

XIII

EARLY

KEYBOARDS

AND

STRINGS

EARLY STRINGED KEYBOARDS

THE HARPSICHORD

Of all the early instruments resurrected in this century, only the harpsichord has found a secure and permanent place in contemporary music. Indeed, most people are unaware that it was ever extinct. The instrument's standard modern form is modeled on a very late phase of its historical development, when it had expanded to its largest range and greatest timbral variation—at the sacrifice of volume and fullness of tone.

The strings of a harpsichord are plucked by **quills** set in **jacks** that rest freely on the ends of the keys. The speed or force with which a key is depressed in no way affects the loudness of the resulting tone. Each quill is mounted on a spring-loaded, pivoting **tongue** so that it can slide quietly back past the string when the key is released. This action is not entirely silent, and the release of a large chord that has been allowed to die away is accompanied by a delicate, pattering thud as the jacks fall back into place; in most musical contexts, however, this is not a problem. The subliminal ticking of each attack and release is an integral part of harpsichord tone and is particularly apparent in the highest part of the range (cf. the end of Ligeti's *Continuum*). The basic tone is extremely brilliant and pingy, even snarly in the bass. This extremely high harmonic development means that for the harpsichord, unlike the piano, thick chords can be written in the bass without loss of clarity.

Each jack is provided with a damper that stops the vibration of its string when the key is released. There is no damper pedal. Undamped vibrations die relatively quickly, in a range

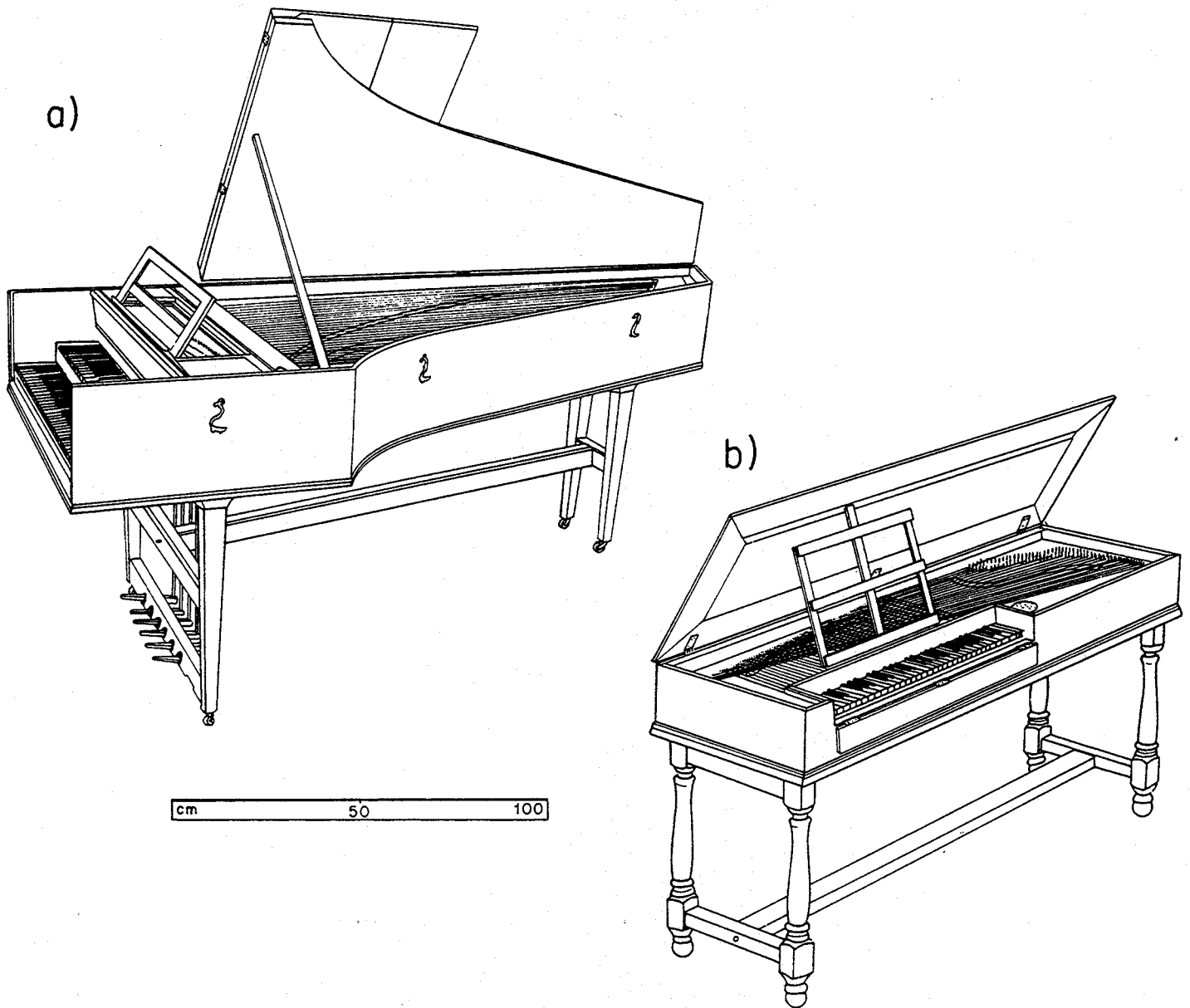


FIGURE 268. *Early stringed keyboards: (a) harpsichord; (b) clavichord.*

from about five seconds at the bottom of the instrument to less than half a second for the highest 4' tones.

The timbre and dynamics of the harpsichord are varied, like those of the organ, by means of varied registrations; these are controlled by pedals, operated by both feet, that move in stepped slots so that, like harp pedals, they can be locked into position. The organization varies a great deal from one harpsichord to another, but a typical instrument will have something like the following.

On the lower manual: three ranks of strings, giving 8', 8', 4', each governed by a pedal. The two 8' ranks have slightly different timbres and dynamic levels. The three ranks are used in varying combinations to give *individual* dynamic levels from *pp* to *mf*.

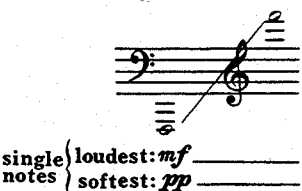
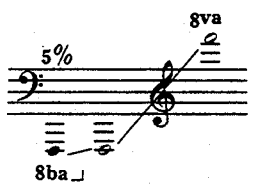
| <i>name of instrument</i> | <i>abbreviations</i> | <i>approximate dates of original use</i> | <i>keyboard range</i> | <i>range of available pitches</i> | <i>availability</i> |
|---------------------------|--------------------------|--|---|---|---------------------|
| harpsichord | hpsi. hpschd. hpd. | 1400–1815 |  |  | common |

FIGURE 269. *The harpsichord—vital statistics.*

On the upper manual: a single 8' rank of strings (governed by a pedal) which may be **muted** either by engaging another pedal or by means of a button above the keyboard that must be drawn or slid by a free hand. The mute is known as the **buff stop** or **harp stop**. The muted tone decays very rapidly, is much less bright than the ordinary harpsichord sound, and is dominated by the instrument's attack noise. It sounds more like a classical guitar (with someone knitting along in time) than a harp.

There will always be a **coupler** for the two manuals, engaged either by pedal or by shoving in or pulling out some one of the manuals themselves. The coupler is mostly used to bring all four ranks of strings together for the *mezzo-forte*.

In addition to all this, there may be other, less standard stops, each with a pedal. Most common of these is the **lute stop**, which gives a snarly *sul ponticello* effect by plucking one or another of the 8' ranks near the ends of the strings. A few large harpsichords have a ponderous 16' rank of strings (lower manual), and there may be a rare **peau de buffle** stop in which the use of special leather quills tones down the attack noise. Finally, there may be a second 8' rank of strings on the upper manual.

The various dynamics specified above refer to single notes only; as with any other keyboard instrument, the greater the number of notes sounding together the louder the sound will be. A good, strong *forte* can be had from the instrument when a full, chordal texture is employed together with full registration. The *fortissimo*, however, is unavailable even in large tone-clusters—which, by the way, give hardly any sense of pitch, sounding more like a delicate and domesticated crash of surf than anything else.

Unlike an organist, a harpsichord player has a modicum of touch control over the dynamics of the instrument. Normal practice with the harpsichord, as with the harp, is to *slightly* arpeggiate every chord, and the speed with which this is done affects the perceived dynamic level: the faster the arpeggiation the louder the effect. A chord will only be struck non arpeggiato to give the impression of a *sforzando*. Varied arpeggiation is also used to give the impression of legato, tenuto, etc.

Increasingly, harpsichords are modeled after specific historic states of the instrument. Those based on pre-eighteenth-century instruments have no pedals, a four-octave keyboard (usually C₀–c³),* only one to three ranks of strings, and usually just one manual. “Decadent”

* The C₀, E_{b0}, F₀, and A_{b0} may be missing and the remaining keys organized into a **short octave** whereby the “E₀” key gives C₀, “F₀” gives D₀, and “G₀” gives E₀.

late-eighteenth-century types may have every gadget already described plus swell shutters, a “bassoon” stop of parchment laid across the strings, or other items, but the trend is generally away from such overloaded instruments.

Like the piano, harpsichords are built in different formats. An upright harpsichord is a **clavicytherium**, an oblong or trapezoidal one is a **virginal** (or **virginals**) if strung crosswise, a **spinet** if strung diagonally. The terms “spinet” and “virginal(s)” were used at various times and places to refer to the harpsichord in general; on the other hand, the term “harpsichord” has been used as a specific designation for the ordinary, wing-shaped “grand” form of the instrument.

The virginal is of special interest because it seems to be nearly as old as the “grand” harpsichord and because most models have a very sweet, beautiful tone—not at all brilliant or pingy—due to the strings being plucked near the center instead of toward one end. Virginals have a four-octave range, one manual, and a single 8' rank of strings sounding *piano*.

In performing early music on the harpsichord one must bear in mind the capabilities of instruments built at the time the music was written. The earliest harpsichords had a single 8' rank of strings. Varied registration (8', 4', buff and lute stops) became available around 1580, but changes in registration were effected not by pedals but by moving the keyboard or the jack rail, or by hand-operating a slider or button, or by pressing a knee lever; such changes could thus only be made between movements, not during the course of play. Double manuals were also introduced at this time but appear to have been used only for transposing. Double, non-transposing manuals appeared around 1700, and pedals were added in the late eighteenth century. *Peau de buffle* and 16' stops should only be used for post-Baroque music. The harpsichord ended its days accompanying the recitative in operas; it is seldom appropriate to use the harpsichord for keyboard music written after about 1785.

For modern special effects the harpsichord is much less flexible than the piano. Only the uppermost rank of strings is accessible to direct manipulation or “preparing,” and which rank that is varies from instrument to instrument. Plucking a string will produce a muffled “thunk” unless its key is depressed—and it is impossible to depress a key silently unless all stops have been disengaged.

On the other hand, the instrument is much more adaptable to special tunings than is the piano, since its individual ranks are single-strung rather than triple-strung and the strings are under much less tension than those of a piano. The upper manual, for example, could easily be tuned a quarter-tone flat, so that between the two manuals twenty-four notes to the octave could be obtained.

MUSICAL EXAMPLES

HARPSICHORD:

J. S. Bach, *Brandenburg Concerto No. 5*.

Rameau, *Pièces de clavecin II* (1724)

D. Scarlatti, Sonatas K. 420 and 421

Falla, Concerto for harpsichord, flute, oboe, clarinet, violin, and cello

Ligeti, *Continuum*

THE CLAVICHORD

The clavichord is at once the simplest and the most expressive of keyboard instruments. Each key is a simple lever at the far end of which is an upright metal blade called a **tangent**. When the key is depressed the tangent rises up and strikes the string, *remaining in contact with it* and acting not only as a tone producer but as a bridge dividing the string into two acoustically separate portions. The left-hand portion of the string (they run crosswise, as in the virginal) is prevented from vibrating by a damper felt running past it, and the note is produced only by that portion of the string lying to the right of the tangent. When the key is released the damper felt—now in acoustic communication with the vibrating part of the string—instantly damps the sound, giving the notes a characteristically crisp release. This crispness gives the clavichord great clarity of line, even at very high speeds, and enables the production of unbelievably sharp staccatos, even staccato trills.

Because the tangent imparts its energy at the (acoustic) very end of the string the resulting sound is very soft, but it has a high degree of harmonic development. The clavichord's extreme softness restricts it to use as a solo instrument played for the performer's own enjoyment or for, at the most, about twenty people in a space no bigger than the average living room. The instrument can play in ensemble with voice, recorder, bass flute, harp, guitar, or lute, but in every case as a distinctly unequal partner. True equality of ensemble could be obtained only if the clavichord's partner were percussion (specifically, idiophones) played finger-style—needless to say, this is a strictly modern option.

Played by itself, to oneself, the clavichord's softness is psychologically transformed into an ordinary dynamic range. This is reflected in the traditional dynamic notation for the instrument, which corresponds to reality roughly as follows:

| | | | |
|-----------------------------|-----------|------------|-----------------------------|
| | | <i>mp</i> | |
| | <i>ff</i> | | |
| | | <i>p</i> | |
| <i>traditional notation</i> | <i>f</i> | | <i>actual dynamic level</i> |
| | | <i>pp</i> | |
| | <i>p</i> | | |
| | | <i>ppp</i> | |
| | <i>pp</i> | | |

In this scheme the levels *mf* and *mp* are hardly ever used. The clavichord is played with an extremely light touch, and the key dip is only a few millimeters. Because of this it is possible to play up to five parallel "glissandos" (i.e., key rips) in each hand—an interesting effect that has never to my knowledge been exploited.

All surviving historical clavichords are double-strung—that is, each tangent strikes a pair of strings—to augment the volume and fill out the tone. Some are even triple-strung in the bass. Despite this, as many as half of the clavichords built today are single-strung and, therefore, sound rather thin and puny.

