

## 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



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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 clavichord gives a fretful, waspish kind of sound, not at all suited to tender expression’. 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 inconsequential; when the poet von Gerstenberg in 1787 searched to add ‘explicative’ 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.<sup>1</sup> 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:

Ut queant laxis,  
Resonare fibris,  
Mira gestorum,  
Famuli tuorum,  
Solve polluti,  
Labbii reatum,  
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.<sup>2</sup>

## The monochord

In its most primitive form, the monochord<sup>3</sup> 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 *Katatomé 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.<sup>4</sup>

Walter Nef<sup>5</sup> demonstrated that it was a mistaken interpretation of theoretical texts which led Sigfrid Wantzloeben<sup>6</sup> 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.<sup>7</sup>

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



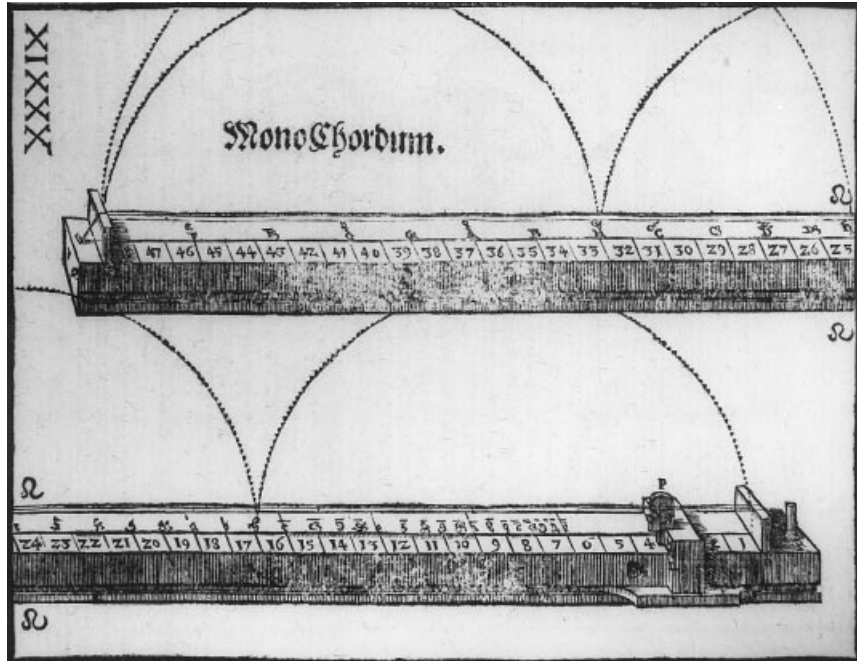
1.1 Anonymous (twelfth century). Guido of Arezzo and his Pupil Theobaldus at the Monochord. Österreichische Nationalbibliothek, Vienna



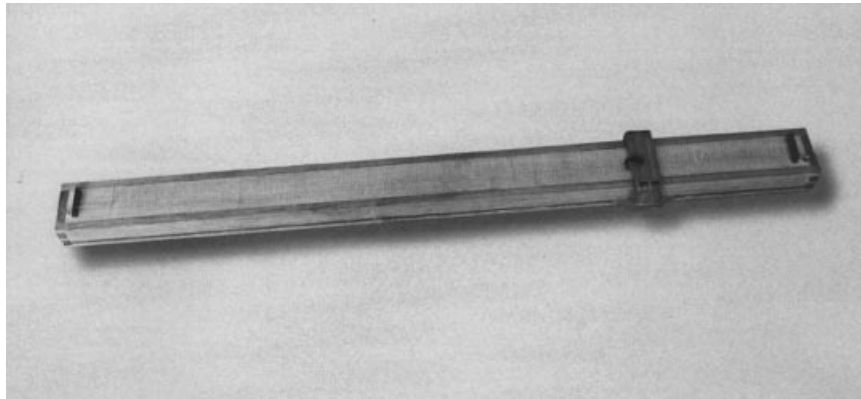
1.2 Anonymous (twelfth century). Monochord played by Boethius. Boethius, *De institutione musica*, Cambridge University Library



1.3 Anonymous. Monochord. Lodovico Fogliani, *Musica theorica* (Venice, 1529). Staatsbibliothek zu Berlin – Preussischer Kulturbesitz, Berlin



1.4 Anonymous. Monochord. Michael Praetorius, *Syntagma Musicum*, vol. II, *Theatrum Instrumentorum* (Wolfenbüttel, 1620), plate XXXIX



1.5 Reconstruction of Michael Praetorius's monochord by Clifford Boehmer, 1980

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<sup>8</sup> 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.<sup>9</sup> 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*).<sup>10</sup> 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 treatise *Musicae rudimenta* (1516), which clearly depicts a trumpet marine with three strings (Plate 1.7).



