HISTORY OF THE VIOLIN SCORDATURA: A LECTURE RECITAL
TOGETHER WITH THREE RECITALS OF MUSIC BY ALBINONI,
COPLAND, BEETHOVEN, HAYDN, ARENSKY, VITALI,
PROKOFIEV, AND GRIEG

Presented to the Graduate Council of the
North Texas State University in Partial
Fulfillment of the Requirements

For the Degree of

DOCTOR OF MUSICAL ARTS

By

Ronald Tarvin, B. M., M. M.
Denton, Texas
August, 1976

The lecture recital was given June 29, 1976. The subject was the *History of the Violin Scordatura*, and it included an historical survey of scordatura compositions along with discussions of the problems of notation and hints for solving the practical problems of performance. Works by Biber, Vivaldi, and Nardini were performed at appropriate moments during the lecture.

In addition to the lecture recital, three other public recitals were performed: The first solo recital was on April 15, 1974 and included works of Albinoni, Copland, and Beethoven. The second program, a chamber music recital on January 19, 1975, featured works for piano trio by Haydn, Copland, and Arensky. The third recital was presented on April 14, 1975 and included works by Vitali, Prokofiev, and Grieg.

Magnetic tape recordings of all four programs and the written lecture material are filed together as the dissertation.
Tape recordings of all performances submitted as dissertation requirements are on deposit in the North Texas State University Library.
INTRODUCTION

The dissertation consists of four recitals: two solo recitals, one chamber music recital, and one lecture recital. The repertoire of these programs was chosen with the intention of demonstrating the ability of the performer to deal with the various styles and types of music of different historical periods.

The lecture recital, the History of the Violin SCORDATURA, begins with a discussion of the general aspects of scordatura tunings and their methods of notation. This is followed by a chronological survey of scordatura music for the violin from the seventeenth century to the twentieth century. Examples of the tunings used by various composers are discussed along with the problems resulting from the tablature method of notation. These examples were shown on photographic slides during the lecture. The historical survey is followed by a discussion of some practical hints for the performance of scordatura music.

At appropriate moments during the lecture, the compositions by Biber, Nardini, and Vivaldi were performed.
TABLE OF CONTENTS

INTRODUCTION .................................................... iv

PERFORMANCE PROGRAMS ......................................... vi

LIST OF ILLUSTRATIONS FOR LECTURE RECITAL ............. x

LECTURE RECITAL: HISTORY OF THE VIOLIN SCORDATURA .... 1

    General Aspects of the Scordatura
    The Early Scordatura
    The Eighteenth Century
    The Nineteenth Century
    The Twentieth Century
    Some Practical Hints for Playing Scordatura Music

BIBLIOGRAPHY ..................................................... 30
North Texas State University  
School of Music  
presents  

Ronald Tarvin, violin  
Sharon Haslund, piano  

Monday, April 15, 1974  8:15 P.M.  Recital Hall  

Program  

Sonata No. 11 in A Major for Violin ............... Albinoni  
Grave Adagio  
Allegro  
Adagio  
Allegro  

Sonata for Violin and Piano (1943) ............... Copland  
Andante semplice, Allegro  
Lento  
Allegretto giusto  

Intermission  

Sonata No. 9 in A Major for Violin and Piano, .... Beethoven  
Opus 47 "Kreutzer"  
Adagio sostenuto—Presto  
Andante con variazioni  
Finale: Presto  

This recital is presented in partial fulfillment of the requirements for the degree Doctor of Musical Arts.
North Texas State University
School of Music
presents

Ronald Tarvin, violin
Richard Rose, cello
Jeanine Smith, piano

Sunday, January 19, 1975 3:00 P. M. Recital Hall

Program

Trio No. 1 in G Major ----------------- Haydn

Andante
Poco Adagio
Rondo all’Ongarese

Vitebsk (Study on a Jewish Theme) ------------ Copland

Intermission

Trio No. 1 in D Minor, Opus 32 _________ Arensky

Allegro moderato
Scherzo: Allegro molto
Elegia: Adagio
Finale: Allegro non troppo

This recital is presented in partial fulfillment of the requirements for the degree Doctor of Musical Arts.
North Texas State University  
School of Music  
presents

Ronald Tarvin, violin

assisted by  
Michael Rickman, Piano

Monday, April 14, 1975  5:00 P.M.  Recital Hall

Program

Chaconne in G Minor -------------- Vitali

Sonata for Violin Solo, Opus 115 (1947) ----- Prokofiev

Moderato  
Andante dolce  
Con brio

Intermission

Sonata No. 3 in C Minor for Violin and Piano, Opus 45  
---------- Grieg

Allegro molto ed appassionata  
Allegretto espressivo alla Romanza  
Allegro animato

