.19 Anonymous, drawing of pedal-clavichord (after 1467) from: Hugo von Reutlingen, Flores musicae 41
2.20 Reconstruction of keyed monochord of Conrad von Zabern 43
2.21 Anonymous, engraving of keyed monochord from: Johannes Gallicus, Liber Notabilis Musicae. (By permission of the British Library) 43
2.22 Martin Gerbert, copy of a drawing of a keyed monochord by Johannes Keck (c. 1442) 43
3.1 a. Clavichord by Dominicus Pisaurensis (Pesaro, sixteenth century). (Cliché Publimages) 57
   b. Anonymous clavichord. (Copyright IRPA-KIK, Brussels) 57
   c. Detail of woodcut of stringed keyboard instruments from: Michael Praetorius, Theatrum Instrumentorum (1620) 58
<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.2</td>
<td>Anonymous clavichord (c. 1540)</td>
<td>59</td>
</tr>
<tr>
<td>3.3</td>
<td>Anonymous clavichord (c. 1540)</td>
<td>59</td>
</tr>
<tr>
<td>3.4</td>
<td>Anonymous, engraving of clavichord from: Antonio Valente, Intavolatura de Cimbalo (1576). (By permission of the Ministero per i Beni Culturali e Ambientali, Naples)</td>
<td>59</td>
</tr>
<tr>
<td>3.5</td>
<td>Diagram of a clavichord with two soundboards</td>
<td>60</td>
</tr>
<tr>
<td>3.6</td>
<td>Clavichord by Dominicus Pisaurensis, 1543</td>
<td>63</td>
</tr>
<tr>
<td>3.7</td>
<td>a. Building technique of ‘common’ clavichord</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td>b. Building technique of Pisaurensis clavichord</td>
<td>65</td>
</tr>
<tr>
<td>3.8</td>
<td>Anonymous clavichord (Italy, end of the sixteenth or early seventeenth century). (Courtesy of Museum of Fine Arts, Boston)</td>
<td>66</td>
</tr>
<tr>
<td>3.9</td>
<td>Anonymous clavichord (Italy, c. 1550)</td>
<td>69</td>
</tr>
<tr>
<td>3.10</td>
<td>Left side of same clavichord</td>
<td>71</td>
</tr>
<tr>
<td>3.11</td>
<td>Antonio Valente, Intavolatura de Cimbalo (1576), Fantasia de 1º M ode, bars 187–8</td>
<td>72</td>
</tr>
<tr>
<td>3.12</td>
<td>Attributed to Gaspar Vaz or Nasco Fernandez, detail from: Virgin with Child on the Throne (1535/40)</td>
<td>74</td>
</tr>
<tr>
<td>3.13</td>
<td>Jan Gossart (Jan de M abuse), detail from: Holy Family and Angels (c. 1500). (Photo José Pessoa, Arquivo Nacional de Fotografia – Instituto Português de Museus)</td>
<td>75</td>
</tr>
<tr>
<td>3.14</td>
<td>Jan Barentz Muyckens, Double Portrait at the Clavichord (1648). (Copyright Collection Haags Gemeentemuseum 1997, c/o Beeldrecht Amstelveen)</td>
<td>76</td>
</tr>
<tr>
<td>3.15</td>
<td>Hans Burgkmair, Der Weiskunig (before 1516)</td>
<td>78</td>
</tr>
<tr>
<td>3.16</td>
<td>Jan Cornelisz Vermeyen (c. 1500–59), The Clavichord Player</td>
<td>78</td>
</tr>
<tr>
<td>3.17</td>
<td>Follower of the Master of the Female Half-Lengths, Young Woman Carrying a Clavichord (c. 1540). (Courtesy of Mrs Clayton C. Timbrell)</td>
<td>79</td>
</tr>
<tr>
<td>3.18</td>
<td>Workshop of Jan Sanders (Van Hemessen), Young Woman Playing a Clavichord (c. 1575)</td>
<td>80</td>
</tr>
<tr>
<td>3.19</td>
<td>Leonardo da Vinci, Rebus (c. 1500). (The Royal Collection, Her Majesty Queen Elizabeth II)</td>
<td>82</td>
</tr>
<tr>
<td>3.20</td>
<td>Bernardino Licinio, The Concert (1535?). (The Royal Collection, Her Majesty Queen Elizabeth II)</td>
<td>82</td>
</tr>
<tr>
<td>3.21</td>
<td>Jacques Cellier, drawing of a clavichord (c. 1587). (Cliché Bibliothèque Nationale de France – Paris)</td>
<td>83</td>
</tr>
</tbody>
</table>
List of plates

