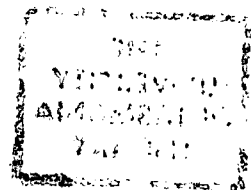


A COMPARATIVE STUDY OF PERFORMANCE
AND INTERPRETATION OF THE LATE
BEETHOVEN STRING QUARTETS

A thesis submitted as part of the requirements for
the degree of Master of Music
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ABSTRACT

The expansion of the recording industry has brought with it the production of multiple recordings of certain works by prominent composers, which might lead to the conclusion that a great variety of interpretations of a given work are possible. A study of recorded performances of the late Beethoven string quartets, covering a period from the early days of the recording industry to recent times, suggests however, that interpretations by earlier ensembles show greater diversity than those of quartets of the last three decades.

The last six string quartets by Beethoven (Op.127 in Eb major, Op.130 in Bb major, Op.131 in C# minor, Op.132 in A minor, Op.133 in Bb major and Op.135 in F major) are of particular interest in a study of interpretation because of their innovative and intricate forms, which would seem to provide ample opportunity for variety of interpretation.

This study examines four performances of each of these works, including recordings by nine ensembles. These ensembles are, in chronological order: Flonzaley Quartet, Busch Quartet, Pascal Quartet, Budapest Quartet, Hungarian Quartet, Smetana Quartet, Paganini Quartet, Fine Arts Quartet, and Amadeus Quartet.

The research involved an examination of each recording, taking into consideration twelve aspects of performance interpretation. These various aspects fall into four main categories: technical proficiency, stylistic devices, tempo and interpretation of notation.

The study of technical proficiency deals with standard of intonation, rhythmic accuracy, and precision of ensemble playing. The two stylistic devices discussed are vibrato and portamento. The

comparison of tempo differences considers the basic tempo of each section or movement, the range covered by unindicated changes of tempo and the frequency of their occurrence, the amount of rubato within a given tempo, and unmarked ritardando or accelerando at the ends of movements or sections. The study of differences in interpretation of various notational indications deals specifically with length of staccato notes, articulation of phrasing slurs, and certain dynamic markings.

The results of the research reveal that in most of the above-mentioned performance variables, the interpretations by ensembles from earlier this century show greater diversity, while still following the composer's instructions in the score, than do those of quartets of recent decades, indicating a tendency towards standardization of interpretation.

CHAPTER 1

INTRODUCTION

Statement of the Problem

The last fifty years have seen a great increase in the importance and influence of media in all areas of society. A clear example of this is the enormous expansion of the recording industry, which has resulted in the output of massive libraries of recordings of musical compositions.

Not surprisingly, multiple recordings of popular art-music works by prominent composers have been produced to satisfy market demand and to create a market advantage for the competing record companies. The existence of multiple recordings of given works would, therefore, seem to suggest that a variety of interpretations would be available. However, it appears that among recordings of recent decades, there is a tendency towards an increasing standardization of performance interpretation, particularly noticeable when recent recordings are compared with those from earlier this century.

A comparison of recorded performances of the late Beethoven string quartets (Op. 127 in Eb major, Op. 130 in Bb major, Op. 131 in C# minor, Op. 132 in A minor, Op. 133 in Bb major and Op. 135 in F major) may be taken to serve as an example of this tendency. The existence of ten recordings of the complete set of the late quartets currently available on the world market¹ plus twenty recorded per-

performances of the various works that have been set to disc but are no longer in production² suggests that there is quite a diversity of possible interpretations of these works.

The potential for variety of interpretation would seem to be considerable because of the highly abstract and philosophical ideas the late quartets are expressing³ and the new and intricate forms which Beethoven developed as a means of expressing such concepts.⁴ The individual style which Beethoven developed involved not only an adaptation of form, but also the introduction of unusual technical devices, such as extreme and sudden contrasts in dynamics, constant changes of tempo and the adventurous use of harmonic, rhythmic and timbral relationships, all of which offered the performer greater scope for exploration and individuality of expression.

Considering these issues, an increasing similarity in recent recordings of these late quartets suggests an undesirable trend in performance interpretation.

Purpose of the Study

The purposes of this study were (1) to document the tendency towards standardization of interpretation in performance, and (2), to demonstrate, in terms of specific musically technically variables, how this standardization is occurring, in order to suggest ways in which such a tendency might be altered.

From the point of view of a performer, it is important to realise the full extent of possibilities for individual expression so as to achieve the deepest and most satisfying interpretation of a work. The significance of this study is in showing, in technical performance terms, how varied interpretations can be, while remaining faithful to

the composer's intentions, expressed in the performance of the score.

Hypotheses

The hypothesis formulated was that the recordings made by quartets earlier in this century demonstrated more variation and individuality of approach than did those made by contemporary ensembles, as shown in a consideration of the following variables: standard of technical proficiency; use of stylistic instrumental devices; tempo; and interpretation of notation.

Research Procedure

Recordings of performances of the late Beethoven string quartets by nine prominent ensembles were used as sources of data in studying the differences in interpretation of these works. The ensembles were selected according to the time period in which they worked, so as to allow a comparison of performance practices from different parts of this century.

Four performances of each work were studied, two from the early part of the century and two by more recent ensembles. This allowed a comparison of the two from the same period to be made and the amount of diversity in interpretation between the two pairs to be assessed. The procedure was repeated for each of the six works, using different combinations of four ensembles, thus enabling some general conclusions regarding differences in interpretation during this century to be drawn.

The examination of each performance was based on a number of specific interpretation variables. These variables covered several aspects of technical proficiency. instrumental devices such as vibrato and portamento, tempo and unindicated changes of tempo, and the interpretation of certain notational indications, such as dynamics and phrasing slurs.

Delimitations and Assumptions

The following delimitations were observed:

1. The works used in this study included only the last six string quartets by Beethoven (Op. 127, Op. 130, Op. 131, Op. 132, Op. 133 and Op. 135). It was assumed that a study of the differences in playing styles and interpretations of these works would serve as a valid illustration of differing playing styles and approaches to interpretation in the times in which the recordings were made because the individuality of the works offers as much, if not more, possibility for difference in interpretation as any other compositions in the literature.
2. The data was collected from recorded performances rather than from performances in concert or class situations so as to allow more accurate and detailed analysis. It was assumed that recordings give a sufficiently valid representation of performance practices for the purposes of this study.
3. Recorded performances of only four interpretations of each work were analysed, as this was considered a sufficient number to allow for a comparison of earlier performance practices and practices of more recent times, and to give a general overview of the scope of possibilities in interpretation and of the technical means which could be

used to achieve them. The selection of the particular recordings used in this study was based upon the assumption that they are representative of the playing styles of their time.

4. The study considered only variables which could be assessed by the human ear without recourse to any advanced technology or instruments other than a metronome. It was considered that the particular variables in question, although not dealing with certain finer aspects of playing, covered a sufficiently broad range of technical and interpretative considerations to allow for the formation of general principles regarding the differences in interpretation in the various eras.

Limitations

The following limitations were observed:

1. By using recordings rather than live performances as sources of information, the effectiveness of the study was restricted because the recording equipment used in the early part of the century was much less accurate in reproducing the performances than is the equipment in use today. The possibility for comparison between the earlier and later recordings was, therefore, somewhat limited in the following variables:

- (a) dynamics, in that more modern equipment allows louder sounds to be recorded and reproduced;
- (b) tempo, in that the older equipment was unable to achieve the control of speed at which the recording was made and which the precision of more modern equipment allows.

2. The study was limited by the accuracy of the metronome and reliability of the score used.

3. Only recordings by outstanding and highly-regarded string quartets are available on the market, so the choice of recordings was limited to those by ensembles which are most likely to display individuality and originality in their interpretations rather than to those of "average" standard.

4. Unavailability of many of the recordings of earlier ensembles limited the choice and number of recordings from before 1940. Interpretative attitudes of that era are, therefore, represented by fewer ensembles than of recent decades. As a result, only one recording made before 1940 was considered in the studies of Op. 131, Op. 132 and Op. 135.

Review of Related Literature

Published discussion of performance practices relevant to Beethoven's string quartets seem to be minimal.⁵

However, one paper did discuss a specific aspect of a general challenge which faces all performers - the problem of notational interpretation. A dissertation by Donald Clarke Todd⁶ compared bowings in the Joachim-Moser edition of the six quartets of Op. 18 and the three quartets of Op. 59 with those in the Urtext edition and quartet manuscripts, with particular reference to Op. 59, No. 3.

Although it does not discuss Beethoven's last six string quartets, Todd's study does present two ideas which could be applied to the late quartets as readily as to the earlier works. The first idea is that the aim in altering bowings from the manuscripts is to substitute those which are better suited to the instruments and which better fulfil the composer's musical intent. This view assumes that the instrumentalist has some freedom to alter markings concerning aspects

relating purely to instrumental technique.

The second point made in this dissertation is that while many of the bowings found in the Joachim-Moser edition are superior to those in the manuscripts, others were found by Todd to be inferior to the composer's bowings. It is suggested that in Op. 59, No. 3, 282 of the alterations improve upon the bowings indicated by the composer, 55 are equally good and 13 are inferior.

If this view that the performer has some right to use his discretion in following the composer's instructions where matters pertaining to instrumental technique are concerned is supported, it indicates one of the factors which can lead to differences between various performances of any one work.

Organization of the Remainder of the Study

In Chapter II, research relating to the performance variable of notational interpretation is discussed. Chapter III includes details of the ensembles used in the study of each work, details of the performance variables upon which the study was based, and the research procedure for comparing differences in interpretation in the different parts of the century. Findings of the study are presented in Chapters III and VI. The summary, conclusions and implications formulate Chapter VII.

The appendices include tables and graphs of the detailed results of the variables concerning portamento and tempo and are followed by the collected musical examples.

FOOTNOTES

CHAPTER I

1. Schwann-1 Record and Tape Guide, Vol. 34, No.5
(Boston, Mass.: Schwann Publications Inc.,
May 1982), pp.39-40.
2. Francis F. Clough and G.J. Cuming, The World Encyclopaedia of
Recorded Music (Connecticut: Greenwood
Press, 1966), p.50.
3. Joseph Kerman, The Beethoven Quartets (London: O.U.P.,
1967), p.193. See also Joseph de Marliave,
Beethoven's Quartets (New York: Dover, 1961),
pp. 223 and 296 and Jean Escarra's
Introduction to that book, pp. xiv-xv.
4. Marliave Beethoven's Quartets, pp. xvi-xviii.
See also Thomas K. Soherman and Louise Biancolli,
editors, The Beethoven Companion (New York:
Doubleday and Co., 1972), pp.979 and 990.
5. No more than six sources were uncovered for this study as a result
of a computer search. However, four of these sources discuss
aspects of interpretation which are more related to compositional
techniques than to performance styles. One discusses differences
in dynamic markings between various editions of the scores and
was not considered relevant to this study.
6. Donald Clarke Todd, "The Problem of Bowing in the Joachim-Moser
Edition of Beethoven's String Quartets"
(D.Mus.A. dissertation, University of Illinois,
1967).

CHAPTER II

METHODOLOGY

The Recordings

Four recordings of each of the last six Beethoven string quartets were used as sources of data for the study. It was considered adequate to use this number of recordings as this arrangement allowed for a comparison to be made between two recordings produced earlier in this century and two more recently recorded performances. The degree of difference between the two pairs could then be estimated. As six works were examined and different combinations of performers were used in the study, some general tendencies regarding differences in interpretation could, therefore, be identified.

A very limited number of recordings of earlier groups are available now, so the earlier recordings were selected on the basis of availability. Choices of later recordings were made, guided largely by the times in which the various groups were functioning and by listening availability. The aim was to have a large variety of groups representing the widest possible time range.

Recorded performances by the following ensembles, listed in chronological order, were studied: Flonzaley Quartet, Busch Quartet, Pascal Quartet, Budapest Quartet, Hungarian Quartet, Smetana Quartet, Paganini Quartet, Fine Arts Quartet and Amadeus Quartet. The earliest group, the Flonzaley Quartet, was formed in 1902 and three of the groups, the Smetana, Fine Arts and Amadeus Quartets, are still

functioning at the present time, so the study compares performances from the earliest days of the recording industry to very recent recordings.

For each work, the four ensembles whose performances were compared were, in chronological order:

Op. 127 Flonzaley, Busch, Hungarian and Smetana Quartets.

Op. 130 Pascal, Budapest, Smetana and Amadeus Quartets.

Op. 131 Busch, Hungarian, Fine Arts and Amadeus Quartets.

Op. 132 Pascal, Hungarian, Smetana and Amadeus Quartets.

Op. 133 Pascal, Budapest, Hungarian and Amadeus Quartets.

Op. 135 Flonzaley, Busch, Paganini and Fine Arts Quartets.

In order to appreciate the time range covered by the four recordings of each work and to understand which period each of the ensembles represents, certain biographical and recording details are necessary.

The earliest quartet whose recordings were examined in this study was the Flonzaley Quartet. It was established in 1902 and disbanded in 1928, and was one of the first quartets to make gramophone recordings.¹ Although the exact date of their recordings of Op. 127 and Op. 135 are not known, it is presumed to have been in the early 1920's.

The original Busch Quartet was formed in 1919 but changed two members in 1921. In 1930, a new cellist joined the quartet and it was with this personnel that the recordings of Op. 127, Op. 131 and Op. 135 were made in 1936. The group disbanded on the death of the first violinist, Adolf Busch, in 1952.²

The precise date of formation of the Pascal Quartet is uncertain. One encyclopedia states that the quartet was established in 1919 by

one Andre Pascal³ but two others maintain that the name was taken from a Leon Pascal.⁴ The Reiman Musik Lexicon gives the names of the other members of the quartet and these agree with the notes included with the record. This source was, therefore, concluded to be the most reliable, but unfortunately gives no formation date of the Quartet. However, it does give the date of birth of Leon Pascal as 1899 and that of the second violinist, the youngest member of the group, as 1915, so it was assumed that the quartet was formed after the mid-1930's. The recording date of their performances of Op. 130, Op. 132 and Op. 133 is not given in the information which accompanies the records, but Pascal is known to have left the quartet in 1956, after which time it continued to exist under another name until 1969.

The Budapest Quartet was originally established in 1917 but underwent several changes of membership until, in 1936, with completely different players, it took the form in which the present recordings of Op. 130 and Op. 133 were made.⁵ The quartet disbanded in 1969, but the exact recording date of these Beethoven quartets is not known.

The Hungarian Quartet was founded in 1935 but underwent four changes of personnel before its dissolution in 1970. The recordings of Beethoven's late string quartets were made in 1967 with a membership which was in existence since 1959.⁶

The Smetana Quartet was formed in 1945 and also changed membership before reaching the form in which the late Beethoven quartets were recorded. The final change occurred in 1955 and the quartet is still functioning in this form today.⁷ The recordings used in this study were made in 1967.

The Paganini Quartet was founded in 1946 and stayed together for twenty years before disbanding. The recording date of its performance of Op. 135 is not known, so although there were some personnel changes during its career, it is not certain in which form the quartet was functioning at the time of the recording.⁸

The Fine Arts Quartet was founded in 1946 but changed second violinists in 1954 and has had four different violists during its career. The recordings of Op. 131 and Op. 135 were made in 1968 and the violist on these recordings was replaced later the same year, but it is not known for how long he had been with the quartet.⁹

The Amadeus Quartet was formed in 1947 and has continued with the same personnel until the present day.¹⁰ The recordings of the late Beethoven string quartets were made in 1963.

Quartets formed since 1945, namely the Smetana, Paganini, Fine Arts and Amadeus Quartets, were considered to represent recent interpretative styles. Those quartets which were formed earlier were generally taken to represent earlier styles, although the Hungarian Quartet, formed in 1935, made their recordings of the late Beethoven string quartets in 1967, which is four years later than the recording date of the Amadeus Quartet's performances of these works. All recordings were transferred to cassette tape for the convenience of study.

Scores and Equipment

For the investigation of differences in tempo, a Taktell piccolo metronome was used. This metronome was considered to be of sufficient accuracy for the purpose of comparison as there were other factors which could have caused error in the reproduction of the original tempo of a performance. For example, equipment used in the

production of 78 r.p.m. discs often gave an inaccurate impression of the original speed. The tempo heard on the cassette tapes was also dependent on the reliability of the playing speed of the machines used in the taping and playing back of the recordings.

Performance Variables

The research into the technical and interpretative differences in performance, considering both the individual and ensemble aspects, covered twelve areas in which performances can vary. These twelve variables fall into four main categories and are discussed in the following chapters.

The first category deals with the technical proficiency of each quartet and considers the standard of intonation, rhythmic accuracy, and accuracy of co-ordination between the individual parts, or ensemble playing.

The second category includes two stylistic devices commonly used in string playing, vibrato and portamento.

The third category deals with tempo. In this section, the basic tempo is considered, as well as the range of speeds covered by the deviations from that tempo and the number of unmarked tempo changes within a movement or section, the amount of rubato within a given tempo, and unmarked *ritardando* or *accelerando* at the end of a movement or section.

The fourth category includes aspects of performance in which differences can be attributed to the inadequacy or ambiguity of certain notational indications. This category deals specifically with length of staccato notes, articulation of phrasing slurs, and dynamics.

The study of dynamics considers differences in the dynamic range, the performance of sudden dynamic changes, repeated *forte* or *sforzando* markings, and *crescendo* followed by a sudden *piano*.

Research Procedure

In order to determine whether there is greater diversity of interpretation between quartets from earlier in the century than between those of more recent years, a detailed study of each recording was undertaken with each of the abovementioned aspects of performance interpretation. The differences between the earlier quartets and the differences between the later quartets were observed, followed by a comparison of the amount and degree of difference between the earlier and later quartets. The findings from the analysis of each of the separate aspects of interpretation were then considered together, showing in what particular areas the earlier or later groups more often vary and whether the greatest variety occurred consistently in one time period or another.

The comparison of accuracy of intonation involved first an observation of any deviations from correct pitch as could be detected without the aid of any pitch assessors or mechanical aids. Both individual inaccuracies, such as were found in solos or sections where the individual parts could be clearly heard, and inaccuracies in the intonation of the group together, which could arise from the four parts not forming correct intervals within the chords, even though the individual lines might sound correct when heard separately, were considered in the examination.

In comparing the two earlier recordings of each work and the two later ones, the difference between both the frequency of occurrence of intonational inaccuracies and the degree of deviation from correct pitch were assessed and on this basis, a general impression of whether the earlier or later performances showed greater difference was formed.

In considering rhythmic accuracy, uneven pulse and incorrect subdivisions within a beat, as well as unevenness resulting from lack of bow control, were assessed. These aspects were observed in each recording, followed by a comparison of the two earlier performances and the two more recent ones of each work. The amount of difference between earlier and later recordings was then estimated.