This recital is presented in partial fulfillment of the requirements  
for the degree Doctor of Musical Arts.
NORTH TEXAS STATE UNIVERSITY
SCHOOL OF MUSIC

presents

RONALD TARVIN, Violinist

in a

Lecture Recital

assisted by Michael Rickman, Harpsichordist
and Chamber Orchestra conducted by Matt McInturf

Tuesday, June 29, 1976 5:00 p.m. Recital Hall

THE HISTORY OF THE VIOLIN SCORDATURA

Program

Sonata No. 12 for Violin "The Ascension" H. F. Biber
from Sixteen Mystery Sonatas (1681)
   Intrada
   Aria Tubicinum
   Allemande
   Courante
   Double

Sonata Enigmatique P. Nardini
   Largo
   Minuetto: Vivace
   Allegro

Concerto in A Major for Violin, Op. 20, No. 2 A. Vivaldi
   Allegro
   Largo
   Allegro

Presented in partial fulfillment of the requirement
for the degree Doctor of Musical Arts
# List of Illustrations

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Marini, Sonata, Opus 8</td>
<td>5</td>
</tr>
<tr>
<td>2.</td>
<td>Engraving for the Ascension Sonata</td>
<td>8</td>
</tr>
<tr>
<td>3.</td>
<td>Tunings for the Mystery Sonatas</td>
<td>9</td>
</tr>
<tr>
<td>4.</td>
<td>Tuning for Biber, Sonata No. 12</td>
<td>10</td>
</tr>
<tr>
<td>5.</td>
<td>Lolli's tuning</td>
<td>13</td>
</tr>
<tr>
<td>6.</td>
<td>Vivaldi's scordaturas</td>
<td>14</td>
</tr>
<tr>
<td>7.</td>
<td>Vivaldi, Violin Concerto, Opus 20, No. 2, measures 12-13</td>
<td>15</td>
</tr>
<tr>
<td>8.</td>
<td>Vivaldi, Violin Concerto, Opus 20, No. 2, measures 90-92</td>
<td>16</td>
</tr>
<tr>
<td>9.</td>
<td>Examples of tunings given by Baillot</td>
<td>16</td>
</tr>
<tr>
<td>10.</td>
<td>Nardini, Sonata Enigmatique</td>
<td>19</td>
</tr>
<tr>
<td>11.</td>
<td>Examples of Paganini's scordatura given by Carl Guhr</td>
<td>25</td>
</tr>
</tbody>
</table>
HISTORY OF THE VIOLIN SCORDATURA

General Aspects of the Scordatura

The Italian word scordatura refers to the mistuning of a string instrument to some standard other than that which is commonly used. This technique reached its zenith during the late eighteenth century and has been used at various times by both violinist-composers such as Biber, Vivaldi, Tartini, Nardini, Mozart, and Paganini and others such as Bach, Schumann, Saint-Saens, Mahler, and Stravinsky. The older German expression for the scordatura is Verstimmung and the modern term is Umstimmung. The French terms avallé and ravallé both refer to the mis-tuning of string instruments.

The history of scordatura will be traced with particular emphasis on music for the violin. The compositions which have been selected for performance are important examples of scordatura writing by three major violinist-composers. They have been selected for their musical value and for their unique tunings which demonstrate the more extreme possibilities of scordatura. At the conclusion of the historical survey, some practical suggestions will be given for the performance of scordatura compositions.

There are several reasons for the use of scordatura:

1. To make difficult passages easier to play by a new tuning which enables the use of simpler left-hand fingerings.
2. To extend the range of the instrument particularly in a downward direction. Various composers have called for tuning the lowest string, the G string, down to f-sharp, f, or even d, a perfect fourth lower.¹ In compositions for one string such as those of Paganini, the upper range of the string was extended by tuning it up a minor third. For example, the G string was tuned up to b-flat.

3. To increase the sonority of the instrument in a particular key. By tuning the violin to the most important pitches of a key, the resulting use of open strings and their sympathetic vibrations on stopped notes improves the sonority.

4. To produce unusual tone colors by varying the timbre. As a general rule, the more the tuning differs from the normal tuning, the less a violin sounds like a violin. With some tunings it takes on an almost organ-like quality; others are obvious imitations of the lute, viola d'amore, or even the trumpet.

5. To produce multiple stops and open harmonics which would otherwise be impossible.

Scordatura tuning is normally indicated on a staff at the beginning of the composition. There are two methods of notating the music:

¹The system which will be used to designate pitches and octaves is the system number one described in Willi Apel, "Pitch Names," Harvard Dictionary of Music (Cambridge, 1969), p. 679. Lower case letters indicate the octave below middle C. Middle C and the octave above are indicated by c', d', e', etc. The second octave above middle C is indicated by c'', d'', e'', etc.
1. Notation of the sounding pitches. This is the oldest method, dating as early as 1629, and it is also the method being used by some twentieth-century composers. The problems of fingerling the pitches are left for the performer to solve.