3.22 Anonymous woodcut of a keyboard with two accidental keys from: Sebastian Virdung, Musica Getutscht (1511). (Copyright British Library) 86

3.23 Juan Bermudo, Declaración de Instrumentos Musicales (1555), fol. lxii. (Reproduced with kind permission of Bärenreiter-Verlag, Kassel) 89

3.24 Jost Ammann, The String Maker (1568) 92

4.1 Positions of the keyboard: a. protruding; b. enclosed 103

4.2. Positions of the strings: a. parallel to the keyboard; b. oblique 104

4.3 Anonymous clavichord (Germany, c. 1675) 106

4.4 Clavichord by Israel Gellinger (1670) 106

4.5. Clavichord by Georg Woytzig (Stockholm, 1688). (Copyright Musikhistorisk Museet, Stockholm) 107

4.6 Anonymous clavichord (Germany, end of seventeenth century) 107

4.7 Rib crossing underneath the bridge 108

4.8 Anonymous clavichord (Germany, end of seventeenth century) 108

4.9 Anonymous clavichord (Germany, mid-seventeenth century) 108

4.10 Short octave C/E with split accidentals D/F# and E/G#

4.11 Short octave G₁/B₁

4.12 The ‘Viennese’ short octave 111

4.13 Anonymous clavichord (Germany, end of seventeenth century) 112

4.14 Anonymous clavichord (Germany, seventeenth century). (Copyright Historisches Museum Basel; photo P. Portner) 113

4.15 Anonymous clavichord (Germany, end of seventeenth century) 113

4.16 Anonymous clavichord (Germany, second half of seventeenth century) 114

4.17 Anonymous clavichord (Portugal or Spain, seventeenth century). (Cliché Publimages, Paris) 114

4.18 Anonymous clavichord (Portugal or Spain, seventeenth century) 115

4.19 Hendrick Goltzius (1558-1617), Couple Playing Music 115

4.20 Drawing of damping cloth of clavichord 117

4.21 Christoph Weigel, The Organ Maker (1698) 117

4.22 Anonymous woodcut from: Michael Praetorius, Theatrum Instrumentorum (1620) 120

4.23 Drawing from Marin Mersenne, Harmonie Universelle (1636) 122
5.1 Clavichord by Peter Hicks (England, mid-eighteenth century).
(Victoria and Albert Museum Picture Library) 137

5.2 Clavichord by Ugo Annibale Traeri (Modena, 1726) 139

5.3 Clavichord attributed to Giuseppe Solfanelli (Pisa, 1721) 139

5.4 Clavichord attributed to Bartolomeo Cristofori (Florence, 1719) 140

5.5 Plan of strings and keylevers 147

5.6 Clavichord by Johann Michael Heinitz (Germany, 1716) 148

5.7 Clavichord by Johann Hermann Hauser (Gimborn?, 1761).
(Verlag Erwin Bochinsky, Frankfurt am Main) 149

5.8 Plan of soundboard and tuning pins 151

5.9 Clavichord by Johann Christoph Fleischer (Hamburg, 1728) 151

5.10 Clavichord by Hieronymus Albrecht Hass (Hamburg, 1728) 153

5.11 Clavichord by Barthold Fritz (Braunschweig, Germany, c. 1750) 153

5.12 Christian Gottlob Hubert’s key guiding system 154

5.13 Key guiding system of an anonymous clavichord (Germany or Spain, mid-eighteenth century) 154

5.14 Clavichord with Pantaleonzug by M. Christensen (Copenhagen, 1759) 156

5.15 Soundboard of same instrument 156

5.16 Pantaleonzug of same instrument 157

5.17 Lute stop on an anonymous clavichord (Flawil, Switzerland, 1780) 157

5.18 Pedal-clavichord by Johann David Gerstenberg (Geringswalde, Germany, 1760) 158

5.19 Anonymous pedal-clavichord (Germany, after 1844) 158

5.20 Anonymous double clavichord (Germany or Norway, c. 1725) 159

5.21 Clavichord by Johann Augustin Straube (Berlin, 1783).
(Copyright Collection Haags Gemeentemuseum 1997, c/o Beeldrecht Amstelveen) 160

