

The Keyed Fiddle

Translated by Patrick Hort

The English version of the text, together with the illustrations and their captions, is intended to convey the primary content of the Swedish version. Those passages which I consider deal with somewhat provincial matters have been summarised very briefly, as have the detailed descriptions in the Swedish text of pictorial sources (Chapter 2), instrument making (Chapter 4) and morphology (Chapter 5), though here a good deal of information can be had from the illustrations. The contents of Chapters 6—10 are given at greater length, since the problems they deal with are of more general relevance to research into musical instruments. Chapter 10, finally, has been translated practically in extenso with the exception of the footnotes and a few minor passages. It may be regarded as a sort of summary, in that the conclusions formed in previous chapters are presented together with written evidence concerning the history of the keyed fiddle.

The figures in square brackets in the English text refer to the illustrations in the Swedish text; an index to these will be found on p. 8. Reference is also made to various *Bilagor* (i.e. Appendices) in Swedish, and to written sources; the latter are listed in chronological order on p. 203.

The keyed fiddle is a folk instrument which is nowadays played exclusively in Sweden, where an unbroken tradition can be traced back at least as far as to the 18th century.

It is depicted in Swedish and Danish church art from the late Middle Ages and there is also evidence that it existed in Germany during the 16th and 17th centuries.

The primary aim of the present work is to present a critical study of the source material concerning the keyed fiddle, which has not previously been the subject of a comprehensive investigation. In addition, certain central questions are dealt with, such as the function and use of the keyed fiddle at different times, its sound properties, the relationships between instruments from different eras, the origin of the instrument and so on.

The arrangement of the study in some ways reflects the tradition concerning the keyed fiddle at the time when the data were collected. In addition to an old almost extinct tradition of manufacture and performance on 18th and 19th century instruments—the contra-drone and silver-drone keyed fiddles respectively—there is thus an expansive development of the 'chromatic keyed fiddle' which was invented in 1925. A detailed investigation has been made of the older tradition and the transition between this and the newer one. An account is also given of the new type of instrument, i.e. the chromatic keyed fiddle, but the development of this will probably be more comprehensible in a decade or so, when it will be easier to assess the effects of its current vogue, which is only partly dealt with here.

Out of the wealth of information which has been collected, the study deals for the most part with data concerning the keyed fiddle itself, so that for instance the extensive biographies of players and instrument makers have been drawn on simply in order to outline the environment in which the keyed fiddle is found.

The instrument is presented in Chapter 1, while the source material is reviewed in Chapter 2.

Chapter 1

The Instrument

Chapter 3 deals with terms for the keyed fiddle and Chapter 4 contains a description of the raw materials and the techniques used in building the instrument. Chapter 5 is concerned with the keyed fiddle's morphology, i.e. the design of the instrument's body and individual parts, details of construction and ornamentation. Investigations into the instrument's tonal resources are presented in Chapter 6, playing techniques in Chapter 7 and the acoustic properties of certain instruments in Chapter 8. The repertoire of the keyed fiddle is discussed in Chapter 9. Finally, in Chapter 10, there is an attempt to relate the history of the keyed fiddle from the Middle Ages to the present day. In this account, use is made of the conclusions from the previous chapters in order to present as complete a picture as the available material permits.

The type of instrument known as the keyed fiddle¹ may be defined as follows: a composite chordophone which is played with a bow, the strings being stopped by means of a special type of key mechanism; the instrument is held horizontally in a manner which closely resembles the conventional manner of holding plucked lutes and guitars.

Fig. [1] shows the keyed fiddle in diagram form in keeping with Sachs' anthropomorphic approach (Sachs 1920, pp. 155 f.). The peg board is regarded as the head of the instrument and the tail piece as its foot. The heads of the keys thus lie on the left hand side of the instrument, while the belly forms its front and the back its reverse side. Many of the instrument's parts have dialect names which are generally accepted by craftsmen and players; the Swedish terms and a translation of these are given in the caption to Fig. [1].

A distinction can be made between the early type of keyed fiddle without resonance strings, which is already depicted in late mediaeval paintings, and the type with resonance strings, which first appears in the records from the 18th century. A question of primary importance is whether there is a genetic relationship or not between these two main groups.

Keyed fiddles with resonance strings are still being made and played, although numerous modifications have been introduced since the 18th century. These changes have been largely concerned with the playing mechanism, which has given rise to several subdivisions of the instruments in this group.

The following account, together with the illustrations, will serve to introduce the types of keyed fiddle which are dealt with in this study. The types of instrument have been indexed as follows: 1, Keyed fiddle without resonance strings; 2, Simple keyed fiddle; 3, Contra-drone keyed fiddle; 4, Silver-drone keyed fiddle; 5, Contra-drone double-keyed fiddle; and 6, Chromatic keyed fiddle (cf. *Bilaga 1*).

Keyed fiddles without resonance strings form a

morphologically heterogeneous group. The body may be shaped like that of a guitar or a lute, while there are also instruments which resemble those fitted with resonance strings. A feature common to them all is the inclusion of drone and mixture strings in addition to a melody string (see [2]—[7]). Nothing is known about the tuning of the strings.

Keyed fiddles with resonance strings comprise several types.

The *simple keyed fiddle* (see [8]—[10]) has one, occasionally two melody strings, the second (mixture string) serving to reinforce the first. In addition, there are one or two drone strings as well as 6—13 resonance strings.

The *contra-drone keyed fiddle* (see [11]—[13]) has one or two drone strings placed in between two melody strings, the latter being tuned a^1 and d^1 . The first drone string was originally tuned to a and subsequently to g ; the second, which was added during the 19th century, is tuned to c . Here, too, there may be anything from 6 to 13 resonance strings.

The *silver-drone keyed fiddle* has two melody strings placed side by side and two bass strings to the right of these (see [14]—[18]). There are two rows of keys, of which the upper one generally stops the first melody string and the lower one the second; there are, however, special modifications which make a much-used key readily accessible to the performer (see [114]). The first melody string is tuned to a^1 , the second to c^1 , the first bass string to g and the second to c . There are usually 9 or 10 resonance strings.

The *contra-drone double-keyed fiddle* (see [19]—[21]) has a combination of the playing mechanisms of the contra-drone and the silver drone instruments. There is thus the arrangement of two adjacent melody strings tuned to a^1 and c and with the combination of keys described above under the silver-drone type; next to these there are two drone strings tuned to g and c ; finally

¹ The Swedish nomenclature is presented in Chapter 3

Chapter 2

Sources and source criticism

there is a third melody string tuned to d^1 . The c^1 string is only used for double stopping.

The *chromatic-keyed fiddle* (see [22]—[25]) has the same tuning as the silver-drone fiddle, from which it has been developed. There is, however, an additional row of keys for stopping the third string, tuned to g , which corresponds to the first drone of the silver-drone instrument. The number of resonance strings varies between 10 and 19.

Apart from the instruments which are still extant, the sources for this study of the keyed fiddle comprise reproductions of the instrument, written evidence, melodies recorded by ear as well as films and tape recordings. A critical assessment of each of these sources is made in the relevant chapters of this book, while certain problems requiring a comprehensive discussion are dealt with below.

Extant instruments

While the material for this study was being collected, each keyed fiddle discovered and examined was also classified according to its type. Examples of all the types presented in Chapter 1 had been found by the time the first fifty instruments had been discovered and no further types were encountered among the one hundred and fifty keyed fiddles examined thereafter. Since it was therefore most unlikely that any further types would be discovered, the search for instruments was concluded at this point.

Dating and provenance

Only in exceptional cases is anything known about the age and provenance of the keyed fiddles which are extant. It is only during the past twenty years that the makers of keyed fiddles have started signing their instruments. Several approaches, from archival research to radioactive dating by the C 14 method, have been adopted in order to date the instruments as accurately as possible, with the following results.

Of the keyed fiddles without resonance strings, the one from Mora [2] is inscribed with the year 1526 [26]. The calligraphy is paralleled in several contemporary written sources, in which the similarity to the 2 and the 5 is particularly striking. A C14 analysis of wood from the neck of the instrument indicated with 68 per cent's probability that this keyed fiddle was made from a tree which had been felled in about 1495 (± 70 years, cf. *Bilaga 9*). Another instrument, N.M. 147300 [30], can be traced back, albeit on somewhat un-

certain evidence, to a performance in 1686. Here, too, the date is supported by the C14 analysis. Reproductions from ca. 1560 [43] and from 1620 [47] exist of instruments with exactly the same design as these two. A third keyed fiddle without resonance strings, the Vefsen instrument [4], has the same ornamentation as certain wooden objects from the end of the 17th century, and the C14 analysis suggests that the instrument is probably from this period.

Dating by the C14 method is not in itself a sufficient indication of an instrument's age; its value lies in the support which may be obtained for datings based on evidence from sources of quite another kind.

Among the instruments with resonance strings there are three *simple keyed fiddles*, of which two once belonged to players who flourished in the late 18th and early 19th centuries; the third and a bow are inscribed 1777 and 1778 respectively. The oldest extant *contra-drone keyed fiddle* can be dated from similar criteria to the middle of the 18th century. This type of instrument has remained in use up to the present day. To judge from information about owner-players and the dates inscribed on instruments, the *silver-drone keyed fiddle* flourished during the second half of the 19th century and the first half of the 20th century; it is still being used. The first *chromatic keyed fiddle* was built in 1925 and the majority of the instruments now in use were made after about 1945.

A particular type of keyed fiddle may remain in use for a considerable period, side by side with older as well as more recent types. A distinction should if possible be made between a 'period of acceptance', an 'actual period of use' and 'a period as a relict'. At the same time, it must be remembered that an instrument may have been converted from an older to a newer type. This can usually be determined by studying the details of its construction or its morphology (cf. Chapter 5).

Modern source material

This study of the keyed fiddle has greatly benefited from the answers to a questionnaire about this instrument which Professor Otto Andersson, Turku, Finland, had distributed, chiefly to active instrument-makers and players, in conjunction with the Nordic Museum's ethnological investigation in 1949. One should nevertheless distinguish carefully between these informants' own experience and what they relate as hearsay. A critical study of the information provided by these questionnaires showed that the hearsay would have to be carefully checked before being used as research data.

Field studies were carried out in 1961–65 in order to cover the various phases in the complicated process of building a keyed fiddle, as well as to record playing techniques and establish the tradition of today. I paid several visits to the instrument-makers and players over a considerable period of time in order to check up and clarify their information. Only a small proportion of all these data is reported in the present study, but the entire material has been deposited at the Museum of Musical History in Stockholm, where it is available for research.

Reproductions of instruments

The reproductions of keyed fiddles form a very heterogeneous material, ranging from mediaeval murals to photographs from the late 19th century and films made in the present century. This material cannot be accepted automatically at its face value; as will be seen, even the photographs can be misleading.

The keyed fiddle in Nordic church art¹

In an assessment of the keyed-fiddle motif in mediaeval church art, source criticism must take

e.g. the following questions into consideration: (a) Is the string instrument depicted with a key mechanism which justifies its classification as a keyed fiddle? (b) What is known about the artist and his manner of painting? (c) Have the murals ever been whitewashed? If so, is there reason to suspect that they underwent alterations in conjunction with the work of restoration? (d) To what period does the motif belong? (e) Are there any indications of a model or draft? Are there any details in the portrayal of the musician's technique which suggest that the artist was familiar with the mode of playing the instrument?

A detailed analysis was made of the individual reproductions, with the following results.

(a) It is not certain that the instruments in some of the reproductions are fitted with a key mechanism, i.e. that they are in fact keyed fiddles. The iconographic evidence is doubtful in this respect concerning the instruments in the stone relief of the Källunge porch [34], in the paintings from Helsingör [42], Jomala, Vinderslev [45] and Österlövsta [41]. Taking these in ascending order of probability, the analysis showed that the mural in Jomala church is too damaged to permit an identification of the instrument as a keyed fiddle. The design of the Vinderslev instrument is so peculiar, with 'knobs' on both sides of the neck, that one cannot be certain what the artist really intended. In the case of the murals in Helsingör and Österlövsta and the stone relief at Källunge, however, the outline of the neckpiece must surely be interpreted as a key mechanism.

(b) Who were the artists? Several of them have been identified by art historians and attempts have been made to demonstrate their connection with 'schools of painting' on the basis of certain ornaments and other stylistic criteria. It has been found that connections exist between some of the Swedish church murals with a keyed fiddle motif.

(c) Most of the keyed fiddle motifs do not seem to have suffered much damage during the work of restoration. In one church, however, all the murals have been restored and there is only

a 19th century drawing from which to assess their original state [37].

(d) The stone relief of the Källunge porch [34] has been dated to about 1350. The Swedish murals have been dated to the latter half of the 15th century or the first two decades of the 16th century. Of those from Denmark, the Helsingör painting is believed to be from the early 16th century, while the Rynkeby paintings are almost certainly from about 1560.

(e) The keyed fiddle occurs together with the lute in two murals depicting the 'Mercy seat' and one of the 'Coronation of the Virgin Mary', which belong to the same cycle of legends. The three keyed fiddles differ considerably in matters of detail and do not represent interrelated copies of a single original. Three hypotheses can be put forward concerning this repetition of the keyed fiddle together with a lute. (1) The same original served as a basis for all three paintings. (2) The Emmislöv painting, which is thought to be the oldest, inspired one of the artists who produced the two murals from Central Sweden and the latter may in turn have inspired the other artist. (3) The combination of a keyed fiddle and a lute represents a customary ensemble in mediaeval musical practice. A review of the instruments which surround such legends depicted in mediaeval murals in Swedish churches revealed no less than six instances of a string instrument of the fiddle type being portrayed together with a plucked instrument of the lute type. It seems probable therefore that the artists worked from an original with a fiddle and lute, the motif being interpreted individually by the different artists, each of whom selected the instrument with which he was best acquainted. The choice of a keyed fiddle 'instead' of the fiddle may indicate that the former was a familiar instrument in the district in which the artist was working. At all events, there are convincing details of playing technique and instrument

¹ A detailed study of each keyed fiddle motif is given in the Swedish text.

morphology which indicate that the artist had been in close contact with the instrument.

In certain churches (Alnö [31], Häverö [33], Tolfta [38], [39] and Älvkarleby [40]) a keyed fiddle player is depicted among other angels making music on a separate vault. In all these churches there is another vault with angels holding instruments of torture. Angelic hosts with such attributes are considered to be a common motif in Swedish church art towards the end of the Middle Ages. The various vault paintings display several similarities in the choice of instruments but cannot be related copies of a single original. In this case, too, the artists probably worked from originals which they varied freely, resorting to instruments and details that were well known.

From this it can be concluded that the instruments depicted in mediaeval church paintings provide a relatively satisfactory source material, even though a number of reservations must be made. As a rule, one cannot rely on details of playing technique or instrument morphology unless these are supported by material which is independent of these portrayals, i.e. a playing technique observed in practice and demonstrably conditioned by the form and manner of holding the instrument and supported by extant instruments which can be dated to approximately the same time as the paintings.

There is a drawing of a *Schlüsselfidel* in Martin Agricola's work *Musica instrumentalis Deudsch* (1528, facsimile reproduction p. 51) [46]. Like many of Agricola's reproductions, the picture is probably reversed. While a study of its details is of limited value, it appears to have been inspired by the reproductions of 'Grosse Geigen' in Virdung's *Musica getutscht* (1511). The resemblance to these contemporary string instruments without a key mechanism suggests that the keyed fiddle was not regarded as a special type of instrument but rather as a fiddle fitted with a key mechanism.

The drawing of a *Schlüssel Fiddel* by Praetorius is considerably more interesting [47]. Apart from the actual keys, which are not clear enough to be counted, the picture appears to be a reproduction of a particular instrument. Thus the artist has faithfully depicted a broken string.

A number of drawings and paintings depicting the keyed fiddle are to be found in 18th and 19th century Swedish art [48]—[51]. Most of these appear to be realistic portrayals. In a couple of cases, however, the environment is probably not authentic since the artist, Pehr Hilleström (1732—1816), is believed to have composed them in the studio, probably without aiming at a realistic scene.

The photographs include, in addition to pictures of players known to have been active, studio pictures showing two keyed fiddle players photographed with one and the same instrument. Since one of the players has a peculiar way of holding the instrument and fingering the keys, one suspects that he borrowed the other's keyed fiddle. Such a photograph is liable to be worthless for a study of playing techniques.

Films were taken of people making and playing keyed fiddles at the time when the data for the present study were being collected. The purpose was to obtain authentic documentation of real-life situations. As far as the building of keyed fiddles was concerned, however, the instrument makers had to use different pieces in different stages of production in order to enable as many aspects of the technique as possible to be filmed within a reasonably short time.

Written sources

It is only by chance that the documents concerning the keyed fiddle which are published as *Bilaga 6* have been preserved for posterity and it is also by chance that they have been traced for the present study. Consequently they cannot be used for a statistical analysis of the extent to which the keyed fiddle was used at different periods. Many decades would be required for a systematic

investigation of all the manuscript sources in which the keyed fiddle might possibly be mentioned (judicial records and similar documents).

The written sources are nevertheless sufficiently extensive to provide a relatively continuous chain of evidence concerning the keyed fiddle in Sweden from the 17th century to the present day. Isolated documents from the 17th century provide proof that the instrument existed in Denmark. In some cases the texts also provide information about the instrument's social standing. No exhaustive descriptions are available, however, about the instrument and its function.

The written sources can be classified according to their value for a critical study. Of major importance in this respect are documents by authors whose subjects included music. Two have already been mentioned, Agricola (1528) and Praetorius (1619—20).

The official nature of documents such as deeds of inventory, court records and the like is a reasonable guarantee of their reliability. Almost forty of the written sources are of this type. A more cautious attitude must be adopted, on the other hand, to descriptions of life and customs in memoirs and the like. Although some of these sources are undoubtedly authentic, in others there is the suspicion that the author has described the instrument from hearsay.

In some literary descriptions of contemporary events, the keyed fiddle appears in contexts that probably reflect situations where the author in question was personally involved in some way or another.

During the 17th and early 18th century the keyed fiddle is also mentioned in poems intended to describe the peasantry's musical activities in conjunction with contrived tributes from the 'humble peasantry' to royal personages. These are not in fact descriptions from real life, the instruments of the peasants having been introduced simply to give the poem a more rustic atmosphere.

Chapter 3

Terms for the keyed fiddle

The keyed fiddle is also frequently mentioned in 'historical' accounts as being typical of the period in question. This merely shows that the author was familiar with the name of the instrument and presumed that it was old. Since there are usually no references to sources, these writings from the late 17th and 18th century are of little value as documentary evidence about the earlier periods which they describe.

In certain contexts, terms for the keyed fiddle (*nyckelgiga* and *nyckelharpa*) are used to signify something that is inferior. This usage is found in the literature from the early 17th century to the middle of the 19th century. It serves to indicate the instrument's social status and also provides indirect evidence that the name of the instrument was well known to a wider public.

The written sources for the keyed fiddle in the 20th century largely consist of reports from folk-musical competitions in which the keyed fiddle appeared, as well as newspaper interviews with musicians. The documentary value of these varies considerably.

Each piece of written evidence must be carefully weighed against other types of sources. A constellation of mutually independent items about the keyed fiddle, all from the same period and place, makes it certain that the instrument was a feature of the place in question and not just an occasional phenomenon.

Music for the keyed fiddle

The great majority of the tunes for folk musicians which are extant from the province of Uppland are ascribable to the repertoire of the keyed fiddle. Tunes have also been registered from the neighbouring provinces as having been played by musicians who had moved from Uppland, or by some wandering player of the keyed fiddle. There is a sufficient number of melodies for it to be possible to exclude those which are unsatisfactory from the point of view of source criticism and still have enough for statistically acceptable analyses. Those

melodies which belong 'indirectly' to the repertoire of the keyed fiddle, i.e. those which have been noted or recorded from a performance on some other instrument but which appear from the sources to have derived from players of the keyed fiddle, have not been included in the present study since the melody may have been modified when played on a different instrument.

The notated keyed fiddle melodies from the 19th and first half of the 20th century that are extant were, of course, taken down by ear, while the contemporary repertoire is relatively well represented by recordings on gramophone records and tapes. The former category is of greater historical interest, since it tends to reflect an older repertoire. On the other hand, these recordings by ear have the disadvantage that they tend to be incomplete, particularly concerning details of the rhythm and pitch of the melodies and the use of drone and double stopping. In many cases they are probably only a pale reflection of the musical totality they are meant to represent. There are a few instances, however, where early recordings provide a means of checking melodies by the same performer which have been noted down by ear. Similarly, recordings have been made in the 1960's of players whose repertoires have been taken down by ear in the 1920's. Since their instruments are intact and there is no indication that the style of performance has changed, it seems defensible to use these recordings to interpret the melodies noted down forty years ago. It may then be found that the transcription of the melody by ear is reliable at least as far as form, type of scale, melody and general rhythmical characteristics are concerned. It is chiefly these criteria which are investigated in Chapter 9.

The terms found in written sources which can be considered to refer to the keyed fiddle are *Schlüsselfidel*, *lökkelje*, *nøglefejle*, in German, Norwegian and Danish sources respectively, and *nyckelharpa*, *harpa*, *nyckelgiga*, *giga*, *nyckelspel*, *spel*, *spelharpa*, *knaverharpa* in Swedish sources.

Sources outside Sweden

Reproductions of keyed fiddles in Agricola, 1528: 55 [46] and Praetorius, 1620, Plate XXII [47], with the captions *Schlüsselfidel* and *Schlüssel Fiddel* respectively, serve to show that this term refers to the instrument as defined on p. oo. According to a catalogue from 1884, *Lökkelje* was the term for the keyed fiddle from Vefsen, Norway (*Bilaga 1*, 1.2). *Nøglefejle* is mentioned in two Danish manuscripts from the 17th century (cf. *Bilaga 6*, written sources 1646 and 1663).

Swedish sources

Nyckelharpa, i.e. keyed fiddle, is today the accepted Swedish term for the instrument defined on p. oo. It occurs in written sources from 1642 onwards. Other terms in Swedish usage occur in the same context and in such a way that it is clear that they were used as synonyms for *nyckelharpa*. Such evidence is lacking, however, for the terms *spelharpa* and *knaverharpa*. Even so, they most probably refer to the keyed fiddle, since the former occurs in sources from a community for which there is a wealth of documentary evidence concerning the keyed fiddle, while *knaver*, the first part of the latter term, is a popular term for a key. The terms *harpa*, *giga* and *spel* are also used in other senses than that of 'keyed fiddle'. Consequently this interpretation has to be investigated and defended in each particular case. In the present study the use in certain sources of *harpa*, *giga* and *spel* has been taken to be an ellipsis for *nyckelharpa*, *nyckelgiga* and *nyckelspel* respectively on the following grounds: (1) The complete term occurs in the same source and the general context indicates that the ellipsis is used as a synonym. (2) The shorter term occurs in several

sources where its elliptical function is evident and documented as usage from the same environment, locality and period. (3) The manner of playing the instrument in question is stated in the written source.

The various terms which have most probably been used to indicate the keyed fiddle are summarised in Fig. [53]. Each occurrence is designated with the date of the source. Synonyms are designated by joining the dates with a line. All the terms given below are to be found in their contexts in *Bilaga 6*.

Owing to the random nature of the present material, there is nothing to be gained by tabulating the individual terms in order to calculate their incidence and the period during which they were used. Certain tendencies are, however, worth noting. It will be seen that *nyckelgiga* is the most common term up to 1790, after which it disappears entirely. After 1870 one finds nothing but the terms *nyckelharpa* (chiefly in written language) and *harpa* (chiefly in spoken language).