The clavichord's high harmonic development means that, as with the harpsichord, thick chords in the bass do not lose clarity. Tone-clusters, however, do not have the white-noise pitchlessness of harpsichord clusters. The tone of the clavichord is best described as intermediate between harpsichord and lute. Notes last about as long as they do on the harpsichord. The "lute" aspects of the tone are due to the fact that the player's finger remains in direct mechanical contact with the string throughout the duration of each note, with a resulting expressiveness of tone that is unknown in any other keyboard save the clavinet, the clavi-

| <i>name of instrument</i> | <i>abbreviations</i> | <i>approximate dates of original use</i> | <i>keyboard range (written & sounding)</i> | <i>availability</i> |
|---------------------------|----------------------|--|--|---------------------|
| clavichord | clav. | 1350–1795 | | rare |

FIGURE 270. *The clavichord—vital statistics.*

chord's electric offspring. One can even make a vibrato by varying the pressure on the key after the note is struck. This vibrato is usually referred to by its old German designation,

Bebung, and was originally indicated thus: . There is no reason why modern writers should not substitute the modern expression “vibr.”

Bent tones can also be produced, a quarter-tone or more above the unbent pitch (up to a half-step in the bass of many instruments), though it must be stressed that the bending occurs only after the attack. If secure, steady quarter-tones are desired, the instrument must be retuned, as it easily can be (downward only).

Further modern effects are possible—striking, sweeping, or plucking the strings (a dull “thunk” markedly lower in pitch than the equivalent ordinary note), or sweeping a chord after its keys have been (slowly and carefully) depressed silently, or “preparing” the strings, piano-fashion—but none of these seems very worthwhile.

The larger range given in Figure 270 is that of the clavichord at the peak of its development in the late eighteenth century. Clavichords built to earlier patterns will have smaller ranges—usually the four octaves C_0 to c^3 . Many of these are of a type known as **fretted clavichords**. Such instruments have *more than one key for each string* (or course of strings). This is possible because the tangents act as bridges, and one string or course can thus be used to produce several different pitches. In a fretted clavichord notes using the same string(s) cannot be played simultaneously, as only the highest will sound. Such “forbidden” chords are usually minor seconds in distant tonalities (C and $D\flat$, $D\sharp$ and E, F and $G\flat$, $A\sharp$ and B), though occasionally three notes will play from one string (for instance $C\sharp$, D, $E\flat$) making a “forbidden” major second.

Fretted clavichords are often so small and light that they can be easily carried under one's arm.

MUSICAL EXAMPLES

CLAVICHORD:

C. P. E. Bach, Sonata No. 4 from *Achtzehn Probe-Stücken in sechs Sonaten* (W. 63/4) (Many “clavier” works not specifically requiring the clavichord are primarily conceived in terms of that instrument. See, for example, J. S. Bach's *Chromatic Fantasy and Fugue* in D minor, BWV 903, or Haydn's sonatas nos. 31–33, Hob. 46, 44, and 20.)

EARLY ORGANS

In its modern form the organ is an instrument that has actually evolved backward; since about 1920 organ building has concentrated on the revival of eighteenth-century stops and divisions in instruments of otherwise modern pattern. Because of this, many modern organs are perfectly suitable for the performance of even the oldest organ repertoire, provided that the organist uses appropriate registration.

There is no room here to go into a detailed history of organ design and registration, which every organist must study in some detail if organ music of varied times and places is to be rendered convincingly. The following is a brief outline.

The earliest organs (descended from the still earlier Greco-Roman **hydraulos**) are of the type known as **positive** or **chamber organs**—small, movable but not portable instruments with one manual and no pedals. Medieval organs had flue pipes only and were fixed in timbre and dynamic level, without separate stop controls. They did, however, have several ranks of pipes, and thus sounded as what would now be called a *cornet* stop.

Around the beginning of the fourteenth century the organ began to grow, and by 1425 instruments as monstrous as any built today were being made, with up to three manuals (after ca. 1360) and/or pedals (after ca. 1300). The pedals were mere pulldowns, and the extra manuals were added only to extend the range upward and/or downward—the instrument could only play “full organ,” often, after the addition of reed stops in about 1400, a very loud “full organ.” The much softer positive organ remained in use side by side with its giant offspring.

Introduction of separate stops for contrasting loudness and timbre occurred in both positive and “great” organs around 1450. At first this simply involved building contrasting divisions of pipes for each manual; a bit later, stop knobs were introduced; and by the beginning of the sixteenth century the organ had achieved essentially its modern form. The swell box and crescendo pedal are eighteenth-century inventions associated with the rise of the Classical style, and almost all imitative stops are of nineteenth-century origin.

The positive organ became a secular instrument and survived until the late eighteenth century as a continuo instrument. It has now been revived, as have slightly larger chamber-type organs with pedals. A positive organ per se never has ranks of lower than 16' or higher than 2' pitch, and has a keyboard of limited range, usually F_0 or C_0 to a^2 or c^3 . It will typically have four or five stops, possibly including one 8' semichorus reed.

There is a *forte* semichorus reed of unbelievably snarling tone called the **regal**, and from roughly 1460 to 1720 there was a type of positive organ, also called “regal,” provided *only* with that timbre.* The regal's single keyboard has the same sort of range as a positive organ's, and the instrument may be provided with 4' and/or 16' stops. Many models have a removable cover that can be placed over the reeds to reduce their loudness—rather like an organ swellchamber.

Finally, there is the medieval **portative organ**, a genuinely portable organ with a single rank of 4' flue stops that is usually an open metal diapason. This instrument is held in the lap

* It is difficult to imagine for what it could have been used in its last half-century—perhaps as a continuo instrument at dances and outdoors?

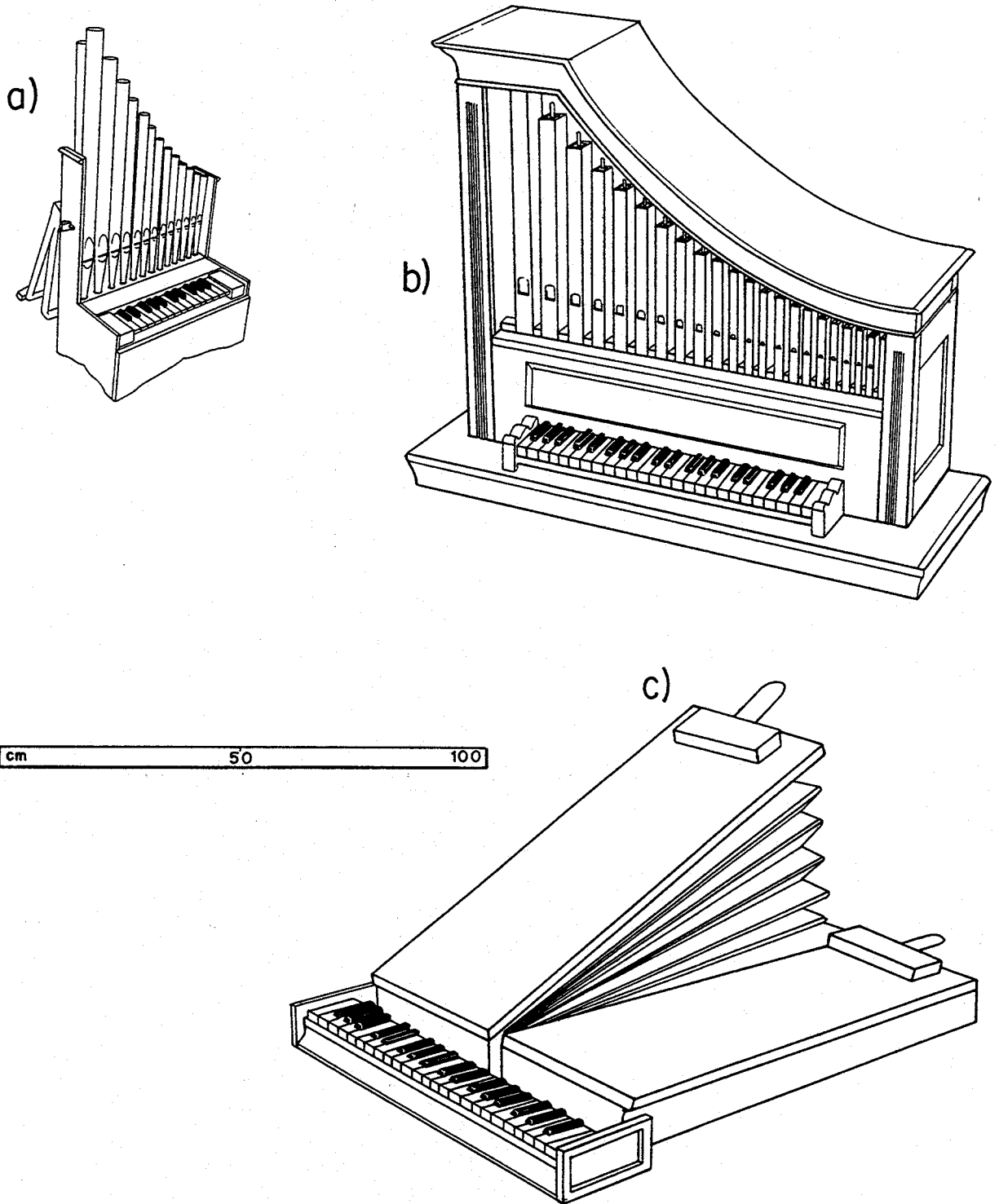


FIGURE 271. *Small organs: (a) portable organ; (b) positive organ; (c) regal.*






| <i>name of instrument</i> | <i>abbreviations</i> | <i>approximate dates of original use</i> | <i>keyboard range</i> | <i>range of available pitches</i> | <i>availability</i> |
|---------------------------|----------------------|--|--|---|---------------------|
| portative organ | port. | 1250–1500 |  loudness: <i>p</i> _____ | sounds 1 octave higher | rare |
| positive organ | pos. | –1785 |  single notes } loudest: <i>ff</i> } softest: <i>pp</i> |  | very rare |
| regal | reg. | 1460–1720 |  <i>f</i> _____ |  | very rare |

FIGURE 272. *Early organs—vital statistics.*

at right angles to the player's body; the right hand plays the keys while the left works the bellows (all other organs require an assistant to pump the bellows, or else an electric blower). Because of the angle at which the right hand must be held, chords and polyphony are awkward, and the portative organ is therefore a monophonic ensemble instrument. Theoretically at least, the thumb could be used for drones, though usually only the index and middle fingers are employed in playing.

The range of modern portatives has been virtually standardized at c^1 – c^3 , reading, of course, an octave lower for virtually all medieval music.

MUSICAL EXAMPLES

REGAL AND POSITIVE ORGAN:

Monteverdi, *Orfeo* (Act IV)

Kagel, *Musik für Renaissanceinstrumente*

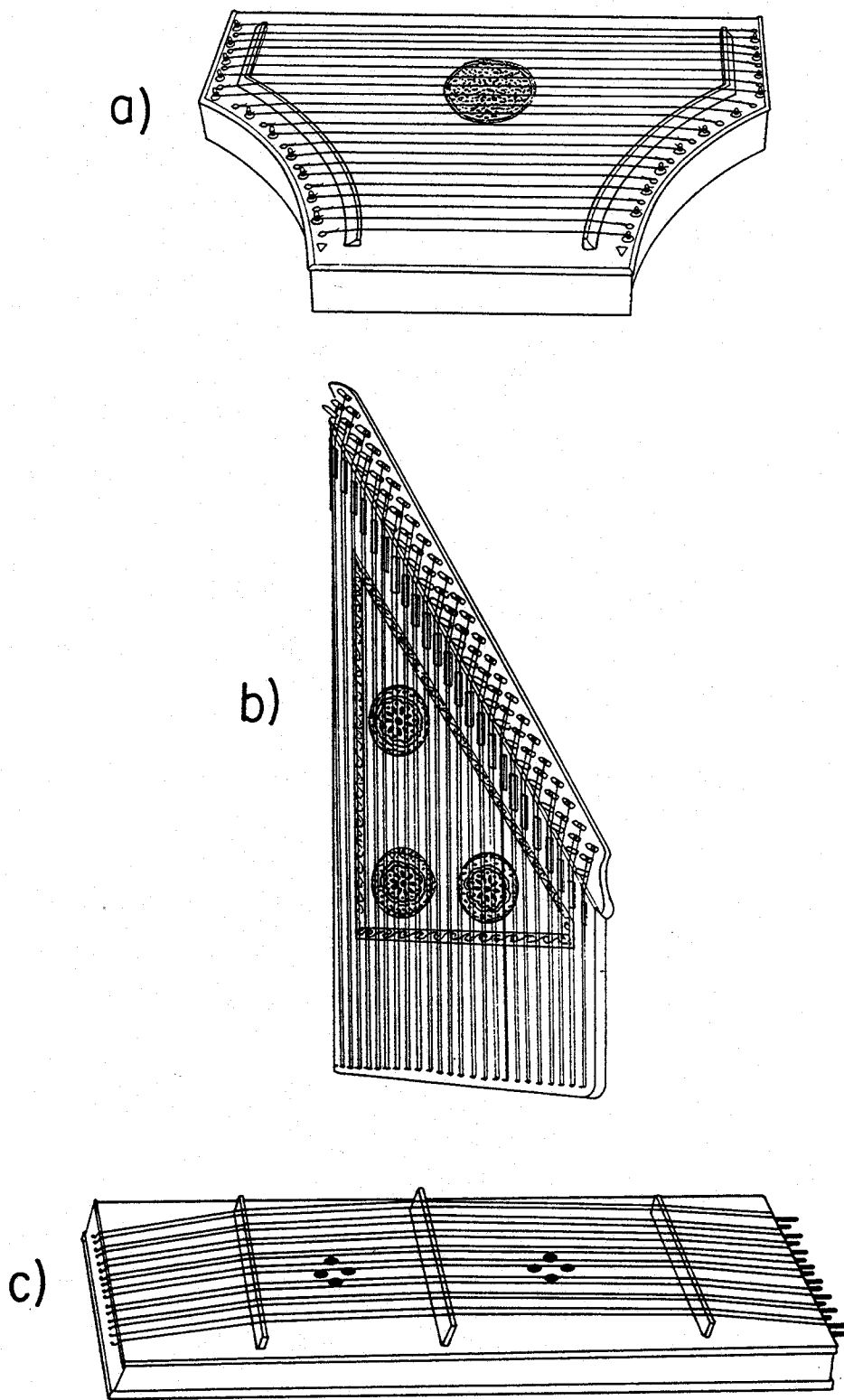


FIGURE 273. *Psalteries and dulcimer: (a) "pig's head" psaltery; (b) medicinale; (c) dulcimer.*

PSALTERIES AND DULCIMERS

The psaltery and dulcimer are the keyboardless ancestors of the harpsichord and piano, respectively. They belong to the organological category of **zithers**—neckless instruments in which the soundboard underlies the full length of every string. Both are now and have always been highly variable instruments. The essential difference between the two is that a psaltery is plucked while a dulcimer is struck with short, thin wooden beaters resembling those of the modern cimbalom—itself a very advanced sort of dulcimer.