2. Tablature or hand-grip notation. Rather than indicating the actual pitches, the composer uses musical notes to indicate the finger placement on specific strings. For example, the written pitch e', a major third above middle c', would always indicate the use of the first finger on the D string regardless of the pitch to which the string is tuned. Thus, if the D string is tuned to middle c', the written e' indicates that the first finger is applied and would sound as concert d'. If the D string is tuned up to f', the notated e' would still indicate the first finger and would produce the pitch g'. Sharps and flats are used to indicate high and low finger placement on the fingerboard rather than raised and lowered pitches. The key signature in such a composition often contains both sharps and flats placed on the lines and spaces according to the left-hand fingering requirements and not according to the sounding pitches desired. This results in many unusual key signatures which might more properly be called "fingering signatures." Some special rules must be followed to read the notation:

1. First position is used unless the composer indicates otherwise.
2. When the given pitch can be played on an open string, it must be played on the open string since the use of a stopped fingering might produce a different pitch. Any variation from this principle must be indicated by the composer or carefully worked out by the performer so that it does not produce an incorrect pitch.

3. Accidentals in the key signature refer only to the lines or spaces on which they are placed and not to the octave above or below. Accidentals do, however, normally continue throughout the measure.

Early Scordatura

The concept of scordatura was probably first used by lute and viola da gamba players in the late sixteenth century. Each of these instruments is tuned so that there is a third between the two middle strings. This third could be either major or minor according to the requirements of the composition to be performed. Later in the seventeenth century, the viola d'amore used a similar tuning system for its seven strings. It was tuned to a D chord which could be made either major or minor by adjusting the third of the chord.

The earliest known example of scordatura for the violin is in the Sonata for Violin and Basso Continuo, Op. 8, No. 2 of 1629 by Biagio Marini (c.1597-1665). During a seven-measure rest, the E string is tuned down to c". This produces a minor third relationship between the E string and the A
string, making it possible to play rapid sixteenth-note double stops in thirds simply by placing each finger on both strings at once. (Figure 1.) At the completion of the scordatura passage, the violinist has six measures in which to retune the string up to e\". Tuning in the middle of a composition is risky and was rarely used. The usual practice is to set one scordatura tuning at the outset of the composition and retain it throughout. Marini's notation of the scordatura shows the actual pitches sounding in thirds. He left it to the performer to discover the fingerings which make the passage work.

![Figure 1—Marini, Sonata, Op. 8](image)

It is likely that the practice of scordatura was used in other countries about the same time. Marin Mersenne, in his Harmonie Universelle of 1627 mentions that it was already in use by French violinists but gives no musical examples: "And if the violin were tuned otherwise, for example, in fifths and fourths, the same finger would be able to make a perpetual
chord by always playing two or three strings . . . "2 In England where the viol consort was favored for many years, scordatura for violin must have been a simple extension of the viol tunings. John Playford, in his Division Viol3 of 1685, mentions that the favored tuning was \( a - e' - a' - e \). The Germans with their predilection for contrapuntal writing could have been drawn to scordatura because of the new double-stopping possibilities inherent in its practice. An incident between Corelli and the German violinist Nicolas Adam Strunck (1640-1685) which is related by Sir John Hawkins in his History of the Science and Practice of Music indicates that the Germans may have used the scordatura more than the Italians:

... at this instant Strunck put the violin out of tune, and, applying it to its place, played on it with such dexterity, attempering the dissonances occasioned by the mistuning of the instrument with such amazing skill and dexterity, that Corelli cried out in broken German, "I am called Arcangelo, a name that in the language of my country signifies an Archangel; but let me tell you, that you, Sir, are the Arch-devil."4

The most important composer of scordatura music was Heinrich Franz Biber (1644-1704), who was the Capellmeister


3A copy was not available for examination. This information is given in Theodore Russell, "The Violin Scordatura," The Musical Quarterly, XXIV (January, 1938), 88.

to the Prince-Archbishop of Salzburg and was regarded as one of the finest violinists of the late seventeenth century. Biber's scordatura music is found in three sets of compositions:

1. Sixteen Mystery Sonatas (1681), to be discussed below.

2. Eight Sonatas for Violin and Bass (1681), of which two use scordatura.

3. Harmonia artificiosa-ariosa (n.d.), a set of seven suites—four for two violins and basso continuo and one for violin and viola with basso continuo—all of which use scordatura.