5.22 Damping mechanism of Cembal d’Amour 162

5.23 Clavichord by Carl Lemme (Braunschweig, Germany, 1787) 165

5.24 Anonymous, Lady at the Clavichord (eighteenth century) 167

5.25 J. H. Tischbein the Elder, Self-portrait with His Wife at the Clavichord (1769) 168

5.26 J. A. Rosmässler, Title-page from: Johann Wilhelm Hässler,
Clavier- und Singstücke verschiedener Art (Leipzig, 1782) 169
List of plates

5.27 Emanuel Handmann (1718–81), The Music Lesson 170
5.28 Anonymous, Two Students Playing Music 170
5.29 Anonymous, Chamber Music with Lute, Violin and Clavichord 171
5.30 Anonymous clavichord (Austria or Germany, second half of eighteenth century) 171
5.31 Clavichord by Philipp Jacob Specken (Stockholm, c. 1750) 178
5.32 Clavichord by Johan Broman (Ronneby, Sweden, 1756) 180
5.33 Clavichord by Pehr Lindholm and Henric Johan Söderström (Stockholm, 1794) 180
5.34 Clavichord by Pehr Lindholm (Stockholm, 1785) 183
5.35 Clavichord by Pehr Lindholm (Stockholm, 1785) 183
5.36 Keylever tie to pedal of pedal-clavichord by Gustav Gabriel Wolthersson (Sweden, 1759) 183
5.37 Hammers and tangents of Hammerclavichord by Mathias Petter Kraft (Stockholm, 1792) 184
5.38 Pehr Hörberg (1746–1816), Painting of a fretted clavichord 185
5.39 Anonymous clavichord (Spain, eighteenth century) 188
5.40 Anonymous clavichord (Germany, first half of eighteenth century). (Courtesy Moravian Historical Society, Nazareth, Pennsylvania; photo Robert Walch) 191
5.41 Peter Srengel, Handwerke und Künste in Tabellen. Plate VI 201
5.42 David Tannenberg, Working design of a clavichord (c. 1780) 204
5.43 Wolfgang Amadeus Mozart's anonymous clavichord 225
5.44 Mozart's travelling clavichord by Johann Andreas Stein (Augsburg, 1762) 225
5.45 Clavichord by Johann Bohak (Vienna, 1794) 227
6.1 Clavichord by Henric J. Söderstrom (Stockholm, 1810) 231
6.2 Damping cloth according to Gall, 1805 241
6.3 Drawing illustrating Thon's description of winding a string onto a tuning pin 248
6.4 Drawing illustrating Thon's description of the loop made at the hitch-pin end of the string 251
7.1 Jan Cornelisz Vermeyen (c. 1500–59), The Clavichord Player (detail) 256
7.2 Attributed to Gaspar Vaz (c. 1490–1568) or Nasco Fernandez (recorded 1512–41/43), Virgin with Child on the Throne (detail) 257
7.3 Bernardino Licinio (c. 1489–before 1565), The Concert (detail) 260
7.4 Hendrick Goltzius (1558–1617), Couple Playing Music (detail) 261
7.5 Anonymous (Flanders) after Peter Paul Rubens, St Cecilia Playing a Clavichord (detail) 261
7.6 Johann Heinrich Tischbein the Elder (1722–89), Self-portrait with His Wife at the Clavichord (detail) 268
7.7 Anonymous (S. Germany, Franconia?), Lady at the Clavichord (detail) 268
7.8 Marie-Louise Elisabeth Vigée-Lebrun (1755–1842), Giovanni Paisiello at the Clavichord (detail) 269
7.9 Emanuel Handmann (1718–81), The Music Lesson (detail) 269
7.10 Friedrich Wilhelm Marpurg, Die Kunst das Clavier zu spielen, Tab. III, fig. 10 272
7.11 Carl Philipp Emanuel Bach, Versuch über die wahre Art, das Clavier zu spielen, Fig. IV (a) 273
7.12 Daniel Gottlob Türk, Klavierschule (1789), p. 293 274
7.13 Daniel Gottlob Türk, Klavierschule (1789), p. 354 275
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Foreword by Christopher Hogwood

With one of the most dismissive and wrong-headed sentences ever penned for the Encyclopaedia Britannica, John Robinson declared, in 1801, that ‘the clavi-chord gives a fretful, waspish kind of sound, not at al suited to tender expres-sion’. Nothing could be further from the truth, but his barb epitomises the long-standing ignorance that has dogged this innocent instrument for two centuries.