Psalteries can be either held across the chest and plucked directly by the fingers of one hand (with or without wire finger-picks) or with a single feather plectrum, or laid flat on a table and plucked with a pair of feather plectra. They vary a great deal in form, being rectangular, symmetrically trapezoidal (with or without incurved “pig’s head” sides), or wing-shaped (a type known as the **medicinale**). The wire strings, in ten to seventeen courses, could be singly or multiply strung, the latter more and more prevalent in the later development of the instrument. The range varies from a diatonic tenth to an octave more than that, still diatonic, upward from a^0 , c^1 , f^1 , or g^1 . In the late fifteenth century chromatic psalteries were occasionally made, covering a similar range with up to twice as many courses, single-strung.

The dulcimer, always laid flat, was typically a symmetrical trapezoid, often with a bridge down the middle dividing the strings into two unequal portions to double the number of available notes. Like the psaltery, the dulcimer is wire-strung; typically, there are three or four strings in each course. The range is usually smaller than that of the psaltery—a diatonic octave, tenth, or twelfth upward from c^1 , f^1 , g^1 , or c^2 .

Thus for instruments of reasonably authentic pattern; unfortunately, a majority of the psalteries and dulcimers made today are unacceptably inauthentic. One sees such things as late (folk-instrument) dulcimers with multiple bridges and interlaced courses, or little artsy-craftsy psalteries with no relationship to any real instrument ancient or modern.

It will be noted that both psaltery and dulcimer are quite high-pitched; presumably they were played at 4’ pitch. Unlike the psaltery, the dulcimer appears always to have been predominantly a popular instrument—strictly so after about 1500—and it should probably only be used for dance music and the like. Both instruments became folk instruments during the course of the sixteenth century. The psaltery and the dulcimer both have a very attractive, delicate, tinkling tone, the latter with a slightly spitting percussive attack. The sound decays very quickly, lasting little more than a second even at the bottom of the range.

| <i>name of instrument</i> | <i>abbreviations</i> | <i>approximate dates of original use</i> | <i>range</i> | <i>availability</i> |
|---------------------------|----------------------|--|---|---------------------|
| psaltery | psalt. ps. | 1100–1500 | variable loudest: <i>mp</i> softest: <i>ppp</i> | rare |
| dulcimer | dulc. | 1400–1500 | variable loudest: <i>mp</i> softest: <i>ppp</i> | very rare |

FIGURE 274. *Psaltery and dulcimer—vital statistics.*

There was a gut-strung psaltery in the shape of a right triangle, held and played like a harp, which Sybil Marcuse has labeled **rote**, though this term is more commonly used to designate the medieval bowed lyre. As no other name has been advanced for the instrument now in question, however, "rote" it must be, at least for the nonce. Because the soundboard gets in the way of the right hand, only the left hand can pluck the strings of this instrument; the right is used to support it. "Rotes" were made psaltery-sized, but also in bigger varieties; a large modern "rote" would probably descend to c^0 . The range is, once again, variable, but is usually two diatonic octaves.

EARLY HARPS

The medieval and Renaissance ancestors of the modern harp differ from it quite strikingly in tone, due to the presence of **bray pins** set in the soundboard next to the strings. The buzzing of the strings against the brays gives both the medieval and Gothic (i.e., Renaissance) harps a brittle, nasal twang that is, though not indelicate, most unharplike to modern ears. Furthermore, medieval harps are strung in wire rather than gut, giving the instrument a bit of the tinkling sound of a psaltery. Gut strings were used on a minority of harps starting in the late fourteenth century, and the Gothic harp is usually but not invariably gut-strung; harps were occasionally wire-strung as late as the eighteenth century. The brays give these instruments a clarity of line not found in the blurred tones of modern and Baroque harps.

The range (and hence the size) of medieval harps was and is highly variable: as few as six strings to as many as twenty-five (three and a half octaves), with ten to seventeen strings being usual. The range, whatever it is, presumably fits within the standard medieval gamut of G_0 to e^2 . Fifteenth-century Gothic harps had a similarly small and variable range, but by the sixteenth century the range had more or less standardized at F_0 - a^2 , with some instruments giving C_0 - e^2 and a few giving the combined range of both types.

Early harps are diatonic instruments, without the elaborate mechanism of forks and pedals that gives chromatic capability to modern harps. It was apparently commonplace for medieval harpists to retune while performing. Renaissance players did this much less often, but they did at least occasionally press a finger against a string to raise its pitch a half-step.

Baroque "double" and "triple" harps, usually brayless (invariably so after 1625) and with two or three parallel or interlaced sets of strings to give a complete chromatic range, first appear around 1550. They sound much like modern harps. As part of the experimentation leading to the Baroque harp, there was a brief vogue for the **Irish harp**, a folk instrument that had been following its own line of development since the Middle Ages and would continue to do so up to the nineteenth century. During its brief moment of glory as an art-music instrument it had brayless metal strings and was chromatic from c^1 up. This Renaissance Irish harp is played with the fingernails (grown long for the purpose) and is reported to sound much like a virginal.

The vast majority of modern "early" harps are nothing of the kind. Small in range, strung in gut (or, rather, nylon), neither medieval nor Gothic in form and built *without brays*, such instruments are in fact modeled, directly or ultimately, on Scottish and Irish folk

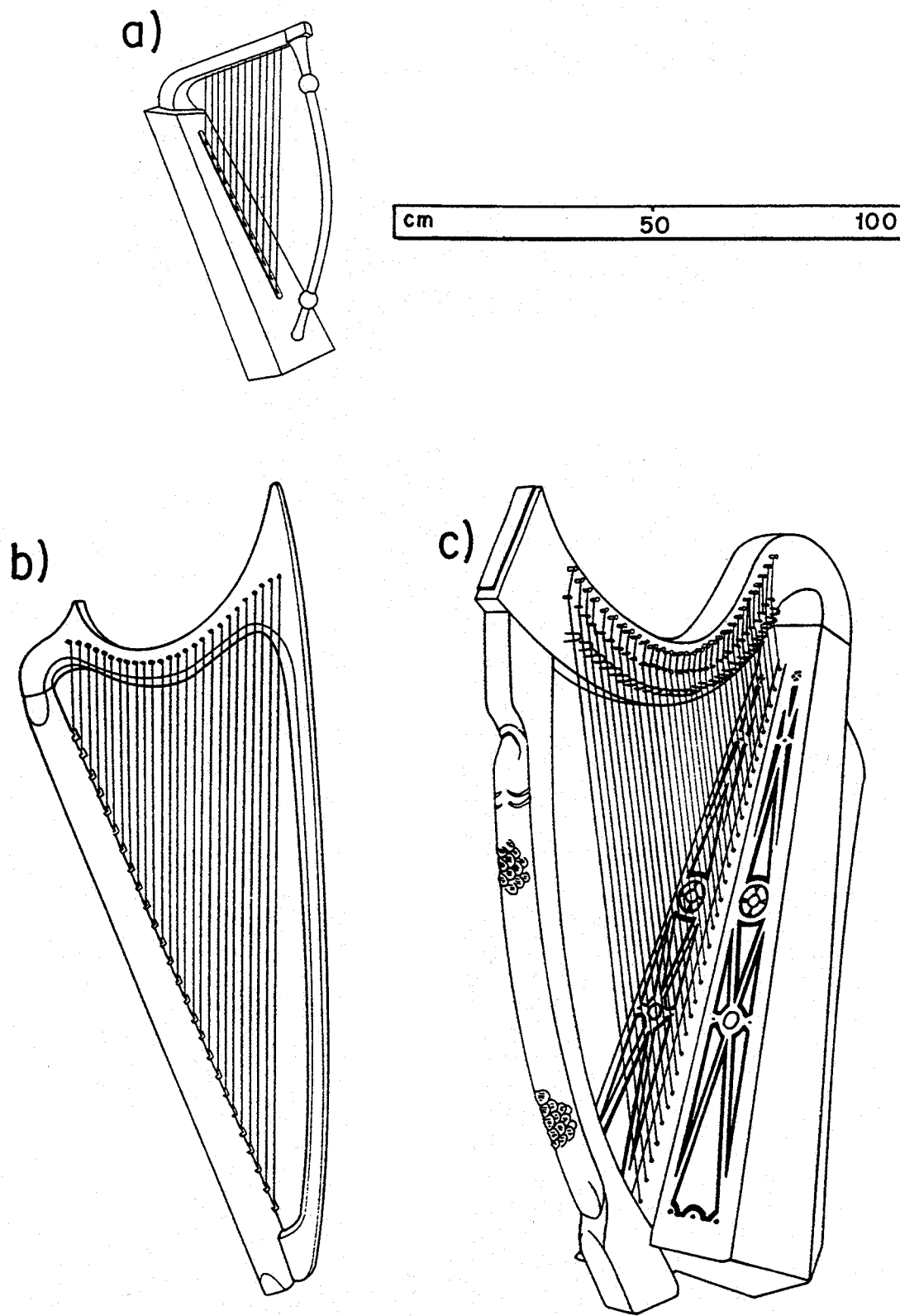


FIGURE 275. *Early harps: (a) medieval; (b) Gothic; (c) Irish.*


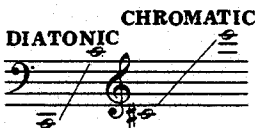
| <i>name of instrument</i> | <i>abbreviations</i> | <i>approximate dates of original use</i> | <i>written range</i> | <i>sounds</i> | <i>availability</i> |
|---------------------------|----------------------|--|--|---------------|---------------------|
| medieval harp | med. hp. | until 1450 | variable single notes { <i>mp</i> loudest <i>ppp</i> softest | as written | very rare |
| Gothic harp | Gth. hp. | 1400–1625 |  single notes { loudest: <i>mf</i> softest: <i>ppp</i> | as written | rare |
| Irish harp | Ir. hp. | 1580–1625 |  single notes { loudest: <i>mf</i> softest: <i>ppp</i> | as written | very rare |

FIGURE 276. *Early harps—vital statistics.*

harp of the nineteenth century. Cute as they may look and sound (Lou Harrison has written very effectively for this type of harp), they are not even remotely like the true Renaissance or medieval harp. Fortunately, there are a few makers of more authentic instruments.

THE MEDIEVAL LYRE

Organologically a lyre is a stringed instrument whose soundbox has a **yoke** consisting of two upward-extending **arms** linked across their ends by a **crosspiece**. The strings run from the crosspiece to the opposite end of the body. On fully developed medieval lyres (i.e., after ca. 1000) the whole thing is in one piece, or built to look as if it were.

Historically these instruments were extremely variable in form, size, number and tuning of strings, and manner of playing. The modern resurrection of the lyre has only just begun and is proceeding very slowly, despite the great importance of the instrument in the twelfth and thirteenth centuries. So far only a handful of makers build lyres, and these lyres (especially those designated “crwth” or “crowd”) are often based on post-medieval folk lyres.* The following discussion is based on what is known of actual medieval lyres and presumably will correspond with modern reality once the reconstruction of these instruments gets underway in any serious fashion.

The size may vary from cello-sized to violin-sized—possibly representing three distinct types—with the majority viola-sized or a bit larger. The pitch of a string would then theoretically lie somewhere between G_0 and e^2 (the medieval gamut), most likely between c^0 and a^1 .

* It does seem, however, that “crwth” is likely to become the standard modern English name for this instrument.

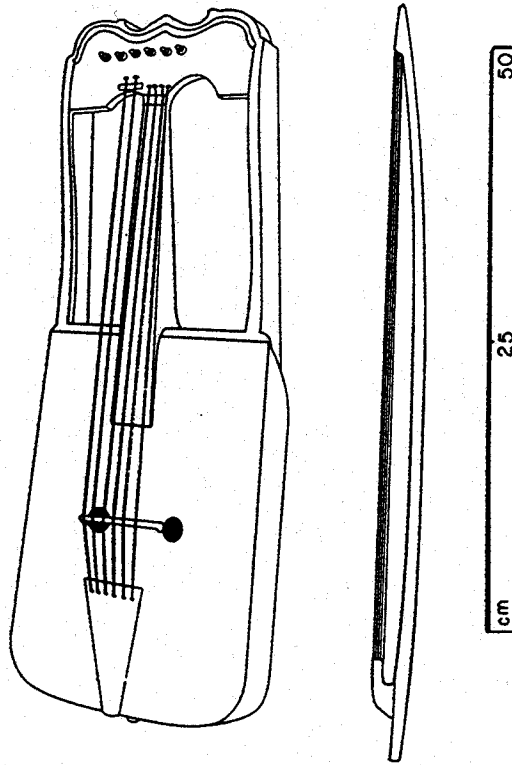


FIGURE 277. *Medieval lyre, with bow.*

| <i>name of instrument</i> | <i>abbreviations</i> | <i>approximate dates of original use</i> | <i>range</i> | <i>tuning</i> | <i>availability</i> |
|---------------------------|----------------------|--|--|---------------|---------------------|
| (bowed) lyre (crwth) | (none) | -1400 | variable loudest bowed: <i>f</i> loudest plucked: <i>mf</i> softest: <i>ppp</i> | variable | very rare |

FIGURE 278. *The lyre—vital statistics.*

Unlike Classical and early medieval lyres, the high-medieval lyre was normally bowed, with an arcuate bow resembling that of the fiddle. The strings therefore run parallel to each other, rather than fanning out from the bridge as on earlier lyres. The strings usually number three or four, though there may exceptionally be as many as nine; at any rate, all but one of the strings are drones. The melody string is stopped by reaching through the yoke from behind (below) and pressing *sideways* against the string with either the tips of the fingers or the backs of the fingernails. This is true even of those lyres in which the strings are backed by a “fingerboard” running between the crossbar and the top of the body. Sometimes the hand reaches around the instrument to the front, instead of through the yoke.