The best known of these works is the set of Mystery Sonatas, so named because in the manuscript each sonata is preceded by a small copperplate engraving that depicts one of the Mysteries of the Rosary. (Figure 2.) The programmatic titles for each of these sonatas are taken from these pictures: "The Annunciation," "The Birth of Jesus," "The Crucifixion," "The Resurrection," "The Ascension," etc. Some of the sonatas contain clear pictorial connotations in their first movements, which are usually free and rhapsodic in character, while their later dance-like movements contain fewer programmatic references. A good example is the Sonata No. 12, the "Ascension Sonata," which begins with an Intrada containing ascending scales and is set in C major which had a festive connotation in the Baroque era. This is followed by
an Aria Tubicinum or "Trumpet Aria" in which the violin, by virtue of its special tuning, imitates the sound of trumpet fanfares. The succeeding binary dances, an Allemande, Courante, and Double contain no obvious programmatic elements.

Each of the Mystery Sonatas uses a different scordatura except the first and last which use the normal tuning in fifths. (Figure 3.) Biber used the unusual tunings for passages which cannot be played in the normal manner and for special effects. David Boyden has pointed out that there is no group of pieces before or since that uses the scordatura so extensively or so imaginatively. . . . The appearance of these mistunings may be linked generally to the broad spirit of
experiment and technical advance that characterized violinists of the time, especially in Germany. More particularly, the use of the scordatura in Biber's pieces is closely related to his extraordinary aural imagination.  

Fig. 3—Tunings for the Mystery Sonatas

In the twelfth sonata the scordatura is unique in that it forms a C major chord and is one of the most distant from the normal violin tuning. (Figure 4.) Thus, the instrument loses much of its characteristic sound. The G string is tuned up to c', the D string is tuned up to e', the A string is tuned down to g', and the E string is tuned down to c". For the practical purpose of performance, several changes had to be made in the choice of strings for the instrument since most strings play best when tuned to the pitch for which the manufacturer designed them. Whether a string is tuned higher or lower than its intended pitch will have a great effect on its tension and sonority. Experimentation determined that the best results could be obtained if the lowest string (normally a steel E string in the twentieth century) were

---

replaced by a gut E string tuned down to G. This greatly reduces the tension on the instrument and improves its resonance. To use the normal G string and tune it up to G', in addition to the risk of breaking it, would have produced a strident, almost harsh effect.

![Music notation]

Fig. 4—Tuning for Biber, Sonata No. 12

It should be noted that there is considerable variance between the sound of the modern and Baroque violin, owing to differences in the size of the bass bar, a shorter neck, and lower bridge which reduced the tension of the strings, and the old lighter, shorter bow which was convex rather than concave in its curvature. For this performance a modern violin is used which is more powerful and lacking in the "mellow and more relaxed tone of the old violin." David Boyden gives this description of the sound of the Baroque instrument:

1. A more relaxed and less intense sound than is usual today;
2. A sound that is clear and transparent rather than one that is massive, throaty, or luscious;
3. A well-articulated sound that gives a special pulse and vitality in figuration.

---

and phrasing; and (4) a nuanced rather than evenly sustained tone as the norm.\(^7\)

In these sonatas the choice of continuo instruments is left to the performer. Modern practice is to alternate harpsichord and organ from sonata to sonata according to the mood of the music. In the Ascension Sonata (No. 12), the Aria Tubicinum is marked "Solo Violine" to indicate that no keyboard accompaniment is required. The melodic bass may be played by one of several historically appropriate instruments: the cello, viola da gamba, bass viol, or violone (a small double bass). Eduard Melkus, the Austrian violinist who specializes in the performance of seventeenth-century music, prefers the bassoon as a melodic bass instrument for this sonata since the violin imitates the trumpet in the opening section.\(^8\) For this performance, the cello and harpsichord are used.

The Eighteenth Century

In the eighteenth century the scordatura was used less in Germany and more in France and Italy. J. S. Bach called for the A string to be lowered to g in his Fifth Suite for Unaccompanied Cello and Mozart used a scordatura tuning for the solo viola part in his Sinfonia Concertante, K. 364. The latter composition is in E-flat major; the solo viola

\(^7\)Ibid., p. 497.

\(^8\)Eduard Melkus, "H.I.F. Biber: Fifteen Mystery Sonatas," notes on record jacket, Archive 198422.
part, however, is notated in D major and each string of the instrument must be tuned up a half-step. Thus, by playing the written fingerings in D major, the viola will sound in E-flat major. This tuning has a twofold purpose: fingerings in D major are generally easier than those in E-flat, and the viola has more resonance and brilliance because of its higher tuning. Another concerto, questionably attributed to Mozart, is the *Adelaide Concerto* for Violin, K. Anh. 294a. It uses exactly the same tuning procedure. But these are rare examples in eighteenth-century German music. Quantz, in his *Versuch* of 1752, speaks of scordatura as being an art of former times. Leopold Mozart and Geminiani, writing about the same time, do not even mention it at all in their treatises.