'Nyckel-'

The German, Danish, Norwegian and two quantitatively largest groups of Swedish finds are related with respect to the first part of the compound (*Schlüssel*-, *nøgle*-, *lökkel*- and *nyckel*-). *Schlüssel* is used in the sense of 'key of an instrument' in Virdung (1511) and Agricola (1528). The word for 'key', i.e. of a door, in the Scandinavian languages (*nyckel* in Swedish) does not have this sense. Most probably, therefore, the first part of the Scandinavian compounds should be regarded as translations of the German *Schlüssel*. Perhaps the use of 'key' in these compounds is in some way related to the similarity in appearance and principles of design between the key of the keyed fiddle and the wooden key of the drop-arm lock (cf. p. 230).

Compounds with 'nyckel-'

There is no instance in the written sources of a Swedish term *nyckelfela* or *nyckelfiddla*, i.e. a

direct counterpart to the German *Schlüsselfidel* and the Danish *nøglefejl*. In Swedish usage, *giga* and *fiddla* as terms for instruments appear to be synonyms for 'stringed instrument' without any indications as to type. *Harpa* and *spel* are used to refer to so many different types of instrument that they are practically equivalent to the concept 'instrument'. The fact that Swedish terms for the keyed fiddle in the 17th and 18th centuries ended in *-giga* and *-harpa* rather than *-fiddla* is probably a linguistic phenomenon and has nothing to do with the morphology or design of different instruments. The terms *nyckelharpa* and *nyckelgiga* also seem to have been used as synonyms, although the mediaeval *giga* appears to have been gradually abandoned in favour of *-harpa*, which was firmly established in common usage, particularly in Uppland in the 17th century.

Definitive attributes and compounds with 'harpa'

From the end of the 18th century onwards, various attributes and compounds with *-harpa* are used to denote the keyed fiddles with resonance strings, each name being connected with a particular type of instrument.

Enkelharpa ('simple keyed fiddle') is a documented term for instruments with one melody string. According to oral tradition the term arose to distinguish such instruments from their immediate successor, the contra-drone keyed fiddle, which was known as the *dubbelharpa* ('double keyed fiddle'). The terms 'simple' and 'double', however, are also used even today to distinguish an earlier, relatively simple instrument from a more recent and more complicated model, e.g. the silver-drone from the chromatic keyed fiddle. Consequently, these terms, which have been used in the present study, are not entirely unambiguous.

Kontrabasharpa ('contra-drone keyed fiddle') refers according to present-day oral tradition to the location of the melody strings, which in this

instrument lie one on each side of the drone strings, i.e. 'contra bass'.

Kontrabasharpa med dubbellek ('contra-drone double-keyed fiddle') is reported by the same persons to have arisen as a term when the second melody string of the silver-drone instrument was incorporated with the appurtenant keys into the contra-drone keyed fiddle, which thus acquired a 'double' playing mechanism.

Silverbasharpan ('silver-drone keyed fiddle') was coined as an allusion to the *C* drone string, which is made of silver wound onto silk and is unknown in older types of keyed fiddle. This instrument is also known as the *C-durharpa* ('C-major keyed fiddle') on account of its having been adapted for the performance of melodies in *C*-major.

Kromatisk nyckelharpa ('chromatic keyed fiddle') is the term for the most recent type of instrument, on which one can play a chromatic scale of more than three octaves.

These terms thus refer either to some characteristic part or to a peculiarity of performance of the instrument in question.

Instrument-makers, materials and techniques

Modern instruments

Instrument-makers

The maker and the player of the keyed fiddle has been and still is one and the same person, drawn from the ranks of rural society—farmers, craftsmen, fishermen and smiths—and producing the instrument for domestic purposes. All the instrument-makers met with in the present era are or have been active in the province of Uppland, where there have been centres for making the keyed fiddle for at least 150 years.

When building an instrument, the craftsman has no 'antiquarian' ambitions but aims at producing the best possible tonal quality and an attractive appearance. Organised instruction in the making of keyed fiddles had not been arranged until the 1960's, when study circles took up the subject. Before that, the beginner developed his own technique by using an existing instrument as a model and drawing on his experience from the making of other objects. The workshop may be a carpentry shed or the kitchen (see [54] etc.). This chapter deals with the various shapes which the instrument-makers have developed as well as individual and local variations of these.

Choice and acquisition of timber

It is a general custom among those instrument-makers who work in the forest to be on the look out for suitable timber for their instruments. A 'split log' [55] that rings true when knocked with an axe may immediately inspire the building of an instrument. During the past decade, however, there has been an increasing tendency to buy sawn timber.

The instrument-makers have numerous ideas, which may be contradictory, concerning the choice of timber, particularly for the body and belly. Spruce is still used today for both body and belly, as it was in older instruments (see below), but hardwood is being used more and more for the body or at least maple for the back. The build-

er has certain notions about an ideal sound when making this choice of timber and in the majority of cases the traditional woods are abandoned in favour of other types which it is hoped will give a quality of sound reminiscent of the violin.

Other parts of the instrument (tail-piece, key-box, etc.) are considered to be of no acoustic importance and consequently other considerations guide the choice of materials for these. The primary requirement is a wood that is hard and will stand up to pressure and wear, while efforts are also made to match the various pieces in respect of grain and colour. For the older type of bow-stick with its curved end, a workpiece is sought that has grown in this shape. The stick is made of juniper or some other hardwood, usually birch or maple.

Manufacture

The *timber* is left to dry for anything from a month or so up to four years. Opinions about how dry the wood should be vary considerably.

The *body* is made from a piece in the form of a 'split log'. Recently, the practice has grown of glueing together sawn timber to form a rectangular frame [56]. If a split log is used, the heartwood is removed, the pieces are aligned and the builder decides whether the back shall lie in the heartwood or in the sapwood [57]. The profile of the body is often shaped after being drawn freehand, though sometimes a template is used [58]. A template is always used for the middle bout. One measurement, the vibrating length of the strings, is always the same nowadays, namely 400 mm; otherwise there are considerable variations in the size of the body, even between instruments made by the same person (see *Bilaga 5*).

Tools used for the shaping of the body are an axe, saw, mortise chisel, gouge, spoon gouge, trying-plane, plane, ruler, compasses, rasp, drills and breast-drill [60]. The profiles are sawn out [59], the ribs are planed to the required slope and the middle bout is hollowed out. The workpiece is then smoothed with rasp and file. The builder

bores out the inside of the body [61] before going to work with the gouge, mortise chisel, rasp and file. The drilling depth is carefully measured if the back is to be retained.

The *belly* is sometimes made from a single piece cut tangentially [62]. This is softened in hot water before being curved to the required shape [63]. Another method is to cut two pieces radially, glue these together and plane them to get the desired arch [64], [65]. Before going further, the sound quality of the belly is tested by tapping it with a knuckle or hammer [66]. Some builders have started to use a bass bar [67], having learned this technique by studying dismantled violins.

The *belly* is glued to the body before sawing out its profiles. If the builder uses the older type of sound hole, he bores two holes on the lower bout and shapes these into an oval with a knife. An *f*-hole, on the other hand, is made from the builder's own template [68] and is placed on the middle bout. The neck and the peg board with its holes for pegs are completed before the builder goes on to make the other parts of the instrument.

The *bridge* is sawn out [70] and shaped with knife, rasp and file, and its base is carefully fitted to the arch of the belly [71].

The *tail-piece* [72] is made with the same tools as the bridge. The holes for the strings through the key-box nut are made with a small hand drill or an awl [73]. The tail-piece is screwed or glued to the hook bar.

The manufacture of the *key mechanism* is of particular importance. The key-box itself is made from two pieces of roughly the same size, 320—350 mm long, 40—50 mm wide and 20—30 mm thick [74 a]. The one intended for the left panel is planed and chiselled to a thickness of 5—6 mm, leaving two heels projecting from the base [74 b] for fastening the panel to the neck. The holes for the keys are then marked out and drawn up. The builders measure the distances between the stopping points on an existing instrument rather than working them out for themselves (cf. Chapter 6). These measurements are plotted on a special

template and transferred from this to the left *panel* [75 *a* and *b*]. The holes are then sawn [76], [77] or chiselled out. The left panel is also made out of several longitudinal pieces [78], [79]. The right panel is fitted with a groove about 10 mm wide, which gives two 'walls'. Holes for the keys are made in the inner wall, the outer one serving as a stop [80]. When finished, the panels are screwed onto the neck [78].

The *keys* are whittled with a knife or sawn from suitable pieces [81]—[83]. They are then tried out in the key-box [84] and the instrument is provisionally strung [85] so that the builder can tell where to place the tangents. One builder has tried to improve the key mechanism by placing a return spring on the end of the key [86]. The upper row of key holes on the left panel are open so that the keys can be removed from the box for adjustment; these keys are held in place with a batten [87], [88].

Tuning *pegs* are made out of wood in the club-like shape that is characteristic of the traditional keyed fiddle. In the last two decades, builders have started to use mandolin or guitar pegs for the resonance strings [89]. There are also individual designs requiring specially constructed tuning keys [90]. Some builders use zither screws, the instrument being tuned with a clock key [91]. Specially designed iron tuning keys are forged by the players who are employed at ironworks [92].

A suitable piece for a *bow* can be shaped directly with a knife [93]. Otherwise the piece is curved after being placed in boiling water, and then shaped. *Bow hairs* used always to be taken straight from the horse. Nowadays, builders mostly buy violin hairs, preferably second-hand as these are cheaper. If violin or violoncello bows are used, they are shortened about 10 cm. These shortened bows have subsequently been copied by builders making their own bows. The manner of attaching the hairs is similar to that used for violin bows [95]. There is no nut, the hairs being tightened with the thumb or else upon attachment.

Varnish and ornamentation. A water-soluble

stain is applied to the body, belly and other parts of the instrument as well as the bow; after this has dried, it is covered with a thin layer of shellac. Compared with the beginning of this century, instruments are now given a lighter hue in order to bring out the grain of the wood. A common colour scheme is a yellow-brown body and walnut brown for the other parts. One form of ornamentation is produced by pressing a cogwheel into the soft wood [68]. Another is produced by branding with a soldering iron [17]. The heads of the 'diatonic' keys are sometimes painted a light colour and those for the 'chromatic' keys a dark colour, in keeping with the keys of the piano.

Several of the builders who were interviewed used to place the *sound post* in the traditional manner through the back of the instrument, holding it in place with a wooden wedge [96] and [121 *b*]. Nowadays it is made and inserted according to the same procedure as for the violon family [121 *c*].

The *strings*, both those of spun silk and those of gut, used to be made by the builders themselves. Steel wire for resonance strings was also available in the country districts. Nowadays players use a combination of violoncello and guitar strings as well as piano wire.

During the latest phase in the development of the keyed fiddle—the transition from the silver-drone to the chromatic type of instrument—radical changes have been made in its construction. These include (*a*) an adjustable sound post instead of one firmly wedged against the back, (*b*) an *f*-hole on the middle bout instead of oval-shaped sound holes on the lower bout, (*c*) a separate back of maple instead of a body entirely made of pine, (*d*) a straight bow stick instead of one curved at the end, (*e*) cello and guitar strings instead of strings made from silk and gut, (*f*) a curved instead of a flat bridge, etc. The body itself has also become lower and less arched. Forms of decoration which used to be common have disappeared and new ones have been introduced.

Although this development has been influenced by the instruments of the violin family, the builders have not copied these slavishly but have modified them to suit their own intentions. This aspect is discussed in more detail in Chapter 5.

Such innovations are generally created by one or two of the builders and subsequently adopted to varying degrees by the others. They have enabled the instrument to become adapted to changing requirements, helping it to survive longer than many other Swedish folk instruments, e.g. the bagpipe.

Analysis of older instruments

If it can be shown that keyed fiddles from different periods have been made from the same materials and with the same technique, this may help to elucidate the question of their historical connection.

Type of wood¹

Of the oldest extant instruments studied here, the two constructed in the form of a guitar (the Mora instrument and N.M. 147300) are made of pine, whereas the other two keyed fiddles without resonance strings (the Vefsen and Esse instruments) have a hardwood body and a belly of spruce.

A belly of softwood and a body of hardwood was regarded as a happy combination in the Middle Ages. A description of the manufacture of folk string instruments in a Swedish poem from the end of the 17th century mentions that the body was also made from hardwood. Another poem by the same author from 1707 relates, however, that the instrument was made of spruce.

Practically all the keyed fiddles which have been found and dated to the 18th, 19th or first decades of the 20th century have both body and belly of spruce. This choice of a softwood for the

¹ The wood has been analysed at the Swedish Forest Products Research Laboratory, Stockholm; cf. *Bilaga 10*.

body would seem to be connected with the new type of voluminous instrument with resonance strings, which has a large body and is designed with profiled edges, a flat back and pronounced middle bouts. When, in the 20th century, the practice grew of making a separate back on the lines of the violin, it became increasingly common to use hardwood for the body. To judge from the analyses, the other wooden parts of the instrument and the bow stick have always been made of hardwood.

Material for strings

It is not known what material was used for the strings of *keyed fiddles without resonance strings*. There are various possibilities. In the Middle Ages and more recently, stringed folk instruments have been fitted with strings of horse hair, silk, gut and metal. An extant example of the older type of keyed fiddle (the Vefsen instrument) has a fragment of metal wire in the head of the tailpiece which is probably the remains of a metal string. In view of contemporary practice, it is probable that strings of gut and silk were also used for keyed fiddles without resonance strings. It seems less likely, on the other hand, that horse-hair strings were used for keyed fiddles, partly because this instrument seems to lack connections in other respects with Nordic folk instruments having strings made out of this material.

Single and contra-drone keyed fiddles have had melody strings of silk and gut. Those of silk were made of silk thread rubbed with asafoetida and garlic. The silk string is probably a survival from mediaeval usage. Gut strings were made of sheep's gut for melody strings as well as for drone strings, which had to be made considerably coarser since they were tuned lower.

The resonance strings for keyed fiddles were of metal, usually iron or steel wire.

The *silver-drone keyed fiddle* was in the 19th century usually fitted with melody strings of gut, while during the present century these have been

exchanged for strings made of piano wire and for strings wound with metal.

Instrument-making in the past

The manufacture of the keyed fiddle in the past can be studied only by examining the details of extant instruments, there being no other sources. Whereas the Mora instrument and the keyed fiddle N.M. 147300 were made with loose borders, back and belly and a separate neck—not unlike the technique for making a guitar—the Esse and Vefsen instruments and the keyed fiddles with resonance strings from the 18th, 19th and present century were made in much the same way in principle and with roughly the same tools as those described above for contemporary instruments.

In the manner of their construction there is thus an undisputable connection between the Esse and Vefsen instruments and the present form of the keyed fiddle.

Chapter 5

Morphology and ornamentation

This chapter is chiefly concerned with the following questions about the historical development of the keyed fiddle. (a) Does the keyed fiddle constitute a single type of instrument that has undergone a continuous 'development' from the Middle Ages to the present day, or are there various types with such clear differences between them as to suggest that the instrument, having dropped out of use for a time, may have been 're-invented', for instance with some combination of a hurdy-gurdy and a string instrument as the prototype? (b) Does a detailed study and comparisons with other instruments and objects suggest that different types of keyed fiddle were localised to certain specific environments? (c) Can certain details of construction help to date different keyed fiddles more exactly and provide any indications as to the origin and history of this instrument?

Forms of body

The keyed fiddle with ribs and a flat bottom represented by mediaeval paintings and extant instruments (see Mora instrument [2], the keyed fiddle N.M. 147300 [30] and [43], [44], [46], [47]) does not constitute an autonomous type of instrument but may be described as a fiddle with a key mechanism (cf. [98], [99]). The hollowed out body characteristic of other keyed fiddles is more a mark of popular manufacture of stringed instruments. The development may possibly have been as follows: the keyed fiddle with a body shaped like that of a guitar was the type which was introduced and which gained acceptance in Scandinavia during the Middle Ages. Subsequently, when the keyed fiddle lived on as a peasant instrument, it came to have a hollowed-out body, which requires less skill of its maker than does a body with ribs.

One cannot accept such an hypothesis unless it can be shown that there is evidence of a connection between different keyed fiddles from different periods. As far as the shape of the body is concerned, this can be done from the Esse and Vefsen instruments down to the present day. The

various modifications can be explained as influences from other stringed instruments, i.e. probably from the viola da gamba during the 18th century and from the violin during the 19th and 20th centuries.

Resonance strings

There are several considerable morphological differences between keyed fiddles with resonance strings and those without them. It is therefore important to determine when and where resonance strings were probably first combined with the keyed fiddle. The most probable alternative seems to be that the use of resonance strings was inspired by the viola d'amore, which according to several written sources was already played in Sweden at the end of the 17th century, e.g. in Uppsala and Stockholm.

Peg board, peg box and English screw mechanism

Keyed fiddles without resonance strings have been fitted with a peg board in which the tuning pegs were inserted from above or below. In only two cases is the instrument depicted with a peg box from which the pegs project along the sides. Praetorius's reproduction shows a rectangular peg board, a shape which was probably made necessary by the large number of strings. A rectangular peg board is also found on all keyed fiddles with resonance strings, except for two instruments that were undoubtedly in use in society and which have peg boxes with lateral pegs [120] and an English screw mechanism [122]. The tuning pegs are practically always club shaped, although at a later date their actual design is influenced by the tuning pegs of violin instruments.

Tailpiece and 'guitar bridge'

The manner of attaching the lower end of the strings is important acoustically as well as for playing technique and it is also used for classifying the instrument. Two types of attachment are

characteristic of the keyed fiddle. One of them, found only in mediaeval murals, consists of an attachment on the belly, similar to that on the guitar [32], [35], [42]. The other, a tailpiece, is characteristic of other keyed fiddles from mediaeval paintings down to the present day. There is close agreement between the tailpieces of different keyed fiddles without resonance strings that are either still extant or known to us from iconographic evidence. The tailpieces of keyed fiddles with resonance strings bear a close resemblance to the tailpiece of the Vefsen instrument, except that they are more sturdily made in order to stand up to the strain of the additional strings. These tailpieces can be typed within certain limits on the basis of their different shapes (cf. [100 a, b, c]). The types are not tied to any particular period. Different tailpieces from different periods can however be distinguished by their ornamentation, design and painting [101], just as certain examples that deviate strongly from the common pattern are executed in a design that is characteristic of another society [122]. It seems that different techniques for attaching the tailpiece to the hook bar are restricted to certain types of instrument. Illustrations are provided of the usual technique for the simple and the older contra-drone keyed fiddles [102 a], for the later contra-drone and silver-drone instruments [102 b] and for the chromatic keyed fiddle [102 c].

Bridge

Only one of the reproductions of keyed fiddles without resonance strings clearly shows the shape of the bridge [33], and even in this case it is so schematically painted that little importance can be attached to this source.

The earliest extant bridges from keyed fiddles, which date from the late 18th and early 19th century, have the anvil-shaped design that one finds on Praetorius's peasant hurdy-gurdy [47]. These bridges differ in matters of detail. As in the case of the tailpiece, the differences would seem to be the result of the individual builder's intentions

and local traditions derived from these, rather than being chronologically determined within the periods when the contra-drone and silver-drone instruments flourished (cf. [103]). There is a special character to the detail of bridges made by persons from outside the peasant environment [104]. A different type of bridge first came into use during the present century, in conjunction with a new manner of performance. The top of this bridge is rather curved, like the violin's, making it easier to play on one string at a time [105]. Although the violin bridge very likely served as the prototype, many of the new designs hark back to the bridges of older keyed fiddles.

Location of the bridge

Before investigating the instrument's tonal material (Chapter 6), it is necessary to establish the location of the bridge.

The bridge is missing on the oldest extant keyed fiddles, but its location can be ascertained with considerable certainty from the positions of the hole for the sound post and from the marks left by the bridge on the belly.

Key mechanisms

The special type of pressure key that is characteristic of the keyed fiddle and the later one-man hurdy-gurdy (cf. e.g. Bachmann 1964: 126 ff.) has no direct parallel among other keyed instruments. There are, however, lock keys which are similar in both their design and the direction of their movement [106]. As already mentioned, the prefix 'key-' (*nyckel-*) is significant in connection with this.

Number of keys

In general, each type of keyed fiddle was fitted with an increasing number of keys as it was developed. This was done to extend its range and permit a higher degree of chromaticism. The latter aim referred only to instruments with resonance

strings. Even so, the number of keys is no certain indication of whether a particular instrument is an early or late representative of its type. A silver-drone instrument with 17 keys is thus not necessarily older than one with 19. It happens, for instance, that players remove keys which they find have no function to fill, and such an instrument may then be copied with its reduced number of keys. (Cf. Chapter 6 concerning the tonal material of keyed fiddles. The number of keys in the instruments studied is reported in *Bilaga 5*, Table II.)

Morphology of keys

The basic design of the key has remained unchanged from the oldest extant instrument to the keyed fiddles of the present day. Seen from above, the part of the key that lies in the key box is wedge-shaped, while the protruding part is made up of a thin neck and a broader triangular or rectangular plate, referred to in the present study as the 'head' of the key. This head has grooves scored into it at right-angles to the line of the key. The tangent is placed in a hole bored in the wedge-shaped part. There are interesting chronological differences in the detailed design of the keys. Their pattern varies, for instance, with the number of keys, the requirements of different playing techniques, etc. (cf. [108]–[110]). On some contra-drone keyed fiddles, the twelfth key has an extra wide wedge with room for two tangents side by side. If the performer wishes to play a melody involving b^2 , he turns the right-hand tangent so that its edge faces the string and swivels the other tangent to one side. To play bb^2 , he does the opposite [111]. Individual designs are found for different keys, particularly in instruments from about 1890 onwards. Different constructions are used for keys placed in tiers [113], [114]. The keys of chromatic instruments are specially designed so that the wedges can be hollowed out to accommodate the tangents of the keys on the second and third rows [115].

Key box

The *panels* of the key box of earlier instruments have the same general appearance as those being made today (see above). However, as in the case of the keys, there are interesting variations in matters of detail. Each panel is attached to the neck of the instrument at two points, the wood between these being carved away. The only reason for this recess seems to have been to make it easier to fit the panel onto the neck. The pattern of the recess can be followed from keyed fiddles without resonance strings down to silver-drone instruments. The *locking batten*, which keeps the upper row of keys in place, is attached in a variety of ways. There is one technique [117 *a*], which is found in instruments from all periods, whereas others seem to be confined to a particular type of instrument: [117 *b*, *c*] to simple and contra-drone keyed fiddles, [117 *d*] to more recent instruments, chiefly chromatic keyed fiddles. Wooden pegs were used for *attaching the panels* until the end of the 19th century, after which wood screws began to be used. Previously it had been held that 'iron kills the sound'. The shape of the *key-box nut* has changed and the arrangement of the strings has also varied from time to time [118]. Keyed fiddles used to be fitted with a *lid* over the key mechanism to protect this from the elements [119]. The lid disappeared during the second half of the 19th century, probably because special cases started to be made for carrying the instrument outdoors.

Sound post

There is a hole for a sound post on the belly of both the Mora and the Esse instruments. The keyed fiddle from Vefsen has a very slender mushroom-shaped sound post [121 *a*]. Keyed fiddles with resonance strings from the 18th to the early 20th century have a sound post inserted through a square hole in the back and held with a wooden wedge [121 *b*], [96]. The chromatic keyed fiddle has an adjustable sound post after the manner of the violin [121 *c*].

Sound holes

The sound holes on keyed fiddles are by no means unique in their design and new types have been introduced from other instruments from time to time. Studies concerning the early development of sound holes thus concern the keyed fiddle only indirectly.