To compare standards of ensemble playing, the players' consistency of co-ordinating performance of their respective parts was observed for each performance, followed by a comparison of earlier and later recordings and comparison of differences between quartets from earlier in the century with those recording more recently.

The study of vibrato was made by observing the type of vibrato most commonly used by the players in each quartet and, also, the amount of variety in types of vibrato used for special effects. From all performances by each group, a general assessment was made and differences between each group were then observed.

The differences in the use of the instrumental device of portamento were found by counting the number of times this effect occurred in each performance, the type of portamento favoured by each quartet and such mechanical characteristics as the amount of pressure in the sliding finger and the speed taken for the slide. The comparisons

were made between the four recordings of each work and conclusions were reached by estimating the number of works in which the earlier or later quartets showed greater diversity.

The first step in the research into tempo differences was to find the metronome markings for each performance, observing all changes in tempo and any minor deviations from a regular pulse within each section. On the basis of the data thus gathered, all aspects of tempo and changes of tempo were assessed and compared.

In all performances, variations in tempo within a section were observed, so the basic tempo was taken to be the tempo at which most of a section was played. In some instances, there was such continuous tempo change within a small range or different speeds at which different themes were consistently played, that to find one metronome marking as a basic tempo was impossible. Sometimes, therefore, the basic tempo is given as a range between two markings. For the purpose of consistency in comparison, the slowest tempo marking was used, but the range is reported in the study.

Taking each section separately, the differences between the two earlier performances and the two later ones were estimated, then a comparison of the differences was made. For each work, the number of times the earlier or later groups showed greater variation was calculated and conclusions were reached by observing which of the two groups most often varied in the six works.

In different parts within a section of a given tempo indication, the tempo was often found to vary with changes of dynamics, themes or character of the music. From the data collected by a comparison of each performance with a metronome, the range of tempo covered in the

deviations from the basic tempo and the number of times such changes occurred were estimated. Conclusions were reached by comparing the figures of the four recordings of each work then finding whether the differences were most consistently greater between the earlier or later recordings of the six works.

To compare differences in the amount of rubato used by the various quartets, the number of bars in which a slight deviation from the basic tempo of a section occurred were counted. In longer bars, particularly those in slow movements, more than one tempo deviation was sometimes observed, in which case the separate examples of rubato were counted. Where the tempo changed gradually away from the basic speed then gradually moved back to it again over the space of more than one bar, it was taken to be part of the one rubato effect. This effect was often found in conjunction with gradual changes in dynamics.

The four performances of each work were compared by counting the number of sections in which the amount of rubato varied more in the earlier or later recordings, showing in which time period the greatest diversity occurred for each work, then finding if there was any consistency in the results by comparing results from all six works.

The final aspect of interpretation concerning tempo variations which was used in the comparison of the recordings was a consideration of unindicated gradual changes of tempo at the ends of sections or movements and this involved comparing the two recordings of each work from a similar time period, then counting the number of sections in which the two performances varied. For each work, the number of differences between earlier and later recordings was compared, giving an indication of whether diversity of interpretation was more apparent

in the earlier performances or in those made in recent years.

The range of dynamics used by each quartet was compared from general observation of the extremes of dynamics and how often these extreme limits were used in all performances by each group.

Differences in the performance of the special dynamic effects involving sudden and contrasting dynamic changes, repeated *forte* or *sforzando* markings and *crescendo* followed by a sudden *piano* were observed by first studying the techniques and effects used in all recordings in order to find the general tendencies and patterns of each quartet. The methods of interpretation by quartets from similar time periods were then compared to determine the degree of diversity between the earlier and later performances.

The study of differences in interpretation of the staccato marking considered both the length and type of bow stroke most commonly used by each quartet and the variety in length of staccato notes within each performance. By examining all performances by each quartet, the methods of interpretation of each group were found. The diversity between quartets from similar time periods was then assessed so that the amount of variation in interpretation between earlier and later performances could be determined.

Other aspects of bowing considered in the comparison of stylistic differences were the audibility and emphasis of changes of bow and the clarity of articulation of slurs and phrasing markings. All performances by each group were studied to find the style and tendency of each quartet. The quartets of similar time periods were then compared, followed by an assessment of the diversity in interpretation between earlier and later recordings.

To determine whether stylistic differences in the interpretation of the late Beethoven string quartets were greater between ensembles from earlier in the century than between those recording in recent years, the results of the study of all the above-mentioned performance variables were considered together. It could then be observed whether there was more consistent diversity in the interpretation of the earlier groups than was found in the performances by more recent groups.

FOOTNOTES

CHAPTER II

1. Richard Aldrich and Robert Philip, "Flonzaley Quartet", in The New Grove Dictionary of Music and Musicians, VI, 643.
2. Robert Philip, "Busch, Adolf" in New Grove, 111, 498-9.
3. Oscar Thompson, "Pascal, Andre", in The International Cyclopedia of Music and Musicians, p.1631.
4. Francois Michel, "Pascal, Leon", in Encyclopedie de la Musique, p.395; Carl Dahlhaus, "Pascal, Leon", in Rieman Musik-Lexicon, p.338.
5. Robert Philip, "Budapest Quartet", in New Grove, 111, 416.
6. Ronald Kinloch Anderson, "Hungarian String Quartet", in New Grove, VIII, p.793.
7. Alena Nemcova, "Smetana Quartet", in New Grove, XVII, 409.
8. Henri Temianka, Facing the Music (New York: David McKay Company, 1973), pp.120 and 142.
9. Article "Fine Arts Quartet", in New Grove, VI, 564.
10. Stanley Sadie, "Amadeus Quartet", in New Grove, I, 303.

CHAPTER III

TECHNICAL PROFICIENCY

The ensembles used in this study are among the most well-known for their time periods and might be considered to represent the highest standard of technical achievement of their respective times. This study of various aspects of performance technique, as demonstrated in these recordings, indicated that, during the course of the century, there has been a general improvement in the standard of intonation of both individuals and groups, in rhythmic accuracy and in precision of ensemble-playing. Within this improvement, differences in technical standard still existed between quartets working during similar time periods. However, in recent recordings, the differences are noticeably less with regard to intonation and rhythmic accuracy, but show more variation in precision of ensemble-playing.

Intonation

Intonation is a continuous problem in string playing, and particularly so in the playing of string quartets. The instruments in a string quartet, being tuned in perfect fifths, can never have the lower and upper strings exactly in tune with each other, unless an adjustment is made in the tuning. This then causes problems with playing intervals on adjacent strings, so that constant compensation must be made with the fingers. The problem is compounded when the violin plays with the viola and cello, both of which tune lower than the violin. This circumstance results in an even greater deviation

from perfect intervals between the open strings of the four instruments.

Therefore, in practical terms, perfect intonation in a string quartet is an impossibility and intonation in different performances can only be compared by considering how close the players come to the theoretical ideal of perfect intonation. In this study, intonation was judged according to whether the harmonies were clear or marred by very inaccurately-placed notes and whether the inaccuracies were obvious to a listening ear without the aid of any pitch assessors.

From the study of performances of the late Beethoven string quartets by nine different ensembles, it was observed that the standard of intonation in the recordings by earlier ensembles varied considerably in both the individual parts and in the ensembles. Performances by later groups were more similar in achieving a higher standard of quartet intonation and, although the accuracy of intonation in the individual instruments showed some variation, less difference was observed between individual players of those quartets recording in recent years and in the quartet intonation than in those from the earlier part of the century.

This point is illustrated in a comparison of the recordings of Op. 127 by the Flonzaley, Busch, Hungarian and Smetana Quartets. In the Smetana Quartet's performance, the intonation generally sounds very accurate, although there are occasional flaws in the individual parts, as, for example, in first violin part of bars 5-7 of the fourth movement (see Example 1.)¹ In which the first note of each bar is sharp. The performance by the Hungarian Quartet displays more noticeable inaccuracies in the individual parts and in the harmonies, as in bar 5 of the second movement (see Example 2.), but apart from the inconsis-

tencies, the general impression of the intonation is one of clarity and accuracy.

In the two earlier recordings, the difference in standard of intonation was found to be greater than between the recordings by the Smetana and Hungarian Quartets. The inaccuracies in intonation of the individual parts in the recording by the Flonzaley Quartet are more noticeable and more frequent than those in the Busch Quartet's recording, resulting in much less accuracy and clarity in the intonation of the harmonies. This is demonstrated in bars 290-292 of the fourth movement (see Example 3.).

A comparison of the Amadeus and Smetana Quartets' performances of Op. 130 showed that both maintain a fairly consistent level of accuracy in their intonation. However, although the Smetana Quartet could not be said to play noticeably "out of tune", the Amadeus Quartet achieved a slightly clearer sound due to even greater accuracy of intonation within the group.

The difference in intonation between the two earlier recordings of Op. 130, by the Pascal and Budapest Quartets, results mainly from the difference in consistency and degree of accuracy of intonation in the individual parts. In the performance by the Budapest Quartet, the separate instruments play consistently quite well in tune but, together, do not form very accurate chords, as in bar 6 of the third movement (see Example 4.). The Pascal Quartet, on the other hand, has slightly better group intonation, but the individual parts are less reliable and more prone to error, as, for example, in the first violin part of bars 204-205 of the first movement of this work (see Example 5.). The difference in standard of intonation of the indiv-

individual players in these two groups is very noticeable and results in a greater difference between the two recordings than was found in the comparison of the Amadeus and Smetana Quartets' recordings.

The recording by the Amadeus Quartet of Op. 131 displays a very high standard of both individual and group intonation, although in the fifth and sixth movements, the group intonation is marginally less accurate than in other movements. An example of this can be found in bar 5 of the sixth movement (see Example 6.). In the performance of the same work by the Fine Arts Quartet, the intonation of the group is not quite as accurate in all movements and the errors in intonation by the individual players are more conspicuous. This is demonstrated in the viola part in bar 98 of the first movement (see Example 7.) and in the cello solo in bar 224 of the fourth movement (see Example 8.).

The flaws in intonation in the individual parts occur more frequently in the Hungarian Quartet's recording of Op. 131 and the intonation of the ensemble is generally less accurate than that of the Fine Arts Quartet, as can be heard in bar 126 of the fourth movement (see Example 9.). The intonation both of individual parts and of the group in the performance of this work by the Busch Quartet is of an altogether lower standard of accuracy than is shown in any of the other recordings. A clear example of this point occurs in bars 95-97 of the fourth movement (see Example 10.), in which all four instruments play in octaves with each other.

A comparison of recordings of Op. 132 by the Smetana and Amadeus Quartets found the intonation of both quartets to be very accurate. However, although there were occasional noticeable inaccuracies of

intonation in the individual parts in both performances, those in the recording by the Smetana Quartet were more obvious and deviated more from correct pitch. An example of this point occurs in the first violin part of bars 142-145 of the second movement (see Example 11.).

In the recording of Op. 132 by the Hungarian Quartet, the general standard of intonation is lower because of frequent inaccuracies in intonation in the individual parts and in the chords. An example of individual inaccuracy occurs in the first violin part of bars 182-184 in the second movement (see Example 12.), in which the continuous quavers of the first violin are noticeably out of tune with the chordal accompaniment of the other instruments. An example of the inaccuracy which is sometimes found in the group intonation occurs in bar 11 of the third movement (see Example 13.).

The Pascal Quartet's recording of Op. 132 is interesting in that in some sections, the level of accuracy of group intonation is much closer to that of more recent quartets than is achieved by the Hungarian Quartet, but the inaccuracies are, at times, so considerable that they would be quite unacceptable to today's standards. Examples of this are the octave passage between the two violins in bars 373-374 of the last movement (see Example 14.) and the octave passage between the second violin and viola in bars 389-392 of the same movement (see Example 15.).

The intonation in the Amadeus Quartet's performance of Op. 133 demonstrated a high level of accuracy, with only very occasional minor flaws, such as occur in the octave passages between various instruments in bars 234-236 (see Example 16.). In the performance of this work by the Hungarian Quartet, the individual parts are reasonably well in

tune but the group intonation is less accurate than in the Amadeus Quartet's performance. An example of this is the chordal passage in octaves between all four instruments in bars 665-681 (see Example 17.).

The difference in intonation between the two earlier groups, the Budapest and Pascal Quartets, is more noticeable in their recordings of Op. 133, than is the difference between the Amadeus and Hungarian Quartets. In the recording by the Budapest Quartet, there are some lapses in accuracy in group intonation, but more frequent lapses in the individual parts, such as is demonstrated in bar 177 (see Example 18.), in which the first violin is sharp in relation to the chordal accompaniment. In the Pascal Quartet's performance, the general level of intonation is quite accurate but the flaws in both group and individual intonation, when they do occur, are more noticeable than those of the Budapest Quartet. For example, in bars 167 and 170 (see Example 19.), the viola plays very sharp in relation to the second violin and to the pitch of the group in the preceding bars, and in bar 609 (see Example 20.), the first violin is inaccurate on the third note.

In the performance of Op. 135 by the Fine Arts Quartet, although the general standard of intonation is quite high, there are noticeable inaccuracies in both individual parts and in the intonation of the group. These points are illustrated in bar 38 of the third movement (see Example 21.), in which the cello plays sharp in relation to the other instruments, and in bars 119-122 of the second movement (see Example 22.), where the chords are consistently out of tune. By comparison, the individual parts in the Paganini Quartet's recording

of Op. 135 are more accurate, although there are also some lapses in the accuracy of group intonation, as in bars 37-38 of the second movement (see Example 23.).

Of the recordings of this work by the two earlier groups, the Busch and Flonzaley Quartets, the Flonzaley Quartet was observed to be more consistently accurate in both the individual parts and the group intonation. However, there are flaws in the intonation of the individuals, as, for example, in bar 53 of the fourth movement (see Example 24.), in which the cello plays sharp. The basic standard of intonation in the Busch Quartet's recording of Op. 135 was found to be less accurate, with more noticeable flaws in intonation in both the individual and group playing occurring so frequently as to result in a lack of clarity in the chords. This is demonstrated in the last two bars of the third movement (see Example 25.) in which the individual parts can be heard clearly and it can be observed that the chords are not in tune.

Rhythmic Accuracy

Rhythmic accuracy depends partly on precision of counting and partly on control of the bow. The study of these aspects of performance revealed that recordings made by earlier quartets indicate more variation between the groups than was found in recent recordings.

For example, of the four recordings of Op. 127, the Flonzaley and Busch Quartets show greater difference than do the recordings by the Smetana and Hungarian Quartets. In the Smetana Quartet's recording, only one example of rhythmic inaccuracy was observed (i.e., in bars 68-72 of the fourth movement [see Example 26.], the first and

third beats of each bar in all parts are early in relation to the time taken for the second and fourth beats, so an uneven rhythm results).

In the performance by the Hungarian Quartet, one rhythmic error was also observed. In bars 202, 204 and 206 of the third movement (see Example 27.), all four players are not precise in a rhythmic figure which is often performed inaccurately by string players, but otherwise the bow-control and rhythm of these players are equal to those of the Smetana Quartet.

The Busch Quartet make the same rhythmic error as the Hungarian Quartet, but in this recording, it occurs each time the figure appears and is so marked that at times the three crotchets sound like two quavers and a crotchet in duple time. In the fourth movement of this work, a lack of bow control by the first violin results in uneven quavers in bars 215-218 (see Example 28.), and this tendency, along with a lack of co-ordination between the fingers of the left hand and the bow by the first violin, mars the clarity of this section.

By comparison, in the Flonzaley Quartet's performance, the three-crotchet pattern shown in Example 27 is played correctly and precisely. However, the first violin increases tempo in bars 218 and 280 of the fourth movement (see Examples 28. and 29.). Apart from these flaws in bow-control, there are fewer rhythmic inaccuracies than in the Busch Quartet's performance.

Of the four recordings of Op. 130, there were no discernable instances of lack of bow control in either the Smetana or Amadeus Quartets' performances, but three inaccuracies in the performance by the Pascal Quartet and four in that by the Budapest Quartet.

In the Budapest Quartet's recording, these occur in bar 64 of the third movement (see Example 30.), in which the first violin begins the third beat late but then hurries in the demi-semi-quavers; in bar 23 of the fifth movement (see Example 31.), in which the triplets played by the second violin are very uneven; in bars 418-421 of the sixth movement (see Example 32.), in which the semi-quavers in the second violin and viola parts begin late but are played faster so as to arrive on the next beat in time; and in bar 448 of the sixth movement (see Example 33.), in which the evenness of the semi-quavers of the first violin is disturbed by the shift to the second note.

The rhythmic inaccuracies in the performance by the Pascal Quartet were only found in the sixth movement. They occur in bar 40 (see Example 34.), the second violin playing unevenly in the semi-quavers; in bar 225 (see Example 35.), in which the first violin begins the semi-quavers too early; and in bar 468 (see Example 36.) and the following bars of similar rhythmic pattern, which is the same rhythmic problem as that in bars 418-421 of the Budapest Quartet's recording.

A comparison of the four recordings of Op. 131 found the Busch Quartet to make the most rhythmic errors although there were some problems common to all four groups. For example, all quartets had difficulty with the rhythmic figure which occurs in bars 87-90 in the fifth movement and is repeated in bars 253-256 of the same movement (see Example 37.). In all recordings, the entries by the violins are inaccurate, resulting in unsteadiness of the tempo. In the Fine Arts Quartet's recording, the unsteadiness occurs only in the first section. In the performances by the Amadeus and Hungarian Quartets,

it occurred only in the second section but in the Busch Quartet's recording, it occurred both times.

Apart from this general problem, two rhythmic flaws were observed in the recording by the Amadeus Quartet, the first being in the cello part in bar 177 of the fourth movement (see Example 38.) and also in bar 186 of that movement where the same notes recur, the rhythmic placement of the last quaver of the bar being incorrect. The second rhythmic inaccuracy was found in bars 264 and 266 of the seventh movement (see Example 39.), again in the cello part, in which the quavers start late and are then played fast to maintain a regular beat.

This latter problem was also observed in the recordings by both the Fine Arts and Hungarian Quartets in the cello part of bar 264 (see Example 39.) and also in the same rhythmic pattern in the second violin and viola parts of bars 268 and 270. In the Hungarian Quartet's recording, this same figure is also played inaccurately by the first violin in bar 269.

Several different errors occur in the performance of this work by the Busch Quartet, all appearing in the fifth movement. In bars 251-254 (see Example 37.), the viola and cello are unsteady and in bars 255-266 the violins are unsteady in the same rhythmic pattern. In bars 307, 311 and 312 (see Example 40.), the first violin is uneven and in bar 310, the first violin part is unclear because of lack of co-ordination between left hand and bow.