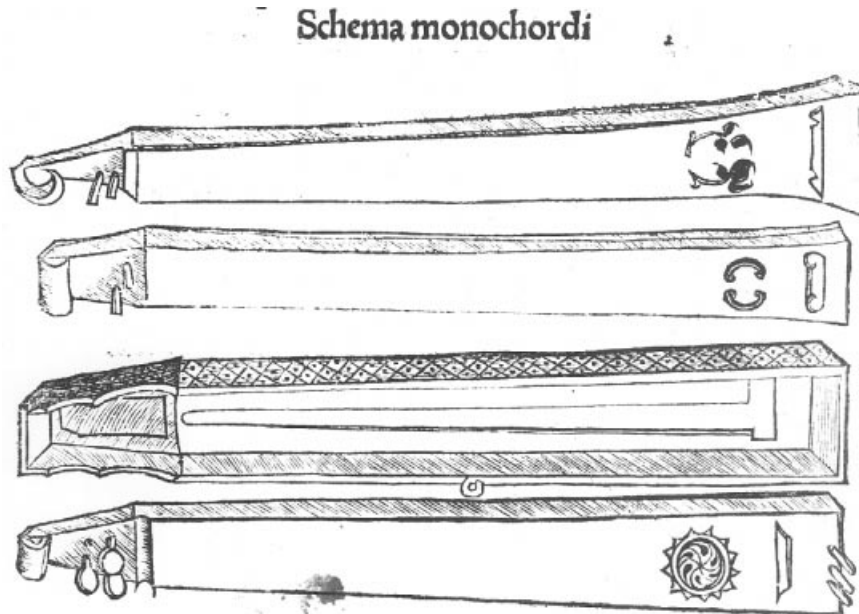
1.6 Anonymous (c. 1380).  
Musician playing a Monochord,  
Ulm

### The chekker

Another instrument which may well have been a primitive clavichord appears in several texts from the fourteenth to the sixteenth century with the name chekker (French *eschaquier*, *eschequier*, *eschiquier*; German *Schachbrett*; Latin *scacorum*, *scacordum*; Spanish *esaque*, *esquier*, *exaquir*). 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 I 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 . . . <sup>11</sup>

Mention of the chekker 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



1.7 Anonymous. *Schema monochordi*. Johannes Aventinus (wrongly attributed to Nicolaus Faber), *Musicae rudimenta* (Augsburg, 1516). Bayerische Staatsbibliothek, Musikabteilung, Munich

have been somewhat of a novelty, for the King described it in his letter as looking ‘like an organ which sounds by strings’.<sup>12</sup> This description led Curt Sachs<sup>13</sup> and Edmund A. Bowles<sup>14</sup> to conclude that the chekker was a sort of upright harpsichord, resembling a clavictherium. A few years later Edwin Ripin, who drew up a list of the thirty-one earliest references to the chekker,<sup>15</sup> 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),<sup>16</sup> and under the name of *Escacherium* in the text of Antonius de Arena, *Antonius de Arena . . . ad suos companones* (1529).<sup>17</sup> However, this latter theory seems very doubtful, as the chekker also appears in several other texts simultaneously with the *manichordion* (clavichord).<sup>18</sup> 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 dulcemeles, was the earliest form of the square piano.’<sup>19</sup> 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 . . . chekkers in different places at different times may have had all sorts of mechanisms under their lids.*’<sup>20</sup> Previously, Tess

Knighton<sup>21</sup> 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<sup>22</sup> 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<sup>2</sup>) and two accidentals (B<sup>b</sup> and b<sup>1</sup>). 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.<sup>23</sup> 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.<sup>24</sup> In his instructions, von Zabern clearly refers to a clavichord for the shape and dimensions of the case of the instrument,<sup>25</sup> 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.<sup>26</sup> 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*.'<sup>27</sup>