A round sound hole in the middle of the body—as on a guitar—is shown on several portrayals of keyed fiddles in mediaeval church murals as well as in Agricola (cf. [35], [38]–[40], [42], [46]). The keyed fiddle in Agricola, like several of his bowed instruments, also has a C hole on the upper bout. Fiddles with the guitar's circular sound hole are known from mediaeval paintings on the Continent and there is no justification for concluding that these reproductions are instances of the artist having been unable to distinguish between bowed and plucked instruments: the type of instrument in question may well have existed in the form portrayed (cf. p. 00). Other types of sound holes found on keyed fiddles [32] similarly occur in mediaeval pictures of other types of bowed instruments. Twin sound holes in the form of two hearts are found in illustrations as well as on extant instruments ([2], [30], [43], [47], [52]). A hurdy-gurdy and two fiddles in Rynkeby church, as well as one fiddle in Brunnby church, all have this type ([125], [99], [98]). These twin pairs of holes appear to belong to a mediaeval type of fiddle. A sound hole shaped like a C is found on the Häverö keyed fiddle [33]; together with the flame-shaped hole, this type is common in the viol family. Like the keyed fiddle in Alnö church, the Esse instrument [3] and most of the instruments with resonance strings have oval sound holes, of which one variant is fairly circular [19], another egg-shaped [20] and a third oblong [11]. Some of the oldest keyed fiddles with resonance strings have drop-shaped sound holes [107], while others are reminiscent of rococo forms [122]. A kind of *f*-hole on the lower bout made its appearance late in the 19th century; after 1920 this was moved to

the middle bout and made to look more like the sound hole on a violin.

A *small sound hole on the upper bout* occurs in the form of four holes arranged in a diamond with a fifth hole in the middle ([2], [30], [52], [123 m]). This type of sound hole has been widely used for a great variety of instruments both in and outside Europe. The most usual type of sound hole on the upper bout, however, is a small heart [123 a—h] or some related shape [123 i—k]. Two other shapes have also been found [123 l, o].

Bow

All the bows in mediaeval reproductions of the keyed fiddle have their parallels in pictures of other bowed instruments. It does not seem likely that these reproductions of keyed fiddle bows are distortions or products of the imagination. There is an illustration [124] showing bows for the keyed fiddle arranged according to Dräger 1937 p. 21; the caption indicates which of these belong to the same typological group. The bows of both Agricola's and Praetorius's keyed fiddles appear to have been reproduced in a credible manner. Several keyed fiddle bows from the 18th century are still extant and there is little difference, except in certain details, between these and the bows from the end of the silver-drone instrument's era, i.e. the present day. This bow is characterised by a sharp curve towards the tip, the straight part of the stick being angled towards the hairs and ending in a flat handle. The design of this handle is independent of the procedure for stretching the hairs: bows where the hairs are tensed by pressing them against the stick from below are shown in [124 f, h], [9], [11] and those where the hairs are tensed with the thumb between them and the stick are reproduced in [124 g, i], [12], [15], [20].

One must be cautious about dating the bows on the basis of their technical details. Some of them are undoubtedly ancient relicts but certain peculiar designs may well be examples of quite recent invention having no direct connection with mediaeval types. There are several instances of such

reductions, where there is no genetic relationship between the later bows and their predecessors, among keyed fiddle bows. Consequently, unless their history is known in detail, it is hazardous to try to establish a correlation between typological and chronological features.

Varnish, painting and ornamentation

The oldest extant keyed fiddles have apparently been painted brown and black. In the 19th century the colour is brownish-red and black, in keeping with the violin, while during the present century instruments have been painted in two different shades of brown. Ornamentation in the form of *scoring*, *punching* and *branding* has been and is still used. However, there is nothing peculiar to the keyed fiddle in these ornaments; both the patterns and the techniques for producing them are documented as being used for other objects in Swedish folk art. In recent years, the emblems of the arts-and-crafts movement have started to replace the old patterns; this change constitutes a feature of the instrument's latest development.

Hurdy-gurdy and keyed fiddle

There is a close morphological similarity between hurdy-gurdies and keyed fiddles in mediaeval and renaissance reproductions. They also display an analogous development in that in both types of instrument, the number of keys was gradually increased as time went by. This does not however prove that there is a continuous connection between them. Instead they probably developed independently but were both influenced by changes in the musical situation in their environment. Another example of an analogous development is that there is probably no connection between the introduction of resonance strings on the hurdy-gurdies in 18th century French society and their adoption on the keyed fiddle. In the early stages, the keyed fiddle's harmonies were the same in principle as those of the hurdy-gurdy. This was changed with the introduction of the contra-

drone keyed fiddle, when it was discovered that, thanks to the use of a bow, more than one string could be utilized for the melody (see Chapter 7).

The data concerning hurdy-gurdies and keyed fiddles suggest that, during the Middle Ages, there were close musical and morphological parallels between the two types of instrument. They appear to have 'separated' after 1600, the keyed fiddle following its particular line with influences from viols and the violin family, while the hurdy-gurdy was modified by the lute and the guitar.

It is now possible in some measure to answer the questions formulated at the beginning of this chapter. (a) The morphology of the keyed fiddle shows that the instrument was developed continuously from the Middle Ages onwards; there are several points of agreement in design and construction. (b) The keyed fiddle can be localised to certain environments. The design of the instrument shows that it belonged among the peasantry from the 17th century onwards. At all times, however, one finds that builders borrowed from 'society instruments' and tried to adapt the keyed fiddle to current requirements in respect of sound and performance. (c) Certain details of construction and design provide a chronology on a typological basis, which can often help to verify the date of an instrument.

Indirectly, the study has thus enriched the historical material, besides paving the way for an hypothesis about the origin of the instrument. This is presented in Chapter 10, while the analyses reported above also provide a basis for the discussion in Chapters 6, 7 and 8.

Chapter 6

Tonal resources and size of intervals

The tonal material and size of intervals of extant keyed fiddles have been investigated in two ways: by acoustic measurement of pitch and by linear measurement of strings. The results in both cases must be evaluated in the light of the material investigated and the reliability of the measuring systems.

Methodological considerations

Acoustic measurement

A keyed fiddle that has lain idle for a considerable period of time is generally not in a fit state to be played: the belly has usually fallen in and several parts will be missing. Even the few instruments that are well preserved have to be re-strung before they can be played. Let us however assume, for the sake of argument, that the tonal relationships of a well-preserved instrument are not altered by re-stringing because the strings used are of the same material as the original ones and the bridge is fitted in exactly the same place as before. Let us also assume that the tangents lie at exactly the same angle to the string as when the instrument was last in use. Not even under these ideal conditions can one claim that acoustic measurements will determine the original pitch of the instrument to the nearest cent. This is because the design of the keyed fiddle permits a rather large variation in frequency depending upon how the instrument is played. Acoustic measurements of pitch thus provide information about *the instrument's pitch as produced by a particular player*.

The players visited in the course of this study were asked to play the instrument's scale. A chromatic scale was entirely alien to most of them and even a diatonic scale presented some difficulty, since many of the players were unfamiliar with the necessary fingering. When the players nevertheless complied with my request, the artificial situation may well have meant that the notes they played differed slightly in pitch from those produced when playing a tune.

Consequently, the only possible way of determining the pitch of sounds produced when playing the keyed fiddle is to study the actual sequence of the physical sounds produced when playing melodies. This gives the pitch of the notes that are used by the player, which do not however constitute the instrument's total tonal material.

The sound sequences in keyed fiddle melodies were analysed with the melody writer 'Mona' by Mr. Krister Malm at the Institute for Musical Research, Uppsala, in the spring of 1965.¹ An important finding was that a particular note may vary considerably in pitch even when produced by the same player, depending upon its position in the melody. This is probably due to variations in the player's touch: a tone played to form an interval is often sharper than the same tone played in a scale.

The extent to which touch can affect pitch also depends upon the design of the key box and the material used for the strings. In addition there are such factors as the construction of the bow and its pressure on the strings.

The keys of many chromatic keyed fiddles are designed so that they can be depressed only a short distance, whereas those of older instruments can be pushed much further in. Steel strings are less elastic than strings of gut or silk. In the case of older instruments with silk strings and keys that can be depressed a considerable distance, even minor differences in touch vary the pitch to such an extent that the player has to 'get the feel of the instrument' if the sounds produced are to be reasonably true. The older type of bow, curved towards the head and held with a 'fist grip' (cf. Chapter 7), usually gives rise to an irregular bowing pressure, whereas a bow with a straight stick and tight hairs can be played more evenly and gently. This, too, will probably affect the stability of pitch (cf. however *Bilaga 8*).

The variations in pitch that arise from e.g. differences in touch are so large that there is no point in considering limiting values. Even with

the chromatic keyed fiddles, sounds that are more than a semitone sharper than those intended may be obtained if the keys for the top notes are pushed in very hard.

Nevertheless, with the exception of the top notes, the scales played experimentally on renovated instruments and those produced by players on their own instruments should provide a basis for determining the distribution of the whole and half-tone intervals of the instrument in question.

Linear measurement

It would assist in determining the pitch of sounds produced by a keyed fiddle if one could disregard the performer's technique and the condition of the instrument. This can in fact be done by measuring the length of the open string (*mensura*) and the distances between stopping points and the bridge.

Such a situation is of course fictitious in the sense that one dispenses with sound events and establishes the instrument's intervals by measuring the position of the tangents. In other words, one obtains the makers' *measurement* of intervals and not the players' realisation of these in practice.

String lengths were measured in the present study according to the principle used by the makers when producing a template (cf. p. 227 f.), since this proved to give the smallest margin of error. Measurements of this type can be made on all keyed fiddles provided one knows the position of the bridge and the key-box nut, and provided one of the side panels, preferably the left-hand one, of the key-box is preserved. Instruments that simply comply with these minimum requirements give less reliable measurements than keyed fiddles which are complete and 'intoned'.² Even

¹ For details about this melody writer see Bengtsson 1966: 338 ff.

² A keyed fiddle is said to be 'intoned' when the player himself has adjusted the tangents so that their angle to the melody strings produces the intervals that satisfy the player.

in the latter case, however, measurements can only be made to the nearest millimetre, partly because the tangent has a relatively blunt point. Consequently, even measurements on such instruments are subject to a certain tolerance. When establishing the point where the tangent strikes the string, the margin of error should be taken as ± 1 mm. A larger tolerance must be admitted, of course, if there is reason to suspect that the tangent has been disturbed so that the intonation is not the same as when the player used his instrument. According to the present calculations, the point of impact of each tangent falls within 2 mm on either side of the perpendicular from the string to the tangent. In the case of intoned instruments, the tangents are seldom turned so that their point of impact is displaced by more than this. In practice one cannot usually turn the tangent any further because its front edge must hit the string almost at right-angles to avoid the tangent turning parallel with the string on impact. When measuring string lengths on these instruments, one should therefore allow a tolerance of ± 2 mm. Practical experiments suggest that this tolerance is also sufficient in the case of instruments with only one side panel of the key-box extant.

One cannot measure string lengths without knowing the positions of the bridge and key-box nut. Even if the latter is not extant, its position on the keyed fiddle can be fixed without difficulty thanks to the groove on the neck. One may have more trouble ascertaining where the bridge once stood, though in many cases the varnish on that part of the lid has changed colour or been worn away. Even so, the distance between the nut and the bridge can be measured only approximately in many cases. In all the cases in which measurement has been possible, this dimension has amounted to almost or exactly twice the distance between the nut and the octave stop. Contemporary keyed fiddle makers are very particular about the 'octave key' halving the string. Although some of the older instrument makers may

not have fully realised why this is so important, they were all aware that it would be 'asking for trouble' to ignore the principle. The keyed fiddles with resonance strings all appear to have been given a key mechanism designed to give a pure octave to the open string. It is less likely that this principle was applied to the design of key mechanisms for the instruments without resonance strings (see below).

Interval diagram for surveying the position of tangents

The mensura of keyed fiddles vary between 360 and 420 mm. The interval diagram [126]—[127] was constructed in order to compare the string lengths of all keyed fiddles and relate them to a scale in equal temperament in the following manner. (In the diagrams the tones are named according to German terminology.)

Starting with mensura of 360 and 420 mm, string lengths were calculated for a chromatic scale covering two octaves in equal temperament. These lengths, representing the positions of hypothetical tangents, were plotted along the top and bottom of millimetre paper so that the octave 'stops' lay on the mid-line.

Similar plots of the positions of tangents in the instruments examined were then tried out in various positions on this diagram. The string lengths of the keyed fiddles with resonance strings coincided or lay close to the lines on the diagram when their octave stop was placed on the mid-line. This indicates that the makers of these instruments probably arranged the tangents with either just intonation or equal temperament as a pattern. In the case of the three instruments without resonance strings, the plots of the tangents did not coincide in this way and these are therefore discussed in a separate section.

The positions of the tangents were plotted on the diagram with the octave stop on the mid-line, in keeping with the conclusion that the instruments were designed so as to produce a pure oc-

tave with the open string. The tolerances were indicated with a circle round each point, the radius being 2 or 1 mm according to the tolerance in question. It would unfortunately have taken up too much space to publish the tangent positions of all the instruments investigated. Instead, a number of instruments have been selected to represent each type and these are shown on smaller interval diagrams. Diagrams 1—3 [126 a—c] show the positions of the tangents on simple, contra-drone, silver-drone and contra-drone double-keyed fiddles respectively. Diagram 4 [127] does the same for instruments belonging to players who are still active. The instruments represented have different mensura, the manner of their construction varies and they come from different localities. Even so, the position of the tangents is much the same in each case. The series of intervals derived from the measurements of string length serve to establish the distribution of whole and half-tones according to the intentions of the man who built the instrument. Some instruments even seem to have been consciously designed to play intervals outside just intonation or equal temperament (see below).

Comparison between acoustic and linear measurements on the same instrument

In order to compare the results of frequency measurements with the theoretical pitches calculated from measurements of string lengths, experiments were made with a chromatic keyed fiddle (6.5) played by its maker, who is an active player, and a keyed fiddle without resonance strings—the Vefsen instrument (1.3)—played by me. The former instrument was in excellent condition and the performer was ideally suited to play the pitches for which the instrument was designed. In the latter case, on the other hand, conditions were the worst possible: the key mechanism was in poor condition and the performer

did not know for which pitches the instrument had been constructed. In spite of this, both measurements gave similar results. At low frequencies there was little difference between the results calculated from string measurements and those obtained by acoustic measurement of scale notes played on the instruments, while there was a marked difference for the high frequencies in the case of the Vefsen instrument and to some extent for the chromatic keyed fiddle as well. As already mentioned, these top tones vary considerably with the touch of the performer, who is thus able to control the pitch of notes in this register, which is also particularly susceptible to unintentional variation. There was a marked difference between tones forming part of a scale and the same tones played as a leap.

This comparison suggests that the measurement of string lengths, making allowance for the reservations discussed above, is more reliable for establishing an instrument's pitches. The following account of tonal resources and size of intervals is entirely based on this method.

Tonal resources of the keyed fiddles with resonance strings³

The tonal resources of most of the *simple keyed fiddles* investigated are the same as those of the instrument shown in the drawing [128]. There are certain deviations, e.g. some instruments have chromatic steps corresponding to the stopping of the first melody string shown in the drawing of a contra-drone instrument [129].

Seven of the 17 simple keyed fiddles have a tone between f^3 and $f^{\sharp 3}$. This appears to be intentional rather than the result of some random deviation.

The *contra-drone keyed fiddles* have the same grouping of tones on the first melody string as the simple keyed fiddles. There is, however, a preponderance of instruments with the half tones $d^{\sharp 2}$, $g^{\sharp 2}$ and $a^{\sharp 2}$. The intervals on the second melody string are the same as on the first, pitched

a fifth higher [129]. Some instruments appear to have string lengths that vary at random (cf. [126 b] diagram 2, 3.35 and 3.53). It is interesting to compare these with 3.37 (cf. diagram 2), which was probably built by a professional instrument maker and lies close to the theoretical diagram for equal temperament.

The *silver-drone keyed fiddle* has the keys and tangents for the first melody string arranged in exactly the same way as the majority of contra-drone instruments [130], though curious intervals are sometimes found above c^3 (cf. e.g. [126 c] diagram 3, 4.43 and 4.2). In these cases it seems that the instrument makers did not trouble to measure the position of these tangents particularly accurately. According to one informant, this was because the top keys used to be included simply 'for the look of the thing' and were never used by players. In this context it is worth mentioning that, since the relative thickness of the two melody strings might be altered when one or both of them were renewed, the keys used to be fitted with three alternative holes for the tangents to the second melody string. There are also various types of coupling between the keys and the two melody strings (cf. [114]).

The *contra-drone double-keyed fiddle* has three melody strings, although the one in the middle is only used for double stops. In other words, the middle string has one of the functions of the second melody string on the silver-drone keyed fiddle and it has the same arrangement of keys and tangents. The first and third melody strings have keys and tangents arranged in exactly the same way as the contra-drone keyed fiddle [131].

The *chromatic keyed fiddle* is equipped with the same grouping of keys for the first melody string as the majority of contra-drone and silver-drone instruments. The second melody string has its own row of keys, as has the third melody string, which corresponds to the first drone string of the silver-drone instrument. The register is often entirely chromatic [132].

The tonal material of keyed fiddles with resonance strings has changed considerably from the oldest instruments known—from the 18th century—to the chromatic keyed fiddles in use today. The basic scheme for positioning the tangents has however remained the same.

Apart from changes connected with efforts to alter the sound quality (for instance when the drone technique gives way to double stops and double stops to chords, cf. Chapter 7), it is noticeable how the tonal resources are extended and become increasingly chromatic. This is true of the general development from the simple to the chromatic keyed fiddle and it also applies to the individual types of instrument. It seems that the earliest representatives of the simple, the contra-drone, the silver-drone and the chromatic keyed fiddle all have fewer keys, i.e. a smaller range and fewer chromatic half-tones, than later models.

There are instruments which anticipate this development and these were probably the work of an instrument maker with greater ambitions than those of the average builder, whose keyed fiddle was required for a specific repertoire only.

One also finds instances of the opposite procedure; instruments of a particular type which tend to lack the keys, or at least the tangents, that produce tones which are not required by the player's repertoire.

When the makers copied the positions of the tangents from older instruments, their measurements may have been inaccurate; in the interval diagrams this will lead to random deviations from equal temperament or just intonation (cf. diagrams 1–4 [126]–[127]). If several instruments deviate with respect to the same string length, however, it is possible that the makers were aiming at a specific pitch and perhaps trying to realise an intonation that was characteristic of the particular musical environment of

³ In the following the chromatic half tones are marked simply with a sharp sign.

these instruments. Before discussing this possibility, let us look at the tonal resources of the three oldest keyed fiddles extant.

Keyed fiddles without resonance strings

The positions of the tangents on the Mora, Esse and Vefsen instruments cannot be fitted into the interval diagrams discussed above. In order to see whether this might be because the position of the bridge has been wrongly located, a new interval diagram was constructed with 300 mm as the smallest mensura, i.e. shorter than the possible minimum for these three instruments. Even so, the plots of their tangents could not be fitted into a series of intervals corresponding to any known pattern. It is probable that the proposed mensura are correct and that the intervals are not the same as for the keyed fiddles discussed above. Tangent plots were made for instruments of equal temperament using the two mensura accepted for the three instruments (390 and 360 mm) and their octave points were positioned on the same vertical line ([133] diagram 5). The positions of the three instruments' tangents were plotted as well as the string lengths calculated from scale tones played on the Vefsen instrument (cf. *Bilaga 7*).

The positions of the tangents on the Mora instrument [2], [5] appear to correspond to the following tones: a^1 (open string), b^1 , c^2 , d^2 , e^2 , $f^2\sharp$ (all lower than equal temperament), g^2 , a^2 , b^2 , c^3 , d^3 , e^3 , $f^3\sharp$. It will be seen that certain intervals in this scale deviate from those of equal temperament or just intonation. Moreover, the measuring points suggest a doric scale, i.e. a different arrangement of tones from that presented earlier. The pitch of the notes can be varied considerably by the player and the deviations in intonation suggested by the positions of the tangents can easily be eliminated by depressing the keys in question somewhat further than the others. It

seems clear, however, that the whole and half tone intervals indicated by the measurement of string lengths are those for which the instrument was designed.

Like the Mora instrument, the keyed fiddle from Esse [3], [6] has a pure octave to the pitch of the open string with the mensura adopted here. The positions of the tangents give the following intervals on the diagram: a^1 (open string), $a^1\sharp$, c^2 (lower than equal temperament), $c^2\sharp$, d^2 (higher than equal temperament), e^2 , $f^2\sharp$ (lower than equal temperament), g^2 (higher than equal temperament), a^2 , $a^2\sharp$, c^3 (both higher than equal temperament), d^3 , e^3 .

The Vefsen instrument [4], [7] probably has a mensura of about 390 mm, like the keyed fiddle from Esse. With this measurement, however, none of the points gives an octave to the open string. The interval diagram results in the following scale: a^1 , b^1 , c^2 , $c^2\sharp$, d^2 , e^2 , $f^2\sharp$, $g^2\sharp$ (lower than equal temperament), $a^2\sharp$, c^3 , $c^3\sharp$, $d^3\sharp$ (both higher than equal temperament), $f^3\sharp$. The tones played on the instrument gave the same scale up to g^2 , but this was followed by a^2 , b^2 , $c^2\sharp$, d^2 (cf. diagram 5 [133] and *Bilaga 7*). The octave can thus be produced by varying the touch, which also has a considerable effect upon the tones above a^2 .

It seems that the musical environment in which the Esse and the Vefsen instruments were constructed, was relatively uninfluenced by theoretical calculations of tangent positions according to the demands of equal temperament or just intonation. The scales of these instruments do not represent a particular type as in the case of the instrument from Mora. In the Esse and Vefsen instruments, the keys appear to have been arranged somewhat haphazardly without considering the exact intervals. This may also explain why there is a good number of chromatic half tones at the beginning of the instrument's scale whereas the highest intervals are whole tones and even an augmented second. It is possible that the curious scale of the simple keyed fiddle can be

explained in the same way. As reported above, this scale is also chromatic to start with but becomes diatonic. Here, too, the number of keys was presumably conditioned by the space available, but the scale differs from that of keyed fiddles without resonance strings owing to the development of a theory about how a string should be stopped to give the 'correct' intervals.

Use of the tonal resources

Numerous melodies played on the keyed fiddle have been written down by ear during the present century and a number of recordings have been made during the past two decades. These records make it possible to establish which parts of the tonal resources are used by players on the contra-drone, silver-drone, contra-drone double-keyed and chromatic keyed fiddles (see Chapters 7 and 9).

No record has been found of melodies noted down from a performance on simple keyed fiddles or from keyed fiddles without resonance strings. One cannot establish the scales used in practice with these types of instruments but alternatives can be discussed. In the case of the simple keyed fiddle the question is complicated by the need to account for the deviation in the position of some of the tangents from the stopping lengths required by equal temperament.

Keyed fiddles without resonance strings

The tonal resources of the Esse and Vefsen instruments do not give any indication of what types of scales may have characterised the melodies that were played on instruments of this type.

According to the measurements of string lengths, the tonal resources of the Mora instrument comprise a scale in the *D* mode. With the open string tuned to a^1 , the compass of this scale is a^1 — $f^2\sharp$. A melody in the Dorian mode can thus be played on the instrument provided it does not descend below the final a^1 . This instrument can also be used to play melodies in the plagal Dorian mode with e^2 as the final, in the authen-

tic Lydian mode with c^2 , the authentic Phrygian mode with b^1 and other ecclesiastical modes. One cannot, however, fit a complete major or minor scale into the sequence of tones indicated by the measuring points.