In the recordings of Op. 132, the difference between the earlier performances and the difference between the later ones was found to be similar. No rhythmic inaccuracies were observed in the recording by

the Amadeus Quartet, while one flaw was found in each of the recordings by the Smetana and Hungarian Quartets and two inaccuracies were observed in the Pascal Quartet's performance.

In the Smetana Quartet's recording, the inaccuracy occurs in bar 328 of the fifth movement (see Example 41.), in which the cello plays uneven quavers. In the recording by the Hungarian Quartet, the only flaw was observed in bar 376 of the fifth movement (see Example 42.), in which the first violin increases tempo.

The two rhythmic inaccuracies in the recording by the Pascal Quartet occur in bars 43 and 44 of the second movement (see Example 43.), in which the first violin plays the quavers too quickly, and in bar 128 of the third movement (see Example 44.), in which the first violin starts on the first beat instead of playing after a semi-quaver rest and spreads the first three notes to sound like quaver triplets instead of the printed semi-quaver triplets.

Rhythmic accuracy was consistent in the performances of Op.133 by the Amadeus, Budapest and Pascal Quartets, but in the recording by the Hungarian Quartet, one rhythmic error occurs in bars 120-126 (see Example 45.), the first violin starting the semi-quavers late and then playing faster to compensate.

In the recordings of Op.135 by the Fine Arts, Paganini, Busch and Flonzaley Quartets, no rhythmic errors were observed.

Ensemble Playing

From the study of these recordings of the late Beethoven string quartets, it appeared that quartets earlier in the century, although less accurate in their precision of ensemble playing, were quite similar in their attainments, while the level of accuracy in this respect

of performance technique showed some variation between quartets of recent years, the Paganini and Fine Arts Quartets displaying less precision than the Smetana or Amadeus Quartets.

In the recording of Op.127 by the Hungarian Quartet, the ensemble playing is not as consistently accurate as in that of the Smetana Quartet, particularly in the second and fourth movements. An example occurs in the last beat of bar 52 of the second movement (see Example 46.), in which the first violin entry is late in relation to the other parts.

The performance of Op.127 by the Busch Quartet maintains a greater precision of ensemble playing than is achieved by the Flonzaley Quartet in all except the last movement, in which the Flonzaley Quartet is more accurate. For example, in bar 31 of the first movement (see Example 47.), the quavers are played more evenly by the Busch Quartet than the Flonzaley Quartet, but in bar 86 of the fourth movement (see Example 48.), the third beat is not together in the Busch Quartet's recording but is accurately placed by the Flonzaley Quartet.

In both the Amadeus and Smetana Quartets' performances of Op.130, the ensemble playing is very precise, except in the fourth movement of the Smetana performance in which occasional inaccuracies occur, such as in bar 4 (see Example 49.) where the second quaver beat is not played by all parts together.

More difference was observed in the recordings of this work by the Budapest and Pascal Quartets, the study of which revealed that there are more frequent minor flaws in the ensemble playing of the Budapest Quartet, whereas the Pascal Quartet are more consistently accurate but the flaws are more noticeable. An example of this can

be seen in bars 77 and 78 of the third movement (see Example 50.), in which the Budapest Quartet are very slightly inaccurate with most notes, but the Pascal Quartet plays well together except in the second and fourth beats of the bar, in which the ensemble playing is imprecise.

The ensemble playing in the Fine Arts Quartet's performance of Op.131, while generally quite accurate, was observed to lack the consistent precision shown in the performance of that work by the Amadeus Quartet. This point is illustrated by a comparison of the two performances in bars 26 and 28 of the first movement (see Example 51.), in which it can be seen that in the Fine Arts Quartet's recording, the viola is late on the second beat of bar 26 and the cello is late on the second beat of bar 28, whereas in the Amadeus Quartet's recording, the four parts coincide very accurately.

The performances by the Hungarian and Busch Quartets show more similarity in that the precision of ensemble playing varies between movements in both recordings. In the Hungarian Quartet's performance, more inaccuracies occur in the first and sixth movements, as, for example, in bar 7 of the sixth movement (see Example 52.), in which the third beat is not together. In the Busch Quartet's recording, the last three movements do not maintain the standard of precision shown in the earlier movements. An example of this lack of precision occurs in bar 194 of the seventh movement (see Example 53.), in which the viola and cello do not begin the last crotchet together.

The ensemble playing in both the Amadeus and Smetana Quartets' performances of Op.132 achieves a high degree of accuracy, with only minor lapses occurring in either performance. For example, in the

recording by the Amadeus Quartet, the first beat of bar 8 in the first movement (see Example 54.) is not played exactly together by all instruments, and in the recording by the Smetana Quartet, the second minim of the fourth bar of the same movement (see Example 55.) is not quite together.

More difference was observed between the recordings of this work by the Hungarian and Pascal Quartets. In the Hungarian Quartet's performance, the ensemble playing is usually quite precise, although errors do occur, as for example, in bar 30 of the third movement (see Example 56.), in which the third and fourth beats of the bar are not played together. The Pascal Quartet was found to be less consistent in its accuracy of ensemble playing, as can be seen in bars 37-39 of the fourth movement (see Example 57.), in which none of the crotchets in the second violin, viola and cello are played precisely together.

All four performances of Op.133 demonstrate very precise ensemble playing, although occasional inaccuracies occur in all and are slightly more common in the recordings by the Hungarian and Budapest Quartets than in those by the Amadeus and Pascal Quartets.

In their recordings of Op.135, both the Fine Arts and Paganini Quartets were found to be generally very precise, but with some lapses in accuracy occurring in both performances. In the recording by the Fine Arts Quartet, for example, the second and third beats of bar 124 in the second movement (see Example 58.) are not quite together. An example of the type of error in the recording by the Paganini Quartet occurs in bar 80 of the first movement (see Example 59.), in which the second and third quaver beats are not together.

The recordings by the Busch and Flonzaley Quartets are also

similar in that the inaccuracies in both are more noticeable and more frequent than are those in the recordings by the Fine Arts or Paganini Quartets. In the performance by the Busch Quartet, an example of this point occurs in bar 19 of the third movement (see Example 60.), in which the third and sixth quavers of the bar are clearly not played together. An example of the inaccuracies found in the recording by the Flonzaley Quartet occurs in bars 109, 110, 112 and 113 of the fourth movement (see Example 61.), in which most of the notes display lack of precision of ensemble playing.

FOOTNOTES

CHAPTER III

Musical examples will be found on pages 78 - 108.

CHAPTER IV

STYLISTIC DEVICES

In some areas of instrumental technique, the ideal to which the performers aspire consists, not of a common and constant value of technical perfection, but of an ideal which varies according to the change in accepted fashions of playing at different times. In string instruments, this applies particularly to two aspects of technique or style - *vibrato* and *portamento*.

Vibrato

In the eighteenth century, *vibrato*, or *tremolo*, as it was then called, was used only on certain notes for special effect.¹ Some editions of string music published earlier in this century still specify on which notes vibrato was to be applied and devised a separate notation for that indication. Yet, whatever the prevailing custom, vibrato usually varies somewhat from one player to another.

In these recordings of the late Beethoven string quartets, certain similarities were observed in the type and frequency of use of vibrato in groups of the same time period, but each group was found to have a characteristic sound which distinguished it from any other group.

Among the more recent recordings, the Paganini and Amadeus Quartets were notable for their individuality, the Paganini for a slower vibrato and the Amadeus for a faster vibrato which fluctuates more within phrases. Diversity was also found among the earlier

groups, the Pascal Quartet being the most unusual in the speed of vibrato and the wide range of effects created by different types of vibrato. The Flonzaley Quartet was remarkable as the group who least employed vibrato as an integral part of their usual sound. The variety in type and frequency of use of vibrato was found to cover a wider range amongst earlier recordings than is found in those of more recent decades.

For example, the Flonzaley Quartet's recordings showed them to be selective but varying in their use of vibrato, as was the custom of their time. In fast movements, its application was observed to be restricted mainly to long notes, as is illustrated in bars 174-178 of the third movement of Op.127 (see Example 62.). This ensemble uses vibrato more constantly in slow passages, as, for example, in the opening bars of both the second movement of Op.127 (see Example 63.) and the third movement of Op.135 (see Example 64.). The speed of vibrato is usually quite slow, although it does vary within a certain range for purposes of expression, as can be seen by comparing the three previously mentioned examples.

The vibrato used in the Busch Quartet was observed to be less wide (i.e. of less amplitude) than that in the Flonzaley Quartet, but is considerably faster and used more constantly. This is illustrated in bars 210-215 in the first movement of Op.127 (see Example 65.).

The Pascal Quartet was found to use a wider range of vibrato styles than either the Flonzaley or Busch Quartets, or, indeed, than any of the other quartets whose recordings are examined in this study. In many soft passages, very little or no vibrato was used, as in bars 247-257 of the fifth movement of Op.132 (see Example 66.), whereas in

louder sections, a very different effect was created by an intense vibrato, fast and quite wide in amplitude. An example of this can be seen in bars 268-271 of the fifth movement of Op. 132 (see Example 67.).

In the recordings by the Budapest Quartet, a more constant use of vibrato was observed. Their sound was typified by a slower and less wide vibrato, but the intensity was found to vary as a means of accentuating phrasing, as is illustrated in bars 55 to 60 of the fifth movement of Op. 130 (see Example 68.).

The Hungarian Quartet achieve a very sweet sound with a wider, faster vibrato than is shown in the Budapest Quartet's recordings, although their sound lacks the intensity heard in recordings by the Pascal Quartet. The Hungarian Quartet also makes more constant use of vibrato, a typical example of the style occurring in bars 191-194 of the fourth movement of Op. 131 (see Example 69.).

The Smetana Quartet were found to have a sound which, although continuous within a given passage, shows variety between sections for expressive purposes. Two very different types of vibrato, one small and restrained, the other wider and faster, are used for contrasting effects and can both be seen in bars 138-142 of the first movement of Op. 132 (see Example 70.).

The vibrato in the Paganini Quartet's performance is slower than that of the Smetana Quartet but similar in its continuity, as is shown in the opening bars of the third movement of Op. 135 (see Example 64.).

An examination of the Fine Arts Quartet's playing in bars 191-194 in the fourth movement of Op. 131 (see Example 69.) shows that in

comparison with the performance by the Hungarian Quartet, the Fine Arts Quartet use an equally continuous but thinner (i.e. less amplitude) vibrato, which was found to be maintained quite consistently in the recordings examined in this study.

The vibrato of the Amadeus Quartet was observed to be very similar to that of the Smetana Quartet, although sometimes wider and often a little faster. It is used quite continuously but with slight variations within a phrase. These differences are evident in the same section which is used as an illustration of the vibrato of the Smetana Quartet, bars 138-142 of the first movement of Op.132 (see Example 70.).

Portamento

Frequent differences in fingerings were heard in the recordings, but their effects on interpretation were of less significance than the manner in which fingerings were executed. There were clear differences in the way shifts of the left-hand position were played and, particularly, in the use of that aspect of shifting called *portamento* or slide.

Although Beethoven did not use any marking to suggest portamento effects, it is assumed in modern string pedagogy that the traditional form of portamento, which is sometimes called the "Classical shift" or "lower portamento", was in common use even before Beethoven's time. The lower portamento involves moving to a higher position with the outgoing finger retaining some pressure on the string until the new position is reached.

Another type of portamento which is known to have been used by Kreisler and Ysaye but was introduced as part of the regular instru-

mental technique by Heifetz, was originally known as the "gypsy slide". It is now often termed "upper portamento", the sliding effect being created by the incoming or upper finger in the shift to a higher position.

In changing to a lower position, the traditional method of performing a downward portamento is to slide down with the outgoing finger, although a slide with the incoming finger is occasionally used. Yet another portamento effect is created by retaining some pressure on the string while changing position on the same finger. This device is known to have been in use at least since the time of Haydn and is specifically indicated in some of his string quartets.

Differences in the use of portamento were found in the frequency of their occurrence, the amount of pressure retained on the string by the sliding finger and, to a certain extent, by the bow, and length of time taken for the slide. From the recordings examined in this study, it was found that the tendency during the course of the century has been towards less frequent use of the portamento effect, less pressure on the slide and a faster change of position, resulting in less obvious slides.

It is possible to make a shift with no discernible slide, so it may be assumed that an audible portamento is intentional and has a specific purpose in enhancing the expressiveness of the playing. However, the effect and acceptability of portamento is partly dependent on prevailing general opinion or fashion at any given time. The differences between groups in the manner of performance of these devices should, therefore, be considered in relation to the acceptable styles in their respective times.

By comparing the number of portamento effects in each performance (given in Appendix A, Table I), it was found that in four of the six works, the earlier quartets differ considerably more than the later groups.

In one, Op.133, the difference is greater between the later quartets, but in Op.132, the numbers are similar. The conclusion concerning this aspect of interpretation, therefore, is that the earlier quartets show more diversity in their playing than the later quartets.

The research revealed that the Flonzaley Quartet, the oldest recorded ensemble used in this study, made thick-sounding slides, resulting from a slow change of hand-position and little release of pressure in either the left-hand or the bow. In some instances, up to half the time value of the previous note is taken for the slide. An example of this effect occurs between the first two notes in the second violin part of bar 200 in the fourth movement of Op.127 (see Example 71.). Another illustration of the thick, slow slides, and also of the frequency of their use, occurs in bar 37 of the second movement of Op.127 (see Example 72.), in which a downward portamento occurs in the first violin part three times.

It was found that the Flonzaley Quartet favour the use of the lower portamento. In their performance of Op.127, the lower portamento was used 74 times, the upper portamento 12 times, the downward portamento 26 times and a slide with the same finger 14 times. The device was used less often in their performance of Op.135, in which 13 examples of lower portamento, 14 of upper portamento, 22 of downward portamento and 4 slides with the same finger were observed.

The Busch Quartet was observed to use fewer slides than the Flonzaley Quartet in their performance of Op.127, but more in Op.135. Like the earlier group, the Busch Quartet favour the lower portamento in Op.127 where 57 examples of this type were noted. Of the upper portamento type there are 11 examples, 21 of the downward portamento and one slides on a position change with the same finger.

In the recording of Op.135, the most commonly-used slide is the downward portamento, of which there are 52 examples. The lower portamento is used more often than the upper portamento, there being 28 of the first type and 13 of the second, and there are 5 instances of slides on the same finger. The recording by the Busch Quartet of Op.131 again makes most frequent use of the downward portamento, 104 examples of this type being noted. Unlike their performance of Op. 135, however, the upper portamento is used more frequently than the lower portamento. Of the former, 61 examples were observed, and of the latter, only 39 examples. Of the type where the slide occurs on a position change with the same finger, 24 instances were noted.

While it was found that the Flonzaley Quartet use similar pressure and speed on most slides, the Busch Quartet vary both factors to create a greater range of sounds and expressive effects in their use of the portamento. In some cases, the slide is quite heavy and slow, as between the first and second notes of the first violin part in bar 18 of the second movement of Op.127 (see Example 73.). A lighter slide is sometimes used, giving a very different effect, as is illustrated once again in the first violin part between the third and fourth notes in bar 186 of the fourth movement of Op.131 (see Example 74.). In both the Flonzaley and Busch Quartets, the portamento is used most often by the first violin, but also by all other instruments at various times.

In the recordings by the Pascal Quartet of Op.130, Op.132 and Op.133, it was observed that, as in the Busch Quartet's recordings, different thicknesses of slides were used for variety of expression. The use of portamento is less frequent and there is also less predominance of lower portamento in the performance of Op.132 and Op.133. In their performance of Op.130, however, 19 examples of lower portamento were noted and only 8 of the upper portamento type. Of the downward portamento, 27 instances were observed and of slides on a shift with the same finger, 12 examples. In the recording of Op.132, there are 16 examples of lower portamento, 17 of upper portamento, 14 of the downward type and 9 on the same finger. In Op.133, 5 examples of each of the first three types were observed, with one slide on the same finger. The portamento device was found to be used more by the second violin, viola and cello than in the Busch or Elonzaley Quartets, although it is still most frequently used by the first violin.

The range of effects achieved by different pressure and speed in the slides was found to be similar in the Pascal and Busch Quartets' recordings, but the Budapest Quartet have a more limited range and make a clearer distinction between shifts where no slide is desired and those where the portamento effect is intended. They also make slightly less use of portamento. In Op.130, 19 of the lower type, 5 of the upper, 21 of the downward portamento and one slide on the same finger were observed. In their recording of Op.133, there were again slightly fewer portamento effects than in the Pascal Quartet's recording. Four examples of each of the first three types were observed, with one slide on the same finger. In this group, the predominance of slides by the first violin is greater than in previously mentioned groups.

The Hungarian Quartet were found to make less frequent use of the portamento device, with more examples of upper than lower portamento being noted in their recordings of both Op.131 and Op. 132. Both recordings also show numerous examples of the downward portamento. In the performance of Op.131, there are 16 slides of the upper portamento type, only 4 of the lower type, 21 of the downward portamento and three slides with the same finger. In Op.132, 14 examples of upper portamento were observed, as well as 3 of the lower portamento type, 15 downward slides and 5 on the same finger. The performance by this group of Op.133 uses only one of each of the first three types and no slides with the same finger.

The portamento used by the Hungarian Quartet tends to be quite thick but faster than that used by earlier groups. This point is illustrated by the upper portamento to the second note in the first violin part of bar 139 in the third movement of Op.132 (see Example 75.). In this group, even more than in the Budapest Quartet, portamento effects occur mainly in the first violin part.

The Smetana Quartet, although it was observed to use portamento more often than the Hungarian Quartet, obtain a very different effect by using less pressure. An example of this lighter type of portamento can be found in bar 14 of the fifth movement of Op.130 (see Example 76.), in which the first violin plays a downward portamento to the last note of the bar. In this group, the cellist uses more pressure on his slides than do the other players, and slides from the second violin and viola are rare. It was observed that the tendency in the group was towards use of more lower portamento than upper portamento. In their performance of Op.127, there are 15 exam-

ples of lower portamento, 6 of upper, 3 downward and one slide in a shift on the same finger.

The Smetana Quartet plays the original final movement, which is now known as Op.133, as the last movement of Op.130, so only the first five movements are considered in this study. In this work, 6 examples of lower portamento and 2 of upper portamento were observed, as well as 6 of the downward type. No examples of slides on a shift with the same finger were found. In their recording of Op.132, a predominance of the upper portamento type is used, with 13 examples of this type being noted and only 7 of the lower portamento. There are also 26 downward slides and 2 on the same finger.

The Paganini Quartet uses a slightly heavier slide than was observed in the Smetana Quartet's recordings. A good example is the downward portamento to the first beat in the first violin part of bar 69 in the first movement of Op.135 (see Example 77.). Three slides were noted in the cello part but all others are played by the first violin. In Op.135, there are 3 examples of lower portamento, 7 of upper, 10 downward and none on the same finger.