All the drones must be sounded at once, since the bridge is flat. On waisted or narrow-bodied lyres the bow can be tilted so that only the melody string sounds, but on wider specimens all strings must be sounded at once. The instrument was quite frequently played *pizzicato*—a survival of its former non-bowed status—though probably not alternating *pizz.* and *arco* within a single item of music.

The tone of a bowed lyre resembles that of a hurdy-gurdy, though not so thin nor with the squeak of articulation noise that begins every hurdy-gurdy note.

THE LUTES

Most of the stages of the lute's long and complicated history are now represented by modern instruments. It is probably best to start not at the beginning but in the middle, with the Renaissance lute, the most common type available today. This is an instrument with eleven gut strings (nowadays usually nylon) arranged in six courses; the uppermost string (the *chanterelle*) is single while the others are geminated. The lowest three courses usually are octave pairs of strings (i.e., 8' + 4'), but practice varies from player to player and some or all of these may be unisons instead. The neck is provided with eight frets, and the range and tuning are those shown as "normal"—in white notes—at the top of Figure 280. The frets on a lute are usually not inlaid metal but gut (or nylon) tied around the neck. Such frets can be moved to produce unusual scales or temperaments. This is a painstaking and time-consuming procedure, however, and some players may object to it.

The basic playing techniques for both left and right hand are essentially identical to those of the classical guitar—at least as far as the composer or arranger need be concerned—and the left-hand interval stretches are identical as well. Note that when the lute is tuned one step higher (as it not infrequently is) the lowest five courses have exactly the same pitches as the *highest* five courses of the guitar. The rather low tension of lute strings means that harmonics are trickier to get than on the guitar, and nothing above the fifth partial should be attempted.

The tone of the lute is slightly more delicate, focused, and precise than that of the guitar, with a considerably higher harmonic development. Typically, rapid melodic figuration will be picked out on the highest string, with the lower strings either strummed chordally or working together in interlocking counterpoint like that of guitar music, but independent melodic material can be played on any string.

Unlike the guitar, the lute is notated at actual pitch—at least, lutenists prefer it thus—and may be written on two staves if necessary. Actually, lute players are usually happiest with **lute tablature**. Music for lute and other plucked strings was almost invariably notated in tablature throughout the Renaissance and Baroque periods, and any accomplished player will know how to read it. Different tablatures were used at different times and places, but all have certain features in common; the type described below (French lute tablature) is the one most frequently used in early music and is of the greatest potential value to a composer or arranger who wishes to intabulate new music for the instrument.

In tablature a staff of six lines is used: the lines represent the lute's six courses, with the lowest at the bottom. Notes are designated on the staff by lower-case letters of the alphabet standing for the fret at which the string in question is to be stopped; "a" designates the open string, "b" the first fret, and so on. The *combined* rhythm of all notes is indicated separately

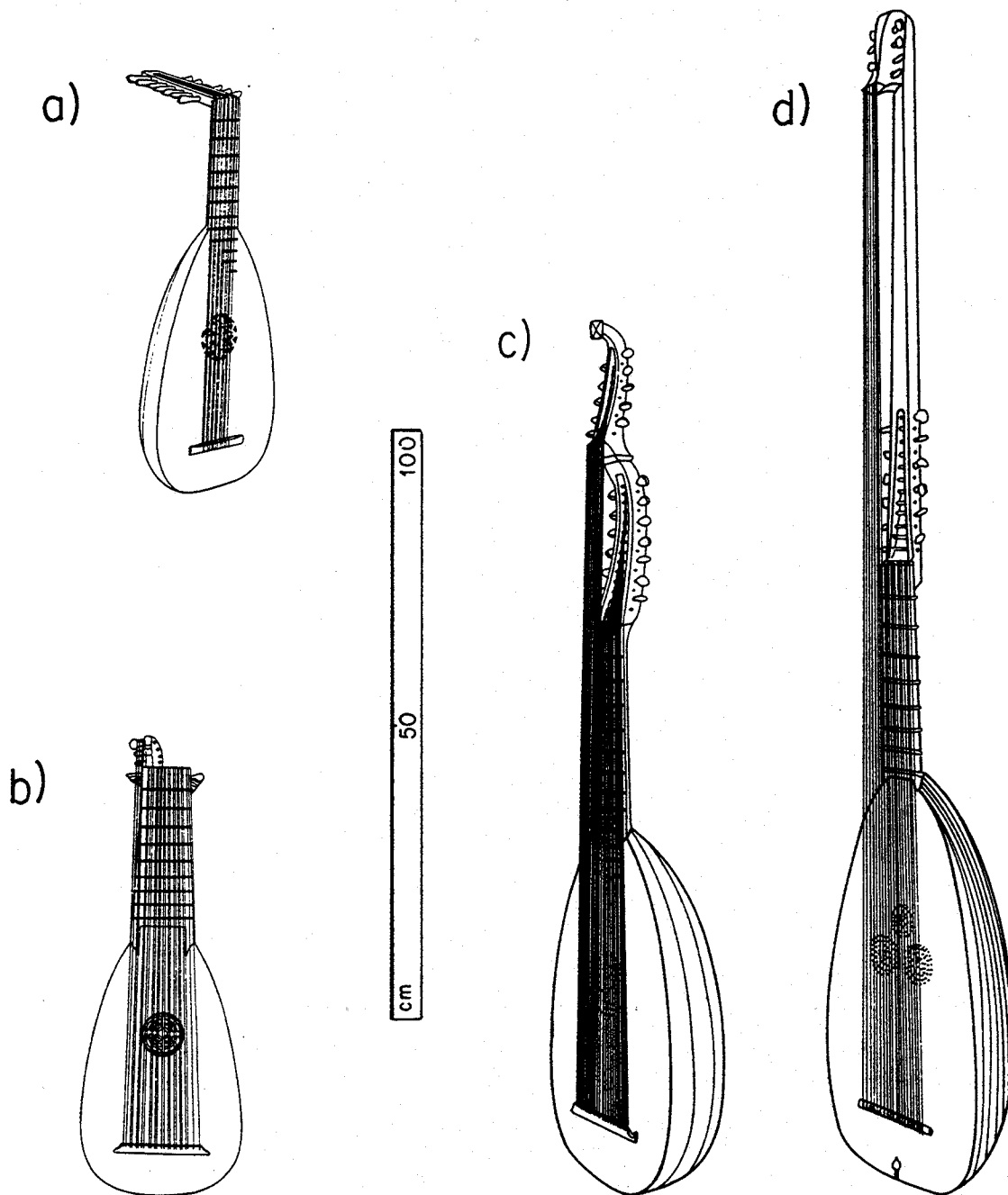


FIGURE 279. *The lute family: (a) 6-course lute; (b) theorboed lute; (c) theorbo; (d) chitarrone.*

above the staff. Out of this combined rhythm the counterpoint is automatically dissected by the assignment of specific notes to specific strings and the general rule that notes be held as long as possible. Figure 281 is an example of how this works in practice. Dynamics and expression marks can be applied to tablature just as to ordinary notation. The principles of this tablature can be applied to any plucked instrument with a fretted fingerboard, even such modern ones as electric guitar and banjo. For such purposes the Spanish tablature may be preferable; in this system numbers instead of letters are used to designate the frets, with "0" being the open string and "1" the first fret.

| <i>name of instrument</i> | <i>abbreviations</i> | <i>approximate dates of original use</i> | <i>range (written & sounding)</i> | <i>availability</i> |
|---------------------------|----------------------|--|---------------------------------------|---------------------|
| (Renaissance) lute | (none) | 1200–1630 | | usually available |
| Baroque lute | lute | 1595–1760 | | very rare |
| theorbo | theo. thrb. | 1580–1740 | | very rare |
| chitarrone | chit. | 1580–1655 | | very rare |

FIGURE 280. *The lute family—vital statistics.*

Even during the sixteenth century variant lutes existed with extra frets and/or extra bass strings. On lutes with a longer neck than usual, the neck has nine frets. On such instruments the space between the first and second fret is equivalent to that between the nut and the first fret on shorter instruments. Whether provided with a ninth neck-fret or not, many lutes have a number of short frets (usually four) set into the **belly** (= soundboard) of the instrument and usually serving only the top one or two courses. By pressing the string against the soundboard it is possible to play notes even beyond the last fret (however many there may be) up to at least $b^{\flat 2}$, but these “extra” notes die almost at once and sound very dead.

In addition to the ordinary six-course lute, lutes with seven to ten courses were in use throughout the high Renaissance, becoming more and more common as the Baroque period approached. The additional courses (always double-strung) were usually tuned as follows:

- 7-course lute D_0
- 8-course lute F_0, E_0 ; or F_0, E^{\flat}_0
- 9-course lute F_0, E^{\flat}_0, D_0 ; or F_0, E^{\flat}_0, C_0
- 10-course lute $F_0, E^{\flat}_0, D_0, C_0$

All these extra courses could be fingered, but except for the seventh course it was usual to play them simply as open strings. Furthermore, the Renaissance lute was also made in small

| <i>name of instrument</i> | <i>tuning</i> |
|---------------------------|---------------|
| (Renaissance) lute | |
| Baroque lute | |
| theorbo chitarrone | |

The lute family—vital statistics, continued.

(treble) and large (bass) varieties tuned, respectively, a fourth higher and a fifth lower than usual, but these have scarcely been revived yet.

In the Baroque period the ordinary "tenor" lute was expanded even further to make it suitable for continuo playing. A diatonic series of single or double (8' + 4') courses was added, bringing the total number of courses to twelve or thirteen. The lowest several of these did not run over the fingerboard and were usually attached to a separate pegbox on an extension of the neck (see Fig. 279), in which case the instrument was called a "theorboed lute" or "archlute." The dividing point between on-board and off-board courses is highly variable; a given lute may have anywhere from six to eleven on-board courses, with the rest being off-board. Whatever the arrangement, it is not usual to finger any of the courses below the sixth; these **diapasons** are merely plucked with the right thumb as open strings. The tuning of the diapasons varies with the key of the piece to be played. In fact, the tuning of the whole Baroque lute was and is highly variable, the three tunings given in Figure 280 being simply the most common and important. At least one seventeenth-century writer complained that lutenists had to spend half their lives retuning, and the situation must have been similar to that prevailing among folk guitarists today.



FIGURE 281. *A sample of lute tablature and its transcription.*

In tablature the diapasons are notated thus:



FIGURE 282. *Intabulation of diapason strings.*

In addition to the ordinary Baroque lute, there were two very large lutes designed specifically for continuo purposes. The **theorbo** and **chitarrone** differ somewhat in appearance but are tuned and fretted the same. In fact, since intermediate types were built, it is not at all clear that they are not really a single type. There are thirteen or fourteen courses—usually six on-board and seven or eight off-board. These can be double-strung 8' unisons throughout, double-strung throughout with octave-sounding diapasons, double-strung on-board courses with single-strung diapasons, or single-strung throughout—particularly on theorboes of early pattern. If the diapasons are octave-sounding, the sixth and perhaps fifth and fourth courses may be so as well. The first course is often single-strung.

The large size of these continuo lutes is calculated to give them the fullest, most resonant, and longest-lasting bass notes possible. Sometimes these instruments, or at least their diapasons, are even strung in wire.

The maximum stretch from index to little finger is only a major third from the first fret, so any kind of scalar passagework requires frequent shifts of the hand up and down the neck. In addition, the first two courses are tuned an octave lower than they are on the lute.

The combination of specialized features found in continuo lutes suits them to the production of relatively slow-moving chord progressions with a firm bass rather than to the intricate counterpoint and rapid melodies of the ordinary lute—though such music can, within limits, be performed on the lower instruments.