Both the morphological study and dating by the C14 method indicate that the Vefsen instrument is younger than the keyed fiddle from Mora. While the instruments from Esse and Vefsen are probably of peasant origin, the keyed fiddle from Mora may have come from a different musical environment where a *conscious* attempt was made to construct a tonal material in accordance with the scales most used in playing. In support of such an assumption it may be noted that the ornamentation on the back of the instrument is not considered to be the work of someone belonging to the peasantry.

Simple keyed fiddle

Although there is no definite evidence of any particular melody having been played on the simple keyed fiddle, there are tunes which originated from districts where this instrument was used and which are traditionally held to be so old that one seems justified in assuming that they have been played on it. While most of these melodies are noted down in C_n major⁴, several are also reproduced in G_n major, even though they have been noted down from performances on the silver-drone keyed fiddle, which is usually played in C_t major.

G_t major is a key which should have been particularly suitable for the contra-drone keyed fiddle with its g drone. What has probably happened is that players on the silver-drone instrument, besides borrowing melodies from those with the contra-drone instrument, have also copied their fingering.

Nearly all the old keyed fiddle melodies in major keys descend to a fourth below the tonic and consequently they cannot be played on the simple keyed fiddle unless they are transposed with g^2 as the tonic. With c^2 as the tonic, only a

few of them can be played on the simple keyed fiddle. Since melodies in G major are common in old repertoires and highly suitable for contra-drone instruments, which are known to have been played side by side with the simple keyed fiddle towards the end of the latter's period (cf. Chapter 2), it is probable that G_t major with g^2 as the tonic was employed with the simple keyed fiddle and possibly with the contra-drone instrument during its early years (approx. 1700—1820/30). These old keyed fiddle melodies usually rise an octave or sometimes a twelfth from the dominant. The interval diagram for simple keyed fiddles suggests that f^3 is replaced either by $f^3\sharp$ or by a tone between f^3 and $f^3\sharp$. The possibility exists that the instrument makers intentionally constructed this interval so that the seventh sounded either »neutral» or major in melodies in G_t major, while f^3 is missing because it was not required.

A few melodies in minor keys have been noted down from performances on the keyed fiddle, some of them in D_n minor, very few in G_n minor or A_n minor. Only three of those in D_n minor can be played in D_t minor on the simple keyed fiddle. Two of the others can be played in D_t minor, while the range of the rest exceeds that of the simple keyed fiddle. A fair number of Swedish folk melodies in the minor probably go back to the 17th and 18th centuries and several of them make use of the fourth below the final. This fourth is also included in a cadential formula characteristic of these melodies (cf. Moberg 1950:22 f.). If these melodies are to be played on the simple keyed fiddle, the tonic must be d^2 , not a^1 . This calls for a remark on the seventh at c^3 . According to the diagrams for the tangent intervals ([126 a] diagram 1, nos. 2.44, 2.67, 2.43) this sometimes lies between c^3 and $c^3\sharp$ and at all events the 'tolerance circle' lies to the left of the line representing the tone in equal temperament ([126 a] diagram 1, nos. 2.2, 14, 45). In this case, too, the seventh thus tends to be neutral. This interval attracted the attention of collectors

of Swedish folk music even in the 19th century (cf. Moberg 1950:15 ff.).

Another interval worth discussing in this context is the sixth. Most simple keyed fiddles lack b^3b and consequently a minor scale with the tonic on d^2 will have the Dorian sixth. Minor melodies with major or neutral sixths were noted down in for instance Dalarna as late as in the first decade of the present century.

Haeffner's description of the 'Nordic scale' casts interesting light on this discussion: 'The songs are, on the other hand, not infrequently sung to the accompaniment of a fiddle (or keyed fiddle), but not with the usual tuning. The accompanist adapts himself to the singer so that the tones b b and c in the scale will be sharper than in our usual scale.' (Haeffner 1818/1880 III:VII, translated here). It seems that something along the lines of Haeffner's 'Nordic scale' may have been in the minds of the instrument makers when they measured the intervals of the simple keyed fiddle and the early contra-drone instruments.

⁴ A distinction is made in the present study between *notated*, *fingered* and *sounding* keys. A *sounding* key is denoted in the usual way, e.g. C major, and the letters representing its tones should be interpreted in relation to normal pitch, where $a^1 = 440$ p/s. *Notated* keys and *fingered* keys are distinguished by subscripts, e.g. C_n major and C_t major respectively (C_n and C_s in the Swedish text). The reason for this is as follows. Suppose that the first melody string of a keyed fiddle with resonance strings is tuned to a^1 (435—440 p/s); one can then play a C major scale by starting on the third key in the first row. If the instrument is tuned instead a semitone *below* normal pitch, i.e. with the first melody string tuned to g^1 (392 p/s), a major scale that starts on the third key will *sound* as B major even though it is *fingered* as C major (denoted C_t major). Furthermore, it sometimes happens that a collector prefers to *notate* this scale in a third key, say D major; this is then denoted D_n major.

Chapter 7

Playing techniques

In former times the pitch to which a keyed fiddle was tuned might depend upon the elasticity of the strings, the tuning of other instruments with which it was to be played, or a desire to obtain the best quality of sound. These considerations still apply in the case of the older keyed fiddle traditions that are still extant (performance on contra-drone and silver-drone keyed fiddles), whereas the more recent practice associated with the chromatic keyed fiddle involves tuning the first melody string to a particular normal pitch ($a^1 = 440$ p/s).

The tuning of various keyed fiddles is reproduced in a table, [134], which is intended to illustrate the relationship between these instruments. The tuning of the first melody string has therefore been designated a^1 , which stands for a tone with a frequency between 390 and 500 p/s. The other strings are tuned from the first melody string so that the intervallic combinations represented by different instruments are independent of the choice of absolute pitch.

Before starting to play, the keyed fiddler checks the intonation of his instrument by playing part of a melody or—in recent years—a scale. Tangents producing the wrong pitch are adjusted to the player's satisfaction with the help of adjacent whole or half tones, open strings or double stops.

The keyed fiddle, like guitar and lute instruments, is held practically horizontal: the body rests against the player's midriff with the instrument's neck pointing to the left and slightly forward. A horizontal position has also been employed—though only during the Middle Ages and the Renaissance—for bowed fiddles shaped like guitars or lutes but without a key mechanism. This is believed to be a result of the size and shape of the instrument as well as practical details of performance (cf. Dräger 1937: 53). Playing technique is conditioned by the limited freedom of the hands and arms, which is due to the instrument being hugged with the right el-

bow and supported at its neck by the palm or forearm.

The keyed fiddle can be played sitting, standing or walking about. If the player stands, rhythms are often more sharply marked, for instance, by more forceful tapping of the foot.

Bowing

There is a close connection between the manner of holding the instrument, the length of the bow and the bow grip (cf. Dräger 1937: 41 f.). A look at the illustrations in this volume will show that the keyed fiddle's horizontal position and its location in relation to the performer calls for a short bow held from above in the same manner as, for instance, the violin bow.

Bow grip

A bow curved towards the head and a handle growing out of the stick is held so that the thumb tightens the hairs either from below [137] or from above [138]—[143]. The former technique, known as 'French grip', is reproduced in pictures from the end of the 18th century [49], [50]. This does not however mean that the players who use this grip today have any connection with this older tradition. During the 19th century there was in fact a gap during which it became the general custom to tighten the hairs from above, i.e. 'Italian grip'. Nowadays it is players on the contra-drone double-keyed fiddle who use the French grip, which has thus been re-introduced because it is more suitable for this type of instrument with its separated melody strings. The silver-drone keyed fiddle is played with the bow held with the thumb between the hairs and the stick, resembling the Italian grip that was formerly used for the violin bow. Individual and local variations have been developed [138]—[143].

The bow for the chromatic keyed fiddle is usually a shortened violin or cello bow, or else its design is based on these. It is held in much the

same way as the violin bow [144]—[147], [172]. Some of the players who have switched from the older to the more recent type of bow have not entirely abandoned the older grip and consequently there are several combinations of different types of bow and bow grips (cf. e.g. [148]—[150]).

Various types of bow grip are also reproduced in the mediaeval church paintings of keyed fiddle players. The most usual portrayal is that of an arched bow grasped in the fist. Some pictures, however, reproduce a grip that is found among modern players on the keyed fiddle. Compare, for instance, the angels playing the keyed fiddle in Rynkeby church [43] with the players portrayed in [138]—[143] and [169]. The grips are reminiscent of those used by players of stringed instruments in Continental reproductions from the Middle Ages and the Renaissance (cf. Dräger 1937). Similarities between bow grips in different periods do not in themselves indicate an unbroken connection between the mediaeval keyed fiddle and modern instruments. As exemplified above, the bow grip may be dictated by idiosyncrasies of the instrument. A grip may also be re-invented rather than revived.

Bowing practice

A study was made on keyed fiddle bowing by documenting and making a detailed analysis of practice today.

During studies in the field, films and tape recordings were taken simultaneously of several keyed fiddlers in action. Subsequently, the taped melodies were noted down by ear and the films were used to arrive at the fingering and bowing.¹ A detailed analysis could be made of these films by running them through an editing apparatus,

¹ The transcriptions are based on tape recordings made at the same time as the film. However, the sound of the film camera made these recordings unfit for use on the gramophone record and other versions have been chosen for this. Hence the transcribed version and the version on the record differ in matters of detail.

though to do this one needs to have memorised the sound events and be well acquainted with the technique for playing the instrument.

The keyed fiddle has an advantage over, say, the violin in this respect because it is relatively easy to see which keys the player depresses. The corresponding tones can then be synchronised with the action of the bow.

Ten players from the province of Uppland were filmed and four of them have been selected to represent different types of bowing practice. They are Justus Gille and Viktor Vickman (*b.* 1897) of Österbybruk playing contra-drone double-keyed fiddles, Joel Jansson (*b.* 1892) of Västland parish playing a silver-drone keyed fiddle and Eric Sahlström (*b.* 1912) of Tegelsmora parish playing a chromatic keyed fiddle.

Contra-drone double-keyed fiddle

As previously mentioned, the two melody strings on contra-drone instruments are located on either side of the drone string(s). This calls for a special type of bowing.

There is a detailed resemblance between the bowing techniques of Justus Gille and Viktor Vickman [137]. They use roughly 10–15 cm of the upper end of the bow, though full down-bows are used for final tones. The bow is held relatively loosely against the strings. The only consistent difference in dynamics occurs when tones are played on the second melody string. Owing to the position of this string (*cf.* [21]), it is played with the tip of the bow only and consequently there is a smaller volume of sound ([151], bars 1, 4; [152], bar 19; sections 1 and 2 on the record).

The wrist of the bow hand is kept rigid and consequently the tip of the bow describes an arc, curving in towards the player's body on the up-stroke. A melody is always played with exactly the same bowing.

The same two players often follow one another's bowing. If one of them happens to get out of step, he generally continues until the down-

stroke at the end of the phrase and then rejoins his companion with either an extra or a slurred stroke (*cf.* [152], bars 19–20; [153], bars 18–22).

There are no special bowing patterns for particular types of melody. Certain practices, however, are quite common. Thus, a down-bow for the first beat of the bar is particularly common in 'two-step waltzes', though even here the bowing appears to be relatively arbitrary. Legato bowing is commonly used for *polskas*, a single bow stroke being used for each crotchet, which is often divided into dotted quaver figures (*cf.* [153]). Semiquaver figures are generally divided between two bow strokes lasting two semiquavers each ([151], bar 8).

Silver-drone keyed fiddle

Bowing is influenced by the player's grip on the bow, since the wrist is locked by the thumb being placed between the hairs and the stick. The player is able to exert considerable pressure on the strings. There is also a special technique known as 'dipping', which is described below.

Joel Jansson holds the bow with his thumb between the hairs and the stick, his index, middle and ring fingers over the stick and his little finger round the triangular block of wood that is attached to the side of the handle facing the hand [169]. In keeping with an earlier practice, the bridge on Jansson's keyed fiddle lies obliquely to the strings to correspond to the line of the bow. As a rule nowadays, even players on the silver-drone keyed fiddle place the bridge at right-angles to the strings.

Joel Jansson keeps his wrist rigid when bowing and consequently the tip of the bow moves in an arc (*cf.* above concerning Gille and Vickman). At the same time the bow is 'jerked' backwards and forwards so that the width of the hairs against the strings is never constant. Some 20–25 cm of the bow is normally used, though final tones and certain slurred bows are performed with the full

length of 45 cm. In rapid passages (semiquaver figures) one also finds short bow strokes, using about 10 cm of the tip.

At times Jansson uses a kind of staccato bowing. The clearly detached tones produce the same effect as a rapid alternation of up and down-bows. (Jansson obtains another kind of staccato effect by means of a special touch on the keys.)

Powerful bow strokes at the beginning and end of a phrase constitute another characteristic feature of Jansson's bowing technique. At the beginning of a phrase the attack is often made on the further drone string; with a powerful down-stroke he then uses both of the drone strings together with the tones of the second (and sometimes the first) melody string to form a kind of arpeggio (*cf.* [154] bars 3, 5, 7 etc.). In the 'dipping' technique mentioned above, Jansson accentuates the rhythm—sometimes in the middle of a phrase—by rapidly drawing the bow over the drone strings ([157] bars 1, 5, 6; section 4 on the record). This end of a melody is sometimes marked with a short, powerful extra up-stroke over the drone strings or by a couple of powerful down-strokes.

Jansson is aware that he uses the bow to emphasise the rhythm of his melodies but he cannot explain the bowing technique involved. He simply remembers having learned it while playing with and studying older players. Each bow-stroke is accentuated by a little jerk at the beginning. Jansson also seems to impart rhythmical character to his melodies by using different bowing patterns for different types of tunes.

Jansson plays marches almost entirely with detached, heavy bowstrokes. In this, and other types of melody as well, it is only semiquaver figures that are slurred, either as two slurred strokes (*cf.* [154] bars 3, 7, 11 etc.) or with the first two semiquavers slurred and the other two played detached (*cf.* [154], bars 1, 5, 9).

Although there is no stereotyped bowing pattern for waltzes, a downstroke is common on the

first beat of a bar, particularly at the beginning of each two-bar phrase or four-bar period. The beginning of each four-bar period is in fact almost always emphasised with a strong down-stroke [155].

The bowing of the *polska* has a stereotyped, recurrent pattern that serves to emphasise the first and third beats of each bar. Jansson arranges his bowing so that these beats are performed with down strokes (see ex. [156] and [157]; sections 3 and 4 on the record). If the third beat is slurred with the second, Jansson accentuates the third by increasing his bowing pressure or accelerating the bowing, at the same time stamping his foot heavily (ex. [157], section 4 on the record).

Jansson further emphasises the difference between a waltz and a *polska* by performing the final tones differently: a waltz is concluded with a long down-stroke [155], while a *polska* ends with a long, but powerful, up-stroke ([156], [157], section 4 on the record).

It is interesting to compare Jansson's bowing with that of Helmer Karlsson (b. 1892) [140]. The latter plays with the bow hairs very slack and his bow-strokes are slower than Jansson's. He has no fixed bowing pattern but commands several small ornamental figures which he executes on the same stroke as the main tone ([158], bars 1, 5, 8 etc.; [159], bars 1, 4, 6 etc.). Karlsson does not accentuate the bow-strokes as much as Jansson and this is probably a further reason why the rhythmic profiles of his waltzes and *polskas* are less clearly differentiated. He generally uses at least one stroke for each beat in a *polska*, whereas in waltzes two beats are often slurred, i.e. the first and second or the second and third, sometimes the third and first ([159]). Slurring the third and first beats produces a sort of grouping by superordinate beats. Like Jansson, Karlsson uses the bow for phrasing a melody (see above) and plays marches in a similar manner. Karlsson does not use a 'dipping' technique but, by pressing heavily on the strings with his bow, he keeps the second melody string

sounding throughout and often the *g* drone string as well.

Chromatic keyed fiddle

The bow grip for the chromatic keyed fiddle suggests imitation of, or at least an influence from, the bow grip for the violin. The question of whether any elements of bowing technique are derived from the violin will be considered in the following.

The chromatic keyed fiddle has the bridge placed at right-angles to the strings in the same manner as the violin. Eric Sahlström, who has been chosen to represent the playing technique for this instrument, plays either with a shortened violin or cello bow, or with a bow made by himself which is somewhat curved at the tip in a conscious imitation of the older type of bow [172]. Sahlström's grip is similar to that used for a violin bow. The bow travels in a practically straight line, indicating that the wrist is not 'locked' as has been shown to be the case with an older technique. The bow is held so that the full width of the hairs rests against the string and Sahlström performs smooth strokes using the entire length of the bow. He is also a skillful fiddler and his bowing technique is based on experience of the violin.

As with chromatic keyed fiddles in general, the bridge on Sahlström's instrument has a more rounded top than one finds on older types of keyed fiddles. He has no difficulty in playing on one of the three melody strings without touching an adjacent string, even in very rapid passages. In addition to a curved bridge, this technique requires tight bow hairs and the bowing practice described above. On the other hand, it makes drone playing and the use of 'dipping' more difficult.

For the 'quaver *polskas*', Sahlström uses the same fixed pattern of bowing as Joel Jansson, down-strokes on the first and third beats. These melodies appear to be suited to this pattern of bowing: the third beat often falls on a dotted

quaver and a semiquaver; the latter is almost always played with a rapid up-bow in order that the first beat of the next bar can be played with a down-bow (cf. [160]). Waltzes are not as regular as this, syncopation over bar-lines being used and sometimes an up-bow on the first beat of a bar. In marches, however, Sahlström groups his bow strokes so that he always plays the first and third beats of a bar with a down-bow [161]. Sahlström does not keep as rigidly to a bowing pattern in 'semiquaver *polskas*' as he does in 'quaver *polskas*': he sometimes even reverses the bowing in a repeat, i.e. the bowing rhythm is the same, but down-bows and up-bows have been interchanged (cf. [162], second repeat).

Several players (M.M. 64/65: 35, 38, 51, 53) besides Sahlström first learned to play the silver-drone keyed fiddle and did not switch to the chromatic instrument and its bow until they were 40–50 years old. Unlike Sahlström, however, many of them have not managed to retain the bowing pattern characteristic of the 'quaver *polska*'. In many cases their bow grip is a mixture of old and new. These players concentrate so much on using one string at a time that they neglect important aspects of the bowing. Their habitual bowing patterns gradually disappear and with them important accents that otherwise give the tunes their rhythmical characters (cf. below concerning key technique). It seems that the players who switched straight from the violin to the chromatic keyed fiddle have been more successful in transferring the violin's bowing technique, at the same time retaining the characteristic bowing patterns of the melodies (M.M. 64/65: 46, 54).

Several changes have occurred in the transition from the bowing technique of the silver-drone keyed fiddle to that of the chromatic instrument. Certain phenomena, however, have survived the transition, i.e. special bowing patterns for certain types of melody. The bowing pattern for the 'quaver *polska*' remains the same irrespective of the type of instrument and differ-

ences of local tradition. This must have to do with the function of these melodies as dance music, with the consequent demand for regular accentuation. With the exception of the two players from Österbybruk, whose bowing technique is probably derived from a special *polska* tradition, a deviation from the *polska's* bowing pattern (with down-strokes on the first and third beats of a bar) is almost always due to the melody in question never having been played for dancing. There is a definite risk that this special 'polska rhythm' will disappear now that the keyed fiddle is so frequently played without the dancing that formerly went with these melodies.

Key technique

A number of questions concerning key technique have been touched on above in connection with the manufacture of the key mechanism. The present section is concerned with a description and comparison of details concerning key technique in the light of sources from different periods.

Position of the key hand

The key technique of players today is conditioned by the position of the key hand and the way in which the neck of the instrument is supported by the forearm or wrist. Since both the manner of holding the instrument and the position of the key hand are the same in the modern tradition as in iconographic sources for keyed fiddle playing from the Middle Ages to the present day, it is likely that key technique has been influenced by these conditions throughout the history of the keyed fiddle.

The key hand of the player is held in the same position as the fingering hand of a player on the lute or guitar. The same position is also to be found in mediaeval reproductions of fiddlers who are holding their instrument horizontally (see e.g. [98], [99]).

The keys facilitate location of the intervals on the keyed fiddle in much the same way as do the frets on the lute, guitar and viol. Since the instrument is held horizontally, it is also considerably easier to finger the heads of the keys, which project from the side of the instrument, than it would be to stop the strings themselves. The hand and wrist do not have to be crooked to the same extent. This does not arise with the guitar and lute because the strings are plucked. If the strings are to be bowed, the position of the left hand becomes more uncomfortable and the manner of playing more complicated. Perhaps it was partly for these reasons that all horizontally held bowed instruments were abandoned during the 15th and 16th centuries with the exception of the keyed fiddle, which is made easier to play by the special key mechanism.

The position of the key hand for the keyed fiddle has no direct parallels among the other known keyed instruments. The key mechanism of the hurdy-gurdy, for instance, is operated with the hand held on top of it. While it is true that the thumb is seldom, if ever, used for either the keyed fiddle or the hurdy-gurdy, the very different position of the key hand makes it unlikely that there is any *direct* connection between the techniques for playing these two instruments. There are no similarities in other respects and it seems that their playing techniques have been developed independently.

As in the case of bowing techniques, a review of fingering and touch and their importance for the manner of playing must be based on a study of actual performances or films of these. One can then attempt to establish general characteristics of playing technique connected with the instrument's idiom, besides trying to discover individual or local practices.

The performers selected above to represent different bowing techniques for the contra-drone double-keyed fiddle, the silver-drone and the chromatic instrument, will also serve to represent the key techniques for these types of instrument.

Fingering and touch

Contra-drone double-keyed fiddle

Whereas the bowing techniques of Vickman and Gille agree in detail, there are several differences in their technique with the keys. Vickman holds his hand and fingers practically straight, playing the keys with approximately the middle of the top joints of his fingers. Gille cups his hand and plays the keys with his finger tips. Gille has a number of fixed finger combinations, while Vickman prefers to let his hand range freely over the keys. He often plays scale passages above e^2 with his little finger only, a kind of 'one-finger' technique. Gille, on the other hand, almost always moves his hand to a new position when the melody so requires (see e.g. [152], bar 3).

Both Gille and Vickman have a very light touch which does not cause the key mechanism to clatter in the manner characteristic of older keyed fiddle music. Each melody is always played with the same fingering.

Gille's and Vickman's key technique comprises a somewhat limited number of fingerings, which reflect an individual manner of playing. Their fingerings are presented in Fig. [164]. This individual manner appears to have arisen because these players use their keyed fiddles only for the melodies which they have learned from older players of this instrument. For other music they use an accordion. This is a very different situation from that of players who try to extend their repertoire and are continually having to adapt new melodies to the idiom of their instrument. Such playing involves the unconscious development of fingering techniques with a wider application (see below).

Silver-drone keyed fiddle

Like Gille and Vickman, most of the players of silver-drone keyed fiddles use the same fingering whenever they play a particular melody. Their fingerings may vary considerably, however, from one melody to another, depending upon whether

the tempo allows time for the execution of ornaments in the form of double stops or whether it is so fast that the second melody string can only be used as an occasional drone. This difference is particularly clear in Joel Jansson's playing. When playing simple, relatively modern melodies consisting mainly of crotchets, Jansson has developed a technique for decorating the tune with harmonies, e.g. double stops (see [170]), whereas older waltzes, marches and *polskas* are mostly ornamented simply with the obvious harmony d^1-b^1 and with d^1-d^2 , obtained by double stopping.

Jansson's key technique reflects a consistent fingering that is well suited to the instrument. He has a sort of technique for shifting position: when the melody involves semiquaver figures, Jansson moves his hand to a convenient position (see [165]). He sometimes prepares for a passage by changing fingers when repeating a preceding tone ([154], bars 1–2). Otherwise he always uses the same finger to play the same key several times in succession.