The Fine Arts Quartet varies the type of portamento effect with different degrees of pressure and speed, but most commonly makes a clearly audible slide, similar to the type used by the Paganini Quartet. This is illustrated in bars 31-33 of the first movement of Op.135 (see Example 78.), in which the first violin makes a lower portamento to the fourth quaver beat of bars 31 and 33 and the second violin makes an upper portamento to the same beat.

In their performance of Op.131, a much larger number of the upper portamento type occurs, with 26 of this type, 12 of the lower portamento, 13 downward portamento and five on the same finger being

observed. In Op.135, the distribution is more even, with 16 of the lower portamento, 14 of the upper, 13 of the downward portamento and 7 of slides on the same finger.

The Amadeus Quartet, like the Fine Arts Quartet, uses varying amounts of pressure and speed to produce different portamento effects, but generally make quite thick slides. A typical example occurs in bar 184 of the first movement of Op.132 (see Example 79.) in which the first violin makes a lower portamento to the second note of the third beat. Few portamento effects are used by instruments other than the first violin and, as with the Fine Arts Quartet in Op.135, there is no clear predominance of the lower or upper portamento type.

In the recording of Op.130 by the Amadeus Quartet, 12 of the lower portamento, 12 of the upper, 5 downward and two on the same finger were observed. In Op.131, there are 14 examples of lower portamento, 17 of upper portamento, 17 downward slides and 6 on the same finger. In the recording of Op.132, a large number of downward portamento effects are used, there being 32 of this type observed. Eighteen of the lower portamento and 15 of the upper portamento effect were noted, as well as four slides on the same finger. The lower portamento effect is most common in their recording of Op.133, in which ten of this type, two of the upper portamento and six downward slides occur.

FOOTNOTES

CHAPTER IV

1. Leopold Mozart, A Treatise on the Fundamentals of Violin Playing, trans. by Editha Knocker (London: O.U.P., 1951), p.203.

CHAPTER V

TEMPO

The variables concerning intonation, rhythm, ensemble playing, vibrato and portamento which have so far been discussed are those in which the performers are, to some extent, influenced by external considerations, such as those representing accepted technical standards or the matters of taste prevailing at any given time.

There are certain aspects of playing, however, where external influences on the performers are minimal, so personal tastes and interpretations of the performers can more easily be observed.

Basic Tempo

The most obvious of these aspects, and the first which becomes apparent to the listener, is the basic tempo of a performance. In this study, the basic tempo was taken to be the tempo at which most of a section or movement was played.

In the last six quartets by Beethoven, tempo indications but no metronome marks are given. Tempo must, therefore, be decided on the basis of understanding Beethoven's style and intentions, and is inevitably influenced by the personal taste of the performer.

Rosen believes that Beethoven's tempo indications "must be taken very seriously indeed, because they reveal the character of the work, and Beethoven was very careful about his markings ... He never wrote a simple 'Allegro' when he meant 'Allegro maestoso' or 'Allegro ma non troppo'".¹ In one of his letters (no. 262), Beethoven "speaks of Allegro, Andante, etc., as those 'senseless terms' in

that the music often expresses something quite contrary to them",² so the performer's interpretation of the character of the music is necessarily an important factor in deciding the tempo and is one of the causes of differences between various interpretations.

In order to determine the degree of difference between the groups in tempo of the various sections and movements of the late Beethoven string quartets, the basic tempo of each section was first ascertained. (Detailed results appear in Appendix A, Tables II-VII.) To facilitate comparison between performances, the information was plotted in graph form (see Appendix B). This study revealed that significant tempo changes frequently occurred even within a given section, as, for example, in Flonzaley Quartet's performances of the first *Adagio ma non troppo e molto cantabile* section of the second movement of Op. 127, in which the tempo ranges between ♩ = 96 and ♩ = 126. Where this is the case, the differences between the slowest and fastest tempo is shown in the graph by a dotted line. In such cases, the slowest tempo was used to provide a consistent basis for comparison.

It was found that in five of the six works, there was more difference in tempo between earlier groups than between later ones. However, the ratio between the figures in two of the works (including Op. 130, in which the later groups were found to differ more than the earlier groups) was not very high.

The recordings of Op. 127 by the Flonzaley, Busch, Hungarian and Smetana Quartets showed nine sections in which tempo difference was greater between the two earlier groups (i.e. Flonzaley and Busch Quartets), five in which the later groups vary more and two in which the differences are minimal.

In the recordings of Op.130 by the Pascal, Budapest, Smetana and Amadeus Quartets, the tempo difference was greater between the earlier groups (i.e. Pascal and Budapest Quartets) in three sections, between the later groups in six sections and was equal in one section. These differences were not considered wide enough to be significant.

The recordings of Op.131 by the Busch, Hungarian, Fine Arts and Amadeus Quartets reveal more frequent differences in tempo between the two earlier groups. Sixteen sections were observed in which the tempo difference between the earlier groups was greater, nine in which the later groups vary more and five in which the differences are minimal.

In the recordings of Op.132 by the Pascal, Hungarian, Smetana and Amadeus Quartets, tempo differences between the earlier groups were greater thirteen times, between the later groups six times and were minimal once.

The study of recordings of Op.133 by the Pascal, Budapest, Hungarian and Amadeus Quartets showed that diversity of tempo was almost as common in later groups as in the earlier ones. The earlier quartets were found to differ more in six sections, the later groups in four sections and in one section the differences were minimal.

In the recordings of Op.135 by the Flonzaley, Busch, Paganini and Fine Arts Quartets, the tempo differences were greater between the earlier groups in nine sections, the later groups in two sections and were minimal in one section, again indicating a tendency for the earlier quartets to show more diversity in their interpretation of tempo indications.

Unindicated Tempo Changes

Within movements or sections of a given tempo marking, unindicated changes of tempo were always found. These changes usually occur at the beginnings of new themes or where the character of the music changes.

One point of variation between the recordings is the amount of deviation from the basic tempo, in terms of the range between the slowest and fastest speeds within a section. In this study, a deviation from tempo was taken to be a change to a new tempo, rather than just rubato, when it was maintained consistently for a long enough period to warrant a new metronome marking.

The range and amount of variation between the slowest and fastest speeds within each section (given in columns 1 and 2 respectively in Tables VIII-XIII of Appendix A) was found to be greater between the earlier quartets than the later ones in all six works.

In the recordings of Op.127, for example, there was more difference in the range of tempo between the earlier performances than the later ones in nine sections (i.e., sections 1, 2, 4, 6, 8, 9, 11, 15 and 19) and more difference between the more recent recordings in seven sections (i.e., sections 7, 10, 14, 17, 18, 20 and 21).

The earlier performances of Op.130 showed a wider range in eight sections (i.e. sections 2, 3, 4, 11, 16, 18, 21 and 22) while the later performances vary more than the earlier ones in only four sections (i.e. sections 1, 10, 17 and 19).

The most significant results were found in the recordings of Op.131, in which the diversity was greater between the earlier groups in fifteen sections (i.e. sections 1, 2, 3, 5, 7, 8, 9, 10, 12, 14, 18, 22, 26, 27 and 28) and between the later groups in only eight (i.e.,

sections 4, 6, 11, 13, 15, 21, 23 and 25).

In the performances of Op. 132 and Op. 133, the earlier groups showed greater range of tempo in only one section more than was observed in the later groups. In Op. 132, the earlier groups varied more in six sections (i.e., sections 5, 7, 8, 9, 16 and 17) and the later groups showed more diversity in five sections (i.e. sections 4, 10, 13, 14 and 15). The performances of Op. 133 varied more between the earlier quartets five times (i.e., in sections 1, 4, 5, 7 and 8) and varied more between the later quartets four times (i.e., in sections 2, 3, 6 and 11).

The recordings of Op. 135 showed the earlier groups to vary more in the range of tempo in eight sections (i.e., sections 1, 3, 4, 5, 8, 10, 11 and 13) and the later groups to vary more in only three sections (i.e., sections 2, 6 and 9).

Some sections of each work have not been listed above. These are the sections in which there was no tempo variation in any recording or in which the range of tempo was similar in both earlier and later recordings.

Another aspect in the consideration of unindicated tempo changes is the frequency of their occurrence. Findings indicate clearly that there is a tendency for earlier quartets to vary more in this respect than in the range of unmarked tempo changes (see Column 1. of Tables XIII-XIX in Appendix A). In all except two works, the earlier recordings show more variety, but in Op. 133, the later recordings vary more in five sections (i.e., sections 1, 2, 3, 4 and 11) while the earlier groups only vary more in four sections (i.e., sections 5, 6, 7 and 8) and in Op. 131, the later quartets make more unindicated tempo changes in seventeen sections (i.e. sections 4, 6, 7, 8, 10, 11, 12, 13, 15, 17, 19, 20, 21, 25, 26, 27 and 29) while the

earlier groups change tempo more often in only seven sections (i.e., sections 1, 2, 3, 5, 9, 16 and 23).

In the recordings of Op.127, the earlier groups showed more diversity in this aspect of interpretation in seven sections (i.e., sections 4, 6, 7, 8, 9, 10 and 20) while the later groups vary more in five sections (i.e., sections 11, 16, 17, 18 and 19).

There is an even clearer difference in the recordings of Op.130, in which the earlier recordings show more variation in ten sections (i.e., sections 1, 2, 3, 4, 9, 10, 15, 17, 19 and 22) and the later groups vary more in only four sections (i.e., sections 16, 18, 20 and 21).

In the recordings of Op.132, the earlier quartets again show more diversity of interpretation, the earlier groups varying more in the frequency of unmarked tempo changes in eleven sections (i.e., sections 1, 2, 4, 6, 7, 9, 10, 11, 12, 13 and 15) and the later groups varying more in four sections (i.e., sections 14, 16, 17 and 18).

The performances of Op.135 also indicate a tendency for the earlier groups to show more diversity in the number of tempo changes, these occurring in six sections (i.e., sections 1, 2, 3, 5, 8 and 11) while the later groups vary more in four sections (i.e., sections 4, 6, 10 and 13).

Rubato

From the writings of some of his contemporaries, it is clear that Beethoven expected the performers of his works to use some degree of rubato, although opinions expressed in those writings vary on the extent to which it should be employed. According to the reminiscences of one of Beethoven's friends, Ignaz Seyfried, an opera conductor and composer, "he [Beethoven] was very meticulous with regard to

expression, the more delicate shadings ... and an effective 'tempo rubato'".³ Schindler, Beethoven's amanuensis and first biographer, advocated much more agogic freedom than did Carl Czerny, who was a piano pupil and friend of the composer.⁴ Nevertheless, Czerny, in discussing the interpretation of some of Beethoven's works, often cites cases where unmarked *ritardando* and *accelerando*⁵ or slight deviations from tempo⁶ should occur.

When even Beethoven's contemporaries disagreed on the amount of rubato to be used, some variation in interpretation by present-day performers would seem inevitable. In this study, the variation in use of rubato was considered by observing the number of bars in which some deviation from tempo takes place, including gradual tempo changes with dynamic changes or with phrasing and slight fluctuations for emphasis and expressive effect on certain notes or sections of a phrase. (Detailed results appear in Column 2 of Tables XIII-XIX in Appendix A.)

In these recordings, the amount of rubato was found to vary considerably between the various groups. The measurement of the differences between performances by earlier quartets and between those of later groups indicated the diversity in the use of rubato is similar in both time periods.

The earlier groups vary more in two works, Op.130 and Op.135, the later ones show more diversity in Op.127 and Op.133 and the amount of difference between recordings is similar in Op.131 and Op.132.

In the recordings of Op.127, the earlier quartets show more difference in the number of rubato effects used in six sections (i.e., sections 2, 4, 5, 11, 16 and 20) while the later quartets vary more in nine sections (i.e., sections 1, 3, 6, 7, 8, 10, 15, 17 and 19).

In the comparison of use of rubato between the four recordings of Op.130, the earlier groups show more variety in eight sections (i.e., sections 1, 3, 5, 16, 18, 20, 22 and 23) while the later groups vary more in only six sections (i.e., sections 2, 4, 10, 17, 19 and 21).

In Op.131, the earlier performances were found to vary more in their use of rubato in eleven sections (i.e., sections 1, 2, 3, 8, 9, 12, 13, 22, 28 and 29) and the later groups showed more variety in eleven other sections (i.e., sections 5, 6, 7, 11, 15, 16, 17, 20, 21, 27 and 30).

A similar amount of diversity was also observed in the recordings of Op.132, in which the earlier groups vary more in seven sections (i.e., sections 1, 4, 6, 8, 13, 14 and 17) and the later groups vary more in seven sections, also (i.e., sections 5, 7, 9, 10, 11, 12 and 18).

In the recordings of Op.133, the later groups were observed to vary more in four sections (i.e., sections 3, 4, 5 and 6) while the earlier quartets showed more diversity in three sections (i.e., sections 2, 8 and 11).

The comparison of recordings of Op.135 showed the earlier quartets to vary more in their use of rubato in seven sections (i.e., sections 2, 3, 4, 5, 6, 8 and 10) while the earlier groups show more diversity in only two sections (i.e., sections 1 and 9).

Unindicated Tempo Changes at Ends of Movements or Sections

In his discussion of interpretation of some of Beethoven's piano sonatas and chamber works with piano, Czerny often advocated a *ritardando* at the ends of movements or before pauses, even though

there may be no indication to this effect in the printed score,⁷ so some deviation from the printed markings would seem to be acceptable in this regard. In the last six string quartets, some movements contain several sections of entirely different characters and tempo indications, so the transitions from each section to the next, as well as the ends of movements, would seem to provide ample possibility for differences between various performances.

The results of the study indicate that the recent groups vary as much as the earlier ones in their interpretations. In both Op.127 and Op.130, the later groups differ from each other in more sections than the earlier groups. There are six instances in which the later quartets differ (i.e., at the ends of sections 3, 13, 14, 15, 18 and 20) and only two in which the early quartets vary (i.e., at the ends of sections 14 and 16) in Op.127. In Op.130, the later quartets vary in their interpretations in nine sections (i.e., sections 5, 7, 8, 9, 12, 13, 14, 15 and 19) while the earlier quartets differ in seven sections (i.e., sections 2, 6, 8, 11, 12, 14 and 17).

The earlier quartets vary more than the later ones in the performances of Op.132 and Op.133. In Op.132, there are four sections in which the earlier groups differ (i.e., sections 5, 9, 11 and 14) and three sections in which the later groups differ (i.e., sections 3, 14 and 16). From the recordings of Op.133, the earlier quartets were found to differ in five sections (i.e., sections 2, 7, 9, 10 and 11) and the later groups in only three (i.e., sections 2, 3 and 9).

In the performances of Op.131, both earlier and later quartets differ from each other in three sections. The earlier groups vary in their interpretations at the ends of sections 22 and 25, and before the pause in bar 376 of the fifth movement, while the later groups

differ at the ends of sections 6, 21 and 30. The number of differences is also equal in the recordings of Op. 135, with four sections in which the earlier groups differ (i.e. sections 2, 8, 12 and 13) and four in which the later groups differ (i.e., sections 2, 6, 8 and 13).

FOOTNOTES

CHAPTER V

1. Charles Rosen, The Classical Style (New York: Viking Press, 1971), p.421.
2. Dr. A.C. Kalischer, Beethoven's Letters (London: J.M. Dent and Sons, 1926), p.x.
3. Thomas, K. Sherman and Louis Biancolli, editors, The Beethoven Companion (New York: Doubleday & Co., 1972), p.89.
4. Carl Czerny, The Art of Playing the Ancient and Modern Pianoforte Works, (London: R. Cocks, 1970), p.3.
5. Ibid., pp. 33, 54, 78, 97, 102, 103.
6. Ibid., p.42.
7. Carl Czerny, The Art of Playing Ancient and Modern Pianoforte Works, pp. 77, 83, 95, 98, 101 and 105.

CHAPTER VI

INTERPRETATION OF NOTATION

Dynamics

One aspect of interpretation which will inevitably vary between performers, but which is difficult to assess with accuracy from recordings, concerns dynamics. The range of dynamics and the balance between instruments can be limited or adjusted with the equipment used in the recording and reproduction of a performance, but certain gradations of dynamics can be assessed accurately enough to allow for comparisons between various interpretations.

All the groups whose recordings were examined were found to follow the dynamic indications in the score quite strictly. The differences lie not in whether they play the marked dynamics but in how they play them. The problem for the interpreter is in understanding the composer's intentions in the finer details which cannot be notated. Henri Temianka, the leader of the Paganini Quartet, expressed the problem very clearly in his book Facing the Music. "The dead sheet of music in front of the performer is only a set of primitive hieroglyphics, little dots etched on telegraph poles, little shorthand messages like "p" or "f" to indicate soft and loud. But how soft is soft, how loud is loud?"¹

The louder sounds are those which suffer most through the recording process. The performances by earlier quartets were all softer in the forte passages than were those by later groups but no other significant differences were discernible. All quartets achieve an

extremely soft dynamic in some *piano* and *pianissimo* sections.

Within the general markings, it was observed that some groups more than others tended to vary the dynamics with the phrasing. For example, the Flonzaley, Busch, Pascal and Amadeus Quartets were found to take the most liberal interpretation of dynamics as a means of enhancing the expression. The Budapest, Hungarian, Fine Arts and Paganini Quartets all used a certain amount of dynamic variation, but less than the groups mentioned above, and the Smetana Quartet used the least, particularly in the recording of Op.130.

Sudden Changes of Dynamics

One of the most obvious differences between the recordings with regard to dynamics involves the use of special dynamic effects, particularly the sudden and very contrasting changes of dynamics, repeated *forte* and *sforzando* markings within a phrase, and *crescendo* indications which are followed not by a louder dynamic marking, but instead by a sudden drop back to *piano*.

The results of this research indicate that with regard to sudden and contrasting dynamic changes, the earlier quartets show more diversity in their interpretations, varying in the degree of contrast and in the abruptness of the change. The later quartets were all observed to make some anticipating *diminuendo* or *crescendo* before an indicated sudden change, although the Smetana Quartet differ from other recent quartets in that the degree of contrast is less.

Differences in the playing of repeated *forte* or *sforzando* markings were found between both earlier and later groups. The study of the ways of interpreting the indication of a *crescendo* followed by a drop to *piano* found that all the later quartets vary within any one

performance, whereas the earlier groups are more consistent but differ from one another. The general conclusion, therefore, is that the interpretations of dynamic markings vary more between ensembles from earlier in the century than between those of the last two decades.