In ArtSpeak, the clavichord is a ‘sleeper’ – an overlooked masterpiece, its true value for the most part unsuspected by the trade. As a work of art it would probably also be a water-colour – delicate, private, subtle – allocated to a small side-gallery, far from the grand sculptures, the vast canvases, and all the assertiveness and public grandeur of l’art pompier.

In a world of high-decibel music, lacking the stentorian tones of the grand piano, and the lung-power of the organ, it can never assist at the celebration of High Mass, or clamour at the fall of nations in a symphony, or commemorate the rise of Napoleon in a concerto. The world of the clavichord is private and personal: as E. J. Dent put it, ‘it’s like the influenza, & searches out all one’s weak places’.

But precisely because of its private, aquarelle nature, it was declared to be fragile and faint, even timid; at the arrival of the piano, we were told, it faded from the scene, was relegated to a dark corner, banished to the nursery for practice, and soon forgotten. Marginalised in this way by later, piano-centric historians, the clavichord was remembered as an instrument of last resort rather than first choice.

But this was not true. From the evidence of surviving instruments, from iconography, from documentation and treatises, and from its very repertoire, it can now be proved to have been the most lasting of all domestic keyboards. ‘Mother of all musical instruments’ in 1618, ‘the first grammar of all keyboard executants’ in 1732, and still ‘the true keyboard’ in 1805 – these titles argue stamina and staying power. Nor was the repertoire considered light or incon-sequential; when the poet von Gerstenberg in 1787 searched to add ‘explica-tory’ words to the C minor Probestücke fantasy by C. P. E. Bach, he found only two texts capable of underlining the seriousness of such a composition – the final speech of Socrates and the soliloquy of Hamlet.

Not before time, this volume presents the evidence to contradict Mr
Robinson, and fervent partisans (amongst whom I would number myself) can, through documentary and iconographic evidence, have an overview of the history of this resilient instrument for more than 500 years. The picture stretches from the earliest instruments, and shared repertoire of the 1500s, through that amazing half-century after the appearance of C. P. E. Bach's Versuch in 1753 when the instrument claimed an exclusive repertoire of several thousand pieces, and well into the nineteenth-century revival (or should it be survival?).

The focus, of course, is impressively domestic. As in the art world works on paper hold a more intimate message than oils on canvas, so, as Christian Friedrich Daniel Schubart rhapsodised, ‘when you improvise by the light of the moon, or refresh your soul on summer nights, or celebrate the evenings of spring; ah, then pine not for the strident harpsichord. See, your clavichord breathes as gently as your heart.’
1 · Origins of the clavichord

It is often extremely difficult, if not impossible, to determine when, where and how an instrument first appeared. In many cases, its invention has been the result of multiple and sometimes simultaneous attempts, inspired or influenced by the assimilation of elements of foreign cultures brought to a country or a continent by invasions, migrations or political and commercial exchange. Legends and traditions are often attached to the origins of a musical instrument, many alluding to its symbolic meaning in a particular religion or philosophy.

Sebastian Virdung, a German priest, theorist and composer as well as the author of the first printed manual on musical instruments, Musica getutscht (Basle, 1511), admitted that he knew neither who was the clavichord’s inventor nor who gave it its name. He assumed the instrument to have evolved from the monochord, which he said had been invented by Guido of Arezzo. This legendary monk, who lived from 991 or 992 to after 1033, enjoyed extraordinary fame as a pedagogue in the Middle Ages; he used the monochord to teach the gamut and musical intervals, and developed a new method of learning a melody by matching the notes of the scale with the initial syllables of each section of a hymn to St John, thus devising the solmisation still in use today:

\[
\text{Ut queant laxis,} \\
\text{Resonare fibris,} \\
\text{Mira gestorum,} \\
\text{Famuli tuorum,} \\
\text{Solve polluti,} \\
\text{Labii reatum,} \\
\text{Sancte Iohannes.}
\]