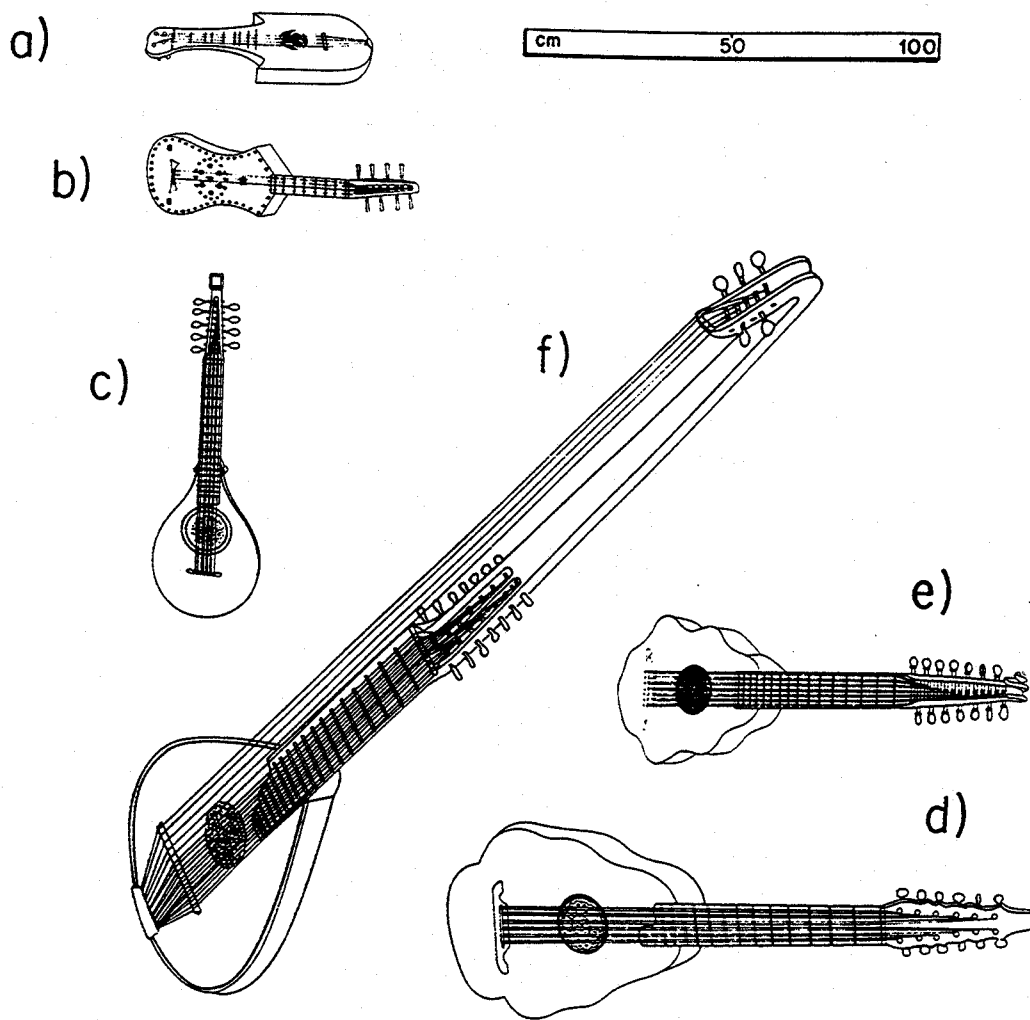


FIGURE 283. *The cittern family: (a) citole; (b) "gittern"; (c) cittern; (d) bandora; (e) orpharion; (f) ceterone.*

The **medieval lute** in its earliest form had only four courses, tuned c^0 , f^0 , a^0 , d^1 (i.e., the middle four of the later lute); it had no frets, and it was played with a plectrum. It could be single- or double-strung. The chanterelle existed at least sporadically from very early on and becomes standard by 1400. The sixth course first appears around 1460 and becomes standard by 1500. Around 1400 four frets were added to the neck, increased by mid-century to the usual eight. Note that the range of notes available from each string remains the same no matter what the number of frets. Between 1450 and 1500 the plectrum gradually fell into disuse.

Though one or two makers claim to build medieval lutes, the earliest style of lute generally available today is a mid-fifteenth-century type with five courses and eight frets. For an earlier type of lute, players use a restrung Arabic *'ūd*, which resembles the medieval lute very closely in most respects. The tone is quite different from that of the Renaissance lute, being very plunky and short-lived. The medieval lute was essentially a monophonic ensemble instrument and did not historically indulge in counterpoint.

The **mandora**, a soprano lute ancestral to the mandolin, appears around 1270 under the name **gittern**. It originally had three or four strings tuned an octave above the medieval lute, had no frets, and was played with a plectrum. The instrument acquired frets (nine of them) on roughly the same schedule as the lute. Renaissance and Baroque mandoras *occasionally* had five or six courses tuned lute-fashion (but an octave up), *occasionally* had geminated strings, and were *occasionally* played with the bare fingers. The mandora was quite highly thought of up to about 1600; in the seventeenth century its prestige declined steadily and at the low point (1700 or so) it was replaced by the mandolin, which has been slowly regaining the long-lost esteem of its ancestor. Very few modern builders have turned to the mandora, and there is apparently only one who makes a Renaissance type. One maker's "tenor" and "bass" varieties can presumably be used as medieval lutes.

Another virtually unrevived lute is the medieval **long-necked lute**, an instrument of approximately the proportions and range of a banjo, with three or four metal strings tuned variably and a long, fretted fingerboard. This instrument, played with a plectrum, was in use in art music up to about 1400, after which it became first a popular instrument (under the name **colascione**) and then a folk instrument. Modern musicians use Middle Eastern equivalents such as the Syrian *tanbura*. Their tone is twanging and plunky, and a good notch louder than the lute.

MUSICAL EXAMPLES

RENAISSANCE LUTE:

Des Prez/Spinacino, *La Bernardina*

Dowland, *Forlorn Hope Fancy*

Morley, *The First Book of Consort Lessons*, No. 12: "Goe from my window"

BAROQUE LUTE:

D. Gaultier, *La Rhétorique des dieux*, Suite II in A

J. S. Bach, *Suite* in E minor for lute, BWV 996

F. J. Haydn, *Cassation* in C for lute, violin, and cello

(arrangement of string quartet Hob. III, 6)

THEORBO:

W. Lawes, *The Royal Consort*, Suite No. 2 in D minor

CHITARRONE:

Monteverdi, *Orfeo*

THE CITTERN

The cittern differs from the lute in being flat-backed and wire-strung. It is played with a plectrum and has inlaid (and therefore unmovable) frets. The strange **reentrant** tuning reflects the use of individual open strings as drones accompanying whatever string is taking the melody—though the instrument is far from being limited to such accompaniments.

In the Middle Ages the term **citole** was used very broadly to designate any flat-backed, fretted instrument with four strings. Instruments of this type were ancestral to the guitar as

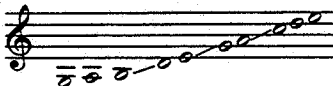

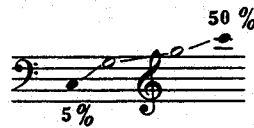


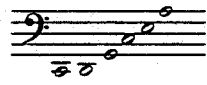
| <i>name of instrument</i> | <i>abbreviations</i> | <i>approximate dates of original use</i> | <i>range (written & sounding)</i> | <i>tuning</i> | <i>availability</i> |
|---------------------------|----------------------|--|--|---|---------------------|
| citole | ctl. | until 1350 |  single notes { loudest: <i>f</i> softest: <i>pp</i> |  | very rare |
| cittern | cit. ctn. | 1500–1650 |  single notes { loudest: <i>f</i> softest: <i>pp</i> |  | very rare |
| bandora | | 1562–1670 |  single notes { loudest: <i>f</i> softest: <i>pp</i> |  | very rare |

FIGURE 284. *The cittern family—vital statistics.*

well as the cittern, and until recently the guitar-like varieties (which started appearing around 1250) were incorrectly referred to as “gitterns,” a term that actually designates the medieval mandora (q.v.). This has led to the production of two distinct types of modern citole reproductions (Fig. 283a, b), both quite authentic, which actually represent extreme forms of a single medieval instrument. Now that the terminology has been straightened out, we may expect to see intermediate forms produced as well.

The “gittern” type of citole differs from the cittern type in several important respects. In the cittern type the strings are of metal, the tuning is reentrant, and the frets are arranged diatonically to produce the gapped range shown in Figure 284. On the d^1 string, for instance, only the following notes would be available: d^1 , e^1 , $f\sharp^1$, g^1 , a^1 , b^1 , c^2 , d^2 , and e^2 . The tone is remarkably similar to that of a banjo, though not as loud, penetrating, or aggressive.

The so-called “gittern,” on the other hand, is gut-strung and produces a more guitar-like sound, albeit one that is short-lived, plunky, and somewhat muffled. The tuning is not reentrant (it is likely to be something like d^0 , g^0 , b^0 , e^1) and the frets are not diatonic. The range is therefore not gapped and is usually a fourth lower than that given in Figure 284. Its maximum volume is only *mp*.

The citole was quite well thought of throughout the Middle Ages, but in the fifteenth century its prestige declined rapidly until it became a rare folk instrument. Sometime in the later part of that century it was transformed into the double-strung, finger-plucked Renaissance guitar (q.v.) and the **cittern**, also double-strung but retaining the use of the plectrum.

This latter instrument had as many different forms and tunings during its history as did the lute, but the vast majority of modern citterns are of the ordinary four-course variety. The cittern never completely regained the esteem formerly accorded the citole, and except for the brief period from 1575 to 1615 or so its acceptance in art music, though real, was grudging and tentative—like the electric guitar today or the classical guitar in the nineteenth century. It should accordingly be kept out of serious ensemble music, except for that composed during the period cited.

The tone of the cittern, though short-lived, is considerably more delicate than that of the citole; it is halfway between mandolin and lute in quality. The cittern's small size gives it a maximum stretch, from index to little finger, of a tritone from the first fret.

Several attempts were made at devising a bass cittern, of which the most important was the **bandora**, invented in 1562 and almost immediately popular. The bandora (or pandora) has six double courses tuned more like a lute than a cittern (a bandora designed to be tuned *exactly* like a lute is called an **orpharion**). The lowest two courses are octave-sounding and the others are unisons. Its tone is beautifully rich, full and resonant, suited for music of dignity and solemnity. It sounds almost like a virginal but with a bit more twang, because of the geminated strings. Maximum stretch from the first fret is a perfect fourth.

Another type of bass cittern is the **ceterone** (1590–1625), which resembles the chitarone in appearance as well as in name. Originally a highly variable instrument, modern copies tend to reproduce one particular surviving specimen with seven double on-board courses and five single off-board ones. The upper courses are tuned cittern-fashion; the instrument as a whole descends to D_0 or C_0 and ascends to b^2 . It sounds (surprise!) like a bandora.

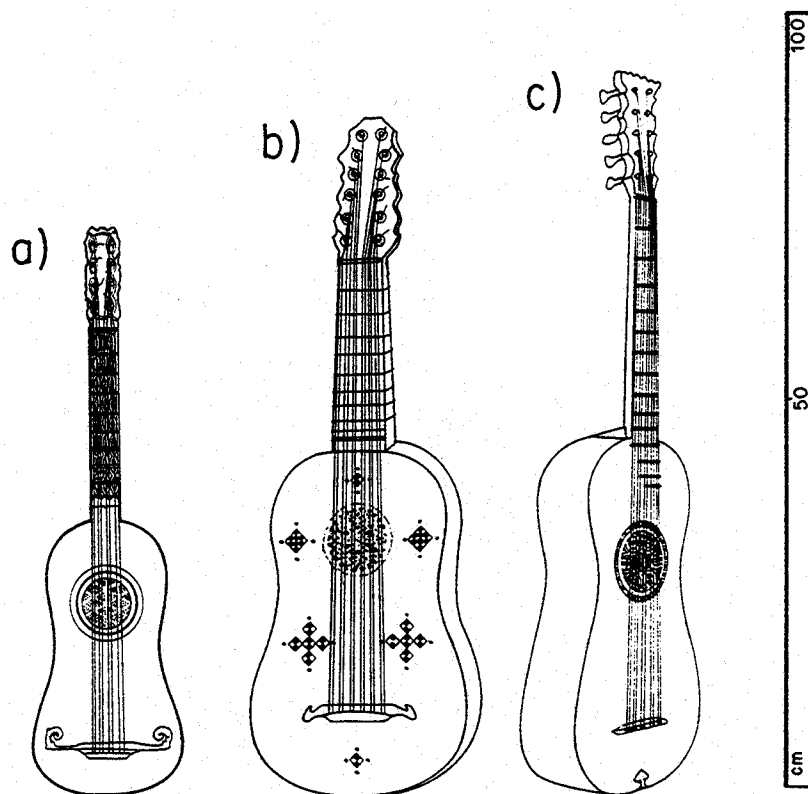


FIGURE 285. *Early guitars: (a) Renaissance guitar; (b) vihuela; (c) Baroque guitar.*

MUSICAL EXAMPLES

CITTERN:

Holborne, Galliard for cittern and bass, from *The Citharn Schoole* (1597)
 Morley, *The First Book of Consort Lessons*, No. 12: "Goe from my window"

BANDORA:

Dowland, Galliard, from the *Braye bandora MS*
 Morley, *The First Book of Consort Lessons*, No. 12: "Goe from my window"

EARLY GUITARS

As string instruments go, the guitar has been remarkably conservative throughout its long history. Some medieval citoles were even more guitar-like in appearance than the one shown in Figure 283b; modern reconstructions are distinctly guitar-like in sound as well, though this may be due partly to retrospection on the part of the builders.

Renaissance and Baroque guitars are double-strung instruments, plucked directly with the fingers and normally reading from tablature. The Baroque instrument sounds much like the modern one, if slightly lute-like. Its two lowest courses may be tuned as 8' unisons, 8' + 4' octaves, or 4' unisons. The high-pitched Renaissance guitar sounds rather like a coarse-

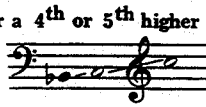


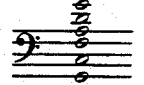

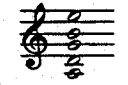
| <i>name of instrument</i> | <i>abbreviations</i> | <i>approximate dates of original use</i> | <i>written range</i> | <i>tuning</i> | <i>sounds</i> | <i>availability</i> |
|---------------------------|----------------------|--|---|--|----------------|---------------------|
| Renaissance guitar | guit. | 1450–1650 | <p>or a 4th or 5th higher</p>  <p>single notes } loudest: <i>mp</i> } softest: <i>ppp</i></p> |  <p>or L or a 4th or 5th higher J</p> | as written | very rare |
| viheula | vih. | 1500–1590 |  <p>single notes } loudest: <i>mp</i> } softest: <i>ppp</i></p> |  | as written | very rare |
| Baroque guitar | guit. | 1550–1750 |  <p>single notes } loudest: <i>mp</i> } softest: <i>ppp</i></p> |  | 1 octave lower | very rare |

FIGURE 286. *Early guitars—vital statistics.*

toned soprano lute; its tones last far longer than one would expect at this high pitch. The lowest course is octave-strung; the uppermost is usually an ungeminated chanterelle.