In these works, the Flonzaley Quartet often anticipated sudden changes with an unmarked *crescendo* or *diminuendo* such as occurs in bars 222-223 of the first movement of their recording of Op.127 (see Example 80.). In some instances, however, the contrast is quite sudden, as in the last two bars of the second movement of Op.135 (see Example 81.). Where repeated *forte* or *sforzando* markings occur, this group gives clear and quite sharp accents, as in bars 28-31 of the first movement of Op.127 (see Example 82.). The Flonzaley Quartet used various devices to achieve a sudden drop to *piano* after a *crescendo*. Most commonly, a slight *diminuendo* occurs before the *piano*, as in bar 155 of the first movement of Op.135 (see Example 83.). In some cases, however, there is a gap in the sound and the *piano* note is slightly delayed, as in bars 66-67 of the second movement of Op.127 (see Example 84.).

In the performance of sudden changes of dynamics, the Busch Quartet achieves a more abrupt change but the contrast between the loud and soft sections is not so great as in the Flonzaley Quartet's recordings. This difference is illustrated by comparing the two performances in bars 271-2 of the second movement of Op.135 (see Example 81.). In phrases where repeated *forte* or *sforzando* are marked, the Busch Quartet does not give as much accent as the Flonzaley Quartet, and an example of this can be found in bars 28-31 of the first movement of Op.127 (see Example 82.). Where a *crescendo* is

followed by a sudden drop to *piano* the Busch Quartet make only a small *crescendo*, so, although the *piano* comes quite suddenly, the contrast is not very great. This point is demonstrated in bars 57-58 in the fourth movement of Op.131 (see Example 85.).

The Pascal Quartet, like the Busch Quartet, achieves only a certain amount of contrast in dynamics where sudden changes occur, even though the changes are quite abrupt. An example of their technique of accomplishing sudden changes is found in bars 15-16 of the first movement of Op.130 (see Example 86.). In repeated *forte* and *sforzando* sections, a clear but not very loud accent is given, as in bars 43-46 of the same movement (see Example 87.). As with the Busch Quartet, the Pascal Quartet do not make a big *crescendo* when such a marking is followed by *piano*. This is illustrated in bars 8 and 9 of the third movement of Op.130 (see Example 88.).

Sudden dynamic changes by the Budapest Quartet are usually accompanied by very noticeable anticipations of the approaching change, as in bars 27-29 of the fourth movement of Op.130 (see Example 89.), in which the *piano* is preceded by a *diminuendo*. Where repeated *forte* or *sforzando* is marked, this group gives stronger accents than the Busch Quartet, as is illustrated by a comparison of their performance of bars 43-46 of the first movement of Op.130 (see Example 87.). Where a *crescendo* is followed by *piano* the Budapest Quartet plays more *crescendo* than the Busch or Pascal Quartets and drops to *piano* quite suddenly. An example of this point can be found in bars 193-194 of the first movement of Op.130 (see Example 90.).

The Hungarian Quartet anticipates sudden changes very slightly but the contrast between loud and soft sections is quite marked, as in

bars 60-62 of the second movement of Op.132 (see Example 91.).

Repeated *forte* and *sforzando* beats are performed by this group with noticeable but not very strong accents, as in bars 61-65 of the fifth movement of Op.131 (see Example 92.). An example of their playing of *crescendo* followed by *piano* occurs in bars 129-131 of the same movement (see Example 93.) where quite a big *crescendo* is followed by a sudden drop to *piano* in a manner similar to the Budapest Quartet.

In the recordings by the Smetana Quartet, it was observed that sudden changes of dynamic were usually accompanied by a slight anticipation of the change and that contrasts between loud and soft sections were not great, as in bars 222-223 of the first movement of Op.127 (see Example 80.). Where repeated *forte* or *sforzando* indications appear, the Smetana Quartet give strong accents, as in bars 43-48 of the first movement of Op.130 (see Example 87.). Their playing of *crescendo* followed by *piano* varies, with sometimes very little *crescendo* and at other times much more. Both types can be found in bars 8 and 9 of the third movement of Op.130 (see Example 88.), where the *crescendo* in bar 9 is bigger than that in bar 8.

Very few instances of sudden dynamic changes occur in Op.135 apart from those in staccato sections. However, in the recording by the Paganini Quartet of this work, a big contrast in such cases was observed, as can be found in bar 17 of the first movement (see Example 94.). The dynamic effect of repeated *forte* or *sforzando* does not appear in Op.135, but Beethoven often indicates a *crescendo* followed by a sudden *piano*, and in the Paganini Quartet's performance of this effect, some variation was observed. In many cases there is a noticeable *diminuendo* before the *piano*, as in bars 49-50 of the first movement of Op.135 (see Example 95.). In others, the change of dyn-

amics is very sudden, as in bars 9-10 of the same movement (see Example 96.).

The Fine Arts Quartet generally anticipates sudden changes of dynamics with a slight *crescendo* or *diminuendo*, but the contrasts are considerable. This is well illustrated in their performance of bars 133-138 in the second movement of Op.131 (see Example 97.). Repeated *sforzando* and *forte* sections are played with only a gentle extra accent, as in bars 140-146 in the same movement (see Example 98.). As with the Paganini Quartet, their playing of the *crescendo* to *piano* effect varies, but they most often make a slight *diminuendo* before the *piano*, as in bars 49-50 of the first movement of Op.135 (see Example 95.).

The Amadeus Quartet was observed to make big contrasts in sudden dynamic changes, and was usually found to anticipate the change with an unmarked *crescendo* or *diminuendo*, as in bar 141 of the first movement of Op.130 (see Example 99.). At times, however, the change was found to be very abrupt, as in bars 189-190 in the third movement of Op.127 (see Example 100.). Repeated *forte* and *sforzando* indications were taken by this group to mean strong accents, as illustrated in bars 57 and 58 of the fourth movement of Op.127 (see Example 101.). In many cases where a *crescendo* is followed by a sudden *piano*, the Amadeus Quartet were again observed to anticipate the change by making some *diminuendo* before the *piano*, as in bars 72-75 of the first movement of Op.130 (see Example 102.). Another technical device which they sometimes use in the performance of this type of dynamic marking is to make a complete break in sound after the *crescendo* and slightly delaying the *piano* entry, as in bars 170-172 of the same movement (see Example 103.).

Bowings

The difficulty of understanding a composer's intentions from the indications in the score applies very much to notational indications concerning long legato slurs and note lengths.

Beethoven was known to have been very precise and particular in his use of slurs and various types of staccato markings. In a letter (No. 414) to the violinist, Carl Holz, he wrote, "where is over the note, there must be no ' also vice versa!... [They] are not the same thing ... The slurs just as they now stand! It is

not a matter of indifference whether you play



Despite all Beethoven's attention to detail and the best of intentions on the part of the performers, variations in interpretation still occur. The study of these recordings showed differences in the length of staccato notes, in the amount of separation and articulation of notes as an integral part of the phrasing and for expressive effect, and differences in the audibility and emphasis of bow changes. Where legato slurs are marked over sections of such length that they are obviously intended for phrasing rather than bowing slurs, the bow changes are, at some times, indiscernible and, at others, in the same place in all recordings. The greatest difference between the recordings in the interpretation of this marking was found in the audibility of the bow changes, rather than where they occur.

Staccato Note Length

The results of this study show that the earlier groups, particularly the Flonzaley Quartet, used a greater diversity of types of staccato than do the later quartets. The Flonzaley and Budapest

Quartets took more freedom within a given section in their interpretation of this notational indication. The later groups were found to be more consistent and more similar to each other in length and type of staccato used.

The Flonzaley Quartet demonstrated considerable diversity in its interpretation of the staccato marking. Very often, particular in rhythmic sections, the staccato notes were very short, as in bars 22-29 of the first movement of Op.127 (see Example 104.), but the same example illustrated the tendency to lengthen the short notes if, for reasons of bow division, the player finds himself in the wrong part of the bow for playing staccato. In the violin part of bars 23 and 25, the two quavers of the third beat and second beat, respectively, were longer and more on the string than other staccato notes in the same instrument or the accompanying quavers in the other instruments, which are very short and played off the string. An example of the liberties taken by this quartet in the interpretation of staccato can be found in bars 250-255 of the fourth movement of Op.127 (see Example 105.). The staccato notes increase in length with the *diminuendo* until, in bars 254 and 255, they are quite long and only articulated by a slight emphasis at the beginning of each note.

More consistency was observed in the Busch Quartet's interpretation of the staccato marking, although the length does vary in different sections. A comparison of their recording of bars 22-26 of the first movement of Op.127 (see Example 104.) with that of the Flonzaley Quartet shows that the short quavers are of more similar length in the Busch Quartet's performances. This group ~~does vary~~ the lengths in different contexts, however, as can be seen in bars 158-161

of the first movement of Op.135 (see Example 106.). The staccato quavers in bars 158 and 159 are very short and are longer in bars 160 and 161.

The Pascal Quartet also varies the length of staccato notes from one section to another, but shows greater diversity in their interpretation than does the Busch Quartet. The quavers in bars 308-310 in the sixth movement of Op.130 (see Example 107.) are extremely short, while those in bars 149-150 in the first movement of Op.132 (see Example 108.) are much longer and less lifted.

The Budapest Quartet was usually found to play in a short and crisp manner in staccato sections, as in bar 18 of the third movement of Op.130 (see Example 109.). However, the marking is often interpreted quite freely to suit the expression, as can be seen in the previous bar (see Example 109.), where the staccato semiquavers in the second half of the bar are much longer than the staccato quavers in the first half.

In the performances by the Hungarian Quartet, it was observed that the staccato notes were of very even lengths within a section, although there is some variation with different sections. An examination of their performance of bars 22-29 of the first movement of Op.127 (see Example 104.), compared with performances by the Flonzaley and Busch Quartets, demonstrates their tendency towards consistently short staccato notes played very much off the string. The length of staccato changes from bar 66 to bar 67 in the fourth movement of the same work (see Example 110.) with the change of dynamic and character.

The Smetana Quartet was observed to follow the printed staccato markings quite precisely. In bar 22 of the first movement of Op.127

(see Example 104.), for example, it was the only group to play the staccato crotchets longer than the staccato quavers of the following bar. In bars 25-29 of the same movement (see Example 104.), the staccato quavers are short and precise, illustrating their general manner of performing this notational indication.

Staccato in the Paganini Quartet's recording is usually very short and light, as is illustrated in bars 97-102 of the second movement of Op.135 (see Example 111.) and bars 160-161 of the first movement of the same work (see Example 104.). In certain instances, however, the staccato notes are played slightly longer, as in bars 158 and 159 of the first movement of Op.135 (see Example 106.).

The Fine Arts Quartet, in comparison, generally plays staccato a little longer than the Paganini Quartet, as can be observed in their performances of both these examples.

The Amadeus Quartet uses a staccato which is very short and crisp, similar to that of the Paganini Quartet, but with a slightly tighter sound. This is well illustrated in bars 22-29 of the first movement of Op.127 (see Example 104.).

Articulation and Bow Changes

Articulation of certain notes can be brought about in several ways, such as variation in bow pressure or speed, different placement of the bow in relation to the bridge, or variation in pressure and speed of contact of the fingers of the left hand with the string. Such differences are subtle and often imperceptible from a recording, but the general effect and clarity of articulation is more obvious and was found to vary noticeably between recordings by different groups.

The degree of articulation in phrasing was observed to vary more between the earlier recordings than the later ones, with the Flonzaley Quartet making the clearest articulations. Among the later recordings, the Amadeus Quartet articulated phrasing most clearly, but the Smetana, Paganini and Fine Arts Quartets were found to be quite similar in the amount of emphasis given in this aspect of interpretation.

With regard to audibility of bow changes, the earlier groups were again found to show more diversity, with the Flonzaley Quartet making the smoothest and least discernible changes and the Pascal Quartet once more using the clearest articulation.

In the recordings, the Flonzaley Quartet was notable for the smoothness of its playing, a very legato effect being achieved in long phrases and sometimes also where staccato or slurs are marked. A good example of the type of legato playing occurs in bars 7-13 of the first movement of Op.127 (see Example 112.), where the changes of bow in the violin parts are just audible, but the general effect is very smooth and sustained. In bar 21 of the same movement (see Example 113.), however, the playing is so legato that the effect of the slurs and staccato are almost lost. The articulation of the phrasing is much clearer in bar 117 of the first movement of Op.135 (see Example 114.), where the slurs are played with a slight *diminuendo* and shortening of the second and fourth notes.

Articulation of notes within a phrase is clearer and bow changes are more audible in the recordings by the Busch Quartet, as can be seen in bars 7-13 of the first movement of Op.127 (see Example 112.). The slurs and staccato effects in bars 9 and 13 are much more deliberate and there is a slight separation of the second and third quavers of these bars.

The Pascal Quartet articulates phrasing marks very clearly, often slight separating notes to emphasize the effect. This point is illustrated in bars 223 and 224 of the first movement of Op.130 (see Example 115.). In this section, the first note in each slur is very slightly accented, the second is shortened, and the separate note is played staccato. The bow changes within long phrasing slurs are clearly audible in this group's performances, as, for example, in bars 610-614 of Op.133 (see Example 116.).

The articulation effects in the recording by the Budapest Quartet are not so marked as in the Pascal Quartet's recordings but, nevertheless, the slurs and phrasing indications are well followed. The differences between the two groups are obvious in a comparison of bars 223 and 224 of the first movement of Op.130 (see Example 115.). Within long phrasing slurs, the changes of bow are discernible but are not emphasized as much as in the Pascal Quartet's performance, as can be seen by again comparing the two performances in bars 610-614 of Op.133 (see Example 116.).

The Hungarian Quartet makes very smooth bow changes within long legato slurs, as in bars 43-45 of the first movement of Op.131 (see Example 117.), in which this marking appears frequently. Although their articulation of phrasing is not played in such an obvious manner as some other groups, it is, nevertheless, quite clear and follows the composer's indications, as in bars 9 and 13 of the first movement of Op.127 (see Example 112.).

The bow changes of the Smetana Quartet were usually clearly discernible, but were quite smoothly performed. An example occurs in bars 7-13 of the first movement of Op.127 (see Example 112.). The same example serves to illustrate the articulation of their

phrasing, the staccato notes being very slightly shortened and the slurs sounding only like clear bow changes, rather than being given any special emphasis.

The Paganini Quartet also makes smooth but audible bow changes, as is illustrated in bars 2 and 4 of the fourth movement of Op.135 (see Example 113.). Where staccato and slurs are marked as phrasing, there is usually no special emphasis given and staccato notes are only slightly shortened, as in bars 147 and 149 of the first movement of Op.135 (see Example 119.). A notable exception occurs in bars 62-70 of the same movement (see Example 120.), where the first note of the slur is given strong emphasis and is followed by a big *diminuendo*.

The Fine Arts Quartet uses only a small amount of articulation in phrasing. In bars 147 and 149 of the first movement of Op.135 (see Example 119.), for example, the last note of the slur is slightly lightened and the staccato note very slightly separated. Bow changes within long phrasing slurs are quite audible and even very slightly emphasized, as in bars 43-45 of the first movement of Op.131 (see Example 117.).

The Amadeus Quartet is unusual in the clarity of its articulation of phrasing. An example occurs in bars 313 and 314 of the sixth movement of Op.130 (see Example 121.), in which the first note in each slur is quite strongly emphasized and is followed by a *diminuendo*, with the second note shortened. Bow changes are usually clearly discernible but not emphasized, as is illustrated in bars 43-45 of the first movement of Op.131 (see Example 117.).

FOOTNOTES

CHAPTER VI

1. Henri Temianka, Facing the Music (New York: David McKay Company, 1973), p.121.
2. Kalischer, Beethoven's Letters, p.361.

CHAPTER VII

SUMMARY OF FINDINGS, CONCLUSIONS AND IMPLICATIONS

Of the twelve interpretation variables investigated, it was found that in only one, concerning precision of ensemble playing, did the more recent ensembles show greater diversity than the earlier ones. In the areas of rubato and unindicated tempo changes at the ends of sections or movements, the more recent performances display as much diversity as do the earlier ones.

In all other areas, however, it was clearly seen that the more recent recordings showed less diversity of interpretation than was found in those from earlier in this century.

Some of the variables concern aspects of interpretation in which the accepted technical standards or fashions of playing have undergone an alteration during the course of the century. However, it was still found that within the standards and styles of the different periods, there was more variation between the performances by earlier groups, except in the three variables previously mentioned.

The other aspects of interpretation concern areas which are much more dependent on the personal taste or opinion of each performer, but are, nevertheless, subject to certain external influences. These influences include the increased availability and accessibility of recordings by many different performers, and the increased ease of travel, resulting in performers from various national and musical backgrounds being heard in many countries of the world. The outcome

seems to be a more universal and cosmopolitan attitude to music which is reflected in a decrease in diversity of interpretations.

All the aspects of interpretation which have been discussed in this study involve areas in which diversity is possible, even while adhering to the composer's indications in the score, so it cannot be said that one particular interpretation is more correct or valid than another. In fact, diversity of interpretation might be considered desirable, as there is no reason to suppose that an ideal or correct interpretation exists. This view is supported by the comments of Beethoven's pupil, Czerny, concerning the variability of Beethoven's performances of his own works. Czerny wrote,

his [Beethoven's] performance depended on his constantly varying frame of mind, and even if it were possible exactly to describe his style of playing, it would not always serve as a model...; and even the mental conception acquires a different value through the altered taste of time, and must occasionally be expressed by other means, than were then demanded."¹

The tendency for recent recordings to show more similarity in interpretation is, therefore, seen as an indication of an undesirable tendency towards standardization of performance and reduced freedom of individual expression by performers of recent times.

Further study, considering these variables in more detail, and also finer aspects of performance interpretation and performances of other works, may provide more detailed information on the ways in which this standardization is being manifested.

The influences of the recording industry and the increased ease of communication between musicians have been of great benefit in improving the technical standards of performers over the course of the century. It is ironical to reflect that the same influences

may also have set in motion a trend towards standardization of interpretation - which is arguably an undesirable effect.

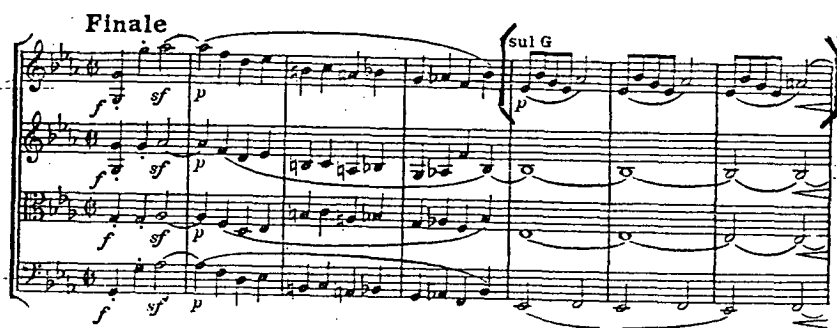
On the positive side however, studies such as the present one may serve to alert the performing world to the less desirable side of these influences, thus enabling musicians once again to accept direction from the rich diversity of their own special environments.