The evolution of the monochord to the clavichord was the generally accepted theory of the clavichord’s origins and can be witnessed in the language itself: the term ‘monochord’, with all its variants (monachord, manichord, manichordion, etc.), was commonly used until the end of the eighteenth century in languages of Latin origin to designate the clavichord. In his treatise Declaración de Instrumentos Musicales (1555), Juan Bermudo says that the term ‘monochord’ may have continued to be applied to the clavichord ‘out of respect’ for the former, from which it was derived.
The monochord

In its most primitive form, the monochord\(^3\) consisted of a rectangular plank on which a single string was stretched by a tuning pin or a weight. This string was supported by two fixed bridges. A third, movable bridge could be slid to any point under the string, dividing it into two sections in order to obtain different pitches. It is said that Pythagoras, the famous Greek philosopher of the sixth century BC, invented this instrument in order to illustrate mathematically his theory of musical intervals and harmonics. Quintilian (first century AD), in book 3 of his Institutio oratoria, says that Pythagoras, on his death-bed, besought his disciples to use the monochord in order to understand the art of music by means of mathematics. Euclid of Alexandria, in about 300 BC, was the first to describe the various divisions of a string, in his Katatome kanónos, that is, the divisions of the kanón. Kanón was the first name given to the monochord, and later became the name for the Arab instrument known as the qanun. The first occurrence of the term ‘monochord’ can be found in Nicomachus of Gerasa’s Handbook of Harmonics, at the end of the first or the beginning of the second century AD.

Later, in the Middle Ages, a rectangular soundbox was substituted for the plank, producing a louder sound. Nevertheless, the monochord does not seem to have played a significant role as a musical instrument in antiquity or in the early Middle Ages, when its importance was principally in its use as a theoretical instrument. Most music theorists attributed the discovery of consonances and the invention of the monochord to Pythagoras. Nicomachus was the first to describe it with precision, and later Ptolemy (after 83–161), the Greek mathematician, who spent most of his life in Alexandria, gave further details about the bridges in his work Harmonika. Boethius (c. 480–c. 524) in his De institutione musica speaks of the monochord not as a musical instrument but as a means of determining consonances and scales, as well as an aid for intonation in plainsong. An anonymous, tenth-century treatise from Northern Italy entitled Dialogus, wrongly attributed to Odo of Cluny, deals with the division of the monochord, and reports that this instrument was also used to learn new songs; students could soon find the right notes by looking at the scale on the monochord, without even plucking the string. In the treatise Musicae Rudimenta, published in Augsburg in 1516 (and often erroneously attributed to Nicolaus Faber, whose only contribution was a recommendation to the reader on the first page), the theorist Johann Turmair, or Johannes Aventinus, described the uses and advantages of the monochord:

The uses of the monochord are: it teaches all the tones by touch; by touch it examines all song. It teaches legitimate sound by the finger and ear. It places before the eyes the causes of all things that pertain to music. Without a knowledge of this you can by no
means become a skilled musician, and you will not understand many things in
Aristotle and the other philosophers. It is a semi-mute teacher, worthy of admiration,
since it knows nothing yet teaches everything. It is most patient, and teaches without
blows and indignation. It does not get angry at the slowness of your intelligence. It is
ready whenever you choose, the easiest and most artistic of all musical instruments.4

Walter Nef5 demonstrated that it was a mistaken interpretation of theoretical
texts which led Sigfrid Wantzloeben6 to assert that monochords with
several strings were built in the Middle Ages. For example, Theogerus of Metz
(c. 1050–1120), in his treatise Musica, speaks of the monochord with 'octo
chordae'. However, further on he said that the bridges sustained the 'string',
clearly only one, and demonstrated that these 'octo chordae' were eight notes,
and not eight strings. The same error occurred again when Wantzloeben, in his
interpretation of a passage of Johannes de Muris's Musica speculativa (1323),
understood this theorist to be demonstrating a nineteen-string monochord,
when actually he was giving a diagram for the division of one string into nineteen
segments. The contexts in which these monochords were mentioned
unequivocally proves that the term chorda was understood as 'note', and not as
'string'. Later, in the early fourteenth century, monochords with multiple
strings appeared; however, the name 'monochord' was given to such instruments
only because all the strings were tuned in unison.7