When playing rapid scale figures Jansson does not always have time to play with his finger tips but uses the top joint instead. At times his touch becomes quite uncontrolled and his fingers simply land on the relevant keys ([157], bar 4; section 4 on the record). Jansson also has set fingerings for various double stops (see below).

Jansson's various fingerings have been compiled in Fig. [166]. While the main features are the same as for other players of the silver-drone keyed fiddle, there are certain differences in matters of detail. In general, Jansson has very few individual mannerisms and he practically never uses a 'one-finger' technique.

Chromatic keyed fiddle

The extension of the key mechanism represented by the chromatic keyed fiddle has resulted in something of a revolution in key techniques. The hand does not have to shift up and down the keys as often, since in many situations the player

can simply change to a different row of keys. As a result, it is not always most convenient to play in *C* major; there may be technical advantages in playing certain melodies in other keys.

Eric Sahlström has developed an idiomatic fingering for the chromatic keyed fiddle that corresponds to Joel Jansson's achievement for the silver-drone instrument. The fingering is adapted in detail to the instrument's key mechanism. Sahlström plays older melodies, which are of great technical difficulty, as well as his own compositions in a related style, and it would be difficult to improve on his fingering (cf. [162]). Quaver *polskas* and waltzes are embellished with a profusion of trills and semiquaver figures that similarly call for a considerable technique with the keys [160]–[162]. Sahlström accordingly uses fixed changes of position and always shifts his hand to a suitable position.

The fingering for a particular figuration is often repeated exactly even when it occurs in different melodies.

The fingerings used by Sahlström in the melodies analysed have been compiled in Fig. [167].

Players who have taken up the chromatic keyed fiddle after previously playing the silver-drone instrument tend to fall between two stools with respect to their key technique: the position of the keys on the silver-drone instrument is so ingrained in their memory that they have great difficulty in switching to the chromatic keyed fiddle. Many of them are unable to acquire a new fixed fingering and consequently they tend to strike the wrong key because they lapse into the older instrument's fingering. This renders them uncertain, with the result that they resort to different kinds of one-finger techniques and their performance suffers accordingly. (Cf. above concerning bowing techniques.)

Special fingerings have been developed for the different types of keyed fiddle but there are also features that are common to them all. Besides a relatively universal fingering that appears to be

idiomatic for the instrument, there are individual characteristics which usually involve an impairment of the playing technique. An example is the one-finger technique mentioned above. A player who sticks to a limited repertoire is liable to have a rigid fingering since he does not have to keep revising it to cope with new melodies.

In many respects the changes in key technique are related to the development of the instrument. It follows that one should be cautious about drawing conclusions concerning key techniques in earlier periods on the basis of more recent sources. There are essential differences in the design of the playing mechanisms even between the contra-drone keyed fiddle and the simple keyed fiddle, not to mention the instruments without resonance strings. The latter in their turn are by no means a homogeneous type. The Mora instrument, for instance, probably required quite another key technique than did the instrument from Vefsen. It is thus impossible to draw any definite conclusions about key techniques in former times apart from the one mentioned above in connection with the position of the key hand, which has had a specific effect on the playing technique for all keyed fiddles.

Drone, mixture, double stops and chords

Drone and mixture

Instruments which give one or several continuously sounding tones accompanying the melody tones proper are usually known as drone instruments. With respect to its construction, the keyed fiddle can be said to have been a drone instrument up to the chromatic fiddle. Drone effects are still a feature of the keyed fiddle music that is performed by players with contra-drone double-keyed fiddles and by certain players with silver-drone instruments. In earlier times, use was also made of a type of 'mixture', i.e. a 'coupling' of two or more melody strings.

Contra-drone double-keyed fiddle

Like the contra-drone keyed fiddle, the double-

keyed version of this is designed for a continuous drone. The tuning of the drone string that lies between the melody strings has been changed and adapted to various musical fashions (see above). Unlike the ordinary contra-drone instrument, the double-keyed version has a *c*-drone in addition to the *g*-drone. It actually has a third drone, since the melody string introduced from the silver-drone type of instrument is not used except for occasional double tones and is placed as a drone string, tuned to *c*¹. The drones thus produce the tones *c*¹—*g*—*c* and the *g* string—even though it is flanked by two *c* strings—is the most prominent.

Although both Gille and Vickman use a relatively light bowing pressure the *g* drone produces a humming sound (particularly if the instrument is tuned to a certain pitch, cf. p. 248) which is mentioned as characteristic of the keyed fiddle from the 18th century onwards (cf. written source 1796, 1802: 3). Each stroke of the bow produces an accentuation of the drone, which thus forms a kind of rhythmical accompaniment. These two players pointed out that this was particularly important when playing for dancing. In the rapid skipping waltzes ([152] section 2 on the record) there is a strong emphasis on the first beat of each bar, whereas in *polskas* and marches all three and four beats respectively are emphasised in this way ([151], [153] ex. 1 and 3, section 1 on the record).

The drone sounds at the same strength throughout a melody except when the player changes to the second melody string; the pressure of the bow is then lighter and the drone consequently weaker. When separate notes occasionally are played on the second melody string this is done with the very tip of the bow, the drone strings are left free and the drone is momentarily silent ([151], bar 1, section 1 on the record).

Contra-drone keyed fiddle, and simple keyed fiddle

All the contra-drone keyed fiddles studied here

were drone instruments with one—and later during the 19th century two—drone strings between the melody strings.

The group of keyed fiddles with resonance strings that has been termed simple keyed fiddles in this study may have had a combination of drone and mixture, i.e. the two melody strings were stopped simultaneously. One or two strings beyond the melody string(s) have also been played on but were not stopped and consequently must have served as drone strings.

Keyed fiddles without resonance strings

These keyed fiddles, the oldest extant, have key mechanisms which demonstrate that they were drone instruments or had a combination of drone and mixture. Some of the keys on the Vefsen instrument have tangents for stopping no less than four strings (see Fig. [7]). Probably, however, these were not all melody strings. The player has worked out various combinations of tones which can be fitted into a melody and has realised these by simultaneously stopping strings (mixture strings) and using 'free' strings (drone strings).

The angels playing keyed fiddles in church paintings hold the bow in a fist grip that indicates a playing technique which does not permit the use of one string at a time. An exception is the mural in Häverö church [33], though here there are considerable problems concerning the interpretation of the bow grip.

Both extant instruments and the majority of iconographic sources thus provide evidence of a drone and mixture practice.

Sachs (1920: 173 f.) and Bessaraboff (1941: 258 ff.) have suggested that the middle bout was developed in order to make it possible to play on one string at a time. Whether this theory is correct or not (cf. Hickmann 1950: 8 ff.; Bachmann 1964: 49 f.), it is irrelevant in the case of the keyed fiddle. Here the middle bout has no such function, even on the chromatic model. This detail has been copied from other bowed instruments and hardly affects playing technique.

Double stops

Silver-drone keyed fiddle

According to Sachs, the stringing of the lira da braccio was a result of a new attitude to the drone: 'Der Fiedler musste also von seinem Bordun unabhängig gemacht werden, er musste die Freiheit bekommen, ihn anzustreichen, wenn er wollte, und ihn ruhen zu lassen, wenn er es für nötig hielt' (Sachs 1920: 177). There was a corresponding change in musical taste among performers on the keyed fiddle and their public during the first half of the 19th century, when the contra-drone instrument with its continuous drone was converted into the silver-drone instrument. As described above, the latter is designed so that the first and second melody strings can be played without it being necessary to touch the bass strings. These can thus be left idle until they are needed to harmonise the melody by the practice of 'dipping'. It is quite clear that the design of the silver-drone keyed fiddle is connected with a new realisation of harmony. The design was introduced, not by one of the active players, but by an organ-builder and a sergeant (the son of a battalion medical officer), i.e. representatives of a different environment from that of most instrument builders and players.

Nothing is known about the initial stages in the development of the new playing technique. It was probably some time, however, before the silver-drone keyed fiddle was completely accepted and its special idiom utilised by the players. Even towards the end of its period, there were players who still applied such pressure with the bow that the *g*-string served as a drone; this was presumably characteristic of players who transferred from the contra-drone to the silver-drone instrument and were accustomed to the use of a drone.

The conditions for playing the silver-drone keyed fiddle, its bow, bow grip, etc., have been described above.

Owing to the fact that the second melody

string on the silver-drone keyed fiddle lies next to the first one, the bow grip and bowing practice of older players caused both melody strings to sound simultaneously almost all the time. If the second melody string is not stopped, it will then sound a c^1 . In certain passages, for instance when the melody rises above e^2 or when it is technically difficult to play, this c^1 -string serves as a drone. However, if b^1 is played on the first melody string, the second automatically sounds d^1 because in this case both tangents lie on the same key (i.e. 'coupled' tangents). Apart from this fixed double stop, which with the g -string gives a dominant chord in C major, some players have a number of double stops which they produce by means of double-stopping, i.e. they stop both the first and the second melody string simultaneously. According to the players interviewed, this technique was also practised by the players who were active at the turn of the century; most probably it was developed some time in the 19th century. The intervals employed are octave, sixth, and third. The double stops used by Joel Jansson are presented in Fig. [168] and [169].

Playing melodies without harmonic ornamentation

The continuous drone was still in general use early in the present century but from then on players increasingly avoided the drone and bass strings. A player at Lövsta Foundry was nicknamed 'Quint' because he avoided playing on any of the strings except the first melody string, which was known as the Quint. To start with, the audience appears to have reacted against this new style of playing and so did some players with a strong sense of tradition. A famous player, Jonas Skoglund, considered that the younger players in the Twenties played well 'but kept too much on the Quint'. On the other hand, many of the players interviewed in connection with this study voiced the opposite opinion: 'they used to bear down on the drone strings so that you could

hardly hear anything else'. This new sound ideal—which dispenses not only with the drone but also with ornamentation of the melody in the form of double stops that lack harmonic function as tonic, dominant or sub-dominant—was no doubt in the minds of the designers of the chromatic keyed fiddle.

Playing chords

Chromatic keyed fiddle

Melodies are generally played on the chromatic keyed fiddle without any harmonic ornamentation except occasional double stops that combine with the tone of the melody to give two of the three tones in the melody's tonic, dominant or sub-dominant chords (see [171], and cf. section 9 on the record). Apart from this, chords are used in a type of accompaniment to ornament what is otherwise often an independent second voice (cf. section 7 on the record). Some of the chords used are demonstrated by Eric Sahlström in Fig. [172].

The harmonic ornamentation of keyed fiddle melodies has changed considerably during the past 150 years. This can be ascertained by studying extant instruments and reproductions of instruments in use and by investigating the few 19th-century traditions concerning these instruments' playing techniques that are still alive today. New stylistic ideals have called for new instruments with a different technique. The development from drone and mixture techniques to the occasional use of certain bass strings and the practice of different types of chord play provides a parallel to changes in the playing technique of other bowed instruments from the Middle Ages to the Renaissance (see e.g. Bachmann 1964: 121 f.).

Similarities have already been pointed out between the keyed fiddle and other instruments concerning materials and constructional details. There are also striking parallels with respect to playing techniques.

Counterparts to the bow, bow grip and bowing practice of the keyed fiddle are to be found among other bowed instruments both in mediaeval sources and peasant practice (Dräger 1937; Bachmann 1964: 99 ff., 105 f.). Doubling of the melody strings was used during the Middle Ages and is found also with other folk instruments than certain types of keyed fiddles (simple keyed fiddle) (Bachmann 1964: 98 f.). Bachmann supposes that these double melody strings were a sort of safety device: 'damit das Spiel nicht unterbrochen werden musste, wenn eine der Saiten riss' (1964: 98). This is a conceivable function for the double melody string of the simple keyed fiddle as well, quite apart from the fact that doubling the strings should have increased or been considered to increase the sound volume.

There are also exact parallels to the grouping and tuning of the melody and drone strings. Thus, for instance, the Bulgarian *gadulka* has the same tuning as the oldest known contra-drone keyed fiddle, besides having the same arrangement of strings with the drone in the middle (Bachmann 1964: 111, see also 1964: 114). There are also examples of drone strings being converted into melody strings (Bachmann 1964: 113). Nor is an occasional drone—produced on the silver-drone keyed fiddle by 'dipping' with the bow—peculiar to the keyed fiddle; it was practised with roughly the same function on other bowed folk instruments (Bachman 1964: 115 f. and 119).

However, similarities with European instrumental practice, whether the mediaeval or more recent peasant practice, is probably a result of the instrument having flourished in an allied environment, which may give rise to analogous phenomena *without* there necessarily being any direct connection.

It is particularly risky to interpret musical practice in the Middle Ages with the help of 19th and 20th century practice in folk music. It may well be worthwhile demonstrating analogies, but one must prove, not assume, the existence of a

Chapter 8

Sound quality

connection. This requires satisfactory documentary evidence that makes it possible to follow the instrument through a succession of periods, to deal with the question of influence from other types of instrument, etc. Bachmann's work (1964) is partly debatable in this respect. The value of compiling and calling attention to source material, part of which was previously unknown, is unquestionable, and in this respect his work has been of the utmost importance for the present study. Bachmann's conclusions, however, cannot be accepted without reservation. He confronts mediaeval iconographic sources with modern data drawn from observations of non-European music and folk music without allowing for the fact that the recent folk music practice is not necessarily an uncorrupted relict of an earlier period. In many cases it may be a question of parallel phenomena without any genetic connections. Examples of several types of apparently obvious connections by tradition have been shown in the present study to consist in reality of phenomena that have arisen from quite different causes.

Musical instruments are changed in order to provide new modes of musical expression. The development from the contra-drone to the silver-drone and chromatic keyed fiddles can be documented as having been connected with changes in musical taste, a growing consciousness of harmony and a demand for chords.

Until the time of the silver-drone instrument, the keyed fiddle was an instrument with drone and mixture. There are also other similarities in bow grip and key technique between instruments from the Middle Ages until the present day.

Together with the other parallels between keyed fiddles from different periods, there seems to be a case for presuming the existence of a connection between fiddles without resonance strings and those with such strings.

The manner in which the playing technique for the keyed fiddle has been changed under the

influence of techniques for other instruments is particularly clear in the case of bow grip and bowing practice, which keyed fiddle players in the last few decades have adopted straight from fiddlers.

By the sound quality of the keyed fiddle is meant the intensity, timbre, pitch, stability of frequency and resonance of the sound events.

An analysis of the keyed fiddle's sound quality should be confined to instruments that belong to and are played by persons who are active players today. The sound events from these instruments may be regarded as 'authentic' in a sense that is not true of instruments which do not fulfill these demands (see below). Furthermore, an investigation of a sound event must be made with electroacoustic and sound psychological methods, in order to obtain results of any scientific consequence.

In the present study, certain components of the keyed fiddle's sound quality were investigated electroacoustically by Mr. Johan Sundberg, of the Speech Transmission Laboratory at the Royal Institute of Technology, Stockholm.

No expert was available, however, to investigate how the sound events of different keyed fiddles are experienced by different subjects. In this respect, therefore, I have concentrated on the opinions concerning the 'sound' of the keyed fiddles reported by the players and builders interviewed.

Methodological considerations

By limiting a study of the keyed fiddle's sound quality to instruments being used today by active players, one is naturally bound to omit the historical aspect. The reasons why one cannot perform such a study by renovating older extant instruments will be discussed in the present section, which also deals with the aims of the electroacoustic investigation.

There can be little doubt that the sound quality of the keyed fiddle has changed, in keeping with the different materials used in its construction and variations in its design and mode of performance. However, none of the old keyed fiddles has been preserved in good condition. Although they can be renovated, several problems

would remain concerning the sound quality of such instruments. For one thing, the wood has aged and thereby probably lost its elasticity. From this point of view it might be better to make exact copies of these old instruments; but how could one be certain of having exactly reproduced the sound quality? Not enough is known, moreover, about important facts such as the material, thickness and tuning of the strings, and details of performance. In many cases the varnish or paint has disappeared.

One must therefore conclude that neither with renovated instruments nor with copies can one claim to reproduce the original sound quality so exactly that the sound events can be accepted as authentic for an acoustic analysis.

In various fields of acoustics and sound psychology, methods have been developed for distinguishing between the components of a sound event and assessing a listener's perception of them. Some of the published results seem to be generally applicable to the sound qualities of related types of instrument. Saunders' (1953) investigation of the violin, for instance, deals with problems concerning the relationship between the instrument's constituent parts and its sound quality. Indirectly, this throws light on the same problems concerning the keyed fiddle (see below). Usually, however, the studies concern experimental situations from which it is impossible to generalise.

An investigation that aimed at first distinguishing between the major components of the sound events, and then relating these to the listener's perception and to specific properties of the instrument's materials, manufacture or mode of playing, would call for very extensive research even if it was confined to a single instrument and a single subject. One must therefore consider at an early stage what is likely to be gained from such an investigation, particularly if—as in the present case—the research has to be commissioned from experts.

The present acoustic study was limited to one

particular problem and its results will serve to show that the analysis of acoustic data can help to elucidate problems of a historical nature.

The last section of the chapter deals with instrumental details and playing techniques whose modification may have changed the sound quality. An attempt to assess the sound quality of older renovated instruments is also reported, though the results should be regarded as a series of untested hypotheses which it is hoped will serve to stimulate future research.

Comparison between silver-drone keyed fiddle, chromatic keyed fiddle and violin

Older players who use the silver-drone keyed fiddle are sometimes critical of the sound quality of the chromatic instrument. 'Those new chromatic keyed fiddles are not proper keyed fiddles, they sound like fiddles'. Younger players who use the chromatic keyed fiddle have little to say in their turn about the sound of the silver-drone instrument: 'Those old keyed fiddles sound like a horsefly in a gooseberry bush'. These opinions are not confined to older and younger keyed fiddlers respectively, but all players are agreed that the chromatic keyed fiddle has something of a 'fiddle' tone, irrespective of whether they consider that this is a debasement or an improvement of the older instrument's tone.

In an attempt to verify the above opinions, the following question was put to Johan Sundberg. Can electroacoustic investigations demonstrate whether there are any significant similarities and dissimilarities between the sound events produced by the silver-drone keyed fiddle, the chromatic keyed fiddle and the violin? Since the question concerned playing technique as well as the instrument itself, active players were engaged to produce the sound events on their own instruments. The methods and results of the investigation are reported by Sundberg in *Bilaga 8*.

Sundberg's analyses of the components of the sound events demonstrate a mutual relationship between the sound qualities of the three instruments that closely agrees with the players' subjective assessments. With respect to spectrum stability and noise level, the sound event of the chromatic keyed fiddle is more like that of the violin than that of the silver-drone keyed fiddle. Both types of keyed fiddle, on the other hand, produced practically the same picture for frequency stability. Sundberg points out that one cannot make a causal distinction between the instrument's properties and the player's technique. As mentioned in Chapter 6, frequencies can be varied considerably by the performer, for instance by varying the pressure on the keys. It also seems reasonable to suppose that the stability of frequency is connected with playing technique. To test this, analyses were made of sound events from other silver-drone and chromatic keyed fiddles played by their owners. While the sound event of the chromatic keyed fiddle always had approximately the stability of frequency reported in the above experiment, this factor sometimes varied (in this second experiment with the silver-drone keyed fiddles) by as much as 40 p/s during a sound event having a frequency of about 500 p/s [173]. It is probable that in the experiment reported by Sundberg, the player on the silver-drone keyed fiddle took pains to use a smooth, even bowing pressure. In addition, the instrument in question had an extremely well constructed and 'stable' key mechanism such as is generally only found on chromatic keyed fiddles. The results were probably affected by one or both of these factors.

It has already been pointed out that extensive research would be required to determine exactly which factors in the materials, construction and playing of the instruments are connected with the change in sound quality. In the case of the silver-drone keyed fiddle, the chromatic keyed fiddle and the violin, however, one can demonstrate certain probable connections. The materi-

al and design of the body, the appearance and attachment of the sound post, the material for the strings, the bridge, the shape and location of the sound holes, the varnish, the bow, bowing technique etc. have been dealt with in Chapters 4, 5 and 7. The development presented there shows how the chromatic keyed fiddle has grown out of the silver-drone instrument with the violin as an additional model.

Owing to the complicated and extensive experimental methods required, it was not possible to obtain the players' perceptions in the form of more sophisticated judgments concerning the sound quality of different instruments. This might be done by using various tests to break down the sound event into different acoustic components and relating these to certain properties of the instrument or its playing technique.

An investigation has in fact been published, with principles that should apply to the keyed fiddle (Saunders 1953: 491–498). Certain details of a violin were changed and the effect of this on the sound event was studied. This resulted in many interesting observations but the changes made were much less radical than those which have occurred during the development of the keyed fiddle. Consequently, Saunders' results are chiefly interesting in the present context for the principles they embody. It might be possible to make relatively considerable changes to a particular keyed fiddle and study the effect on the instrument's sound events.

Changes in the sound quality of keyed fiddles in earlier times

It is possible to use extant keyed fiddles and reproductions to set up a number of hypotheses concerning the sound qualities of these instruments in the past.

It seems quite impossible to use the mediaeval paintings of keyed fiddles for a study of the instrument's sound quality, yet these reproductions

must have been based directly or indirectly on actual instruments. This still leaves the question of how true the artist has been to his model.

It has already been pointed out that the early keyed fiddles are probably to be regarded as stringed instruments to which a key mechanism has been attached rather than as an 'autonomous' type of instrument. Changes in the sound quality of the keyed fiddle at this time probably coincided with those of other stringed instruments.

Several of the keyed fiddles in mediaeval paintings can literally be described as bowed guitars or bowed lutes. One might suppose that the artists were victims of a misunderstanding, were it not for the fact that similar reproductions are to be found on the Continent. This has recently led Bachmann (1964: 90) to support the theory that bowed instruments developed from plucked instruments. The circular sound hole and, in particular, the attachment of the strings to the belly, cannot have been suitable for a bowed instrument (see e.g. Jahnel 1963: 138 f.), and such instruments must have given an indefinite noise.

The keyed fiddle from Mora is an instrument of the mediaeval fiddle type. This instrument, which has a relatively well preserved body, was therefore strung and fitted with a bridge and tail-piece for an experiment conducted at the Museum of Music History, Stockholm, in December 1965. The instrument was played with a keyed fiddle bow and a fiddle bow. Irrespective of which bow was used, the sound quality resembled most closely that of reconstructions of mediaeval fiddles.

Neither the Vefsen nor the Mora instrument has resonance strings but they differ from one another in construction and in the form of the body. The Vefsen instrument is also relatively well preserved. It was strung, fitted with a bridge and played with a keyed fiddle bow and a fiddle bow. Its tone proved to be more nasal than that of the Mora instrument, resembling the sound quality of the oldest keyed fiddles with resonance

strings as represented by renovated instruments.

Keyed fiddles used to be tuned to different absolute pitches (see p. 238) and the player could select a pitch that he considered gave the instrument good resonance ('it hums well') as well as the greatest volume of sound. This pitch, the tuning of the resonance strings, the adjustment of the sound post, etc., are all uncertain elements in an assessment of the older extant keyed fiddles, including those with resonance strings. Consequently one cannot be sure of restoring them authentically. Even the sound quality of present-day instruments can vary from one performance to another, probably depending upon the tuning of the resonance strings and certainly upon the absolute pitch (cf. sections 1 and 2 on the record).

Some instruments (cf. section 6 on the record) appear to produce a 'mixture' of the sound quality of the silver-drone and the chromatic keyed fiddles. In many cases these are silver-drone keyed fiddles in which the wedged sound post has been exchanged for an adjustable one (4.82).