FOOTNOTES

CHAPTER VII

1. Czerny, The Art of Playing the Ancient and Modern Pianoforte Works, p.32.

MUSICAL EXAMPLES



Example 1. Op. 127, fourth mvt., bars 1-7



Example 2. Op. 127, second mvt., bars 1-5



Example 3. Op. 127, fourth mvt., bars 290-292



Example 4. Op. 130, third mvt., bars 5-6



Example 5. Op. 130, first movement, bars 204-6



Example 6. Op. 131, sixth mvt., bars 1-11



Example 7. Op. 131, first mvt., bars 97-102



Example 8. Op. 131, fourth mvt., bars 222-224



Example 9. Op. 131, fourth mvt., bars 125-129



Example 10. Op. 131, fourth mvt., bars 95-99



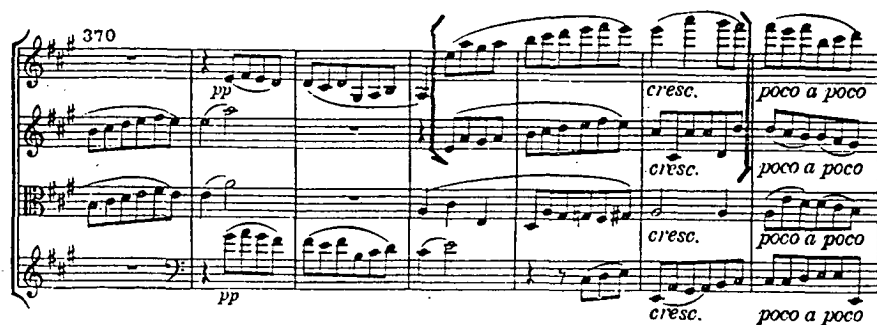
Example 11. Op. 132, second mvt., bars 142-148



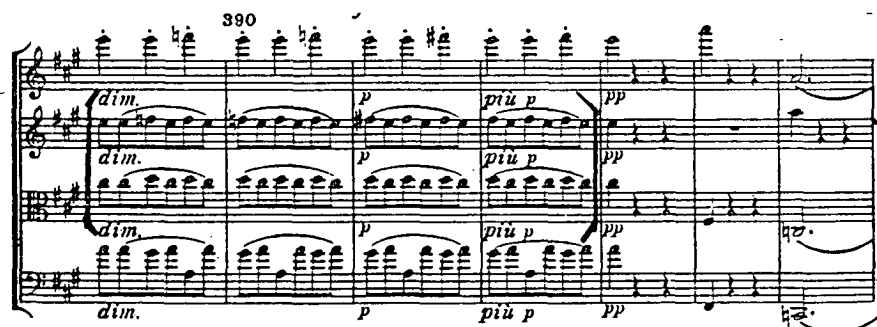
Example 12. Op. 132, second mvt., bars 177-184



Example 13. Op. 132, third mvt., bars 10-11



Example 14. Op. 132, fifth mvt., bars 370-376



Example 15. Op. 132, fifth mvt., bars 389-395



Example 16. Op. 133, bars 233-238

Allegro molto e con brio.

670

680

Example 17. Op. 133, bars 662-681

Example 18. Op. 133, bar 177

170

sempre pp

sempre pp

Example 19. Op. 133, bars 165-170

610

cresc.

cresc.

cresc.

cresc.

pp

pp

pp

arco

pp

sempre pp

sempre pp

sempre pp

sempre pp

sempre pp

sempre pp

Example 20. Op. 133, bars 605-614



Example 21. Op. 135, third mvt., bars 35-38



Example 22. Op. 135, second mvt., bars 113-122



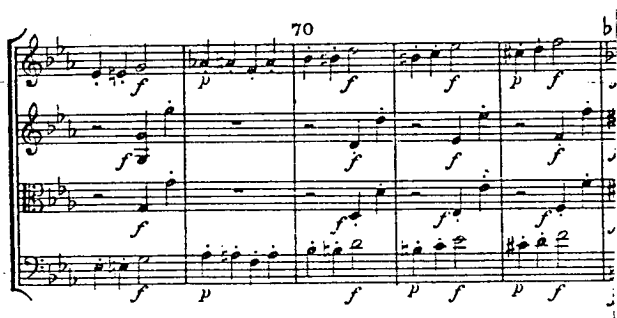
Example 23. Op. 135, second mvt., bars 37-46



Example 24. Op. 135, fourth mvt., bars 50-58



Example 25. Op. 135, third mvt., bars 52-54



Example 26. Op. 127, fourth mvt., bars 68-72



Example 27. Op. 127, third mvt., bars 193-208



Example 28. Op. 127, fourth mvt., bars 215-218



Example 29. Op. 127, fourth mvt., bars 278-280



Example 30. Op. 130, third mvt., bars 63-64



Example 31. Op. 130, fifth mvt., bars 21-26



Example 32. Op. 130, sixth mvt., bars 416-422



Example 33. Op. 130, sixth mvt., bars 443-448



Example 34. Op. 130, sixth mvt., bars 33-40



Example 35. Op. 130, sixth mvt., bars 218-225



Example 36. Op. 130, sixth mvt., bar 468



Example 37. Op. 131, fifth mvt., bars 247-256



Example 38. Op. 131, fourth mvt., bars 171-179



Example 39. Op. 131, seventh mvt., bars 263-268



Example 40. Op. 131, fifth mvt., bars 307-312



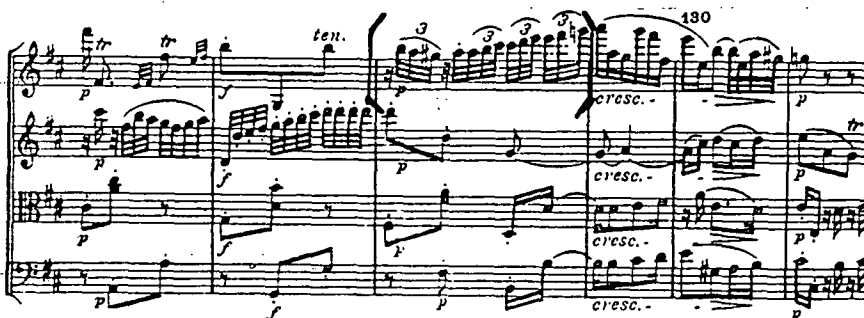
Example 41. Op. 132, fifth mvt., bars 328-333



Example 42. Op. 131, fifth mvt., bars 369-378



Example 43. Op. 132, second mvt., bars 41-48



Example 44. Op. 132, third mvt., bars 126-131



Example 45. Op. 133, bars 120-126



Example 46.



Example 47. Op. 127, first mvt., bars 25-32



Example 48. Op. 127, fourth mvt., bars 81-86

Ala danza tedesca
Allegro assai

IV

E. 1109

Example 49. Op. 130, fourth mvt., bars 1-8

E. 1110

Example 50. Op. 130, third mvt., bars 76-78

E. 1111

Example 51. Op. 131, first mvt., bars 25-33

Nº 6. Adagio quasi un poco andante.

E. 1112

Example 52. Op. 131, sixth mvt., bars 1-11



Example 53. Op. 131, seventh mvt., bars 192-201



Example 54. and Example 55. Op. 132, first mvt., bars 1-9



Example 56. Op. 132, third mvt., bars 20-30



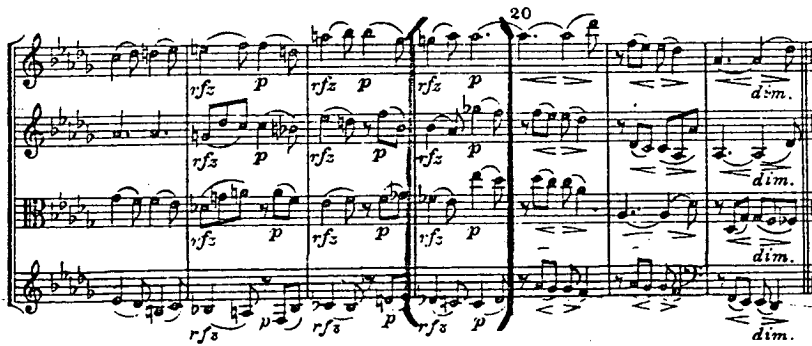
Example 57. Op. 132, fourth mvt., bars 36-40



Example 58. Op. 135, second mvt., bars 123-131



Example 59. Op. 135, first mvt., bars 79-83



Example 60. Op. 135, third mvt., bars 16-22



Example 61. Op. 135, fourth mvt., bars 102-122



Example 62. Op. 127, third mvt., bars 171-178



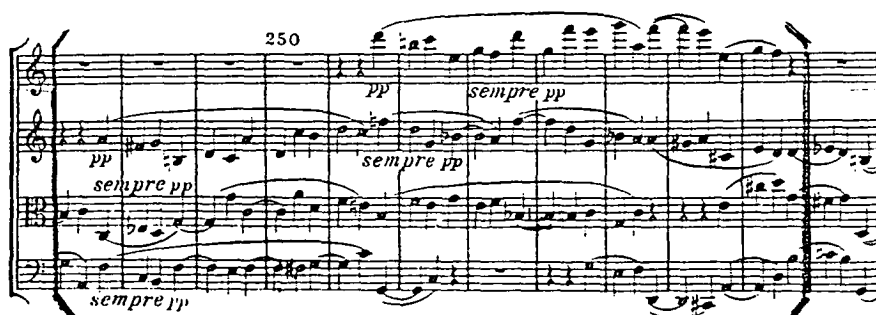
Example 63. Op. 127, second mvt., bars 1-3



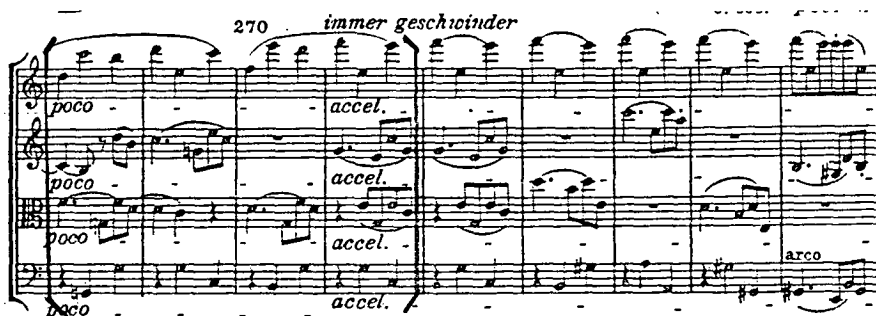
Example 64. Op. 135, third mvt., bars 1-8



Example 65. Op. 127, first mvt., bars 210-215



Example 66. Op. 132, fifth mvt., bars 247-258



Example 67. Op. 132, fifth mvt., bars 268-276



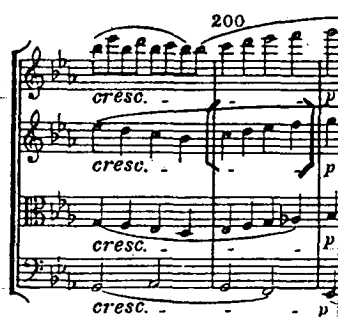
Example 68. Op. 130, fifth mvt., bars 55-60



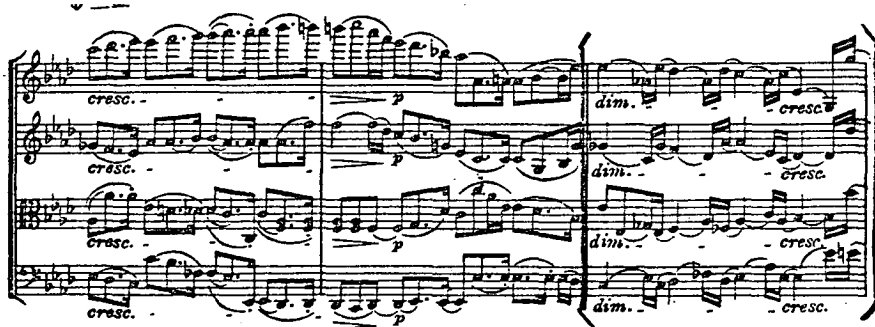
Example 69. Op. 131, fourth mvt., bars 191-194



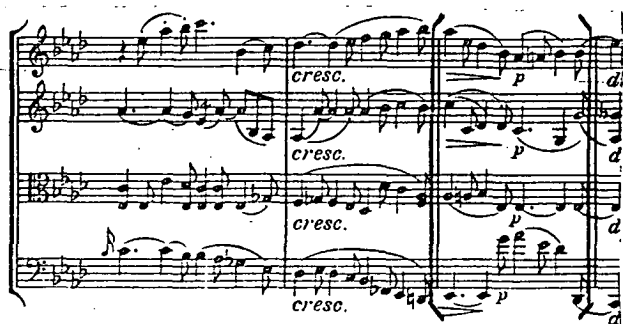
Example 70. Op. 132, first mvt., bars 138-142



Example 71. Op. 127, fourth mvt., bars 199-200



Example 72. Op. 127, second mvt., bars 35-37



Example 73. Op. 127, second mvt., bars 16-18

180

cresc. *dim.* *p*

cresc. *dim.* *p*

cresc. *dim.* *p*

cresc. *dim.* *p*

Example 74. Op. 131, fourth mvt., bars 180-186

Example 75. Op. 132, third mvt., bars 138-142

20

peress. p cresc.

peress. p cresc.

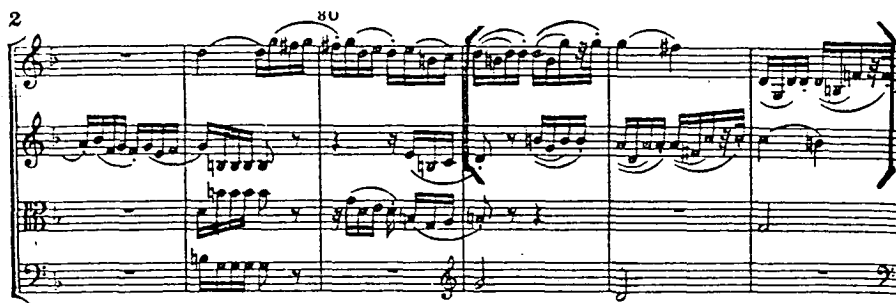
peress. p cresc.

decresc. p cresc.

Example 76. Op. 130, fifth mvt., bars 14-20

Musical score for "The Rose Tree" in 3/4 time. The score is written for four staves: Treble 1, Treble 2, Bass 1, and Bass 2. The key signature has one flat (B-flat). The tempo is marked "Allegretto". The score includes a repeat sign with first and second endings. The first ending leads back to the beginning, and the second ending leads to the final cadence. The score is numbered 70.

Example 77. Op. 135, first mvt., bars 67-73



Example 78. Op. 135, first mvt., bars 28-33



Example 79. Op. 132, first mvt., bars 182-187



Example 80. Op. 127, first mvt., bars 222-223



Example 81. Op. 135, second mvt., bars 262-272



Example 82. Op. 127, first mvt., bars 25-32



Example 83. Op. 135, first mvt., bars 155-163



Example 84. Op. 127, second mvt., bars 65-67



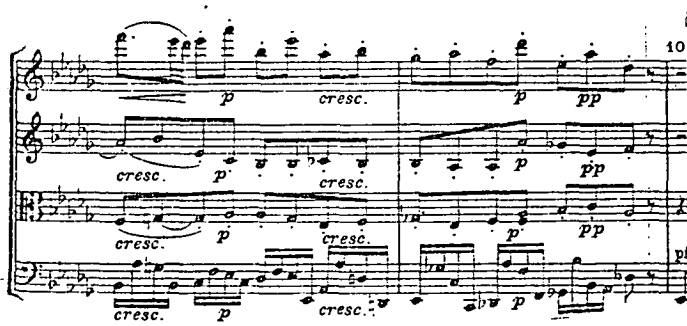
Example 85. Op. 131, fourth mvt., bars 57-60



Example 86. Op. 130, first mvt., bars 13-16



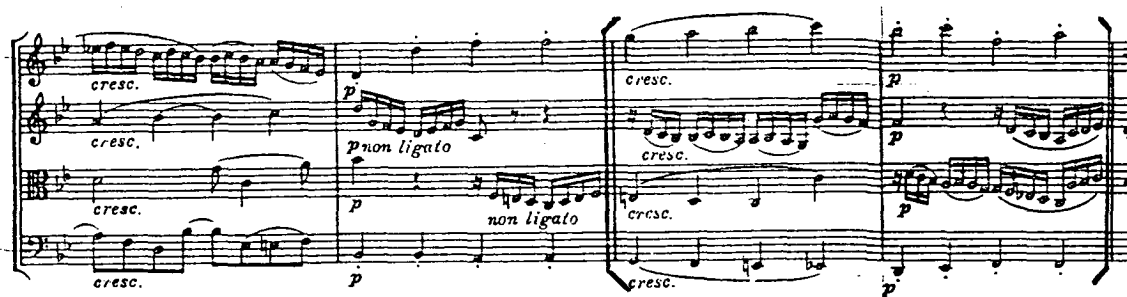
Example 87. Op. 130, first mvt., bars 42-49



Example 88. Op. 130, third mvt., bars 8-9



Example 89. Op. 130, fourth mvt., bars 27-29 (whole group)



Example 90. Op. 130, first mvt., bars 191-194



Example 91. Op. 132, second mvt., bars 58-65



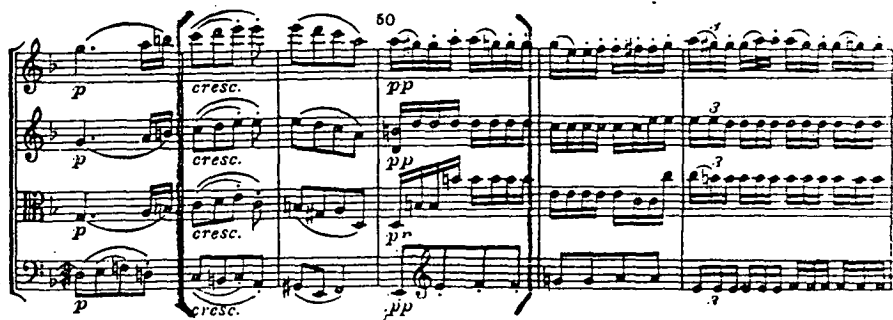
Example 92. Op. 131, fifth mvt., bars 59-67



Example 93. Op. 131, fifth mvt., bars 127-136



Example 94. Op. 135, first mvt., bars 15-20.



Example 95. Op. 135, first mvt., bars 47-52



Example 96. Op. 135, first mvt., bars 7-14



Example 97. Op. 131, second mvt., bars 127-143

Example 98. Op. 131, second mvt., bars 140-146.