In France, Michel Corrette's *École d'Orphée* of 1738 is the first French method to describe scordatura. Corrette suggests that the violin may be tuned so as to provide its own bass by lowering the G string, and he illustrates this by four scordatura tunings and representative passages from his own Concerto for Violin Solo. The Italian Antonio Lolli (C.1728-1802), one of the most famous violin virtuosos of his day, appeared in Paris in 1764 and on subsequent tours,

---

9Johann Joachim Quantz, *Versuch einer Anweisung die Flute traversière zu spielen* (Breslau, 1789), p. 327.

10A copy was not available for examination. This information is given in Russell, *op. cit.*, p. 89.
astounding audiences with his prodigious technique which included tuning the G string down to d to enable otherwise impossible fingering pyrotechnics. Lolli was the true virtuoso, totally incapable of playing any other composer's music with proper style or of writing any but poor and insipid music himself, but he was always able to amaze listeners with his technical feats. Lolli's tuning had considerable influence on other composers, and the inscription "in Lolli style" was sometimes used to indicate this particular scordatura. (Figure 5.)

![Fig. 5—Lolli's tuning](image)

The great Italian violinist, Antonio Vivaldi (1670-1743), wrote four concertos for scordatura violin. Two of these are from the Opus 9, known as La Cetra (the lyre). They are numbers six and twelve. Number six is in the key of A major and requires the G and D strings to be tuned up a whole step to a and e', respectively. The upper strings are tuned to the usual a' and e". Number twelve is in B minor and requires the G string to be tuned up to b and the E string

---


to be tuned down to d". The middle strings retain their usual tuning in both concertos. Another concerto, Opus 29, No. 3, is for violin accompanied by strings in two choirs and two harpsichords. It is in B-flat major and the solo violin tunes the G string up to b-flat, leaving the other strings at their normal pitches.

Perhaps the most interesting of these concertos is Opus 20, No. 2, in which both the first and second violins as well as the solo violin are tuned scordatura. The tuning is the same as in Opus 9, No. 6 as shown in Figure 6. It is in the usual three movements all in the key of A major with

![Fig. 6—Vivaldi's scordaturas](image)

tempo markings of Allegro, Largo, and Allegro. The fast movements use the typical solo and tutti contrasts while the slow movement is a long cantilena in binary form accompanied only by the basso continuo instruments. The scordatura parts are notated in tablature notation. After the first solo entry, however, the violinist is required to play a sequential

---

13 No tempo was indicated by Vivaldi. This marking was added by the editor of the complete works.
string crossing passage which moves back and forth between first and third positions (measures 12-15). Since the tablature style of notation made no allowances for positions other than first, at this point Vivaldi was forced to write the actual sounding pitches and to use Arabic numerals to indicate the fingerings and positions required. (Figure 7.) If the performer neglects to use Vivaldi's fingerings, the passage will not work as the wrong pitches will be produced.

![Fig. 7—Vivaldi, Opus 20, No. 2, measures 12-13](image)

In the final solo section of the first movement (measures 81-103), Vivaldi used the D string tuned to e' to produce a pedal point on the dominant which is reiterated on each beat while above it a string crossing pattern produces a series of broken chords reaching as high as the seventh position. The pedal note would be impossible to play without the scordatura tuning. A similar pedal point is used in the first solo section of the last movement (measures 162-187) which again extends as high as seventh position in a rapid string crossing figuration. (Figure 8.)

The second movement does not really need the scordatura tuning at all except for several multiple-stopped chords. Nor does the orchestra accompaniment really require scordatura
for the violins, since the tuning is used only for tonic triads which could easily be played with the normal tuning. Still, the scordatura does give a brilliance to the sound of these chords which would be less effective if omitted.

[This concerto was performed at the conclusion of the lecture.]

Most of the information about the tunings of the eighteenth century comes from one source, *L'Art du Violon*,\(^\text{14}\) by Pierre Baillot (1771-1842), which devotes several pages to a chart-like description of the advantages and disadvantages of various tunings (Figure 9) and gives several compositions as examples:

---

1. The complete Sonata, Opus 1 by Giuseppi Tartini (1692-1770) in which the G and D strings are tuned up to a and e', respectively. This is known as the "Tartini tuning." The sonata is notated at sounding pitch and at the beginning the player is given a choice of the normal tuning or the scordatura tuning. The scordatura simplifies the playing of many chords, but the piece is by no means unplayable on a normally-tuned violin.

2. Serenade for Two Violins by Emanuel Barbella (1704-1773) in which the first violin is tuned to the notes a - d' - f# - c#, and the second violin uses the normal tuning. This scordatura is used to imitate the D major tuning of the viola d'amore.