Throughout the Renaissance and Baroque periods the guitar was immensely popular but not as highly esteemed as the lute, and its literature is more limited.

The **vihuela** is a guitar strung and tuned like, and sounding almost exactly like, a lute. Historically its use was restricted to Spain, where it was substituted for the lute and shared the lute repertoire.

All these early guitars have movable, tied-on, gut or nylon frets.

MUSICAL EXAMPLES

RENAISSANCE GUITAR:

Mudarra, Pavana III, from *Tres libros de musica* (1546)

VIHUELA:

Milan, Fantasia XI, from *El Maestro* (1536)

THE VIOLS

Early bowed instruments were usually developed by the application of the bow to some pre-existing plucked type. We have already seen this with the lyre. It may help to keep these instruments straight if the equivalencies are laid out here in tabular form.

| <i>original plucked instrument</i> | <i>bowed adaptation</i> |
|------------------------------------|-------------------------|
| lute | viol |
| gittern | rebec |
| citole | fiddle |

The relationship between lute and viol can be clearly seen in their joint possession of movable, tied-on, gut or nylon frets and of six gut strings tuned in an identical pattern (compare the lute tuning to that of the tenor viol). The neck of a viol is fitted with seven frets, but the fingerboard extends well beyond the last fret, and thus in the upper part of the range glissandos and microtones can be played.

The treble, alto, and tenor viols are not held under the chin but are rested on the player's knee (whence **viola da gamba**, i.e., "leg viol"). The bass is held between the knees, cello-fashion, but without an endpin; and the great bass—or **violone**, as it is more widely known—rests directly on the floor, where it may be positioned between the legs or played standing. Since the term "bass viol" is frequently used to designate the modern contrabass, the true bass viol is frequently referred to by the Italian term "viola da gamba" or simply "gamba," indeed, all members of the family are frequently designated as "gambas." Similarly, the term "violone" has been used for all sorts of low-pitched bowed strings, so to be certain of getting this instrument the complete expression "violone da gamba" must be used.

Viol technique differs from violin technique mostly in the matter of bowing, for the viol bow is held palm-upward, and may be gripped in front of the frog rather than directly at it.

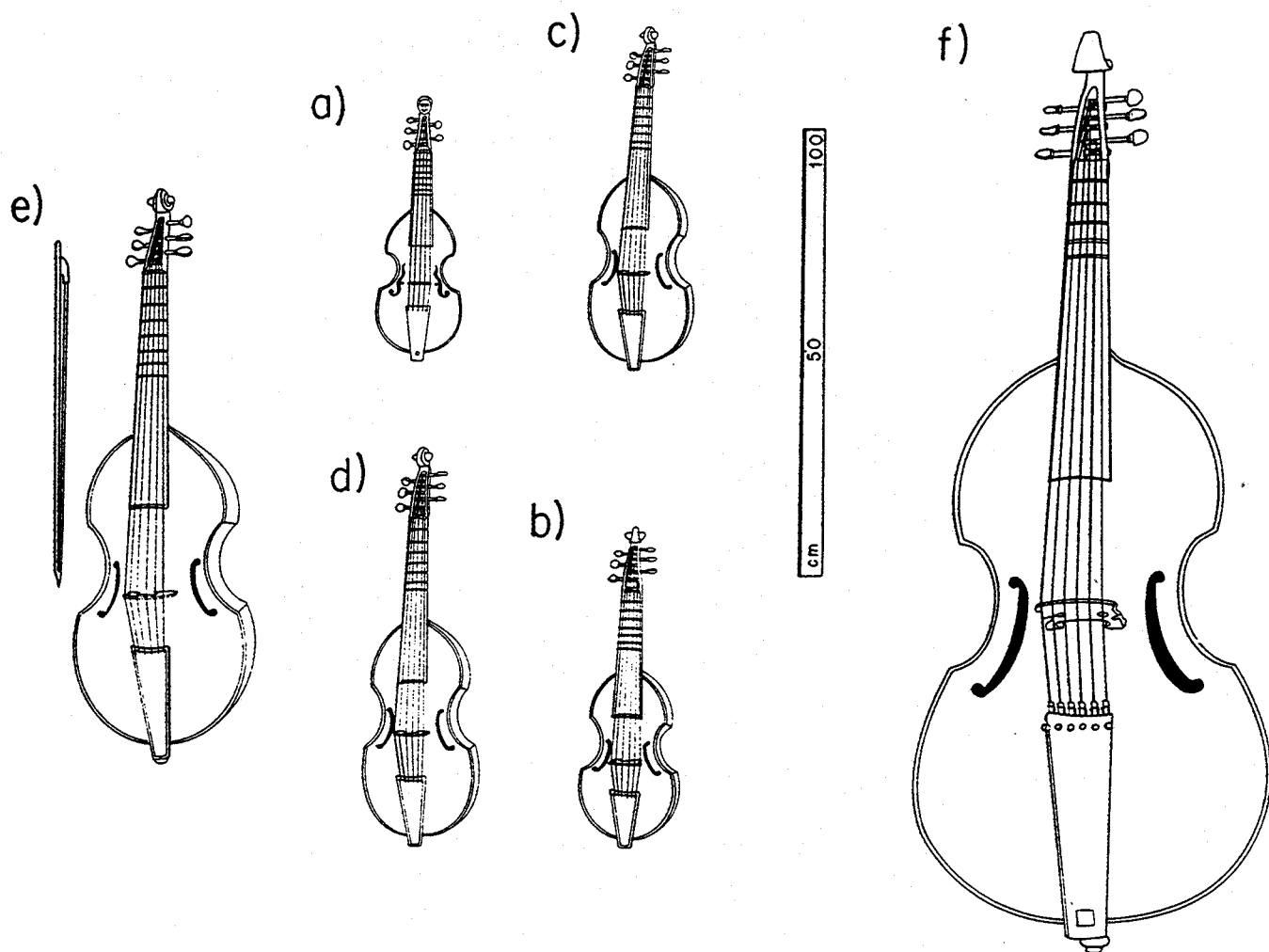


FIGURE 287. *The viol family: (a) pardessus de viole; (b) treble viol; (c) alto viol; (d) tenor viol; (e) bass viol; (f) violone da gamba.*

The right middle finger is held against the bow hairs, aiding in their tensioning and giving the player direct control over this variable from moment to moment. The underhand bowing makes the upbow into the power stroke; viol bowing patterns are thus the reverse of violin ones.

The **pardessus de viole**, a very late addition to the family, never formed part of the viol consort but was used (in France only) as a violin substitute. Note that it usually has only five strings.

The tone of all the viols is weaker, thinner, and more nasally zingy than that of the violin family. Equally important is the relatively slow, gentle attack, which gives viol articulation a relaxed, almost laid-back sound totally in contrast to the aggressive, muscular attack of loud violin or cello playing.

The bridge of a viol is flatter than that of a violin, and as a result triple stops can be fully sustained as softly as *piano*, and in *forte* even a quadruple stop can be sustained. Quintuple and sextuple stops are not infrequently written, but these must be arpeggiated; however, the

| <i>name of instrument</i> | <i>abbreviations</i> | <i>approximate dates of original use</i> | <i>range (written & sounding)</i> | <i>tuning</i> | <i>availability</i> |
|----------------------------|-------------------------------------|--|---------------------------------------|---------------|---------------------|
| pardessus de viole | p. d. v. pard. | 1680–1780 | | | very rare |
| treble viol | tr. v. tr. gamb. | 1480–1690 | | | rare |
| alto viol | a. v. a. gamb. | 1480–1690 | | | very rare |
| tenor viol | t. v. t. gamb. | 1430–1690 | | | rare |
| bass viol (viola da gamba) | b. v. vdg. gamb. bs. gamb. | 1480–1760 | | | usually available |
| violone da gamba | vne. vne. d.g. | 1550–1690 | | | very rare |

FIGURE 288. *The viol family—vital statistics.*

precision afforded by the frets makes stopped notes on a viol much more resonant than those of equivalent violin-family instruments, and particularly in the lowest sizes a tone will if allowed ring on quite strongly after the bow is released. Similarly, the pizzicato is much more resonant and long-lasting than in the violin family—a more satisfactory sound altogether. All the special bowed and plucked effects used on members of the violin family can be used on viols.

| | | TENOR VIOL | | | VIOLONE | | | | |
|------------------------|-----------|---------------------|-----------------|------------------|---------------------|---|------------------|------------------|------------------|
| | | Stretch From Finger | | | Stretch From Finger | | | | |
| | | 1 | 2 | 3 | 1 | 2 | 3 | | |
| From the first fret | To Finger | 4 | aug 4th | M3 ^d | M2 nd | 4 | M3 ^d | m2 nd | m2 nd |
| | | 3 | M3 ^d | M2 nd | | 3 | m3 ^d | m2 nd | |
| | | 2 | m3 ^d | | | 2 | M2 nd | | |
| fifth fret | To Finger | 4 | perf. 5th | perf. 4th | m3 ^d | 4 | M3 ^d | M2 nd | m2 nd |
| | | 3 | perf. 4th | m3 ^d | | 3 | m3 ^d | M2 nd | |
| | | 2 | m3 ^d | | | 2 | M2 nd | | |

FIGURE 289. *Maximum single-string left-hand interval stretches for tenor viol and violone.*

Maximum left-hand stretches for the bass viol are virtually identical to those for the cello, and on the treble viol they are only slightly less than on the viola. The pardessus has easier stretches than the violin, with maximums a half-step greater for each perfect fifth of reach. The alto viol maximum stretches are less than the viola's to the extent of a half-step in each tritone of (viola) reach (i.e., if a violist can barely reach a tritone, then the alto-viol player can only reach a fourth). Maximum stretches for the tenor viol and violone are shown above. Because of their playing posture, all the viols can make use of thumb positions, though this was seldom, if ever, done historically.

The ordinary consort of viols consists of one or two each of trebles, tenors, and basses in various combinations. The so-called alto viol, used occasionally to play second-treble lines, is virtually useless musically—it was never common historically and is unlikely ever to be so in the future.

All the viols are higher-pitched instruments than one would guess from their size: the bass viol plays in a distinctly higher tessitura than the cello, while the treble normally plays in the range of the violin, not the viola. At certain times and places it was apparently the practice to play even higher on all the viols, taking music on two tenors, bass, and violone that would be perfectly playable on two trebles, tenor, and bass.

The bass viol was—at least from the beginning of the sixteenth century—the most important instrument of the family and the one most often employed as a solo instrument. In the seventeenth century it was made in three slightly different varieties (all now once more available) for differing musical purposes. The normal instrument is the **consort bass** used in ensemble and continuo playing. The **division viol**—built slightly smaller, to make the left-hand stretches easier—is designed for solo playing of improvised variations (“divisions”), while the **lyra viol** (smallest of all) specialized in the performance of full chordal

textures, both as soloist and as a continuo instrument, and was usually written for in tablature, making use of a wide variety of special tunings. It must be emphasized, however, that all types of music can be played on *any* bass viol; lyra-viol music can be played on a consort bass, for example. Finally, it should be mentioned that bass viols of a late French pattern are provided with a seventh string, tuned to A₁.

MUSICAL EXAMPLES

VIOLS:

Morley, *The First Book of Consort Lessons*, No. 12: "Goe from my window" (TrB)

W. Lawes, *Six-Part Consort Suite No. 1* in C minor (TrTrTTBB)

Suite No. 2 in C for two division viols and organ

Suite No. 2 in G minor for three lyra viols

Gibbons, *Fantasias a 3*, from *Musique for the greate dooble bass* (TrBVlne)

Schütz, *Erbarm dich mein, o Herre Gott*, SWV 447 (TrTTB)

Rameau, *Pièces de clavecin en concert*, concert II (B)

Pousseur, *Madrigal II* (B)

THE VIOLA D'AMORE AND BARYTON

The viola d'amore and baryton are offshoots of the viol family, provided with a set of wire **sympathetic strings** in addition to the ordinary, bowed, gut ones. The sympathetic strings lie beneath the bowed ones, running under the fingerboard and through a hole at the base of the neck so that for half their length they run *in back of* the neck. They do not, of course, pass over the bridge but run through it, under it, or beside it to independent points of attachment.

The viola d'amore is bowed overhand, and its tone is intermediate between viol and violin—a gentle, silvery variant of ordinary violin tone. The baryton sounds more gambalike, and may be bowed either underhand or overhand. The sympathetic strings of both instruments add a subtle, blurred halo of reverberation that is much more apparent live than in recordings (where the ear has difficulty separating this resonance from the acoustic reverberation of the recording studio).

The viola d'amore has seven sympathetic strings, usually tuned in unison with the bowed strings. The tuning given in Figure 291 is the most common, but numerous other accordaturas have been used and it is a good idea to specify the tuning of the viola d'amore in any piece in which it is used.

The term "viola d'amore" pre-dates the instrument itself by at least twenty years; it was originally used for a sort of wire-strung violin. With the baryton the reverse is the case, since bass gambas were occasionally provided with sympathetic strings at least as early as 1616. It would therefore not be inappropriate to use a baryton as a continuo instrument in early-seventeenth-century music or even to employ it in the division-viol and lyra-viol repertoire.