Example 99. Op. 130, first mvt., bars 140-142

Example 100. Op. 127, third mvt., bars 182-190

Example 101. Op. 127, fourth mvt., bars 53-60

70

pp

cresc.

cresc.

cresc.

cresc.

cresc.

cresc.

E.F. 1:30

Example 102. Op. 130, first mvt., bars 69-76

170

p

cresc.

cresc.

cresc.

cresc.

cresc.

cresc.

Example 103. Op. 130, first mvt., bars 166-172

cresc.

cresc.

cresc.

cresc.

cresc.

cresc.

80

Example 104. Op. 127, first mvt., bars 17-32

250

dim.

dim.

dim.

dim.

dim.

dim.

ritard.

p dim.

pp

p dim.

pp

p dim.

pp

p

pp

Example 105. Op. 127, fourth mvt., bars 250-255

Example 106. Op. 135, first mvt., bars 155-164

Example 107. Op. 130, sixth mvt., bars 308-310

Example 108. Op. 132, first mvt., bars 148-151



Example 109. Op. 130, third mvt., bars 16-18



Example 110. Op. 127, fourth mvt., bars 61-67



Example 111. Op. 135, second mvt., bars 93-102



Example 112. Op. 127, first mvt., bars 7-15

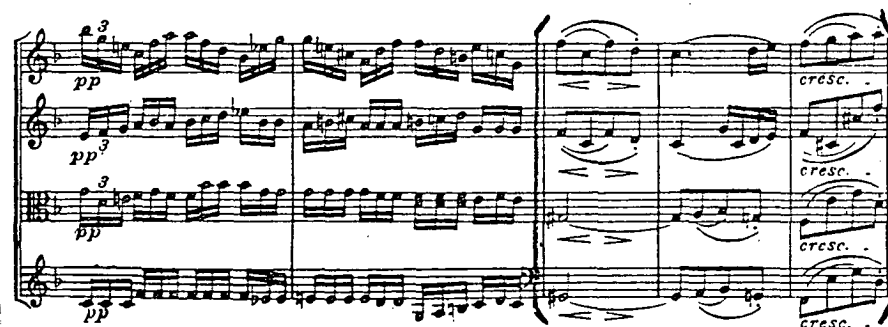




Example 117. Op. 131, first mvt., bars 42-48



Example 118. Op. 135, fourth mvt., bars 1-4



Example 119. Op. 135, first mvt., bars 145-149

60

f *p* *f* *p* *f* *p*

70

p *f* *p* *f* *p* *f*

E.E. 1104

Example 120. Op. 135, first mvt., bars 58-73

310

p *poco cresc.* *dim.* *pp* *pp* *pp*

p *poco cresc.* *dim.* *pp* *pp* *pp*

p *poco cresc.* *dim.* *pp* *pp* *pp*

p *poco cresc.* *dim.* *pp* *pp* *pp*

E.E. 1104

Example 121. Op. 130. sixth mvt., bars 210-316

APPENDIX A

Op. No.	Quartet	Lower Portamento	Upper Portamento	Downward Portamento	Same Finger	Total
127	Flonzaley	74	12	26	14	126
	Busch	57	11	21	1	90
	Hungarian	1	0	0	0	1
	Smetana	15	6	3	1	25
130	Pascal	19	8	27	12	66
	Budapest	19	5	21	1	46
	Smetana	+ 6	+ 2	+ 6	+ 0	+ 14
	Amadeus	+12	+ 8	+ 3	+ 1	+ 24
131	Busch	39	61	104	24	228
	Hungarian	4	16	21	3	44
	Fine Arts	12	21	13	5	56
	Amadeus	14	17	17	6	56
132	Pascal	16	17	14	9	56
	Hungarian	3	14	15	5	37
	Smetana	7	13	26	2	48
	Amadeus	18	15	32	4	70
133	Pascal	5	5	5	1	16
	Budapest	4	4	4	1	13
	Hungarian	1	1	1	0	3
	Amadeus	10	2	6	0	18
135	Flonzaley	13	14	22	4	53
	Busch	28	13	52	5	98
	Paganini	3	7	10	0	20
	Fine Arts	16	14	13	7	50

TABLE I. NUMBER OF PORTAMENTO EFFECTS

+ Not including the sixth movement, as the Smetana Quartet plays the original last movement, Op.133.

what number
see p 46.

















Section Number	Mvt.	Bar No.	Unit	PASCAL	HUNGARIAN	SMETANA	AMADEUS
1	1	1		76-88	69	66	69
2		7		50	48	54	52
3		75		76	72	69	76
4		81		50	46	50	54
5		135		72	76	63	72
6		139		50	46	50	46
7	2	1		100-126	76	100	100
8		38		88	96	100	96
9		59		80	69	72	92
10		76		116	76-92	116	108
11	3	1		56	60-63	56	56
12		70		66	58	80	70
13		144		152	152	152	152
14		281		56	63	54	56
15	4	1		116	112	112	120
16		256		112-120	138	162	152

TABLE II. BASIC TEMPO OF EACH SECTION OF OP.127.












Section Number	Mvt.	Bar No.	Unit	PASCAL	BUDAPEST	SMETANA	AMADEUS
1	1	1		66-76	60-72	69-84	92-104
2		15		126-138	104-132	100-138	132-144
3	2	1		160-168	168-176	160	160-168
4		17		176	168	168-176	168-184
5		54		176	138	112	168
6		64		168	176	160	168
7	3	1		58	56-58	56	60
8		66		58	60	56	60
9	4	1		48-52	54-60	54-58	69
10	5	1		44-72	60-64	66-72	66-88
11	6	1		120	144	-	138-144

TABLE III. BASIC TEMPO OF EACH SECTION OF OP.130.








Section Number	Mvt.	Bar No.	Unit	BUSCH	HUNGARIAN	FINE ARTS	AMADEUS
1	1	1		63-66	63-66	63-72	72
2	2	1		66	76	72	72
3	3	1		76	120-126	92	72
4		6		58	80-120	80	60-63
5	4	1		88-92	104-112	88-104	100
6		66		108-132	152-176	120	138
7		90		60	100	54-56	76-84
8		130		92	84	80	80-88
9		162		92-112	100	84	66
10		187		88-108	132	100	104
11		231		60	96	63	92
12		241		80	100	92	96
13		254		52	96	66	92
14		264		92	72-96	66-84	104
15	5	1		126	120	112	120
16		33		112	120	104	120
17		37		116	116	108	112
18		45		116	116	112	120
19		69		112	112	108	108
20		199		126	116	108	108
21		203		112	116	108	112
22		211		112	116	116	116
23		235		108	112	108	108
24		327		112-120	112-116	112-116	116
25		365		126	116	100	116
26		369		112	116	108	116
27		413		126	116	96	116
28		417		112	120	108	116
29	6	1		54-72	88	80-88	80-96
30	7	1		132	116-120	132	132

TABLE IV. BASIC TEMPO OF EACH SECTION OF OP.131.






Section Number	Mvt.	Bar No.	Unit	PASCAL	HUNGARIAN	SMETANA	AMADEUS
1	1	1		132-176	76	92	92
2		9		116	132	138-144	100
3		21		76	76	80	56
4		22		116-120	132	126	116
5		131		72	80	72	120
6		132		120	120-126	126	112
7	2	1		46-48	60	60	60
8		218		69	126	96	92
9		222		48	63	58	63
10	3	1		63	84	66	72
11		31		84	92	84	80
12		84		58	84	80	88
13		115		84	92	84	76-80
14		168		54-58	72	72	66-72
15	4	1		126	138	132	126
16		25		69	88	66	80-100
17		40		144	152	72-144	168
18		46		96	76	72	40-80
19	5	1		48	54-60	56-60	60
20		280		72	72	72	72

TABLE V. BASIC TEMPO OF EACH SECTION OF OP.132.












Section Number	Bar No.	Unit	PASCAL	BUDAPEST	HUNGARIAN	AMADEUS
1	1		120-138	116-168	144-152	144
2	17		96	88	138	126
3	26		126	104	88-92	126
4	30		132-138	116-120	116	132-138
5	159		112	46	72-76	52-54
6	233		126-132	144	152-160	144-160
7	493		120	112	144	116
8	533		126-132	144-152	152	144-152
9	657		120	112	100	92
10	660		100	80	100	92
11	663		126-138	132-144	144	138-144

TABLE VI. BASIC TEMPO OF EACH SECTION OF OP.133.





Section Number	Mvt.	Bar No.	Unit	FLONZALEY	BUSCH	PAGANINI	FINE ARTS
1	1	1		120	112-120	144-152	108-132
2	2	1		112-120	112-116	108-112	116-120
3	3	1		112	63-69	96	100
4		23		92-100	58	76	80-96
5		33		116	66	88	96
6	4	1		58	58-80	50	66
7		12		72-80	54	44	60
8		13		72-76	66	72-80	76-80
9		161		80-84	100	69	80
10		174		72-76	66	72-76	72-76
11		248		112	100	132	76
12		250		72-80	69	76	80

TABLE VII. BASIC TEMPO OF EACH SECTION OF OP.135.





















Section Number	Mvt.	Bar No.	Unit	PASCAL		HUNGARIAN		SMETANA		AMADEUS	
				1	2	1	2	1	2	1	2
1	1	1		76-88	12	52-69	17	66	0	69	0
2		7		42-54	7	42-50	8	48-56	8	50-58	8
3		75		76	0	72	0	69	0	76	0
4		81		46-50	9	44-48	4	50-56	0	52-56	4
5		135		72	0	76	0	63	0	72	0
6		139		46-52	6	44-48	4	46-54	8	46-54	8
7	2	1		96-126	30	63-100	37	72-116	44	84-100	16
8		38		80-92	12	80-100	20	92-104	12	84-100	16
9		59		40-44	4	58-69	11	69-84	15	92-100	8
10		76		108-144	36	76-108	32	88-120	32	92-112	20
11	3	1		138-176	38	56-63	7	50-56	6	52-60	8
12		70		66	0	58	0	80	0	76	0
13		75		168	0	63	0	84	0	48	0
14		78		66	0	58	0	54-56	2	72	0
15		81		168-176	8	60-66	6	54-58	4	52-56	4
16		144		138-152	14	144-160	16	138-152	14	120-152	32
17		269		56	0	63	0	54	0	56-58	2
18		281		56	0	63-66	3	54	0	54-56	2
19	4	1		112-120	8	104-116	12	88-120	32	108-126	18
20		256		112-120	8	132-150	18	104-116	12	126-160	34

TABLE VIII. OP.127 RANGE OF UNINDICATED TEMPO CHANGES

Column 1. Range

Column 2. Difference between slowest and fastest tempo.







Section Number	Mvt.	Bar No.	Unit	PASCAL		BUDAPEST		SMETANA		AMADEUS	
				1	2	1	2	1	2	1	2
1	1	1		69-76	7	66-76	10	69-76	7	46-50	4
2		15		128-138	12	132	0	138	0	144	0
3		20		66-76	10	72	0	76-80	4	48	0
4		25		112-132	20	104-132	28	116-144	28	120-144	24
5		94		72	0	69	0	80	0	48	0
6		96		144	0	104	0	138	0	138	0
7		97		76	0	69	0	76	0	48	0
8		100		72	0	108	0	138	0	138	0
9		101		66	0	60	0	84	0	50	0
10		104		108-138	30	104-132	28	120-138	18	120-144	24
11		214		60-66	6	69	0	72-76	4	48	0
12		218		144	0	126	0	132	0	138	0
13		219		66	0	66	0	80	0	46	0
14		220		138	0	126	0	132	0	144	0
15		221		66	0	66	0	80	0	48	0
16		222		126-138	12	112-126	14	126-132	6	132-136	6
17	2	1		152-160	8	176	0	152-168	16	160-168	8
18		17		168-176	8	168-184	16	160-176	16	168-184	16
19		64		160-176	16	176	0	152-160	8	164	0
20	3	1		46-58	12	52-63	11	100-120	20	54-63	9
21		66		40-60	12	48-63	15	108-116	8	58-63	5
22	4	1		46-52	6	48-63	15	54-58	4	66-69	3
23	5	1		40-72	32	66-84	18	60-72	12	63-88	25
24	6	1		112-126	14	126-144	18	-	-	132-144	12

TABLE IX. OP.130 RANGE OF UNINDICATED TEMPO CHANGES

Column 1. Range

Column 2. Difference between slowest and fastest tempo









Section Number	Mvt.	Bar No.	Unit	BUSCH		HUNGARIAN		FINE ARTS		AMADEUS	
				1	2	1	2	1	2	1	2
1	1	1		58-69	11	56-76	20	60-76	16	63-76	13
2	2	1		60-72	12	138-160	22	128-152	24	132-152	20
3	3	1		69-76	7	92-126	34	76-82	6	72-80	8
4		6		58-96	38	84-120	36	72-80	8	60-84	24
5	4	1		80-92	12	88-112	24	84-104	20	92-104	12
6		66		108-132	24	152-176	24	120-126	6	132-144	12
7		90		60-84	24	72-84	12	50-56	6	76-84	8
8		130		76-96	20	80-92	12	80-88	8	76-88	12
9		162		92-116	24	84-104	20	84	0	66	0
10		187		88-108	20	88-138	50	72-116	44	96-112	16
11		231		52-92	40	48-96	48	63-100	37	44-96	52
12		264		92	0	72-96	24	66-88	22	104-112	8
13	5	1		126	0	120	0	104-116	12	120	0
14		33		63-112	49	120	0	104	0	120	0
15		37		116	0	116	0	108	0	112-120	8
16		45		116-120	0	116-120	4	108	0	120	0
17		69		108-112	4	108-120	12	104-112	8	108-120	12
18		199		126	0	120	0	108	0	120	0
19		203		112	0	116	0	108	0	112	0
20		211		112	0	116	0	108-116	8	116	0
21		235		108-120	12	108-112	4	104-108	4	108-116	8
22		327		112-120	8	112-116	4	104-116	12	112-116	4
23		365		126	0	116	0	100	0	116	0
24		369		112-116	4	116	0	108	0	116	0
25		413		116-126	10	116	0	96	0	116	0
26		417		112-126	14	116-120	4	100-116	16	108-116	8
27	6	1		54-80	26	84-96	12	76-92	16	80-96	16
28	7	1		126-144	18	104-132	28	104-152	48	112-144	32
29		377		76	0	76	0	69	0	76	0
30		383		132	0	120-138	18	138	0	120-132	12

TABLE X. OP.131 RANGE OF UNINDICATED TEMPO CHANGES.

Column 1. Range

Column 2. Difference between slowest and fastest tempo.



















Section Number	Mvt.	Bar No.	Unit	PASCAL		HUNGARIAN		SMETANA		AMADEUS	
				1	2	1	2	1	2	1	2
1	1	1		66-88	22	72-92	20	46	0	44-46	2
2		9		116-138	22	120-138	18	132-144	12	100-116	16
3		21		76	0	76	0	80	0	56	0
4		22		84-144	60	92-138	46	104-144	40	104-120	16
5		131		72	0	80	0	72	0	120	0
6		132		84-132	48	60-132	72	112-126	14	104-132	28
7	2	1		44-50	6	56-72	16	56-76	20	56-66	10
8	3	1		56-69	13	63-92	29	66-72	6	69-84	15
9		31		60-88	28	56-92	36	80-88	8	76-80	4
10		84		56-63	7	76-88	12	76-80	4	40-44	4
11		115		60-88	28	66-96	30	72-86	16	76-80	4
12		168		40-58	18	60-84	24	69-72	3	63-72	9
13	4	1		120-138	18	126-138	12	126-132	6	126-138	12
14		25		100-160	60	132-176	44	60-132	72	80-100	20
15		40		144-152	8	152	0	72-144	72	84-168	84
16		46		96	0	72	0	72	0	40-80	40
17	5	1		42-54	12	50-66	16	52-60	8	56-66	10
18		280		66-76	10	63-80	17	66-76	10	69-76	7

TABLE XI. OP.132. RANGE OF UNINDICATED TEMPO CHANGES

Column 1. Range

Column 2. Difference between slowest and fastest tempo.














Section Number	Mvt.	Bar No.	Unit	FLONZALEY		BUSCH		PAGANINI		FINE ARTS	
				1	2	1	2	1	2	1	2
1	1	1		27	40	37	35	23	15	19	47
2	2	1		22	20	15	24	13	11	15	13
3	3	1		6	9	13	16	6	6	6	12
4		23		2	4	2	8	4	7	2	5
5		33		7	5	3	13	2	16	1	9
6	4	1		7	8	6	5	2	9	0	9
7		12		0	0	0	0	0	0	0	0
8		13		8	5	11	17	10	6	10	11
9		161		3	6	2	2	1	7	2	1
10		174		1	1	2	2	1	1	3	1
11		208		7	1	4	2	2	0	1	1
12		248		0	0	0	0	0	0	0	0
13		250		2	0	2	0	1	0	0	0

TABLE XIX. OP.135 FREQUENCY OF UNINDICATED TEMPO CHANGES
AND RUBATO.

Column 1. Number of unindicated tempo changes within a section.

Column 2. Number of rubato effects within a section.












Section Number	Bar No.	Unit	PASCAL		BUDAPEST		HUNGARIAN		AMADEUS	
			1	2	1	2	1	2	1	2
1	1		3	0	3	0	1	0	0	0
2	17		1	1	2	0	0	1	2	1
3	26		0	0	0	0	1	1	0	0
4	30		12	12	3	6	18	15	8	4
5	159		14	8	8	11	4	3	4	13
6	233		10	7	12	9	12	15	11	18
7	493		7	2	0	4	0	4	1	2
8	533		13	6	7	8	5	10	7	11
9	657		0	0	0	0	0	0	0	0
10	660		0	0	0	1	0	1	0	0
11	663		5	2	5	4	3	6	7	7

TABLE XVIII. OP.133. FREQUENCY OF UNINDICATED TEMPO
CHANGES AND RUBATO.

Column 1. Number of unindicated tempo changes within a section.

Column 2. Number of rubato effects within a section.



















Section Number	Mvt.	No.	Unit	PASCAL		HUNGARIAN		SMETANA		AMADEUS	
				1	2	1	2	1	2	1	2
1	1	1		4	2	2	4	0	3	1	2
2		9		3	5	6	4	4	2	2	3
3		21		0	1	0	0	0	0	0	1
4		22		43	14	24	37	20	37	14	25
5		131		0	1	0	1	0	0	0	1
6		132		40	20	32	33	23	31	19	27
7	2	1		29	23	14	23	15	40	16	14
8	3	1		9	17	15	21	4	17	10	18
9		31		15	9	9	14	2	14	4	2
10		84		15	8	10	13	2	14	3	7
11		115		24	7	12	12	7	10	4	3
12		168		29	22	10	23	4	17	5	13
13	4	1		13	9	5	23	1	8	8	8
14		25		3	3	4	10	4	8	1	10
15		40		2	2	0	2	2	2	1	2
16		46		0	1	0	1	0	0	1	0
17	5	1		36	7	32	24	20	25	7	10
18		280		16	2	14	5	13	8	8	4

TABLE XVII. OP.132 FREQUENCY OF UNINDICATED TEMPO

CHANGES AND RUBATO.