There is one example of a 'keyed fiddle with electric amplifier' that has been employed both in jazz music and in works by young composers. The sound quality is changed just as radically as when the 'operation' is performed on a guitar or violin.

Chapter 9

The repertoire

The keyed fiddle's idiom and general features

Nothing is known about the music that was played on the keyed fiddle during the Middle Ages and up to the end of the 17th century. One can in fact deduce from the written sources that it was a question of 'peasant music' during the 17th century and that it was played for dancing or processions. A judicial record from 1706 has a combined reference to keyed fiddle playing and singing, the most probable conclusion being that the keyed fiddle was used as an accompaniment. An event described in a written source from 1698 may also have involved a similar use of the instrument. From the 18th century up to the first decades of the present century the keyed fiddle was used for processional and dance music as well as to accompany singing. The two paintings by Hilleström from the end of the 18th century [49], [50] show the keyed fiddle being used to play dance music and accompany singing.

Nowadays, however, the keyed fiddle is seldom used as an accompanying instrument. This is connected with the fact that, since about 1920, the instrument has gradually become prominent in the folk-musician's movement, where hardly anything but instrumental melodies are played.

The first concrete evidence of a repertoire for the keyed fiddle occurs in the written sources from 1698 and 1706, where it is stated respectively that the hymn '*Frögda tigh Christi Brud*' and the song about '*Stolts Narva*' were played. The melody for the hymn had been printed in 1697 (see *Then Svenska Psalmboken*... 1697, no. 116), whereas the earliest record of the melody for the song (also known as '*Giöta kämpavisa*') is a notation from the early 19th century according to an oral tradition. The hymn melody with its chromatic semitones and sudden leaps has quite certainly been 'corrupted' when performed on the keyed fiddle as the written source indicates. The song that was probably played on the keyed fiddle in 1706 may have been the same as the

melody that was noted down about a century later, but this cannot be proved.

Written sources from the late 18th and early 19th century mention that certain types of dances were played on the keyed fiddle. The first notations of melodies associated with the instrument were made in about 1830 and these were supplemented with a number of other melodies during the following decades. In the last decades of the 19th century and the first two of the 20th, important work was done in the collection of keyed fiddle melodies; these were subsequently added to in connection with preparations for the published series *Svenska låtar* ('Swedish melodies'). The above activities resulted in the notation of about 700 melodies altogether, while in addition recordings have been made of some 450 melodies during the past three decades. This gives a total of about 1,150 melodies but many of them are related in the sense of being variants of the same original tune.

The extant repertoire of keyed fiddle melodies is dominated by *polskas*, waltzes and marches. *Polskas* account for about 35 per cent, waltzes about 35 per cent and marches 15 per cent, while other types of dance music and song tunes played on the keyed fiddle amount to some 15 per cent. These proportions are partly a reflection of the popularity of *polskas*, waltzes and marches both today and in the past. In the case of older repertoires, however, there is probably another reason as well: those noting down the melodies have concentrated on older types of dance music (*polskas* and waltzes) and on ceremonial and processional music, i.e. marches. Little attention was paid, on the other hand, to more 'modern' dances, such as the *polketta* and schottis, and the same is true of song tunes and religious songs, which also formed a part of the keyed fiddle's repertoire. In connection with the publication of anthologies such as *Svenska låtar*, selections have been made of the types of melody believed to represent 'genuine' traditional Swedish folk music. As a result, collectors and judges of folk music

have influenced development and the players active today seldom play anything but *polskas*, waltzes and marches on public occasions.

The questions dealt with here concerning melodies for the keyed fiddle are concentrated to problems about the keyed fiddle as an instrument. In this context it is important to emphasise the distinction between music that has been noted down or recorded from performances on the keyed fiddle itself and music that is reported in the sources as having once been played on the keyed fiddle but which has been noted down from performances on other instruments. The latter category is naturally of only secondary interest here, the major question being whether the melodies that are or have been played on the keyed fiddle display characteristics that are due to their having been conceived for or adapted to performance on this instrument.

Vocal melodies performed on the keyed fiddle

A special technique for accompanying with chords or an independent second voice was probably not used until the present century. In the 19th century and earlier, the keyed fiddler no doubt played a version of the melody in unison with the song. Leffler's publication (1899: 73 f.) includes a melody that was noted down first after a vocal performance and then after a performance on the keyed fiddle. Leffler makes the following comment: 'The song melody as realised on the keyed fiddle is characteristic of the tendency of players to ornament' (Leffler 1899: 74 [174]). This dance tune, '*Sjustigarn*', was sung and played by Johan Edlund. There are several stylistic similarities between the vocal version and a number of primarily instrumental keyed fiddle melodies that have been noted down. Thus one finds repeated tones, triadic figurations, etc. and one might have expected that Edlund's performance on the keyed fiddle would be very like

his vocal version. Almost from the start, however, he improvises over the melody.

Another of Johan Edlund's melodies—a march (Leffler 1899: 48 no. 6)—is related to the melody used by C. M. Bellman for his Epistle No. 67, 'Till mutter på Tuppen' [175]. The latter melody is probably the original version of the one played by Edlund. Bellman's music was widely known and popular in the 19th century and a comparison shows that Bellman's version is considerably easier to play on the keyed fiddle than is Edlund's. The latter represents an ornamental variation of the vocal melody and it may possibly have been intended as an accompaniment for a vocal performance. It would then produce thirds or sixths to the vocal melody and decorate it with semiquaver runs and other figurations.

Edlund's other melodies closely resemble the traditional forms of the tunes in question. Thus the deviations from the vocal melodies cannot be explained as a general practice of this player. Nor are the two vocal melodies simpler in construction than many of the instrumental 'un-ornamented' tunes; thus they do not represent a special opportunity for improvisation.

The above example cannot provide satisfactory criteria for deciding whether and how a vocal melody is changed when it is played on the keyed fiddle. The player may have consciously improvised on the melodies, in one case perhaps to provide an accompaniment. An example from today's tradition will therefore be selected for a more reliable assessment of the extent to which vocal melodies are transformed.

Joel Jansson (1892), of Västland in Uppland, sang and played the same *polska* [176]. Certain ornaments occur in the instrumental but not in the vocal version (e.g. the figurations of the first two cortchets in the fourth bar), but the majority of discrepancies appear to be largely ascribable to a technical adaption of the melody to the keyed fiddle.

In the second repeat of the *polska*, the range forces the player to use the second melody string. Since most of the melodies in the repertoire do not descend below a^1 , the second melody string—tuned to c^1 —is used almost exclusively for double stops. A melody that calls for the use of the second melody string thus presents the player with an unaccustomed situation, with the result that the melody often becomes modified (cf. bars 9–15). Characteristic leaps (e.g. the octave d^1 – d^2 in the present melody, bar 11) are also liable to disappear in instrumental performances. When singing the *polska*, Jansson emphasises the rhythm by tapping his instrument with the bow (marked with an x in the example in Fig. [176]). He does this on the first and third beats in a bar, i.e. the beats that are played on the instrument with a down-bow. The rhythmical character of the melody was exactly the same in the vocal and instrumental performances.

The above comparison between the sung and played versions of this *polska* thus shows that changes occur in the melodic line which are dependent on the playing mechanism's design as well as on the player's technique.

Fiddle tunes played on the keyed fiddle

There are several sources containing melodies that keyed fiddlers probably adopted from folk musicians who played the fiddle, clarinet or accordion. For the present purpose, however, it is necessary to find melodies that have demonstrably not been played before on the keyed fiddle. Otherwise the melody may have been 'adapted' in an earlier stage of the tradition and consequently the findings would be misleading. One should also preferably find the version to which the player himself listened rather than make use of notated versions, which for various reasons may prove unreliable.

The younger generation of players who use the chromatic keyed fiddle make very few changes to

the melodies that they learn. The playing mechanism of this type of keyed fiddle is so well developed that there is little technical difficulty in performing the sort of melodies they have in their repertoires. Moreover, these players are usually organised in folk-musician teams or participate in other forms of ensemble playing, which generally results in a standardisation of both recent and older melodies: a player who deviates is corrected by the other players or the instructor. Many of the players who can read music get hold of a printed collection of folk music that includes the melody in question and then carefully follow this. In order to study the way in which fiddle melodies have been transformed one must consequently make use of melodies played by persons who cannot read music and who use a type of keyed fiddle that is earlier than the chromatic instrument.

Whereas players formerly learnt new melodies solely via other players, during the last few decades many of them have also learned by listening to gramophone records and wireless broadcasts. This makes it possible to trace some of the actual melodies to which these players listened and compare them with the version played on the keyed fiddle.

Most of the players on the silver-drone keyed fiddle who were visited for this study performed one or several melodies that are frequently broadcast. The one chosen for a closer study here is 'Frisells gånglåt'. The players had learned the melody solely by listening to the wireless, as a rule on only one occasion, when it stuck in their memory.

For the sake of clarity, the double stops on the keyed fiddles have not been reproduced in the transcription [177], which also only shows the melodic line of the ensemble version. There is in fact no relationship between the harmonies produced by the ensemble and the double stops with which the keyed fiddlers ornament their versions of the melody. It may be noted that the double

stops were the same as in other melodies in each of the keyed fiddlers' repertoire.

The three versions of '*Frisells gånslåt*' as played on the keyed fiddle all differ from the original in one way or another. All the keyed fiddlers play the melody in C_1 major, i.e. the fingered key for which the silver-drone instrument is primarily designed. On the gramophone record the melody is in D major. While the main outline and rhythmical pattern of the original melody are retained, there are many differences in matters of detail. The players whose versions of the melody are reproduced here will be referred to below by the numbers of their versions: 1, 2 and 3.

Player no. 2 in particular has made a number of very considerable changes. He starts the melody an octave higher than the original but skilfully joins this when it climbs an octave in a broken triad in the second bar. In this way he avoids tones below a^1 , as he does also in the second repeat. Thus, instead of using melody tones on the second melody string, he transposes parts of the melody an octave. He in fact uses the second melody string solely for drone effects or double stops. At the end of the first four-bar motif he shortens the melody by omitting the upbeat. Similar changes of the original melody also occur in other melodies in this player's repertoire.

Players nos. 1 and 3 play the first two-bar motif with much the same melodic line and ambitus as the original. Player no. 1 adds a couple of extra semiquaver figures in the form of broken triads (bars 1 and 2) and repeated tones (bar 2). Player no. 3 replaces the a^1 in these two introductory bars of the melody by tones on the second melody string (bars 1 and 2, first beat). In this way he avoids switching between the first and second melody strings. The third bar is performed in exactly the same way by all three players. The sequence in the original has been changed by substituting a second for the third. At the same time this is a simplification dictated by playing technique: the sequence of the original is much more difficult to perform on the keyed fiddle

than is this new figuration. The last of the four bars in this half period ends on the dominant in the original. The dominant of the dominant (the major chord of the supertonic) is presented in the form of a broken triad (version A, second beat of 4th bar). To reproduce the original melody exactly, a keyed fiddler would have to play a broken triad $d^1-f^1\sharp-a^1$. Player no. 3 has clearly been aware of this harmonic progression since he performs a figuration comprising $f^1\sharp-a^1$, while the other two, who do not use $f^1\sharp$ in their repertoires, continue the sequence and also arrive at the dominant, though avoiding the third in the dominant's dominant. In the rest of the piece, too, player no. 3 keeps closer to the original version than do the other two. He uses only occasional ornaments (bars 5 and 6) and takes the final cadence of the melody from the half close of the original. The added triplet (bar 6) facilitates the fingering of the passage in question. The figuration of the cadence by player no. 1 is not the same as in the original but has numerous parallels in the extant keyed fiddle repertoire.

It is thus clear that the fiddle version of '*Frisells gånslåt*' on this record has been unconsciously changed by the keyed fiddlers to facilitate its performance on their instruments. The variations have arisen spontaneously when they incorporated the melody in their repertoire. Yet even though the changes are conditioned by the playing mechanism of the keyed fiddle, their degree and nature are also highly dependent upon the individual's method of playing. Consequently, the observations presented above cannot be used as a basis for establishing any general idiom of the keyed fiddle. The examples quoted show that the changes are definitely related to the player and his technical control of the instrument. Older players have a key technique in which certain passages come 'automatically' and can be used if the memory fails or a similar turn occurs in the melody that is being learned.

As indicated by this analysis, certain passages and figures are easy to play on the keyed fiddle,

e.g. triad figurations and repeated tones. This is also evident from the way in which such passages and figures dominate the melodic line in other extant melodies for the keyed fiddle (see below).

Characteristics of the melodies

The following review of certain characteristics of melodies for the keyed fiddle is based upon a study of the notated and recorded melodies mentioned above. Certain typical examples have been chosen to represent different groups of melodies.

First, however, the modes and key of the melodies will be discussed. An important question in this context concerns the key in which the melodies were notated and the relation of this to the fingered key. In highly complicated cases it may even be necessary to distinguish between three types of key for one and the same melody, namely fingered key, notated key and sounding key (see p. 237).

Mode and key

The melodies for the keyed fiddle are rooted in an unambiguous major or minor tonality. The melodies that have been written down in absolute pitch without details about the tuning of the strings cannot be used for a study of the keys in which they were fingered, and nor can those which have been transposed without exact information about the transposition.

Leffler noted down Skoglund's and Edlund's keyed fiddle melodies according to their fingering. The tuning of the instrument is indicated together with data by which this can be verified (Leffler 1899: 15 ff.). Here then are repertoires of melodies played on the silver-drone keyed fiddle that can be studied with respect to fingered keys. The 105 melodies break down as follows: Edlund has 33 in C major, 18 in G major and 1 in A minor; Skoglund has 38 in C major, 9 in G major, 3 in F major and 3 in A minor.

The reason why Edlund plays so many melo-

dies in G_t major is probably that he formerly played the contra-drone keyed fiddle, which is generally fingered in this key. F_t major appears to be a relative newcomer; according to the sources it has not been played on instruments older than the silver-drone keyed fiddle. Today, players on the silver-drone and contra-drone double-keyed fiddles play more than 90 per cent of their melodies in C_t major and it is only very occasionally that they use G_t and F_t major.

The chromatic keyed fiddles are not limited to only a few fingered keys, since their tonal material is completely chromatic and many of the players have a highly developed technique. It is seldom, however, that melodies are fingered in keys with more than three sharps or flats in the signature. An increasing number of minor melodies are now being played on the chromatic keyed fiddle.

It transpires that the large majority of the keyed fiddle melodies investigated have been played in C_t major, a considerable number in G_t major, a few in F_t major and occasional melodies in A_t , D_t and G_t minor. There is probably a special explanation for the occurrence of melodies in minor keys in this repertoire, which is so predominantly major in character. Three alternatives appear worth considering. (a) The minor melodies have been borrowed from other provinces. (b) They may as Leffler (1899: 96) suggest represent an older type of 'song melody'. (c) The minor melodies that were noted down during the 19th and early 20th centuries may have derived from an older repertoire of melodies with predominantly minor traits (see Moberg 1950: 13) played upon types of instrument that were older than the silver-drone keyed fiddle and the contra-drone instrument, with its tendency towards melodies in G_t and C_t major. Such melodies can be played upon the simple keyed fiddle. They should also have been suitable for performance on the older contra-drone keyed fiddles, which according to Leffler (1899: 15) had a drone string tuned to a .

Melodies in G_t major are common in older collections, particularly with players who used the contra-drone keyed fiddle. The g drone of this instrument must have influenced the choice of key. Equally, it is only in a contra-drone repertoire that one finds melodies in G_t minor. Relatively recent silver-drone repertoires also have melodies in G_t major. The players who were interviewed about this were not satisfied with the simultaneous intervals obtained with an open second melody string in G_t major melodies but found transposing into C_t major an excessive technical burden.

The construction of the silver-drone keyed fiddle for melodies in C_t major meant that this key came to predominate with the growing popularity of this instrument during the 19th century. During a transitional period the older contra-drone instrument was fitted—before it entirely disappeared—with an extra C -drone string, with the result that C_t major sounded excellent on this instrument. When it was played with fiddles, the tuning of the silver-drone instrument could be changed so that the melody might be played in a suitable key without having to alter the fingering.

The difficulty of playing keys other than C_t major on the silver-drone keyed fiddle was one of the main reasons for the construction of the chromatic instrument.

Melody, rhythm and form

Most of the melodies that are and have been played on the keyed fiddle have a melodic line that is harmonic in conception and triadic in its structure, which alternates with stepwise figurations, often in the nature of a scale. See for example [178]—[180]. The latent chord functions are usually simply the tonic and dominant triads, occasionally the subdominant and dominant's dominant. The melody often opens with a triadic motif [162], [179], [171] and the chord functions generally change once or twice every bar at the most. The melody tends to move

in a strikingly arch-shaped manner and its ambitus frequently lies between the octave and the twelfth. One group of melodies is characterised by semiquaver figures [162], [178], [179], [171], often in the form of scale figures [178] or sequences [162], [179], [171]. Various types of sequence also characterise a group of melodies with series of quavers, often dotted [180].

Another type of melody is characterised by repeated tones alternating with leaps and stepwise movement [151], [152], [181], [182]. This category includes the majority of waltzes, mazurka-type *polskas* and a certain group of marches.

A few melodies move in steps throughout and have an ambitus of a sixth to a ninth [183]. Most of the minor melodies belong to this group, which clearly includes many vocal melodies, since there are texts or references to texts. The last two types of melody have, admittedly, occasional ornaments with semiquaver figures, but otherwise the quaver is the shortest unit.

The notation of these melodies provides only certain general indications of the rhythmical structure of keyed fiddle melodies. Rhythmical details conditioned by the repertoire and dialect cannot be studied without analysing the sound events of recorded melodies. Special rhythmical durational patterns can no doubt be associated with different playing traditions and individual modes of performance, and these in turn may be partly conditioned by the design of the instrument. Numerous preliminary investigations must be made, however, before one can undertake such a study of the causal connections between the instrument, playing technique and sound event.

The majority of extant keyed fiddle melodies are dances. Consequently, the rhythmical element is basic to the melody. Different groupings of a melody's rhythmical accents and changes of tempo can transform one type of dance into another (Leffler 1899: 58 no. 17). However, as pointed out already, there is a difference be-

tween, e.g., a waltz and a *polska* in the character of the melodic motif and this has probably counteracted any such transformation.

The metrical triple-time pattern of the *polska* is combined with a special dynamic and rhythmical accents on the first and third beat of the melody. This can be demonstrated in the modern tradition and probably has to do with the choreography. Conditions were presumably the same in earlier times as well: the nature of the *polska* melody requires this tension between dynamic and rhythmical accents. In the modern tradition this *polska* rhythm is more pronounced in melodies with dotted quavers than in those with semi-quaver figures. This may be because in recent decades the latter group of melodies has not been used for dancing to the same extent as the former.

The type of waltz played by keyed fiddlers in Uppland has a strongly accented beat on 'one' in the bar and a much faster tempo than the *polska*. March melodies are characterised by emphasis on the first and third beats in the bar. To judge from the melodic line and the barring of the collectors, this was probably also the case earlier.

Certain rhythmical details that are characteristic of the modern tradition—such as two-bar groupings, hemiola formations and rhythmical displacements—were certainly more common than the schematic barring of the notated melodies indicates. Several figures of rhythmic importance often coincide with the bar in the notation, e.g. [179], and are then repeated strictly, transposed or in sequence.

Almost all the melodies have a regular structure. The motif may consist of a single bar, which together with the next bar forms a melodic unit.

The melodies consist of two or more 8-bar periods with a conventional structure (2-bar phrases repeated or varied in two, often almost identical, 4-bar 'half periods'). Sections also occur with relatively 'free' sequences ([171] bars 9–12). Often the melodies are loosely held together by two, or at most four such 8-bar periods

or groups that are always repeated. There are some melodies, however, in which the first 8-bar period is followed by a simple 'development' of the initial 2-bar phrase, after which the melody concludes with a repetition of the introductory 4-bar phrase [179]. This ternary song form (ABA) in Swedish folk music has been noticed earlier (see e.g. Moberg 1951: 10 f.).

The latent harmonic progression of the melodies is often limited to the tonic and dominant triads, while a single chord may extend over a 2-bar motif. A progression to the sub-dominant or the dominant's dominant does occur but is a recent phenomenon, see [171]. Melodies with the ternary song form have TDDT as their harmonic progression; this is the well-known arrangement for a type of musical form that was common in the first half of the 18th century.

The stylistic features mentioned above occur to approximately the same extent in other contemporary collections of Swedish folk music noted down from the fiddle, an exception being melodies from Dalarna and northern provinces, where the repertoire is dominated by melodies in the minor mode that are probably older in type (see Moberg 1950: 7 ff.). Such melodies occur only sporadically in the repertoire of the keyed fiddle. However, the melodic line of keyed fiddle melodies appears to be more infused by triads and scale figures, or repeated tones, than does the contemporary repertoire for the fiddle. This may reflect an adaptation of the melodies to the instrument's special mechanism which facilitates the execution of such 'key board' features. As illustrated above, fiddle tunes in *D* major are played in *C_f* major on the keyed fiddle. If a keyed fiddle is tuned to standard pitch ($a^1 = 440$ p/s) the melody is thus transposed from *D* major to *C* major. Similarly, fiddle tunes in *A* major are played in *G_f* major on the keyed fiddle. Many of the players active today consider that it is difficult to transfer keyed fiddle melodies to the fiddle and vice versa. This attitude seems some-

what surprising, however, in view of the scale on which transfers have in fact taken place.

All the stylistic qualities discussed above may be regarded as typical of instrumental art music around the middle of the 18th century. The connection can be substantiated with keyed fiddle melodies that have very close parallels among known melodies from artistic music in the 18th century.

The dances which gained a footing in Swedish folk music during the first decades of the 19th century represent a simpler style of music, e.g. the mazurka and, in particular, the waltz. The quaver *polska* with its vocal associations appears to have merged with the mazurka in many cases (see Leffler 1899: 55 f.). It is only in minor details that the melodies appear to have been transformed as a result of the keyed fiddle's special idiom.

The melodies can thus be traced to different stylistic periods. Many of the oldest ones display stylistic features that are characteristic of instrumental art music from the middle of the 18th century and they can be traced to players who were active at the end of the 18th and first part of the 19th centuries.

There has been a curious 'preservation' of this style right up to the present day's tradition, with the new compositions for the keyed fiddle largely employing the same stylistic devices, though occasionally with a somewhat bolder latent harmony in the melodic line [171]. On the other hand, the simpler type of 'skipping waltzes', *polkettas* and mazurkas have apparently not survived, probably because they have been considered artistically inferior to the older *polskas*, waltzes and marches. They belong to a stratum of popular dance melodies that has not been accepted in the same way as 'true, genuine Swedish folk music' and consequently they have not been incorporated in the modern tradition.

What are known as 'quaver *polskas*', in major keys with the characteristic punctuations, occur fairly frequently in the players' repertoires. Un-

Chapter 10

History of the keyed fiddle

like such *polskas* in minor keys, which players on the chromatic keyed fiddle have been adopting from neighbouring provinces to an increasing extent during the past decade, these *polskas* in the major mode are usually inherited from older keyed fiddlers in Uppland.

The results presented in the preceding chapters dealing with terms for the keyed fiddle, building techniques, construction, playing techniques, sound quality, tonal resources and repertoires in different periods have been arranged below in a chronological review together with evidence given by the sources concerning the environment and use of the keyed fiddle.