3. A short Andante by Antonio Lolli which Baillot quotes from memory. This uses the "Lolli tuning" which has been discussed previously.

4. Short examples of works by Nardini, Paganini, Mazas, and DeBeriot.

5. Two etudes by Baillot, himself. These are extremely rare examples of changing the tuning of the instrument while playing as opposed to changing the tuning during a rest.\(^\text{15}\) In the first etude the violinist descends on an arpeggio to a whole note on the open G string and then lowers the string.

---

\(^{15}\)Haydn, as a joke in the finale of his Symphony No. 60, calls for the first violins to begin with their G strings tuned to f. In the twenty-third measure, the music comes seemingly to a halt while the violinists retune their strings back up to g.
to a whole note on f-sharp. The etude continues using the f-sharp for a sustained harmonic bass while faster moving notes are played on the D string.

The second etude is more extreme. After reaching the open G string, the violinist tunes down in half and quarter note rhythms through f-sharp, f-natural, e-natural, e-flat, and finally reaches d which then becomes a pedal point under a series of broken arpeggios continuing on to the end of the etude.

Needless to say, the process of tuning while playing is extremely difficult and probably not very successful. Mercifully, the technique seems to have died with Baillot.

The Sonata Enigmatique by Pietro Nardini (1722-1793), which is mentioned by Baillot, is another rare composition—a sonata for unaccompanied violin using scordatura. The earliest publication of this work was by J. B. Cartier in his L'Art du Violon of 1798. The tuning is one of the more extreme—the G string is tuned up to c' and the D string is tuned up to f' while the A and E strings retain their normal pitches. This was intended to enable the violin to produce its own accompaniment. Its notation is also unique in that it is written on a grand staff giving the appearance that it is an accompanied work. (Figure 10.) The bass clef part, however, is actually played an octave higher than written and

never extends more than an octave away from the treble clef notes.

![Musical notation](image-url)

**Fig. 10—Nardini, Sonata Enigmatique**

This composition has three movements in binary forms all of which are in the same key. Herein lies one of the weaknesses of the scordatura--only the most simple modulations are possible, and therefore, this composition lacks key contrast in the middle movement. The only ways to produce a movement in contrasting key would have been to use the dangerous procedure of changing the tuning between movements or to use a second violin. Nardini employed the tablature or finger-grip notation as did Biber, but because of the extreme limitations of this system, he was forced to resort to Arabic numerals to indicate some fingerings which go out of first position. The first movement even contains a brief written-out cadenza reaching a high a''' in the seventh position on the E string at its climax.
The performance of this sonata again required careful selection of the strings. In place of the usual G string, a D string has been used which is tuned down to c'. In place of the D string, an A string has been used tuned down to f' while the normal A and E strings were retained for the upper notes. Special note should be taken of the interval of a third between the D string and the A string. Because the exact size of this third, i.e. f' to a', varies in different interval systems such as Just Intonation and Pythagorean Tuning, numerous intonation problems are created which must be solved by minor adjustments of the fingerings for various notes.

Another unusual composition from this century is the Quartet for Three Violins and Cello attributed to Benjamin Franklin (1706-1790). It was discovered in Paris in 1945 and is of questionable authenticity. It is known that Franklin probably had enough musical knowledge to compose a string quartet, but this one makes a most original and almost naive use of scordatura tunings: each of the four instruments is tuned to a different set of pitches so the entire composition can be played on only the open strings without ever using a left-hand fingering. W. Thomas Marrocco gives this description:

With this tuning sixteen different tones are available on the open strings, and although not specified, no

17A facsimile edition was published by Editions Odette Lieutier (Paris, 1945).
use of fingers is implied. It consists of an Introduction (Allegro), Minuet, Capriccio, a second Minuet and a Siciliano, and performers plod through the five short movements which are all in the key of F major; the harmonies in root position fluctuate generally between the tonic and dominant with momentary excursions to the supertonic, sub-mediant and leading tone. Denied the possibility of modulation, contrast is achieved through meter and mood changes: the first movement in cut time, both minuets naturally in triple meter, the Capriccio in duple and the Siciliano in duple compound. There are no bowing nor expression marks of any kind. . . . The uniqueness of this quartet lies in the playing on the open strings alone, without the use of fingers. It was assumed that any musical amateur could draw the bow over the strings and keep time. Since such use of open strings precludes the possibility of modulation, it seems to this writer that no serious composer would tolerate such restrictions unless done with tongue-in-cheek, simply as a musical joke.  