Representations of the monochord used as an instrument of musical theory
are to be found from the twelfth century on. An anonymous drawing in the
Österreichische Nationalbibliothek shows Guido of Arezzo and his pupil
Theobaldus before a monochord, Guido plucking it with two plectra (Plate
1.1). Letters representing seventeen notes can be discerned on the side of the
monochord. A twelfth-century manuscript of the De institutione musica, in
the Cambridge University Library, shows Boethius playing a monochord
(Plate 1.2); he holds the instrument on his knees, and is plucking it with the
right hand. Here again, letters indicating the notes are written on the side of
the instrument. Another representation is found in the treatise of Lodovico
Fogliani, Musica theorica, published in Venice in 1529 (Plate 1.3), in which an
anonymous woodcut shows a young man adjusting two movable bridges
under the string of a large monochord with twenty-seven notes marked on its
soundboard.

The monochord was further perfected in the sixteenth century by the addition
of various mechanisms to facilitate the sliding of the movable bridge
under the string. An example of such an instrument can be seen in the
Theatrum Instrumentorum of Michael Praetorius, published in Wolfenbüttel
in 1620, as an appendix to the second volume of Syntagma Musicum (Plates 1.4
and 1.5). In the third volume of his Harmonie Universelle, published in Paris in
1636, Marin Mersenne described a monochord with three strings all of which
1.1 Anonymous (twelfth century). Guido of Arezzo and his Pupil Theobaldus at the Monochord. Österrechische Nationalbibliothek, Vienna

1.2 Anonymous (twelfth century). Monochord played by Boethius. Boethius, De institutione musica, Cambridge University Library

were tuned in unison; the middle string did not touch the sliding bridge, thereby permitting a comparison of the whole string's fundamental sound with the other two strings' partial sounds.

Curt Sachs demonstrated that the monochord was also occasionally used in the Middle Ages as an accompanying instrument. This can be verified, for instance, in a miniature from a manuscript of the monastery of Werden am
Ruhr, dating from after 1030, where a monochord is seen together with a lyra and a zither. The presence of two dancing jugglers is a clear indication that the representation is of an actual performance, and that the musicians were not simply tuning their instruments to King David's monochord.

**The organistrum**

A first development of the monochord into a more efficient performing instrument occurred in the tenth or eleventh century, and might have come to Europe from the East, passing first through Muslim Spain: a fiddle-shaped instrument with three strings sounded by a resin-coated wheel which was rotated by a crank. Such an instrument was called an organistrum and is represented on the porticos of many cathedrals. One of the most instructive examples is on the portico of the Cathedral of Santiago de Compostela and dates from the twelfth century. As can be observed, the instrument was played by two persons, one turning the crank, and the other depressing a set of keys acting as small bridges dividing the strings like the movable bridges of the monochord. In the thirteenth century a smaller version of the organistrum was developed which could be played by a single performer, and was named symphonia or chifonie. These two instruments, which later evolved into the hurdy-gurdy, were in fact a type of keyed monochord, and may have been linked with the invention of the clavichord.

**Bowed monochords and tromba marina**

A further development of the monochord as a performing instrument took place, most probably at some time in the fourteenth century. The principle of the movable bridge was abandoned, and the instrument was played with a bow held in the right hand, while the left fingered the string. Several iconographical documents from that period (for example Plate 1.6) attest to this development. The bowed monochord sometimes had two strings and was referred to as a 'dichord'. The troubadours were said to use the bowed monochord in medieval French romances and courtly epics.

In the fifteenth century the bowed monochord evolved into the trumpet marine (in German, Trumscheit, in Italian, tromba marina). It was equipped with a vibrating bridge, one foot of which rested on the soundboard, while the other barely touched it, thereby vibrating against it when the string was bowed. The sound produced by fingering harmonics was similar to that of a trumpet.