Various types of evidence about the keyed fiddle are presented in two survey maps [184], [185]. The picture presented by these should, however, be interpreted with some caution because one cannot establish a relationship between the number of recorded finds and the number of instruments that actually existed in different periods. On the other hand, certain 'centres of dispersion' are suggested by the keyed fiddle maps. Finds have not been included unless they can be satisfactorily dated and a particular parish can be established for their provenance. It should be remembered, however, that the geographical spread of an object is not by itself a satisfactory basis for conclusions concerning its history (Erixon 1957: 7, Jansson 1961: 124).

It has been possible to make a relatively detailed study of present-day techniques of building and playing the keyed fiddle. These results have also helped to elucidate certain extant evidence about such matters in the past. This, however, calls for caution and in the case of playing techniques, for instance, the projection into the past has been confined to the preceding generation and then only when several similarities could be demonstrated. It seems reasonable to suppose that the playing technique has remained largely unchanged in cases where the instrument, the manner of holding both it and the bow, and the repertoire are all much the same for two generations of players in those respects that are common to several players and are not individual mannerisms.

By the same token, modern building techniques should help to throw light on the methods used in the past provided that the instruments are made from the same type of material, agree exactly in

design, are marked in the same way by tools and a connection can be established between the instrument makers.

If, on the other hand, there is no evidence of a direct tradition, it can be more difficult to establish a connection between keyed fiddles from different periods. If the instruments have several constructional and morphological details in common—as is the case with instruments from adjacent periods—they are unlikely to have been 'invented' independently. Their construction is so complex and the type of instrument so peculiar that one can safely assume a relationship of some sort.

The keyed fiddle and its use must be seen in the light of cultural life in general at different times. It is not to be expected, however, that data from cultural history will suffice to 'explain' how the instrument arose, spread or changed. The number of unknowns is far too great for this.

Even though there is a relatively large amount of material available, there seems to be little chance of establishing a complete history. Although the facts can all be made to fit into a general picture, several pieces are missing. The early history of the keyed fiddle must still be largely based upon hypotheses and it is not until the 19th century that the evidence becomes more plentiful. There is a fair quantity of evidence about present-day conditions but here it is difficult to obtain a true perspective and pick out the essential aspects of the contemporary keyed fiddle and its development.

Origin, provenance and spread

The following data provide a starting point for discussing the early history of the keyed fiddle: (a) a relief and several church paintings with keyed fiddle motifs indicate that the instrument existed in about 1350 or at least during the latter half of the 15th century (cf. Chapter 2); (b) the keyed fiddles in these portrayals are closely related to other mediaeval reproductions of bowed instruments (cf. Chapter 5).

The relief and the paintings with a keyed fiddle motif provide an approximate terminus ante quem for the origin of the keyed fiddle, while its characteristic criteria—the position in which it is held, which is unusual for a bowed instrument, and the use of a key mechanism to stop the strings—provide certain possibilities for discussing a terminus post quem.

The first evidence of bowed instruments in Europe has been dated to the first half of the 11th century and such instruments had probably spread throughout Western Europe by about 1100 (Bachmann 1964: 164). The horizontal position characteristic of the keyed fiddle is also found in mediaeval portrayals of fiddles. Bachmann considers that this position was common during the 13th and 14th centuries (1964: 103 and 167). It is also said to be related to troubadours and *Minnesang* (Dräger 1937: 53).

There is morphological agreement between the keyed fiddles in the earliest known reproductions and bowed instruments without a key mechanism in contemporary pictures. The keyed fiddle probably arose by a bowed instrument being fitted with a key mechanism 'adapted' from some other instrument. The type of key used for the keyed fiddle is found on the hurdy-gurdy after 1250, and in this context it is interesting to note what Bachmann has to say about the origin of the latter instrument: *Offenbar handelt es sich bei der Drehleier also um eine Umbildung der damals gebräuchlichen Streichinstrumente im Sinne einer Vereinfachung des Streichvorgangs sowie der Mechanisierung der Saitenverkürzung*' (Bachmann 1964: 125). The second part of this quotation is equally applicable to the keyed fiddle: *the introduction of a mechanical device for stopping the strings on a bowed instrument held horizontally, which undoubtedly simplified playing in view of the manner of holding the instrument*. The keyed fiddle may be regarded as a parallel phenomenon to instruments having the hurdy-gurdy's other specific principle of construction, i.e. the wheel. Such instruments, having their

strings stopped with the fingers but made to vibrate by a wheel, are reproduced in a manuscript Bible from the 13th century (Bachmann 1965 Abb. 85) as well as among Praetorius's *lumpen instrumenta* [47].

It thus seems probable that the keyed fiddle was first developed in a period when bowed instruments held horizontally were common, i.e. not before about 1200. As already mentioned, its actual conception presumably involved the adaptation of a key mechanism—probably copied from the hurdy-gurdy—to a bowed instrument in order to simplify performance. If one accepts the tentative conclusion that one of the fiddles in the Källunge relief is a keyed fiddle, it follows that the keyed fiddle probably originated in the period between 1200 and 1350. If not, the period must be extended rather more than a century, i.e. 1200—1460. Further considerations concerning these dates are given below in the discussion of the provenance and initial spread of the instrument.

The earliest evidence concerning the keyed fiddle consists of reproductions in Danish and Swedish church art (1350 (?), 1460—1520), while the first German evidence occurs in a written source from 1528. One therefore has to consider whether the keyed fiddle is (a) of Scandinavian, possibly Swedish origin, (b) of German origin, or (c) of an origin that cannot be tied to a particular country.

There is extensive evidence of a German influence on Swedish culture in the late Middle Ages and this is known to have included the field of music. A study that is of considerable significance in this context has been reported in a chapter on 'Die weiten Fahrten der Spielleute und ihr Beitrag zu den internationalen Zusammenhängen in der mittelalterlichen Musik' in *Der fahrende Musiker im europäischen Mittelalter* by W. Salmen (1960). The 'Spielmannsverkehr' in several German towns is reviewed and instructively illustrated. It transpires that players from both Sweden and Denmark are represented. Salmen concludes that German and Polish musicians

in particular travelled to Scandinavia, while the 'speelluyde' active in Scandinavia had a radius of action that included a 'niederländisch-niederdeutschen Raum' (Salmen 1960: 167). Furthermore, visits by German players to Sweden and Denmark became increasingly common during the 16th century (1960: 171). As Otto Andersson has pointed out, one cannot automatically assume that the keyed fiddle spread from Germany to Sweden rather than vice versa. On the face of things, however, an instrument of such a relatively complicated construction (even assuming that the key mechanism was borrowed from the hurdy-gurdy) is less likely to have originated in Sweden, where cultural life at that time was less developed than in Germany. The lack of evidence concerning the keyed fiddle in mediaeval Germany may be due to a variety of circumstances, e.g. that the instrument was quite soon confined to the peasantry and hence aroused little attention. It is also possible that the term 'fidel' may have been used for 'Schlüssel Fidel' in one or two written sources (cf. Chapter 3). Owing to the lack of source material, one can do no more than suggest alternative interpretations.

The reproduction of keyed fiddles in Swedish and Danish church paintings does not necessarily mean that these instruments belonged to a native keyed fiddle tradition. The artists may have worked from German woodcuts or the like that have now been lost, or they may have become acquainted with the instrument in Germany or elsewhere. There are however reasons for supposing that the instrument itself existed in Scandinavia at the time when these paintings were executed. A detailed study has shown that the artist cannot simply have copied other reproductions but must have been familiar with both the instrument and its playing technique. From this it follows that the artists probably had an instrument close at hand, since it is unlikely that they would have been able to reproduce it exactly from memory after living Scandinavia for many years. Moreover, the keyed fiddle appears to have 're-

placed' the fiddle as a pair to the lute, e.g. in the 'Mercy seat', a possible explanation being that it was familiar to the local population.

The hypothesis that the keyed fiddle actually occurred in those districts where it is found as a motif in several church paintings is indirectly supported by a written source that is 130–150 years younger than the paintings. This shows that the keyed fiddle clearly existed in the same districts as the churches at Häverö, Tolfta, Älvkarleby and Österlövsta (*Bilaga 6*, written source 1642). Furthermore, the first written evidence (*Bilaga 6*, written source 1603, 1605) of the keyed fiddle occurs in a context which shows that it was a well known phenomenon at this time in Sweden, though despised by 'society'.

Apart from the keyed fiddle motifs in church murals, there are other types of sources from about 1520. The Mora instrument with the inscription '1526' is one, a drawing of a keyed fiddle entitled 'Schlüssel Fidel' in Agricola 1528 another. In its morphology, the latter picture is closest to Swedish and Danish reproductions of the keyed fiddle from the second half of the 15th century. The extant instrument from Mora, on the other hand, bears a detailed resemblance to a type shown in a mural from about 1560 in Rynkeby church, Fyn. There is also another picture of a keyed fiddle that agrees very closely with this one from Mora, namely Praetorius's 'Schlüssel Fiddel' (1619–20). The Danish murals in Rynkeby church are considered to have German affiliations and the calligraphy of the '1526' on the Mora instrument also points to a connection with Germany. One cannot, however, accept this unreservedly as support for the hypothesis that the keyed fiddle originated in Germany. Even in the case of musical instruments one must allow for the possibility of an interaction between influences coming from both directions.

The word *nyckelgijg* was used in 1603 and 1605 in a disparaging sense about John III's liturgy. The word *Schlüssel* in the sense of 'key of an instrument' is known to have been used for other

'keys' in the 16th-century German instrumental terminology. In Sweden, on the other hand, available sources suggest that the word *nyckel* was used in this special sense only in connection with the *nyckelharpa*. It thus seems natural to suppose that the expression *nyckelgiga* was formed with *Schlüsselfidel* in mind, and that *-giga* has been used—in contrast to the Danish *nøglefejle*—possibly because it was a more common term, possibly for reasons to do with language.

The source material undoubtedly provides several indications of a German provenance for the keyed fiddle in the late Middle Ages. There are, however, good reasons for Panum's reservation (Panum 1928: 118) concerning the possibility of naming a particular country as the birthplace of the keyed fiddle. According to the available sources, Germany does nevertheless seem to be the most likely alternative.

The importation of the keyed fiddle to Sweden from Germany agrees with the general direction of cultural influences during the late Middle Ages and also appears to be supported by the sources. The new source material appears to fit in well with the hypotheses of Leffler (1899: 2), Psilander (1908) and Norlind (1930: 104, 1941: 117) and I agree with them concerning Germany as the country of origin of the keyed fiddle as well as concerning its importation to Sweden from Germany. The dates given above for these two events differ, however, from those quoted by these authors as do the reasons behind them.

The manner in which the keyed fiddle may have become established in Sweden and how a keyed fiddle tradition was gradually developed are discussed below.

Spread, diffusion, development, use and function of the keyed fiddle in different periods

For the sake of clarity this section has been divided up by periods on the basis of dated sources

that are of major significance in the history of the keyed fiddle.

The first period starts in about 1350, i.e. the date of the relief in Källunge church, since this includes the oldest reproduction of what is thought to be a keyed fiddle, and ends in 1650, when the keyed fiddle can be shown to have become established among Swedish peasantry and is also reported to be in use among Danish farmers.

During the next period, 1650–1777, it may be assumed that the keyed fiddle was developed into an instrument with resonance strings. Since no definite date could be established for this conversion, the period continues until the year of the first dated simple keyed fiddle (1777). It is during this period that spiritual and temporal authorities limit the use of the keyed fiddle at weddings (*Bilaga 6*, written source 1753/54). This information is important for assessing the instrument's connections with certain customs as well as its function in social life.

The period 1777–1838 probably embraces the conversion of the simple keyed fiddle into the contra-drone instrument. This cannot be dated exactly and it may even have occurred before 1777. The period ends with an important year in the history of the keyed fiddle, since it was probably in 1838 that a contra-drone instrument was first converted into a silver-drone keyed fiddle.

The next period, 1838–1925, which thus begins with the construction of the silver-drone instrument, ends with the development of the chromatic keyed fiddle. It is during this period that the instrument loses ground in the field of dance and processional music. This happens already towards the end of the 19th century in some places and not until the Twenties and Thirties in others, but the process continues all through the latter part of the period. The contra-drone double-keyed fiddle was constructed during the 1860's. The limited importance of this type of keyed fiddle does not warrant the assignment of a

special period and the silver-drone keyed fiddle remains the instrument in general use.

The final period, 1925–1965, is dominated by the chromatic keyed fiddle.

The division into periods is thus based as far as possible upon the dates when the different types of instruments first appear. The spread and diffusion of the keyed fiddle are dealt with first in each period, followed by constructional changes, function and use.

1350–1650

The places where murals depicting keyed fiddle motifs have been found are shown in Fig. [184]. The picture they present cannot of course be equated with the spread of the keyed fiddle itself in the Middle Ages, though the concentration of reproductions to Uppland does seem to suggest that there was a sort of 'centre' there.

A keyed fiddle that is depicted in a short story which is partly of very questionable documentary value (see *Bilaga 6*, written source 1850) [52] is of the same type as the extant instrument from Mora. The author of the story states that this instrument was associated with an Uppland tradition. The instrument from Vefsen in Norway has exactly the same ornamentation as certain wooden objects from Uppland of about the same date (late 17th and early 18th centuries) and agrees in several details of morphological significance with the keyed fiddles with resonance strings that are known to have existed in Uppland from the 18th century onwards. The latter also applies to the keyed fiddle from Esse in Finland. It seems probable that the instruments are connected in some way or other with a keyed fiddle tradition in Uppland. In keeping with the paintings in Alnö church, where there is a keyed fiddle [31], one might suppose that the instruments mentioned above are relicts of a cultural diffusion from Uppland towards the north, northeast and northwest. At all events, this seems more likely than that the two keyed fiddles are relicts of a general use of the keyed fiddle throughout Scandinavia.

The mediaeval paintings with keyed fiddle motifs in Skåne, on Sjöland and Fyn indicate another 'centre', though here the evidence is not so concentrated and nor is it of the same quantity as in Uppland. In a written source from 1646, Ravn states that the keyed fiddle was a peasant instrument in Denmark at that time. Even though there is almost one and two hundred years respectively between the written source and the Danish reproductions of keyed fiddles, there is reason to suppose that Ravn's *nøglefeje* may refer to such instruments as are depicted in for instance Rynkeby and Emmislöv churches, and that such instruments actually existed during the late Middle Ages in the provinces concerned. Here too it seems reasonable to suppose that they were imported from Germany. Similarities between one of the keyed fiddle pictures in Rynkeby and the Mora instrument perhaps may also be interpreted as indicating a connection between these mediaeval keyed fiddle finds in Denmark and Sweden.

The keyed fiddle was probably introduced to the settled peasantry of Scandinavia in the late Middle Ages by wandering minstrels. The hurdy-gurdy underwent the same social development during the Middle Ages (cf. Bachmann 1964: 135).

The keyed fiddle seems to have undergone a radical morphological transformation before becoming a peasant instrument. This is suggested by the constructional differences between instruments known to us from the 15th and the 16th centuries. These differences were presumably accompanied by differences in the quality of the sound produced by the instruments in question. Bachmann provides numerous examples of the environments in which bowed instruments were employed during the Middle Ages (1964: 136) and it is clear that a 'courtly' association must have demanded more of the performer's skill as well as of the instrument's sound quality. These demands no doubt applied to the keyed fiddle as well, since at this stage it appears to have developed parallel with other bowed instruments. This

initial stage in the keyed fiddle's development probably occurred on the Continent.

One can either suppose that different types of keyed fiddle were introduced to Scandinavia by different 'imports' or, alternatively, that it was only the final stage of the mediaeval type of keyed fiddle that was imported, with the fiddle's attributes such as a pair of sound holes, a bridge, etc. The former alternative seems to carry more weight since the church paintings, which depict the older types of keyed fiddle, are believed to be reproductions of native instruments. It was however the later, fiddle-shaped type that survived in Scandinavia and subsequently underwent a special development.

In the differentiation and contamination of different types of instruments that occurred during the 16th century (see e.g. Sachs 1920: 194), the keyed fiddle—like the hurdy-gurdy, bagpipes and other instruments—appears to have been side-tracked by the development of the musical instruments that predominated in art music and to have survived only as relicts in a musical culture that did not demand such a high quality of sound as did the professional musicians in the upper ranks of society. The constant drone and the mixture were probably major factors behind this degradation, since these no doubt fell out of favour with musicians and audiences who had an ear for consonant harmonies. The *lira da braccio* is admittedly an instrument of mediaeval origin with a drone string that survived this fate but in this case the two drone strings, instead of sounding continuously, can be used where suitable (Sachs 1920: 177; Bachmann 1964: 120). A similar development did not occur with the keyed fiddle until the 19th century.

It may be assumed that the keyed fiddle was transformed during the 16th and 17th centuries from an instrument with the fiddle's guitar-like body to an instrument with the hollowed-out body that characterised the keyed fiddle from the 18th century to the present day. Perhaps this more

simple design was more in keeping with peasant handicraft.

It is not known in which contexts the keyed fiddle was used in the Middle Ages and all one can do is discuss various hypotheses.

The fact that the keyed fiddle is played by angels in the mediaeval reproductions does not imply that it was primarily used on religious occasions. The angels' instruments simply symbolise the heavenly music irrespective of the instrument's social status on Earth (cf. Hammerstein 1962: 218 ff.). It is naturally possible that the keyed fiddle was one of the instruments upon which players performed when they took part in church festivals (see e.g. Moberg 1928: 48; Norlind 1940: 45). We know that keyed fiddles were used in church in Uppland during the 17th and 18th century because prohibitions were issued against this custom, which clearly had deep roots among the peasantry (*Bilaga 6*, written sources 1670, 1698, 1735, 1753). There seems to be no means of telling how far back in time this tradition extended.

Agricola makes no distinction between *Schlüsselfidel* and other *clauierten instrument* (written source 1528), but Praetorius degrades the keyed fiddle to *lumpen Instrumenta* (1619: 79). In Sweden the term *nyckelgiga* is used in a derogatory sense for John III's liturgy at the end of the 16th century (Uppsala Assembly 1593) and early in the 17th (written sources 1603 and 1605). This also seems to be an allusion to the use of this instrument among the peasantry, the unpleasing and primitive nature of its drone and mixture for 'musically educated' listeners, and perhaps its raw sound quality.

In 1641 Olof Andersson of Randersbo, a farmer from Österlövsta, Uppland, hit an antagonist over the head with his keyed fiddle. The fight ended in manslaughter and the case came before the courts in 1642 (written source 1642). The judicial records describing the event provide the first concrete, unquestionable evidence of the keyed fiddle in a specific environment. A year later, in a poem,

Stiernhielm includes the *nyckelgiga* in the humble peasantry's hymn of praise to Queen Christina (written source 1643), which is thus further evidence of 'peasant' use.

The last evidence of the keyed fiddle in Germany is dated 1620 and in Denmark 1663. The evidence in Sweden, on the other hand, steadily grows after 1660. It is thus clear that the keyed fiddle lived on as a 'relict' in Sweden, particularly in Uppland. At the same time, this region served as a centre for the instrument's development in the future.

1650—1777

Players and builders of keyed fiddles as well as elderly persons living in northern Uppland commonly hold the view that 'the keyed fiddle came with the Walloons'.

If one accepts the presented interpretation of the keyed fiddle motifs in mediaeval church paintings, it is chronologically impossible for the Walloons to have been the *first* to have introduced the keyed fiddle to Sweden. Quite apart from this, there is the fact that the word *nyckelgiga* is used in the written sources from 1603 and 1605 in a context that shows it to have been a well known concept. At that time, however, the Walloons had not yet come to Sweden in large numbers and could not have managed to make such a specific cultural phenomenon generally known.

According to written evidence of the keyed fiddle from the 17th and early 18th century, the instrument existed during these two centuries in the parishes around Uppsala and eastwards, as well as along the coast of Uppland and on the island of Åland (see [184]), whereas the evidence is not particularly numerous from Lövsta, Österby and the neighbouring foundries. Although the distribution of these finds cannot be said to depict the actual dispersal of the keyed fiddle, it does provide further reason for doubting that the foundries and the Walloons were important for the history of the keyed fiddle during these years. They do however appear to have been of major

importance for the instrument's spread and survival during the latter part of the 18th century and in the 19th century.

Anton Bovin, a smith from Österby foundry, appears as a keyed fiddler in 1753 (written source 1753/54). His name indicates that he was a Walloon and consequently it may be concluded that the Walloons had established themselves as keyed fiddlers by this time.

There is a tradition from Österby and Lövsta that the keyed fiddle was constructed on the basis of hurdy-gurdies brought by the Walloons (reported by Sven E. Svensson 1949). Assuming that the Walloons had hurdy-gurdies with them when they arrived, it is likely that they soon came in touch with and grew interested in the keyed fiddle tradition which it has been assumed here already existed among the peasant population in Sweden. Since the foundries served during the 18th century as centres of entertainment for the surrounding countryside and since descendants of the Walloons at and outside the foundries started to perform as keyed fiddlers, it is easy to understand how the tradition grew up that 'the keyed fiddle came with the Walloons'.

Several details unite the older keyed fiddle of the mediaeval fiddle type with 'transitional forms' that in their turn are unquestionably related to the first known form of the keyed fiddles with resonance strings (Chapter 5). The keyed fiddle appears to have undergone a gradual 'development' at this time, just as it did later during the 19th and 20th centuries. This development was probably influenced by viol or violin instruments (Chapter 5), i.e. bowed instruments that were known in the same environment as that in which the keyed fiddle occurred (see written sources 1689, 1748, 1764) but which came from another level of society. Unlike the keyed fiddles from Esse and Vefsen, the instruments with resonance strings have their tangents arranged for intervals in just tuning or equal temperament, which almost certainly points to an instrument maker schooled in musical theory.

To judge from the provenance of the instruments and the places mentioned in the written sources, it seems probable that the keyed fiddle with resonance strings was developed in Uppland, perhaps by some instrument builder in the university town of Uppsala, where music flourished in the 17th century and where the keyed fiddle is shown by the sources to have been a familiar phenomenon.

Presumably the keyed fiddle without resonance strings was still being used during the latter half of the 17th century and perhaps to some extent during the 18th century as well. When the sources mention that the keyed fiddle has disappeared and is no longer used in certain provinces and parishes (see written sources 1682, 1762, 1771, 1790: 2), the reference is no doubt to the older type without resonance strings. One cannot give a definite date to distinguish between this and the type with resonance strings. It is not known when the latter type first appeared, and even assuming that this occurred, say, at the end of the 17th or beginning of the 18th century, we do not know how long it took for the new type to be generally accepted and the old type to die out.

The chief source material on the keyed fiddle during the 17th century has been found in the records of courts of law. The circumstances are admittedly somewhat special, since the keyed fiddler must have been involved in some untoward event for the information to be recorded for posterity in this way. The resultant picture of the keyed fiddle's social status is confirmed on the other hand by other contemporary descriptions of peasant life. (See e.g. written source 1682.) This makes it likely that the detailed descriptions in the court records really are representative examples of the 'keyed fiddle's environment'.

There are court records from 1666, 1670 and 1681 which feature soldiers who also played the keyed fiddle. Another source (1699) mentions a watchman, while there is a record from 1708 about an old woman who had played the keyed

fiddle during the Christmas holiday. A written source from 1673 mentions the keyed fiddle in connection with disturbances among the students at Uppsala University. There is also a record from 1689 that students from Uppland and the Roslagen district could play the instrument themselves and this source also states that the keyed fiddle was played together with the fiddle and that students played the instrument while walking about the streets.

The greater part of the records concerning the surrounding countryside still remains to be investigated and consequently the quantitative predominance of written sources about the keyed fiddle in Uppsala itself does not necessarily mean that the instrument was more common there than elsewhere in the province of Uppland.