The baryton would be virtually forgotten today had it not been used in numerous important compositions by Haydn. The tuning given here is only one of many historical tunings, but it is the one used by Haydn and is thus universal today. Unlike those of the viola d'amore, the numerous sympathetic strings of the baryton are so arranged that they can be

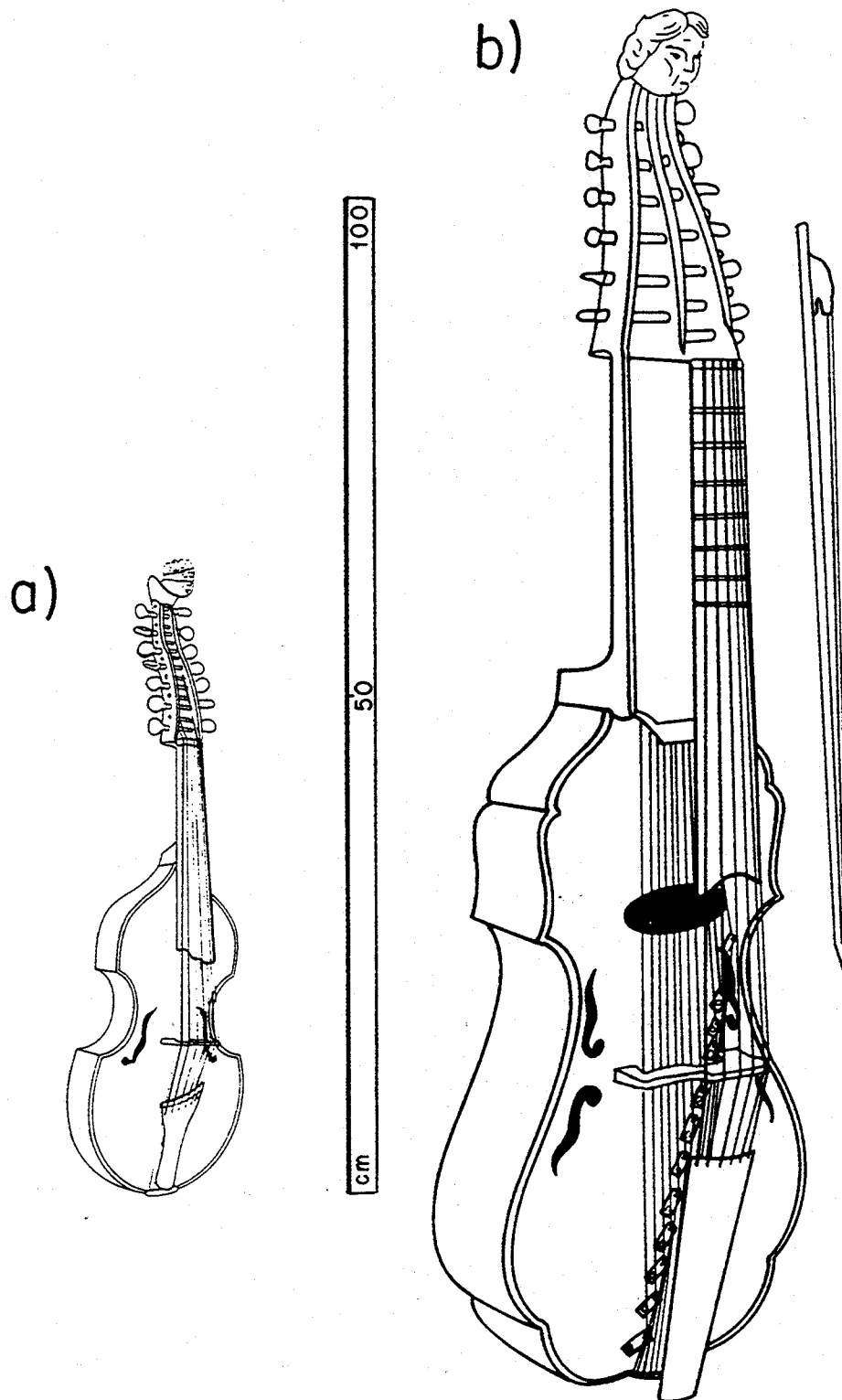


FIGURE 290. *Viola d'amore and baryton: (a) viola d'amore; (b) baryton.*

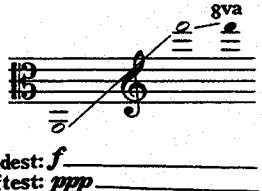
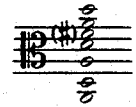

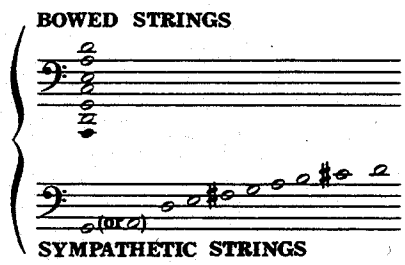
| <i>name of instrument</i> | <i>abbreviations</i> | <i>approximate dates of original use</i> | <i>range (written & sounding)</i> | <i>tuning</i> | <i>availability</i> |
|---------------------------|----------------------|--|--|---|---------------------|
| viola d'amore | vda. vla. d'am. | 1700–1785 |  <p>loudest: <i>f</i> softest: <i>ppp</i></p> |  | very rare |
| baryton | brt. btn. | 1650–1785 |  <p>loudest: <i>f</i> softest: <i>ppp</i></p> |  | very rare |

FIGURE 291. *Viola d'amore and baryton—vital statistics.*

plucked by the left thumb behind the neck. Their number and tuning vary, but the notes indicated in Figure 291 are those scored by Haydn, and hence can always be counted on. They have a gentle, harplike tone, no louder than *mezzo-forte* (when overplucked they go sharp), and the lower ones may sustain for as long as six seconds. The equivalent of *sul ponticello* and *sul tasto* effects can be produced on these strings by plucking respectively near the nut or near the body of the instrument. In writing these “harp” tones, remember that the left hand must also finger the primary strings on the other side of the neck. While fingering the lowest string, it is possible to pluck only the highest sympathetic string; conversely, only the highest main string can be fingered when the lowest sympathetic string is to be plucked.

Left-hand stretches for the viola d'amore and baryton are roughly equivalent to those for viola and cello, respectively. The neck of the baryton is provided with (usually) seven inlaid or tied frets; the viola d'amore is unfretted. On both instruments, the ability to sustain multiple stops is the same as that of a viol.

MUSICAL EXAMPLES

VIOLA D'AMORE:

Vivaldi, Concerto in D minor for lute, viola d'amore and muted strings, P. 266
Hindemith, *Kammermusik* No. 6

BARYTON:

Haydn, Baryton Trio in D, Hob. XI, 97
Divertimento a 8 in A, Hob. X, 3

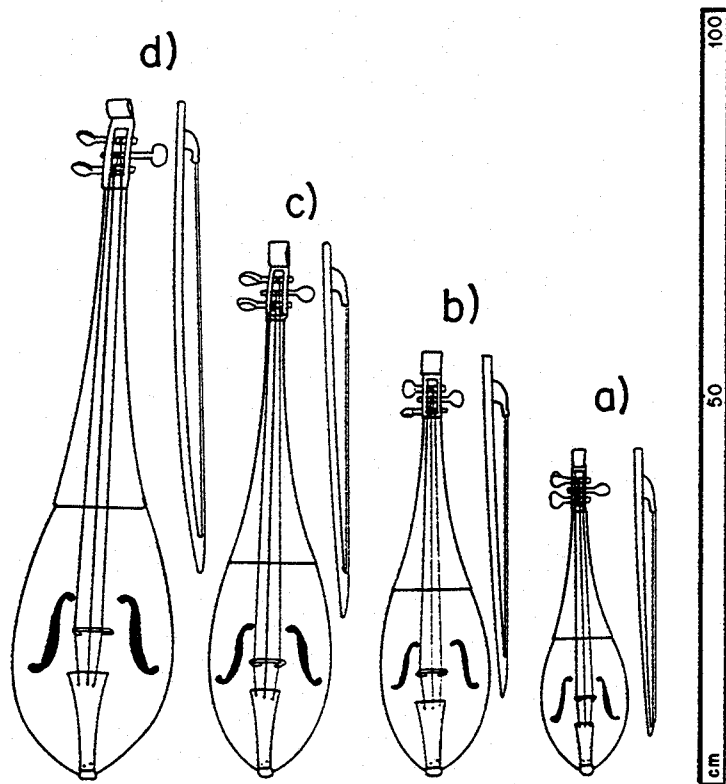


FIGURE 292. *Rebecs: (a) soprano; (b) alto; (c) tenor; (d) bass.*

THE REBEC

With its gut strings and fretless, raised fingerboard the rebec is one of the ancestors of the violin. These small, acoustically inefficient instruments have a much different tone, however: it is thin, choked, and nasal, almost as if it were electronically filtered.

The four discrete sizes and violin-like tunings of modern rebecs are modeled on a rather late stage of the instrument's development. Medieval rebecs were much more likely to have two strings than four, and were apparently tuned in all sorts of odd ways. Authentically, rebecs should not be held under the chin but in the hollow of the shoulder, on top of either shoulder, or horizontally across the chest. In medieval Spain they were held on the knee. The instrument is bowed overhead.

FIDDLES AND LIRAS

THE FIDDLE

The fiddle is the direct ancestor of the violin. It was and is so tremendously variable that it is difficult to say anything concrete about it, but two points are pretty much fixed: the instrument has five gut strings, and it sounds rather like a choked, weak violin or viola. Historically

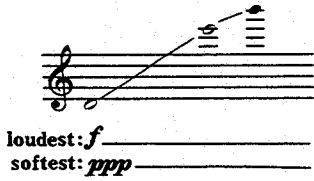

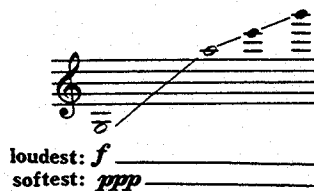

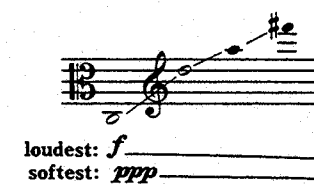

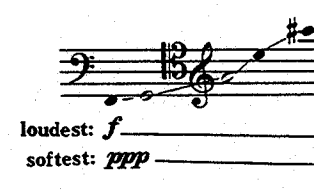

| <i>name of instrument</i> | <i>abbreviations</i> | <i>approximate dates of original use</i> | <i>range (written & sounding)</i> | <i>tuning</i> | <i>availability</i> |
|---------------------------|----------------------|--|---|--|---------------------|
| soprano rebec | sreb. | 1000–1600 |  |  | very rare |
| alto rebec | areb. reb. | 1000–1600 |  |  | rare |
| tenor rebec | treb. | 1000–1600 |  |  | very rare |
| bass rebec | breb. | 1000–1600 |  |  or a step lower | very rare |

FIGURE 293. *Rebecs—vital statistics.*

it was made in sizes ranging from that of the violin to that of the guitar. Most modern examples are viola-sized, with the lowest string tuned to d^0 or c^0 . Medieval fiddles frequently descended to G_0 , though few modern ones are large enough for this. On the other hand, at least one modern maker builds a bass size descending to D_0 , as well as a soprano going no lower than g^0 . All sorts of tunings may legitimately be used, but the highest string should never be more than two octaves above the lowest. The fifth string was usually used as a drone and therefore may be tuned higher than the fourth.

Most modern fiddles follow a fifteenth-century pattern, with fingerboards long enough to allow ascent up to an eleventh above the pitch of the open string. They are also occasionally provided with seven tied frets (first used in the fourteenth century), which can of course be removed. Fiddles of truly medieval pattern have no frets, and the fingerboard allows ascent of only a sixth above the open string.

Correctly, the fiddle should be held in one of the manners listed above for the rebec, but many players insist on holding it on the knee, gamba-fashion, or under the chin, violin-fashion.

The fiddle is bowed overhand.

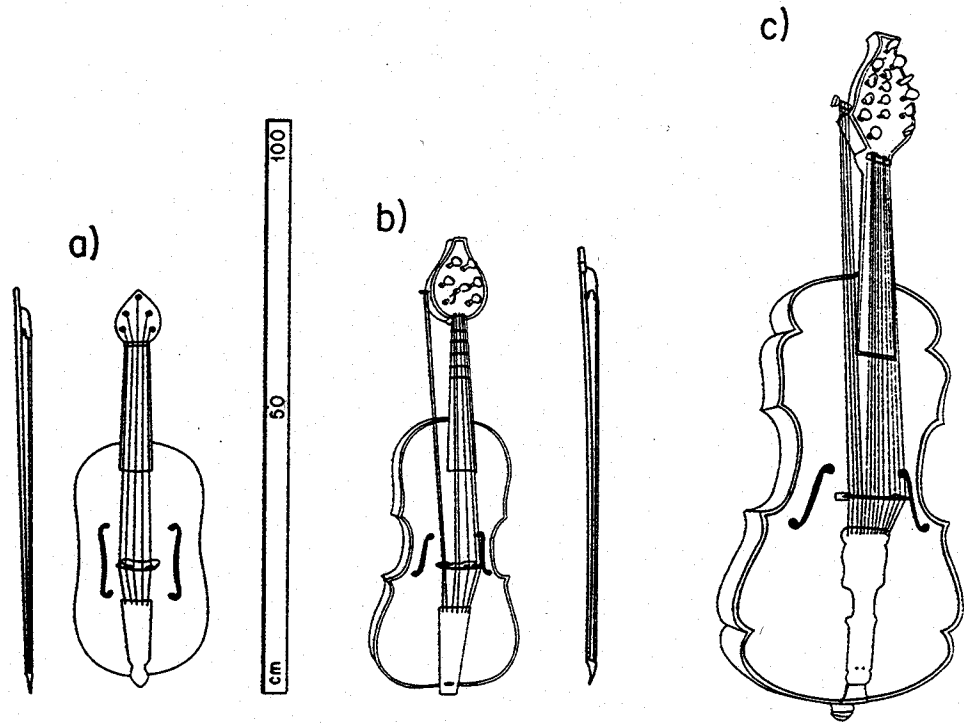


FIGURE 294. Fiddle and liras: (a) fiddle; (b) *lira da braccio*; (c) *lira da gamba*.