Terminology for these various forms of the monochord was somewhat aleatory; for instance, a Schema monochordi can be found in Aventinus's *Musicae rudimenta* (1516), which clearly depicts a trumpet marine with three strings (Plate 1.7).
The checkker

Another instrument which may well have been a primitive clavichord appears in several texts from the fourteenth to the sixteenth century with the name checkker (French eschaquier, eschequier, eschiquier; German Schachbrett; Latin scacarum, scacordum; Spanish esaque, esquier, exaquier). Mention of this instrument is found as early as 1360, in the Journal of Expenses of King John the Good of France. While he was being held prisoner in England, Edward III, King of England, presented him with an eschequier:

Jehan Perrot qui apporta au Roy l’instrument appelle leschequier quil avoit fait le Roy dangleterre avoit donne au Roy et li envoioit par le dit Jehan don a li fait a la relation M.J. le Royer xx nobles... 11

Mention of the checkker is again found in 1388 under the name of Exaquir, in a letter written by King Juan I of Aragon to Juan de Montra. It seemed still to
have been somewhat of a novelty, for the King described it in his letter as looking ‘like an organ which sounds by strings’. This description led Curt Sachs and Edmund A. Bowles to conclude that the chekker was a sort of upright harpsichord, resembling a clavicytherium. A few years later Edwin Ripin, who drew up a list of the thirty-one earliest references to the chekker, came to the conclusion that the chekker was actually a clavichord, even if it is mentioned under the name of Schachbrett simultaneously with the clavichord in the Minne Regel of Eberhard Cersne (Minden, 1404), and under the name of Escacherium in the text of Antonius de Arena. However, this latter theory seems very doubtful, as the chekker also appears in several other texts simultaneously with the manichordion (clavichord). More recently Wilson Barry proposed in his article on the origins of the chekker that it ‘was a keyboard chordophone in the rectangular shape of a clavichord and provided with individual turned left-hand bridges. One variety, furnished with the plucking action of the harpsichord, evolved into the virginal. Another, furnished with the hammer action of the dulcimelos, was the earliest form of the square piano. Christopher Page, in view of so many different instruments (organs, and various stringed instruments) called chekker, or its counterpart in other languages, concluded that the chekker probably never existed . . . checkers in different places at different times may have had all sorts of mechanisms under their lids. Previously, Tess
Knighton suggested that chekker might have been used as a generic term for all keyboard instruments, on the basis that the term squaquer was used in a letter dated 1415 from Alfonso de Antequera, prince to the Crown of Aragon, to an unknown person, to designate an organ, while in the account books of the French court of 1488, eschiquier is found juxtaposed to manicordio. However, until irrefutable documentation comes to light the identity of the chekker will remain a mystery.

The keyed monochord

Between 1460 and 1470, the German theorist Conrad von Zabern published a short treatise entitled Novellus musicae artis tractatus in which he gave precise instructions on how to build a keyed monochord, that is, a monochord provided with a keyboard of twenty natural keys (G to e\textsuperscript{2}) and two accidentals (B\textsubscript{b} and b\textsubscript{b}). His text was an attempt to revive the monochord (‘tractatus pro renovando monochordi’), which seems to imply that it had already existed well before his time; it has led some scholars to consider the keyed monochord as a forerunner of the clavichord. However, as no evidence of such an instrument has been found before von Zabern’s text, it seems much more probable that he developed the keyed monochord on the model of a clavichord. In his instructions, von Zabern clearly refers to a clavichord for the shape and dimensions of the case of the instrument, but does not refer to earlier, hypothetical keyed monochords. Therefore, the keyed monochord should not be considered as a first step in the development of the clavichord, but rather as an instrument derived from the clavichord.

First references to the clavichord

Variations of the term ‘monochord’ abound in literary documentation. One of the first such instances is found in the Roman de Brut, a poem written in 1157 for Queen Eleanor, wife of Henry II King of England (1154–89), by a monk by the name of Wace. In his description of a royal celebration he wrote: ‘during the banquet following the coronation of King Arthur musicians were playing symphonies, psaltérions, monacordes, cymbes, chorons’. Possibly, these new terms (monacorde, manicorde, manichordion, etc.) designated the first appearance of an instrument provided with a keyboard, which would have been a primitive clavichord. However, no representations of a clavichord dating from the thirteenth century have been found, and therefore it is more likely that these variants in
the word ‘monochord’ designated bowed monochords of the type witnessed in innumerable iconographical documents.