The Nineteenth Century

Scordatura became generally obsolete in the nineteenth century for a number of reasons:

1. As music became more complex the problems of the tablature notation became extreme.  
2. The more radical tunings changed the sound of the violin too much. It must be remembered that a basic premise

---


19 For an extreme example of the complexities of the tablature notation for stringed instruments, see David Boyden, "Ariosti's Lessons for Viola d'Amore," The Musical Quarterly, XXXII (1946), 545. It should be noted, however, that these "Lessons" are not scordatura compositions—they merely use the tablature style of notation including a system of clefs to indicate different left hand positions. As Boyden points out, the system is so complex that today's violinist is forced to transcribe the music very slowly and carefully into modern notation before the pieces can be played.
of classicism was to maintain a natural quality in all things, and the extreme scordaturas of Biber and others were probably rejected as being unnatural and barbaric when the classical style became the dominant force in music after about 1750.

3. The advancing technique of the left hand made the scordatura unnecessary for facility.

4. The practical problems of performance became too great. Several writers have mentioned the problems of finding strings of the correct thickness, and it is likely that as the manufacture of violin strings became more standardized, the unusual thicknesses needed for scordatura playing vanished.

5. Since the scordatura produced extreme intonation problems in that it disrupted the normal perfect fifth relationship of the strings, composers probably found these tunings to be of less and less interest.

The one great exponent of scordatura in the nineteenth century was Niccolo Paganini (1784-1840). Paganini published little of his music, jealously guarding his secrets, one of which was his use of scordatura. The best descriptions of Paganini's playing are given by Carl Guhr, himself a violinist and Capellmeister, who followed the legendary Paganini and described his technical achievements:

1. Use of the high G string especially in compositions played only on this string.

---

2. Astounding facility in rapid double stops in thirds, sixths, and octaves.

3. Use of single and double artificial harmonics.

4. Left-hand pizzicato accompanying bowed melodies.

5. Use of rapid off-the-string bowings, especially the flying staccato.

6. Scordatura tunings to facilitate fingering in certain "non-violinistic" keys or for the G string compositions.

Guhr makes several observations about Paganini's use of mis-tunings. They are used in two ways. The first is in the compositions for the G string alone where the string is tuned up usually to b-flat which gives it a higher range and more brilliance:

Because he sometimes tunes all four strings a semitone higher, the G string even a minor third; for which a set of thin strings is requisite. Thicker ones would not bear this greater strain without becoming harsh, which would injure the performance of the player. . . .

Before Paganini lets his G string be covered, he takes the laudable precaution, which cannot be too strongly recommended, of stretching it on a violin, neither higher nor lower, but precisely to the tone for which it is destined: for example, should it be required to G, he tunes it to G; the same by those destined to be tuned to A-flat or B-flat; for the last, both string and wire are much thinner than for the two first.

From the above it will be at once understood that Paganini, for public performances, changes the G string as the occasion may require; and the above-named precaution explains how it remains firmly in tune. The tuning or untuning during performance belongs to the category of fables. . . .

21Ibid., p. viii.
Thus, one of the most important secrets Paganini discovered is that the string must always be tuned only to its special pitch and to no other. Apparently, he pre-stretched his strings for scordatura and then applied them when needed. Paganini's compositions which use the raised G string are Variations on a Theme from Rossini's Moses (no opus) and Sonata on the G String "Napoleone," Opus 31. Since Paganini did not write down all his pieces, it is quite possible that there were others for the G string alone.

The second use of scordatura was the same as that used by Mozart in the Sinfonia Concertante. All four strings are tuned up in perfect fifths to a higher key. (Figure 11.) Guhr describes Paganini's playing of the First Violin Concerto in E-flat Major as follows:

His first concerto, which he played to us (one of the most excellent, grand compositions ever written for the violin), was written in E-flat major. For this he tuned thus: A-flat, E-flat, B-flat, F-natural which he retained throughout the three movements, and which produced a surprising and enchanting effect. We were thrown into astonishment (for he never tuned the violin within hearing) when we heard the covered tones of the E-flat scale vibrate clearly and full, even in the highest position.22

Other compositions using this second scordatura technique are Le Streghe (Witches' Dance), Opus 9; I Palpiti, Opus 13; Carnaval of Venice, Opus 10; and the Variations on Non piú

22Ibid., p. ix.
Fig. 11—Examples of Paganini's scordatura given by Carl Guhr
Mesta, Opus 12.23 Vladimir Kmoch in an article on Paganini's scordatura secret points out two special results from these tunings:

1. The greater pressure of the strings across the bridge gave the solo violin a more brilliant, a slightly harder and more prominent tone than the tutti violins of the orchestra.