A particularly detailed account concerns a 22-year-old farmer's daughter from Åland, Maria Johansdotter, who is said to have played the keyed fiddle during an adventurous stay in Stockholm and the neighbouring parishes from 1702 onwards (written source 1705, 1706).

In two of the written sources (from 1682 and 1698) keyed fiddlers are referred to as 'farmhands'. This should perhaps be interpreted literally, i.e. that there were many farmhands who played the keyed fiddle, but it is also possible that the reference is meant to indicate the social status that was expected of a person who played this instrument.

The keyed fiddle was thus played by soldiers, students, servant girls and farmhands in the latter part of the 17th and the 18th century. The instrument was used for entertainment in connection with simple celebrations, occasional dances, the end of the Christmas holiday, harvest feasts, etc.

The keyed fiddlers also were blamed for the excessive frivolity of youth. It was thus the players who were fined if they touched their instruments after 9 p.m. (written source 1765).

The keyed fiddle was also used on festival occasions, such as weddings. At this time there was a difference of opinion between the peasantry and

the clergy concerning the use of this instrument in the church itself. The peasantry based their arguments on traditional custom, while the clergy did their best to stop the players at the church door and limit the element of profane music in the procession to and from the church (written sources 1670, 1698, 1735 and 1753/54). Even in the sources where there is no direct account of what was said, there are hints of violent exchanges between a conservative, impertinent peasantry and a minister who may not always have been enthusiastic about enforcing the decisions of his chapter and other authorities.

The situation is graphically described in many of the written sources. From the minutes of a parish meeting in Uppland it is clear that the clergyman had been instructed to see that keyed fiddles were not played in church and that dance tunes were not included in processions, while the parishioners were advised to 'use the Organist for their weddings'; all this is indicative of the clergy's attempt to counter a secularisation of the wedding ceremony both inside and outside the church itself (written source 1670). The peasantry's disinclination to employ the organist may reflect a greater familiarity with the keyed fiddler's music and instrument. Also the organist probably charged a higher fee for his services than did the keyed fiddler.

A similar state of affairs is indicated by a written source from 1698, which also remarks that the manner of playing the hymns 'had become completely abused'. It is easy to imagine the minister's dismay on hearing what a hymn could sound like on the keyed fiddle, no doubt considerably 'abused' by its adaptation to the instrument's idiom and the player's personal interpretation of the melody. It is clear, however, that the clergy had not expected to achieve a total ban against music in processions, being satisfied to cut this down, 'particularly in times of mourning'.

In some parishes the authorities clearly intimated several times that keyed fiddle music was unsuitable in church. In the parish minutes from

Jumkil in 1735 there is a 'reminder' that the keyed fiddle was to remain outside the porch and the 'organ work be played instead'. Even so, keyed fiddlers were still relatively common in church in 1753 and strong measures had to be taken to break the custom. The written source from 1753/54 illustrates just how stubborn the peasantry could be: Bovin, the smith's assistant, stood in his proper place by the church porch when the minister entered, but once the latter was no longer in a position to interfere, Bovin played the bride into the church! Attempts were also made to postpone the decision by referring to other parishes where this 'privilege' still existed. After 1754, however, clergymen who pretended not to notice when the players entered the church were probably the exception rather than the rule (see written source 1753/54).

The custom of playing the keyed fiddle inside the church had no doubt existed for a long time, possibly since the late Middle Ages. It was particularly likely to persist as long as organs and organists were not available in the small country churches. The opinions recorded are not in fact directed at the keyed fiddle as such, since the reactions on either side would presumably have been the same if the Uppland peasantry had played the fiddle or bagpipes. However this may be, the evidence quoted above provides a wealth of documentation about the uses of the keyed fiddle. The wording of the records reflects the assumption that peasant music was played on the keyed fiddle.

Early in the 18th century a keyed fiddle concert was given at a party for the 'gentry' at Säby manor in the parish of Järfälla outside Stockholm. (Written source from 1703.) But even though we thus find the keyed fiddle being used among both students and the upper classes, the sources clearly show that it was by no means a 'courtly' instrument like for instance the lute. Hiärne (written source 1680) and Triewald (written source 1712) present the lute and keyed fiddle as being poles apart. The drum and keyed fiddle are appreciated by persons with a 'coarse ear and rude taste'

(written source 1768). It is therefore all the more remarkable that Bergrot is relatively appreciative of the keyed fiddle in his dissertation on musical instruments in 1717 (written source 1717). What is particularly interesting is that Bergrot remarks on the distances between the keys, indicating that people with a 'musical education' knew about the instrument's construction. Indirectly, this may support the hypothesis put forward above that professional builders had a hand in the introduction of resonance strings.

Mention is made of a keyed fiddle in the 'Royal Tariffs for Inland Rural Tolls' from 1756. There does not seem to be anything remarkable about keyed fiddles being made in the country and sold in the town. The written sources for the next period, which extends up to 1838, provide a good deal of indirect evidence of interaction between professional instrument makers, perhaps active in the towns, and a peasantry skilled in rural handicrafts.

1777—1838

Even though the earliest extant simple keyed fiddle that is dated comes from the year 1777, instruments with resonance strings had probably already existed for at least 70 or 80 years.

As early as in 1682 a written source from Vingåker reports that the keyed fiddle had fallen into disuse in the district. Similar reports have been found from Malung parish in Dalarna (1762), Medelpad (1771) and Jämtland (1790:2). These reports have been interpreted above as indicating that it was the keyed fiddle without resonance strings that had died out.

Two written sources from 1764 and 1791 assert, however, that the keyed fiddle was to be found at this time in Blekinge (and Skåne?).

How is one to explain this? It seems that either these instruments were the last relicts of a mediaeval keyed fiddle tradition, or they were 'newly imported' instruments with resonance strings, which appear to have had Uppland as their centre. There is a record from the 18th century

concerning an inhabitant of Uppland who took a keyed fiddle with him to Lessebo in Småland, not far from the places mentioned above. It seems feasible that keyed fiddlers from Uppland may also have moved to Skåne and Blekinge with their instruments. However, since there is evidence that the instrument existed in Skåne and Denmark in the late Middle Ages and the 16th and 17th centuries, it seems quite likely that there was a keyed fiddle tradition with its roots in the Middle Ages existing in Blekinge and Skåne up to the end of the 18th century. In the light of these sources, the hypothesis of a renewed importation can be rejected for the present.

Otherwise there is little evidence of keyed fiddles outside Uppland during the period 1777—1838. Many of the instruments with another provenance that have been found can be traced back to or be suspected of coming from Uppland. The names mentioned in the written sources and the provenance of the extant instruments almost invariably point to districts that are considered to have been in close touch with this province, e.g. the coast of Norrland or certain iron foundries.

In this period there is also a striking amount of evidence concerning the keyed fiddle in Stockholm and neighbouring parishes. The instrument was clearly a familiar sight in the capital, being frequently used in celebrations both by society and the common people. The lady of a nearby manor, Märta Helena Reenstierna, has left a detailed account of certain occasions when the keyed fiddle was played, including a wedding attended by royalty (written source 1793:1, 1801, 1811:1, 1813, 1816).

Descriptions by Bellman of tavern life and other Stockholm scenes occasionally mention the keyed fiddle (written source 1771:3, 1790:1). A keyed fiddler dressed in the fashion of those times is portrayed in a water colour by Per Nordqvist [48]. The keyed fiddlers also belonged to the colourful mob that frequented the royal park of Djurgården in the first decades of the 19th century (written source 1833).

We also know that the instrument featured in at least one public concert in Stockholm. This is an early example of the romantic interest in folk music that coloured so much of Swedish musical life in the 19th century. *Heimdall* for 15th December 1832 carries a review of this entertainment with some 'Swedish folk songs on the keyed fiddle'. The critic notes that 'all kinds of improvements to the instrument's mechanics' were undertaken to 'ennoble this peasant musician's vademecum'. The sound 'approached that of the viola'. The performer most probably played on an instrument made by a professional (see e.g. 3.21, 29, 30, which appear to be examples of such instruments). Concrete evidence that instrument makers really did take an interest in the keyed fiddle during this period is provided by the three keyed fiddles listed in the inventory from 1821 of the estate of a violin maker, Daniel Wickström (b. 1753).

In Uppland the keyed fiddle lived on during this period, with players from the foundries tending to predominate. Other players active at this time were fishermen, smiths, farmhands, farmers, tailors and so on. Since the source material is fragmentary, one cannot say whether any particular occupation was better represented than the others.

At this time the keyed fiddle was clearly most firmly rooted and best represented among the peasantry of Uppland. As illustrated above, however, it also started to appear among the citizens of Stockholm and even occasionally at the celebrations of the nobility. Even so, it was no doubt thought of as a rustic instrument and it was probably this quality that attracted the interest of society. In the spirit of Rousseau, they regarded peasant life as 'picturesque', a sort of Scandinavian version of pastoral romanticism.

In this respect the keyed fiddle is an interesting analogy to the *vielle* in France, where the hurdy-gurdy was 'promoted' to an instrument that found favour with and was played in court circles. As in the case of the keyed fiddle, which was played at

the concert reviewed in *Heimdall*, the *vielle* was 'ennobled' by instrument makers (see Bricqueville 1911: 64 ff.). The keyed fiddle, however, does not appear to have featured so significantly in the musical delights of the citizens and noblemen of Sweden.

It was probably during this period, or possibly a few decades earlier, that the simple keyed fiddle started its transformation into the contra-drone instrument. A few hybrid forms are extant (see 3.24, 3.57). The extension of the instrument's range by introducing the second melody string must have been undertaken to adapt the instrument to melodies with a greater range than those in the older repertoire.

During this period the repertoire probably also shifted from melodies in minor keys towards those in the major. The contra-drone keyed fiddle which, according to Leffler, had a drone string tuned to *a*, appears to have been suitable for fingered scales in *D_I* and *A_I* minor, whereas the more recent instrument with a drone string tuned to *g*, which survived until the present century, appears to have been suitable for *G_I* major, possibly *G_I* minor. Many of the melodies played were related to the instrumental music of the gentry. Towards the end of the period it is probable that waltzes and mazurkas started to appear in the repertoire.

Popular beliefs about the keyed fiddle

A number of superstitions have been attached to the keyed fiddlers and their instruments. The sources for these come from the late 19th or 20th centuries but generally refer to events that occurred at the beginning of the 19th century or earlier. It is not possible to arrive at any definite date, but since many of the players who are mentioned were chiefly active during the first half of the 19th century, the subject will be mentioned here for the light it throws on the keyed fiddle's environment.

The player himself no doubt tried to create an atmosphere of mystery about his performance and this became elaborated in the oral tradition. It is

significant that those who relate these stories, freely associate them with different players. According to these tales, the player regarded his instrument as a living thing and gave it a woman's name. Its eyes were the sound holes and the instrument had to be hung with these the right way up. An angry competitor might cast a spell over the instrument but this could be warded off, for instance, by hitting the door post with the neck of the instrument before entering and playing, by entering the scene of a celebration backwards, or by strengthening oneself with a type of strong spirits kept in a special flask, by tying a little bag containing human bones, asafoetida and a piece of a Bible round the sound post, and so forth. Instruction by a water spirit who charmed souls with his playing is a persistent feature and the powers of darkness in the form of black hounds or the like are also said to have helped players become skillful musicians. These phenomena are by no means confined to the keyed fiddle and similar stories are told about the players of other instruments.

1838—1925

During the 19th century, evidence concerning the keyed fiddle becomes increasingly concentrated to the north-eastern part of Uppland (see [184]). This is particularly true of the newly invented silver-drone instrument.

The period is dominated by the silver-drone keyed fiddle. The contra-drone instrument gradually becomes less frequent and owes its survival partly to the incorporation of certain aspects of the new silver-drone instrument. To understand this period one thus needs to know when, where and by whom the silver-drone as well as the contra-drone double-keyed fiddle were constructed.

The most probable theory seems to be that an organ builder named Per Olof Gullbergson (1780—1864) together with a sergeant Johan Söderstedt (1805—1848), took the radical step of converting the contra-drone keyed fiddle into a silver

drone instrument. It was subsequently an organist named Matts Wesslén (1812—1874) who appears to have developed this invention by increasing the number of keys in the second row to give the instrument a chromatic tonal material. Gullbergson's invention probably dates from 1838. Wesslén's modification was probably not adopted by many of the contemporary players, whose melodies did not require this extended key mechanism; besides this, many players would presumably have had technical difficulty in mastering such an instrument. Not until almost fifty years after Wesslén's death was there any major demand for a chromatic keyed fiddle among the players (see below).

According to an oral tradition the contra-drone double-keyed fiddle was invented in the 1860's by a player named Klas Harpare (1835—1875). He was active in Österbybruk, where there was a 'centre' for the keyed fiddle. The instrument used at that time was the contra-drone keyed fiddle. When the silver-drone type (which is known as the 'tenor' fiddle in Österbybruk on account of its second melody string = tenor) became known in this district it presumably aroused considerable interest among the active players. The local repertoire, however, included melodies that were tied to certain traditions and ceremonies and which could only be played on the silver-drone instrument if one altered the fingering. On the other hand, this new instrument made it possible to produce double stops. The contra-drone double-keyed fiddle may therefore have been the result of a compromise: the keys of the contra-drone instrument were retained and supplemented with the second melody string and second row of keys from the silver-drone instrument. This meant that while one could still play the traditional melodies, it was also possible to produce double stops. The switch from a contra-drone to a silver-drone instrument was evidently fraught with technical difficulties since certain instruments show signs of reduction: having been converted from a contra-drone to a silver-drone model, they proved

to be beyond the technical powers of their owner, who had them reconverted.

During this period too, there is influence from other instruments: a type of *f* hole based on the sound hole of the fiddle, guitar strings and playing mechanisms in imitation of the accordion's buttons, start to appear at the end of the 19th century. In other words, knowledge of other instruments is being used to develop and improve the keyed fiddle. In principle, however, the method of construction is still the same as for the simple and contra-drone instruments.

To judge from the material available, the keyed fiddle was chiefly associated with the iron foundries in Uppland during the period 1838—1925. There is also a detailed resemblance between descriptions of celebrations at the foundries in different periods. The keyed fiddle was firmly rooted in this tradition with its ceremonies and social divisions, and this no doubt contributed to its survival as well as to the 'conservation' of older melodies and playing techniques.

In addition to its use at foundry celebrations, the keyed fiddle also appeared at entertainments given by farmers and the gentry in the part of Uppland mentioned above. Its attraction for 'society', however, had ceased before the end of the 19th century. It is only as an element of folklore in national romantic music that the keyed fiddle or its characteristic accompaniment came into their own. It seems to have been common for keyed fiddlers to play in pairs and during the latter part of the 19th century in particular it was usual for the instrument to be played together with a fiddle or a clarinet.

Not until the end of the 19th century did the accordion start to gain a foothold in Uppland. This instrument was blamed for the decline of the keyed fiddle. The majority of the keyed fiddlers born 1880—1910 who were interviewed in connection with this study started their playing career with the fiddle or accordion. In their childhood and youth the keyed fiddle was regarded as old-fashioned. It either had not gained or had yet to

benefit from its recognition by the arts and crafts and folk music movement. At the same time the traditional celebrations at the foundries started to change, which weakened the position of the keyed fiddle. The majority of those interested in music became more attracted by the foundries' brass bands in the latter part of the century. According to one of the players interviewed, a contributory factor to the keyed fiddle's continued decline during the 1910's and 1920's was the suspension of the large 'peasant-folk' feasts at the time of the 1st World War and the fact that these were not revived afterwards. Young people were attracted to dances in the 'People's Parks' or to those arranged by athletic associations. Accordion music was preferred for these public dances because it was louder than that of the keyed fiddle. There were thus fewer opportunities for playing the keyed fiddle and it came to be used in fewer and fewer places. Interest in the instrument was kept alive, however, by folk music competitions and it was also used at dances, birthday celebrations, weddings and the like. As the folk musicians' movement grew, however, increasing emphasis was placed on performance in teams and here the keyed fiddle was at a disadvantage owing to the difficulty of 'changing key' and also on account of its drone and double stops. The keyed fiddle would probably have completely died out—or the tradition would at least have been broken—had not the construction of the chromatic instrument in 1925 enabled it to compete once more with other instruments.

1925—65

The chromatic keyed fiddle has become increasingly predominant during this period, while the silver-drone and contra-drone double-keyed fiddles have only survived in the form of occasional relicts from an older musical culture.

It now becomes easier to map the spread of the keyed fiddle, since both its constructors and its advocates are known by name and are still active.

Uppland remains the centre for the instru-

ment's use and dispersal. There is thus a concentration to this province, with instruments appearing in other places in a perfectly arbitrary manner in relation to this centre.

'When the keyed fiddler August Bohlin [186] was employed at Skansen in Stockholm during the Twenties together with some fiddlers, he appreciated how imperfect the old *C* major instrument was. He was unable to play together with the fiddles except in the keys for which his instrument was constructed, *C*, *G* and *F* major. Ingenious as he was, Bohlin quietly worked out a way of adding several keys to the second string of his instrument and using the third string by fitting keys to this as well. On the third string he thus obtained the tones *g*, *a*, *bb* and *b* and by giving the second and first strings more keys thus produced the chromatic keyed fiddle. No one knew anything about it except Bohlin himself and the two fiddlers were not a little disconcerted when they heard him play in the keys which had previously been beyond his instrument's powers. Since then Bohlin as well as Eric Sahlström, Tobo, have tried to improve the idea and this type of keyed fiddle has become tremendously popular among the players' (N.M.E.U. 42157:6).

The above account has been confirmed by another informant, who produced exactly the same version of the reasons behind the development of the chromatic keyed fiddle. The players are agreed that Bohlin was the first to construct this type of instrument but debate the extent to which he himself or others have developed it into its present form. As mentioned above, the first chromatic keyed fiddle was probably made in 1925.

Bohlin subsequently developed the sound quality of his instrument. Like Eric Sahlström and Ivar Tallroth after him, Bohlin thus started from the silver-drone keyed fiddle but changed its construction and experimented with different combinations of woods in order to produce as good a sound quality as possible. The fiddle served as a model (see e.g. Chapters 5, 7 and 8). Sahlström [172] developed a type of instrument that is rela-

ted to the fiddle but has a peculiar sound quality reminiscent of that of the old keyed fiddle [23]. Ivar Tallroth [147] has gone still further and built keyed fiddles in the form of large 'fiddles' [24], with a sound quality that is very close to that of the viola.

Harald Närlund [144] of Stockholm is another active instrument maker who has produced meticulous drawings for his instruments.

The social changes that have gradually transformed both the foundry and the rural communities since the end of the 19th century had practically put an end to the keyed fiddle's traditional functions at celebrations and festivities by the Forties and Fifties. Even at that time the silver-drone and contra-drone instruments were increasingly regarded as antiquarian curiosities. The chromatic keyed fiddle appeared so late that it was never incorporated in the few traditional festivities that remained during the 'dissolution' of foundry and farming communities in the north of Uppland early in the present century. Instead this type of keyed fiddle was adopted straight away by teams of folk musicians or used by soloists at meetings of art and crafts associations. Owing to its lower register and full tone, the chromatic keyed fiddle has gained recognition as a complement to the fiddles and occurs in such folk musician ensembles in Uppland in particular, but also elsewhere in Sweden.

Eric Sahlström's appearances since the Forties have been decisive for the growing popularity of the keyed fiddle. He usually performs melodies from Uppland or else his own compositions, which bear a stylistic resemblance to the older keyed fiddle melodies [171]. Otherwise it is becoming increasingly common for keyed fiddlers to play the popular melodies that have broken their provincial ties and become public property.

During the last few years it so happens that the keyed fiddle has been used in ways which lack all connection with any earlier keyed fiddle tradition. At the Biennale in Venice on 16th June 1962, a keyed fiddle was included in the performance of

a composition by Bo Nilsson. The composer Johnny Grandert has used an 'electric' keyed fiddle in his '86 T for chamber ensemble', performed in 1965. These composers have made use of effects that lie outside 'conventional' performances with the keyed fiddle. The jazz musician Karl Inge Edefeldt had the electric keyed fiddle built by converting an instrument made by August Bohlin.

Changes in the spread of the keyed fiddle

The factors behind the changes in the spread of the keyed fiddle—how information and acceptance may have occurred—are discussed below in the light of the special conditions that obtain for the keyed fiddle as a cultural phenomenon.

The wandering minstrels who introduced the keyed fiddle in the Middle Ages can hardly have been numerous and their activities probably did not affect a large district. In some respects, however, the situation was probably favourable when the instrument was introduced into Denmark and Sweden: at this time and in this environment the keyed fiddle was no doubt regarded as an instrument of the first rank. The novelty was probably accepted willingly both by those who were interested in playing the keyed fiddle themselves and by those who wished to embellish various kinds of festivals with music and dancing. It is not known whether the keyed fiddle thereby caused other instruments to die out. The keyed fiddle probably became established among the peasantry fairly soon after its introduction into the country. The fragmentary nature of the material makes it very difficult to determine how the instrument spread.

From the maps of the finds it will be seen that the instrument was spread in roughly the same way during the Middle Ages, the 17th, the 18th, the 19th and the present century: *a centre in Uppland and occasional finds in other provinces.*

It is quite probable that in this respect the maps reflect the true picture: the keyed fiddle appears to have become firmly rooted in Uppland during the Middle Ages and to have maintained its position there up to the present day. One of the reasons why so many of the instruments were apparently built in this province may be the tradition of skilled woodwork that characterised this region.

Imports of other instruments have influenced and modified the keyed fiddle, which has survived because it proved to be adaptable to new musical trends.

There seems to have been another centre for the keyed fiddle in Skåne—Denmark, but apparently the instrument disappeared here during the course of the 18th century.

Since we do not know to what extent the pictures of different periods provided by the maps agree with reality, one must be careful about drawing conclusions from these. It is striking, however, how these finds frequently occur up to the present century in districts connected with Uppland, probably owing to a 'neighbour effect', e.g. Gästrikland, the coast of Norrland, Västmanland and Dalarna. Nowadays the instrument is liable to turn up in any part of the country. The chromatic keyed fiddle has been traced to four places in the south of Dalarna, while two finds in Skellefteå and two in Göteborg concerning the use of the silver-drone and chromatic keyed fiddles in modern times might also lead one to suspect the establishment of centres. In all these cases, however, the map in Fig. [185] is misleading since the finds have no connection with one another and are the result of different imports from Uppland. (Arrows have been drawn on the map from the place of origin to the find in those cases where the route could be established.)

In former times, just as today, the initial introduction of the keyed fiddle was no doubt achieved by what one may term 'public information' (cf. Hägerstrand 1953:143): a player appeared with the instrument and thereby stimulated one or

several persons to try to learn to play the keyed fiddle and/or build one themselves. For such information to be accepted, however, i.e. for the person in question to take action, it is also necessary to have 'private and personal' information (cf. Rehnberg 1965:155). Theoretically, the keyed fiddle can be introduced today simply by public information: mass media such as television, wireless or the press can provide the initial information and those interested can then attend one of the courses for making or playing the instrument that have been arranged ever since 1962 in Uppsala and elsewhere.

While a large number of people hear about the keyed fiddle nowadays thanks to the meetings of folk musicians as well as via television, wireless, gramophone records, etc., relatively few become builders or players of the instrument.

From the 18th century onwards there has been a gradual depopulation of the districts where modifications to the keyed fiddle were first introduced and new centres were formed. There thus seems to be no clear relationship between the density of population on the one hand and the use and spread of the keyed fiddle on the other.

A thorough documentation of the tradition that is now being formed in connection with the establishment of the chromatic keyed fiddle in a modern community would afford future research a more reliable basis for studying the spread of the keyed fiddle than the fragmentary historical source material dealt with here.