Another variant of the term 'monochord' is found in 1235 in the *Roman de Flamenka*, a poem written in the early Provençal language: 'L'us mandura, e l'autr'acorda / Lo sauteri ab manicorda'. 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 *clavicordium*, side by side with *monocordium*, *Schachbrett* and *clavicymbalum*, implying that by the beginning of the fifteenth century these were four distinct instruments.<sup>28</sup>

Another treatise, *De Musica*, written in 1434 by Giorgio Anselmi,<sup>29</sup> contains an even earlier description of what seems to be a clavichord, yet using the term *monochordium*. According to Suzanne Clercx<sup>30</sup> and Konstantin Restle,<sup>31</sup> 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



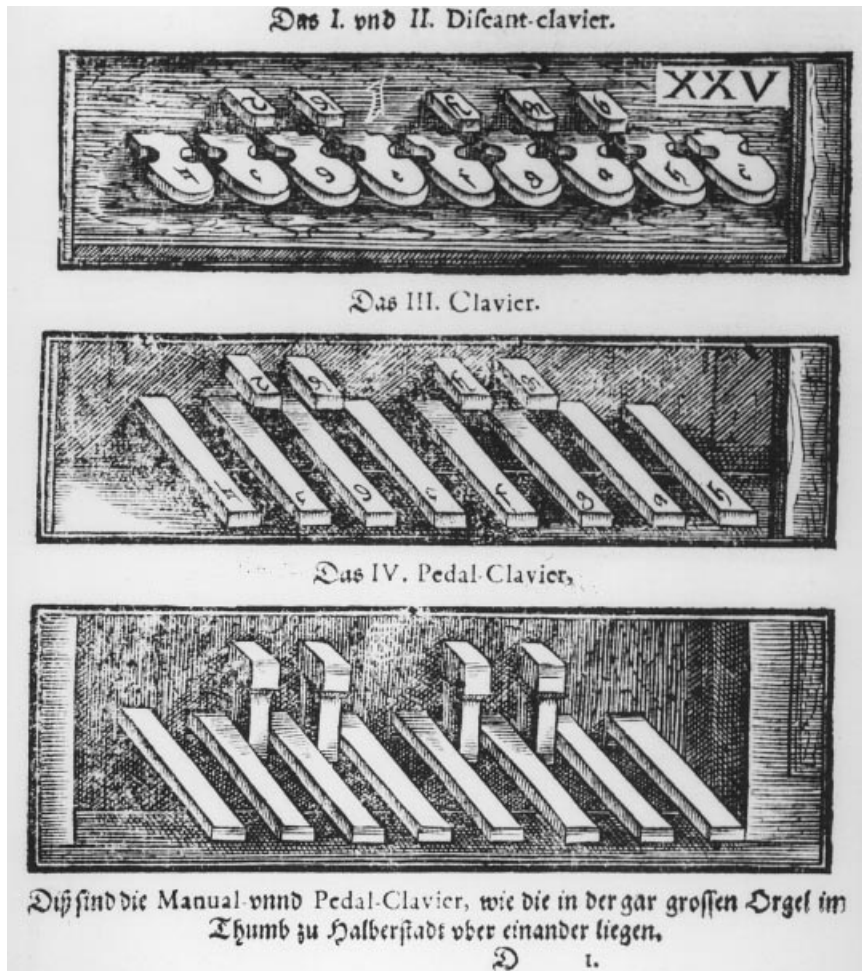
1.8 Anonymous (thirteenth century). Psaltery ('medio caño'). Church of Santa María, Arcos de la Frontera, Spain

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



1.9 Anonymous. Organ Keyboard and Pedalboard. Michael Praetorius. *Syntagma Musicum*, vol. II, *Theatrum Instrumentorum* (Wolfenbüttel, 1620), *De Organographia*, plate XXV

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 portable organs were provided with small keys which could be played with the fingers.<sup>32</sup> Until the thirteenth century, keyboards were usually diatonic, with the occasional exception of the B $\flat$ . Only at the beginning of the fourteenth century, with the development of polyphony, were chromatic keys progressively added between the nat-

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<sup>2</sup>. 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.<sup>33</sup> 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.