2. This difference in the quality of tone of the solo-violin was added to by the instrumentation. The solo-violin part of Paganini's compositions being written in keys influenced by open strings and natural harmonics, e.g. D major . . . as against the more sombre keys of the orchestral accompaniments namely E-flat and B-flat major.24

A few other examples of relatively simple scordatura usage are found in the nineteenth century: Robert Schumann, in the third movement of his Piano Quartet, Opus 47, called for the cellist to tune the C string down to B-flat in the middle of the movement. This was used only for a sustained B-flat octave at the end of the movement. Gustav Mahler used a solo violin in the second movement of his Fourth Symphony which is tuned a whole step higher on each string and is written in tablature notation. For the slow movement of Karl Reinecke's Violin Concerto No. 2, half of the cello

23Most of these compositions are now played in non-scordatura versions by the use of various editions which give the original violin part along with a transposed accompaniment. The First Violin Concerto, for example, is now generally known as the "Violin Concerto in D Major." The violinist Ruggiero Ricci has performed this concerto in the original key and recorded it in the early 1950's, but his attempt was less than a success.

section tunes the G and C strings down a half-step. Finally, Camille Saint-Saens used a solo violin with the E string tuned down a half-step in his Danse Macabre to suggest the programmatic element of "death playing its violin out-of-tune."

The Twentieth Century

The scordatura has rarely been used in the twentieth century. In the Firebird Suite, Stravinsky called for the first violins to tune the E string down to d" for the first passage to produce a glissando of open harmonics. Following this, the section must retune to the normal pitch. This practice is rarely used in performance since the passage can be played an octave lower with much the same effect on the D string making the retuning unnecessary. There are two transcriptions by the violinist Joseph Szigeti of short Russian works: Khachaturian's Chante Poeme and Gnessin's Spielmannslied--both requiring the G string to be lowered a step, although neither makes particularly interesting use of the scordatura effect. They are notated at actual pitch leaving it to the performer to work out the fingerings. Kodaly has written a Sonata for Solo Cello in which the C and G strings are lowered a half-step. This piece is more effective because of the considerable use of multiple-stopped chords.
Some Practical Hints for Playing Scordatura Music

The preparation of the recital required some experimentation to determine the best method of performing scordatura compositions. The most important principles to be observed are given below:

1. A different violin should be used for each scordatura. The strings should be allowed to stretch for at least several weeks and must always be tuned to the pitch at which they will be used. If it is not possible to use multiple violins, then each string must be pre-stretched to its proper pitch and applied to the instrument when needed. This, according to Guhr, is the method that Paganini used.

2. A good set of tuning pegs which hold well is essential, especially when strings must be tuned higher than normal. Patent pegs such as the "Caspari" brand are recommended for the ease with which they will hold any pitch.

3. Use only gut strings with the exception of the E string which may be steel. Steel strings place too great a tension on the top of the instrument when tuned higher, and since they do not stretch, are more likely to break. For works requiring the E string to be tuned lower than e"-flat, a gut E is recommended. The gut E has a superior tonal quality when tuned to d" or g", especially for Baroque music. These strings have a tendency to break within a few hours to a few days when tuned up to e" or e"-flat, but they will last indefinitely at the lower pitches.
4. Use strings of the proper gauge. Often this must be determined by trial and error. Use thinner strings for pitches higher than normal. Use thicker strings for pitches lower than normal. If a string is to be tuned up more than a whole-step, it is usually better to use a string of the next higher pitch and tune it down. For example, to produce the pitch $f'$, an A string should be tuned down rather than a D string tuned up. All strings must be absolutely true.

5. Use open strings whenever possible unless another fingering is indicated. A fourth finger (first position) must not be used in lieu of an open string unless the performer is certain that the same pitch will result.

6. Use first position as much as possible. Avoid the higher positions unless indicated by the composer.

7. Key signatures apply only to the lines or spaces on which the accidentals are placed, not to the octave above or below.

8. When there is an interval of a third between any two open strings, be extremely careful of the intonation. Because normal violin playing presumes perfect fifths between the strings, the third interval will sometimes require a slight shifting of the fingers or tempering of the pitches to produce good intonation. Be careful, also, of perfect fourths in double stops and temper them so as to produce a clear harmonic ring.
BIBLIOGRAPHY

Books


Articles


———, "Scordatura," Die Musik in Geschichte und Gegenwart, XII, 426-429.


Unpublished Materials


Music


Mahler, Gustav, Symphony No. 4 in G Major, Vienna, Universal Edition, 1925.


_, Le Streghe, Opus 8, edited by L. Lichtenberg, New York, G. Schirmer, 1903.


Saint-Saens, Camille, Danse Macabre, Opus 40, New York, E. F. Kalmus, 1933.

Schumann, Robert, Quartett fur Pianoforte, Violine, Viola und Violoncell, Opus 47, Leipzig, Breitkopf & Hartel, 1885.


———, Concerto in La maggiore per Violino, Archi e Organo, F. I. 54, P. 215, Opus 9, No. 6, Milan, G. Ricordi, 1952.