The first document witnessing the existence of the clavichord is generally considered to be the above-mentioned Minne Regel, or ‘Rules of the Minnesinger’. Written in 1404 by Eberhard Cersne of Minden, Germany, this text contains the term clavichordium, side by side with monocordium, Schachbrett and clavicymbalum, implying that by the beginning of the fifteenth century these were four distinct instruments.28

Another treatise, De Musica, written in 1434 by Giorgio Anselmi,29 contains an even earlier description of what seems to be a clavichord, yet using the term monochordium. According to Suzanne Clercx30 and Konstantin Restle,31 the description corresponds to an early clavichord with twenty-nine keys (four octaves with no accidentals). Giorgio Anselmi (before 1386 – c. 1440/43) wrote a number of works on astrology, astronomy and medicine, as well as De Musica, which is presented in the form of a conversation between the author and Pietro di Rossi.

The psaltery and the tympanon

The clavichord was derived from the monochord. However, the existence of the psaltery, another form of string instrument in the Middle Ages, contributed to its conception. The psaltery evolved from one of the most basic forms of an instrument: strings stretched over a soundbox and plucked with the fingers or with plectra. The most primitive form of this concept may still be found today in various parts of the world. The existence of such polychords can be traced back to early antiquity. By the twelfth century the Eastern psaltery, known as the qanun (derived from the Greek kanón), had been introduced to Spain by the Moors. From there it spread further into Europe, where it was given the name of ‘psaltery’, derived from the Greek psallein, to pluck with the fingers. The psaltery could be found in a triangular shape, trapezoidal, or in the shape of a pig's head (and called strumento de porco), that is, triangular with two in-curved sides. A smaller, or ‘half-shaped’ version of the instrument was also to be found (Plate 1.8). The strings were stretched parallel, the instrument being single- or double-strung, or sometimes with three to four strings per note. Innumerable representations of the psaltery can be found from the twelfth century on, in manuscripts, paintings and carvings.

Another instrument very similar to the psaltery was the tympanon, commonly called ‘dulcimer’ in English, which was also a polychord with strings stretched parallel on a soundbox but struck with two small hammers. The early history of this instrument is vague. No proof of its existence before the mid-fifteenth century having been found, it must be assumed, unless earlier
evidence comes to light, that it did not contribute to the invention of the clavichord.

The keyboard

An essential element in the conception of the clavichord was the keyboard, that is, a series of levers, or keys, which could set the strings corresponding to each individual note into vibration. The idea of the keyboard probably originated in Greece where it was used on the hydraulis, the direct ancestor of the modern pipe organ, an invention attributed to Ctesibius, a well-known engineer from Alexandria, who lived in the third century BC.

It seems, however, that the development and use of the keyboard evolved little during antiquity or the early Middle Ages, and remained restricted to the
organ. The first medieval organ was furnished with a very primitive keyboard; the keys had large gaps between them corresponding to the distances between the various pipes, as before the fourteenth century there is no evidence for the existence of mechanisms such as roller boards for the connection of widely spaced pipes to a narrow keyboard. These instruments were played with the fists, though already in the thirteenth century small portative organs were provided with small keys which could be played with the fingers. Until the thirteenth century, keyboards were usually diatonic, with the occasional exception of the B♭. Only at the beginning of the fourteenth century, with the development of polyphony, were chromatic keys progressively added between the nat-
The clavichord

urals. The earliest keyboard music which has been found, the Robertsbridge Codex, dating from c. 1320, requires a compass of two octaves and a third, from c to e\textsuperscript{2}. Although some scholars have cast doubt on whether this music was intended for the keyboard, it is probable that it was, like most repertoire until the sixteenth century, intended for both the keyboard and the lute.\textsuperscript{33} The complexity of this music, which requires a well-developed finger technique, proves that the keyboard had been sufficiently developed by then. However, a woodcut from Praetorius’s Syntagma Musicum shows the manual and pedal keyboards of the Halberstadt organ of 1361 (Plate 1.9) with still very primitive, widely spaced keys which could not have been played with fingers. From this one can surmise that primitive keyboards were still to be found in the second half of the fourteenth century.

In conclusion, all elements necessary to the conception of the clavichord existed by the fourteenth century, if not earlier. These elements were:

• the idea of producing several conjunct notes by striking a string, or a pair of strings, in different locations, thereby determining various respective speaking lengths (this principle is the essence of the monochord);
• the concept of an instrument composed of several strings stretched parallel on a resonating box, as on the psaltery;
• the keyboard, a concept already developed on primitive organs.

As neither literary nor iconographical evidence of a clavichord preceding the fifteenth century has been found, it is probable that the clavichord was conceived at the earliest in the fourteenth century.