THE LIRAS

The *lira da braccio* is the (unfretted) Renaissance version of the medieval fiddle, from which it differs mainly in the addition of a sixth course as an off-board drone. The fifth and sixth courses are geminated at the octave. The full name “*lira da braccio*” is necessary because the term “*lira*,” unadorned, has been and is used to refer not only to this instrument but to the rebec, lyre, *lyra viol*, and hurdy-gurdy.

The *lira da braccio* is about the size of a treble viol, but is held against or on top of the left shoulder and bowed violin-fashion. The lowest on-board course is stopped by the left thumb, which reaches around the back of the neck to a point opposite the index finger, as in folk-guitar technique—not around the front, as with a cello.

| <i>name of instrument</i> | <i>abbreviations</i> | <i>approximate dates of original use</i> | <i>range (written & sounding)</i> | <i>availability</i> |
|---------------------------|----------------------|--|--|---------------------|
| fiddle | fid. fdl. | 1000–1500 | variable loudest: <i>f</i> softest: <i>ppp</i> | rare |

FIGURE 295. *The fiddle—vital statistics.*

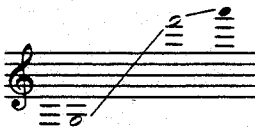
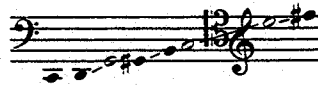
| <i>name of instrument</i> | <i>abbreviations</i> | <i>approximate dates of original use</i> | <i>range (written & sounding)</i> | <i>availability</i> |
|---------------------------|----------------------|--|--|---------------------|
| lira da braccio | ldb. | 1450–1625 |  loudest: <i>f</i> _____ softest: <i>ppp</i> _____ | very rare |
| lira da gamba | ldg. lne. | 1560–1650 |  loudest: <i>f</i> _____ softest: <i>ppp</i> _____ | very rare |

FIGURE 296. *Liras—vital statistics.*

Historically, the *lira da braccio* was primarily a solo instrument, providing improvised chordal accompaniment to a singer, but there is no reason why it cannot be used in ensemble music. The violin family first appeared around 1530 (as popular instruments) and by 1600 had effectively ousted the *lira da braccio*.

The *lira da gamba* or *lirone* is a bass-range lira designed to play chords easily. The bridge is so gently curved that chords of up to six notes can be fully sustained, and it is almost impossible to play on one string alone (except, of course, for the first and last). The instrument has nine to fourteen melody strings and two—sometimes more—off-board drones. The tuning is a staggered ascending cycle of fifths ending with $c\sharp^1$ or (late in the history of the instrument) $a\sharp^0$ (see Fig. 294). This pattern may descend in strict order all the way to the last off-board drone, or the lowest four or six strings may be tuned in octave pairs (D_0 , d^0 , G_0 , g^0 , etc.), grouped in staggered fourths (as in the example just cited) rather than fifths.

The *lira da gamba* is fretted, held, and bowed like a bass gamba. Historically, it functioned as a continuo instrument (e.g., in Francesca Caccini's *Il Liberazione di Ruggiero*), where the exact tuning pattern did not matter provided that chords of all sorts could be easily produced.

Both *lira da braccio* and *lira da gamba* make frequent use of the barre in producing chords.

THE HURDY-GURDIES

Hurdy-gurdies are keyboard instruments of a sort, but somehow they seem to fit best here, at the tail end of the list of instruments. The hurdy-gurdy is essentially a mechanized string instrument; this complete mechanization of both the left and right hands seems strangely out of place in the Middle Ages, and would be more fitting as a product of the gadget-happy eighteenth century.

| <i>name of instrument</i> | <i>tuning</i> |
|---------------------------|---------------|
|---------------------------|---------------|

| | |
|-----------------|--|
| lira da braccio | |
|-----------------|--|

| | |
|---------------|--|
| lira da gamba | |
|---------------|--|

Liras—vital statistics, continued.

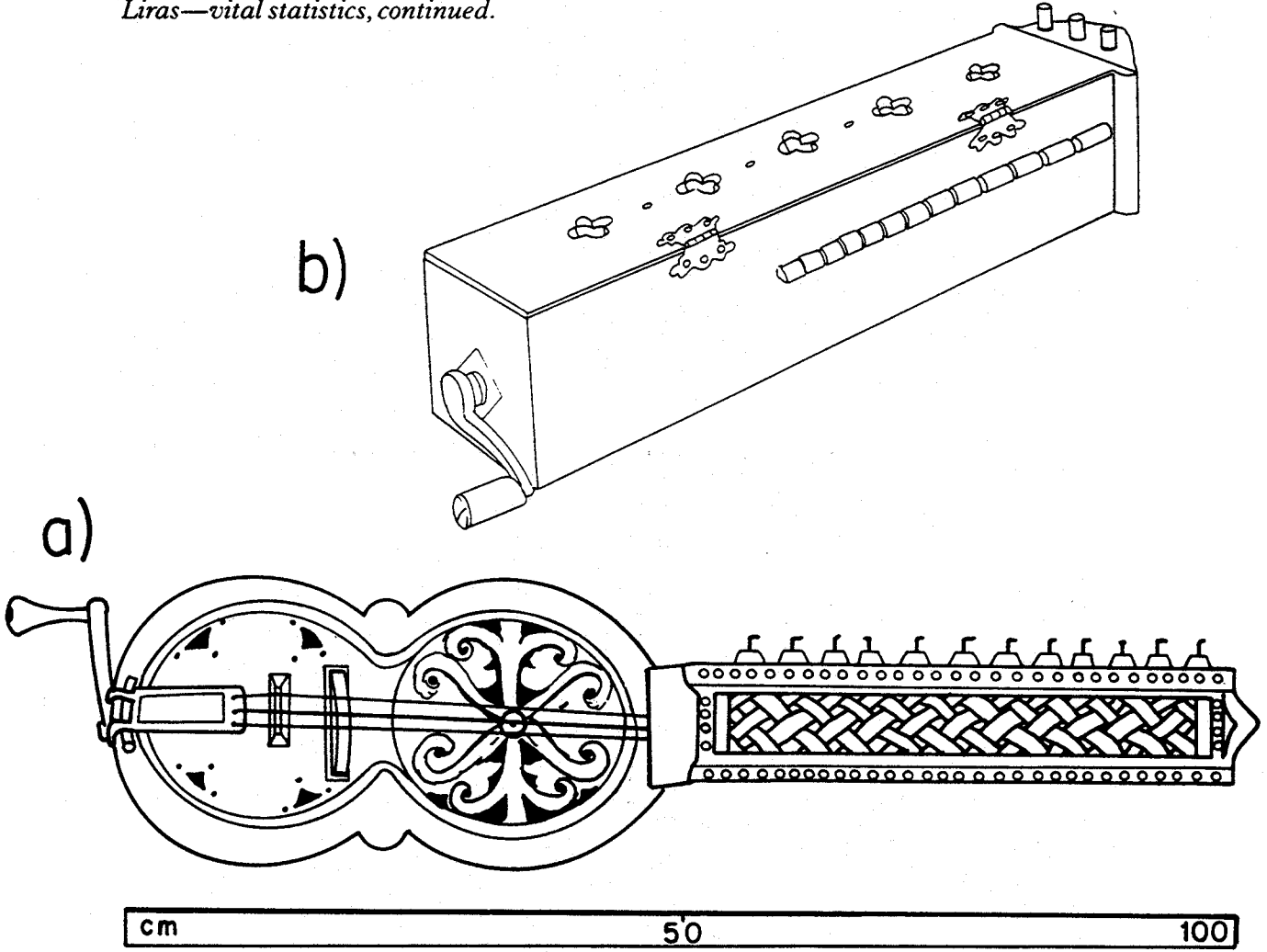


FIGURE 297. *Hurdy-gurdies: (a) organistrum; (b) symphonia.*

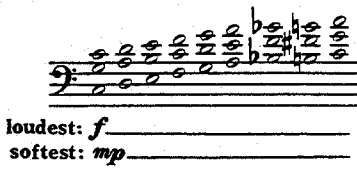
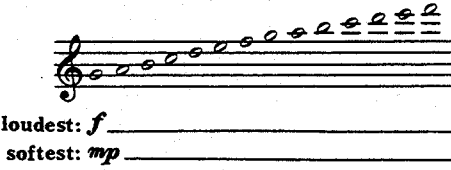
| <i>name of instrument</i> | <i>abbreviations</i> | <i>approximate dates of original use</i> | <i>range (written & sounding)</i> | <i>availability</i> |
|---------------------------|----------------------|--|--|---------------------|
| organistrum | orgst. | 1125–1300 |  | very rare |
| symphonia | symph. | 1250–1400 |  | very rare |

FIGURE 298. *Medieval hurdy-gurdies—vital statistics.*

The bow is replaced by a rosined wheel cranked by the right hand. The wheel is in constant contact with the strings, all of which sound simultaneously for as long as the wheel is turned. The natural expression of a hurdy-gurdy, then, is a continuous legato from beginning to end of whatever is being played; articulation is possible, however, albeit clumsy and slow. More rapid articulation can be achieved by giving the wheel a series of little extra pushes in the desired rhythm; this does not break the legato but accents the notes in question. The dynamic level is varied by turning the wheel at different speeds—the faster the louder.

As with the bagpipe, lyre, and harp, modern hurdy-gurdies reflect medieval reality very badly. Virtually all those now made are based—sometimes very carefully—on fifteenth- to nineteenth-century folk instruments. These have one or more unison or octave-tuned melody strings (**chanterelles**) with a range of two chromatic octaves upward from g^1 , and numerous drone strings. In fairness it should be noted that such instruments are exactly what is needed for the spate of bucolic music with hurdy-gurdy and/or bagpipe parts cranked out (if the pun may be forgiven) by eighteenth-century composers.

The earliest type of hurdy-gurdy is the **organistrum**, a guitar- or cello-sized instrument with three chanterelles and no drones. The strings are stopped by a set of bridges on rotating keys manipulated by the player (Fig. 299a). This rather clumsy technique requires the use of both hands; the organistrum is therefore laid across the laps of two players, one of whom manipulates the keys while the other turns the wheel.*

The awkwardness of organistrum technique has been somewhat overemphasized by modern writers. While it is indeed a slow-moving instrument, it can attain fairly considerable speed whenever only one bridge need be turned to change a pitch. The following, for instance, is entirely idiomatic:



* Historically, many organistra were made with push-pull instead of rotary action. These could be played by a single person, but much of the following discussion would still hold. As far as I know, no organistra of this type are now made.

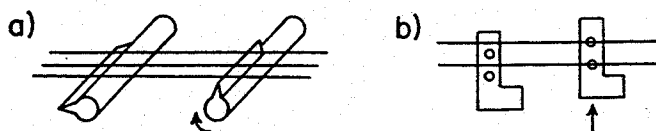
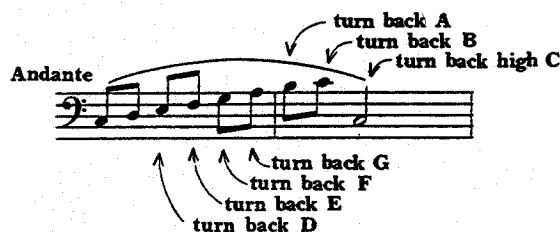


FIGURE 299. Mechanism of (a) the organistrum; (b) the symphonia and later hurdy-gurdies.

The important thing to remember is that in order to move from a given note to a lower note, all intervening bridges must be rotated out of the way. The following passage is impossible because the player would be required, before the final downward leap, to move six bridges while the c^1 was sounding, and a seventh to make the leap itself—this is just not possible with only two hands.*



But these *are* possible:



The three strings of the organistrum are tuned c^0 , g^0 , c^1 , and each bridge stops all three; thus, the instrument constantly plays in parallel fifths and octaves. This effect is not intended as “instant harmony” but as an intensification of the main (lowest) note by reinforcing it with its second partial and the $3/2$ privileged frequency; therefore, in reading from written music only the lowest of the three simultaneous pitches need be considered.

The organistrum seems to have been exclusively a church—or at least clerical—instrument; its use in medieval music should be limited to doubling chant, playing the tenors of melismatic organum, and playing slow-moving motet tenors.

The **symphonia**, on the other hand, seems to have been a strictly secular instrument. It differs from the organistrum in being smaller and higher-pitched and in having a much more efficient key action. In the symphonia the keys are placed on the bottom of the instrument and pushed up to stop the chanterelle(s), falling back of their own weight when released. This system, which permits extremely rapid playing, is used on all later types of hurdy-gurdy. Only one player, fingering the keys with the left hand and cranking the wheel with the right, is needed.

Classically, the symphonia had three strings—a chanterelle probably tuned to c^1 , a^0 , or g^0 and two drones tuned to the finalis of whatever was being played and/or its fifth. The drones make the instrument suitable only for monophonic music. Modern symphoniae, un-

* Presumably, though, the second player, whose left hand is free, could help with this—but the passage would still probably be unplayable.

der the retroactive influence of later types of hurdy-gurdy, tend to have two unison chanterelles tuned to g^1 (as given in Fig. 298). The box-shaped symphonia shown in Figure 297 is just one type; others are made in more or less the same shape as the organistrum.

Hurdy-gurdies of all types have a very thin, whining tone that is nonetheless quite robust and powerful—at times, almost reminiscent of the noise of a power saw. Articulation noise is an important part of the timbre: the wheel makes a slight grunting or coughing sound as it starts and stops, and the tangents or bridges produce a distinct, organ-like “chiff” as they come in contact with the vibrating string. The pitches of both organistrum and symphonia can be adjusted slightly by varying the position of the bridge or the pressure on the key, respectively, and a vibrato can be made by this means.