Column 1. Number of unindicated tempo changes within a section.

Column 2. Number of rubato effects within a section.












Section Number	Bar No.	Unit	PASCAL		BUDAPEST		HUNGARIAN		AMADEUS	
			1	2	1	2	1	2	1	2
1	1		112-138	26	116-168	52	138-152	14	144	0
2	17		48-52	4	88-96	8	138	0	116-126	10
3	26		126	0	104	0	88-92	4	126	0
4	30		120-138	18	116-120	4	108-120	12	126-138	12
5	159		100-116	16	92-104	12	72-80	8	100-108	8
6	233		116-138	42	132-152	20	76-144	68	144-160	16
7	493		108-126	18	112	0	144	0	116-120	4
8	533		112-132	20	108-152	44	132-160	28	120-152	32
9	657		120	0	112	0	108	0	116	0
10	660		100	0	80	0	100	0	92	0
11	663		120-138	18	126-144	18	120-160	40	132-144	12

TABLE XII. OP.133. RANGE OF UNINDICATED TEMPO CHANGES

Column 1. Range

Column 2. Difference between slowest and fastest tempo.





Section Number	Mvt.	Bar No.	Unit	FLONZALEY		BUSCH		PAGANINI		FINE ARTS	
				1	2	1	2	1	2	1	2
1	1	1		108-126	18	96-126	30	120-152	32	108-132	24
2	2	1		104-120	16	104-116	12	108-116	8	104-120	16
3	3	1		52-60	8	112-168	56	88-108	20	88-126	38
4		23		46-50	4	108-132	24	63-80	17	80-96	16
5		33		54-63	9	120-144	24	80-96	16	96-104	8
6	4	1		52-72	20	58-80	22	44-50	6	66	0
7		12		80	0	54	0	40	0	60	0
8		13		69-76	7	66-72	6	72-80	8	72-80	8
9		161		76-84	8	92-100	8	60-69	9	72-80	8
10		174		72-76	4	63-66	3	72-76	4	72-80	8
11		208		56-76	20	63-66	3	72-76	4	60-72	12
12		248		56	0	100	0	132	0	152	0
13		250		72-80	8	66-69	3	76-80	4	80	0

TABLE XIII. OP.135. RANGE OF UNINDICATED TEMPO CHANGES.

Column 1. Range

Column 2. Difference between slowest and fastest tempo.





















Section Number	Mvt.	Bar No.	Unit	PASCAL		HUNGARIAN		SMETANA		AMADEUS	
				1	2	1	2	1	2	1	2
1	1	1		1	1	1	1	0	7	0	3
2		7		6	5	8	7	5	6	3	8
3		75		0	1	0	2	0	6	0	1
4		81		7	3	4	4	2	6	2	2
5		135		0	3	0	0	0	2	0	2
6		139		8	12	13	14	9	19	6	11
7	2	1		6	11	21	21	18	34	5	12
8		38		5	4	6	6	4	10	4	2
9		59		1	14	5	12	4	10	3	8
10		76		10	25	24	25	19	42	13	16
11	3	1		2	4	8	8	3	4	10	5
12		70		0	0	0	0	0	1	0	0
13		75		0	0	0	0	0	0	0	0
14		78		0	0	0	0	1	0	0	0
15		81		2	3	4	2	6	1	4	6
16		144		5	1	7	5	5	6	8	3
17		269		0	1	0	1	0	1	1	0
18		281		0	0	1	1	0	0	2	1
19	4	1		9	19	20	12	29	31	9	21
20		256		4	6	9	4	6	10	10	7

TABLE XIV. OP.127. FREQUENCY OF UNINDICATED TEMPO
CHANGES AND RUBATO.

Column 1. Number of unindicated tempo changes within a section.

Column 2. Number of rubato effects within a section.







Section Number	Mvt.	Bar No.	Unit	PASCAL		BUDAPEST		SMETANA		AMADEUS	
				1	2	1	2	1	2	1	2
1	1	1		3	7	5	3	2	3	2	2
2		15		1	1	0	1	0	1	0	0
3		20		3	3	0	2	1	1	0	1
4		25		10	15	16	14	9	15	8	6
5		94		0	0	0	1	0	1	0	1
6		96		0	0	0	0	0	0	0	0
7		97		0	0	0	1	0	1	0	2
8		100		0	0	0	0	0	0	0	0
9		101		0	1	0	2	0	0	0	1
10		104		25	14	15	22	9	23	5	7
11		214		3	2	0	3	1	2	0	1
12		218		0	0	0	0	0	0	0	0
13		219		0	0	0	0	0	0	0	0
14		220		0	0	0	0	0	0	0	0
15		221		0	0	0	0	0	0	0	0
16		222		4	1	2	4	1	3	1	2
17	2	1		4	0	0	0	2	5	1	1
18		17		3	0	5	5	8	5	7	4
19		64		2	2	0	2	5	8	0	0
20	3	1		39	12	27	28	13	20	8	20
21		66		7	6	10	6	7	7	3	5
22	4	1		8	13	7	22	4	19	1	15
23	5	1		48	33	9	36	17	28	11	28
24	6	1		55	31	30	25	-	-	17	7

TABLE XV. OP.130. FREQUENCY OF UNINDICATED TEMPO

CHANGES AND RUBATO.

Column 1. Number of unindicated tempo changes within a section.

Column 2. Number of rubato effects within a section.








Section Number	Mvt.	Bar No.	Unit	BUSCH		HUNGARIAN		FINE ARTS		AMADEUS	
				1	2	1	2	1	2	1	2
1	1	1		8	30	29	43	22	35	13	19
2	2	1		11	12	17	29	12	30	13	17
3	3	1		1	1	2	3	3	1	3	0
4		6		2	6	4	5	1	4	5	5
5	4	1		7	19	11	16	8	21	6	11
6		66		7	5	6	7	1	8	7	4
7		90		6	10	6	16	6	14	2	6
8		130		5	14	5	22	8	15	3	9
9		162		4	5	5	8	0	5	0	5
10		187		4	16	19	22	21	18	5	15
11		231		1	1	1	2	6	5	11	7
12		264		0	3	4	7	8	6	2	7
13	5	1		0	1	0	4	2	2	0	4
14		33		1	0	0	0	0	0	0	0
15		37		0	1	0	1	0	0	2	1
16		45		2	4	1	4	0	0	0	1
17		69		5	12	6	6	6	0	2	7
18		199		0	0	0	0	0	0	0	0
19		203		0	0	0	0	0	0	0	0
20		211		0	1	0	1	2	1	0	0
21		235		4	6	2	8	6	2	2	8
22		327		2	2	1	4	3	0	1	1
23		365		0	0	0	0	0	0	0	0
24		369		1	2	0	3	0	0	0	1
25		413		0	0	0	0	0	0	0	0
26		417		5	2	2	7	10	5	2	3
27	6	1		9	17	5	20	14	9	8	15
28	7	1		28	29	38	76	50	34	27	40
29		377		0	0	0	1	0	0	0	0
30		383		0	1	1	1	0	0	2	1

TABLE XVI. OP.131. FREQUENCY OF UNINDICATED TEMPO CHANGES
AND RUBATO.

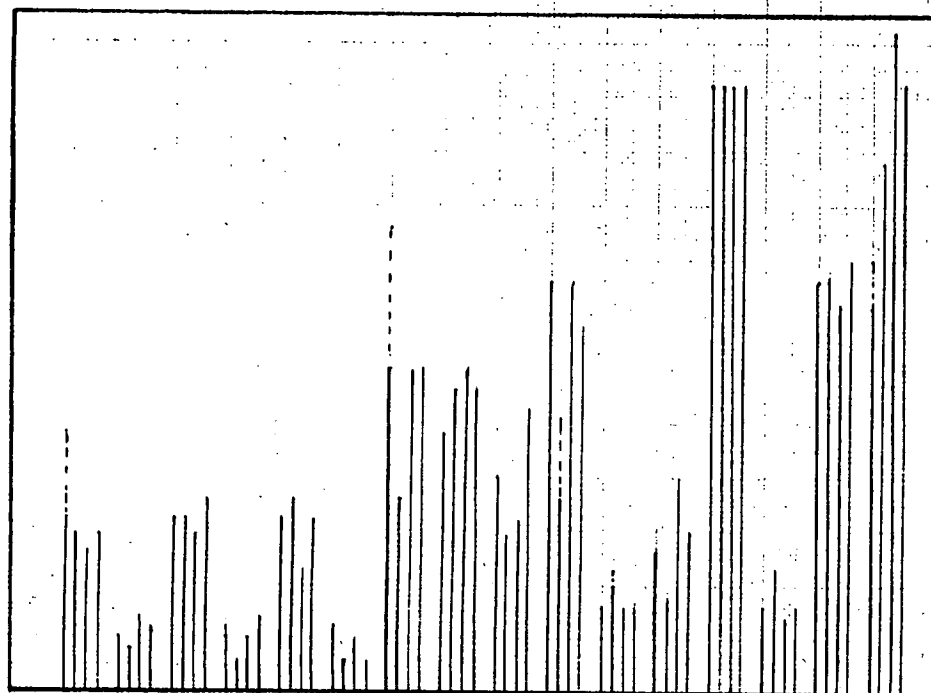
Column 1. Number of unindicated tempo changes within a section.

Column 2. Number of rubato effects within a section.

FIGURE I

OPUS 127

BASIC TEMPO OF EACH SECTION BY FOUR QUARTETS



FOUR QUARTETS BY SECTIONS 1-16

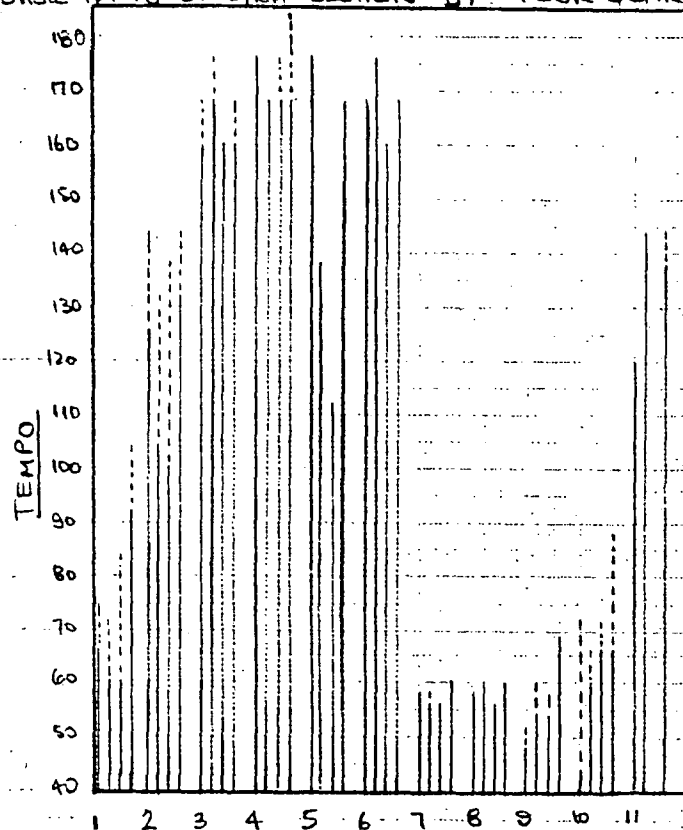
SECTION NUMBER	MVT	TEMPO MARKING	BAR NO	UNIT
1	1	MAESTOSO	1	♩
2		ALLEGRO	7	♩
3		MAESTOSO	75	♩
4		ALLEGRO	81	♩
5		MAESTOSO	135	♩
6		ALLEGRO	139	♩
7	2	ADAGIO; HA NON TROPPO E MOLTO SCONTABILE	1	♩
8		ANDANTE CON MOTO	39	♩
9		ADAGIO MOLTO ESPRESSIVO	59	♩
10		TEMPO I	76	♩
11	3	SCHERZANDO VIVACE	1	♩
12		ALLEGRO	70	♩
13		PRESTO	144	♩
14		TEMPO I	282	♩
15	4	FINALE	1	♩
16		ALLEGRO CON MODO	256	♩

QUARTETS IN ORDER

1. FLONZALEY
2. BUSCH
3. HUNGARIAN
4. SMETANA.

FIGURE II

OPUS 130
BASIC TEMPO OF EACH SECTION BY FOUR QUARTETS



FOUR QUARTETS BY SECTIONS 1-10

SECTION NUMBER	MVT	TEMPO MARKING	BAR NO	UNIT
1	1	ADAGIO, MA NON TROPPO	1	J
2	1	ALLEGRO	15	J
3	2	PRESTO.	1	J
4	2	L'ISTESSO TEMPO	17	d.
5	2	L'ISTESSO TEMPO	54	d.
6	2	—	64	d.
7	3	ANDANTE CON MOTO, MA NON TROPPO	1	J
8	3	TEMPO 1	66	J
9	4	ALLA DANZA TEDESCA. ALLEGRO ASSAI	1	J.
10	5	CAVATINA. ADAGIO MOLTO ESPRESSIVO	1	J
11	6	FINALE. ALLEGRO.	1	J

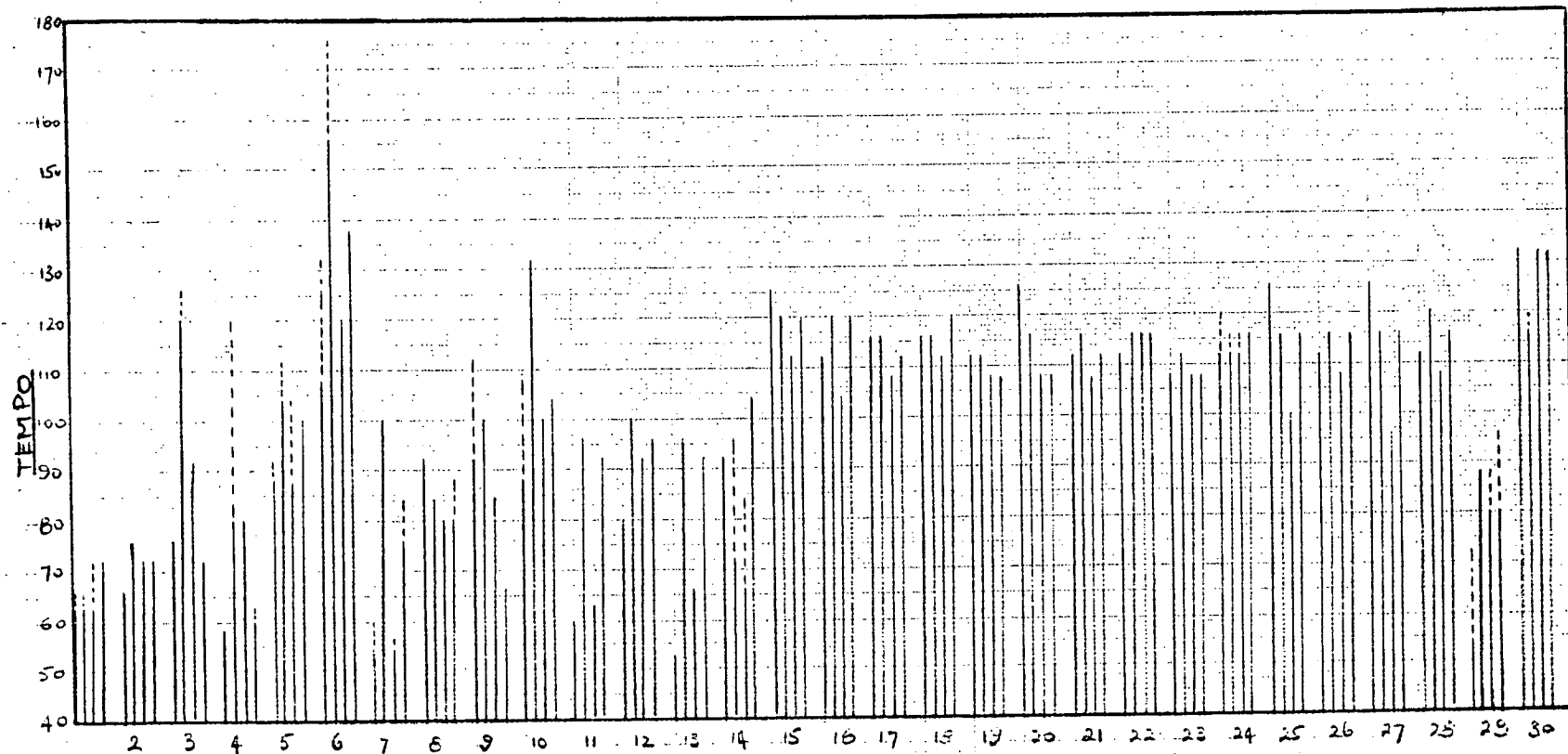
QUARTETS IN ORDER

1. PASCAL
2. BUDAPEST
3. SMETANA
4. AMADEUS

FIGURE III (a)

OPUS 131

BASIC TEMPO OF EACH SECTION BY FOUR QUARTETS



FOUR QUARTETS BY SECTIONS 1-30

FIGURE III (b)

OPUS 131

SECTION NUMBER	MVT	TEMPO MARKING	BAR NO	UNIT
1	1	ADAGIO, MA NON TROPPO E MOLTO ESPRESSIVO	1	J
2	2	ALLEGRO MOLTO VIVACE	1	d
3	3	ALLEGRO MODERATO	1	J
4		ADAGIO	6	J
5	4	ANDANTE, MA NON TROPPO E MOLTO CANTABILE	1	J
6		PIÙ MOSSO	66	J
7		ANDANTE MODERATO E LUSINGHIERO	90	J
8		ADAGIO	130	J
9		ALLEGRETTO	162	J
10		ADAGIO, MA NON TROPPO E SEMPLICE	187	J
11		ALLEGRETTO	231	J
12		IN TEMPO	241	J
13		ALLEGRETTO	254	J
14		IN TEMPO	264	J
15	5	PRESTO	1	o
16		MOLTO POCO ADAGIO	33	o
17		TEMPO I	37	o
18		IN TEMPO	45	o
19			69	o
20		MOLTO POCO ADAGIO	199	o
21		TEMPO I	203	o
22		IN TEMPO	211	o
23			235	o
24			327	o
25		MOLTO POCO ADAGIO	365	o
26		TEMPO I	369	o
27		MOLTO POCO ADAGIO	413	o
28		TEMPO I	417	o
29	6	ADAGIO QUASI UN POCO ANDANTE	1	J
30	7	ALLEGRO	1	d

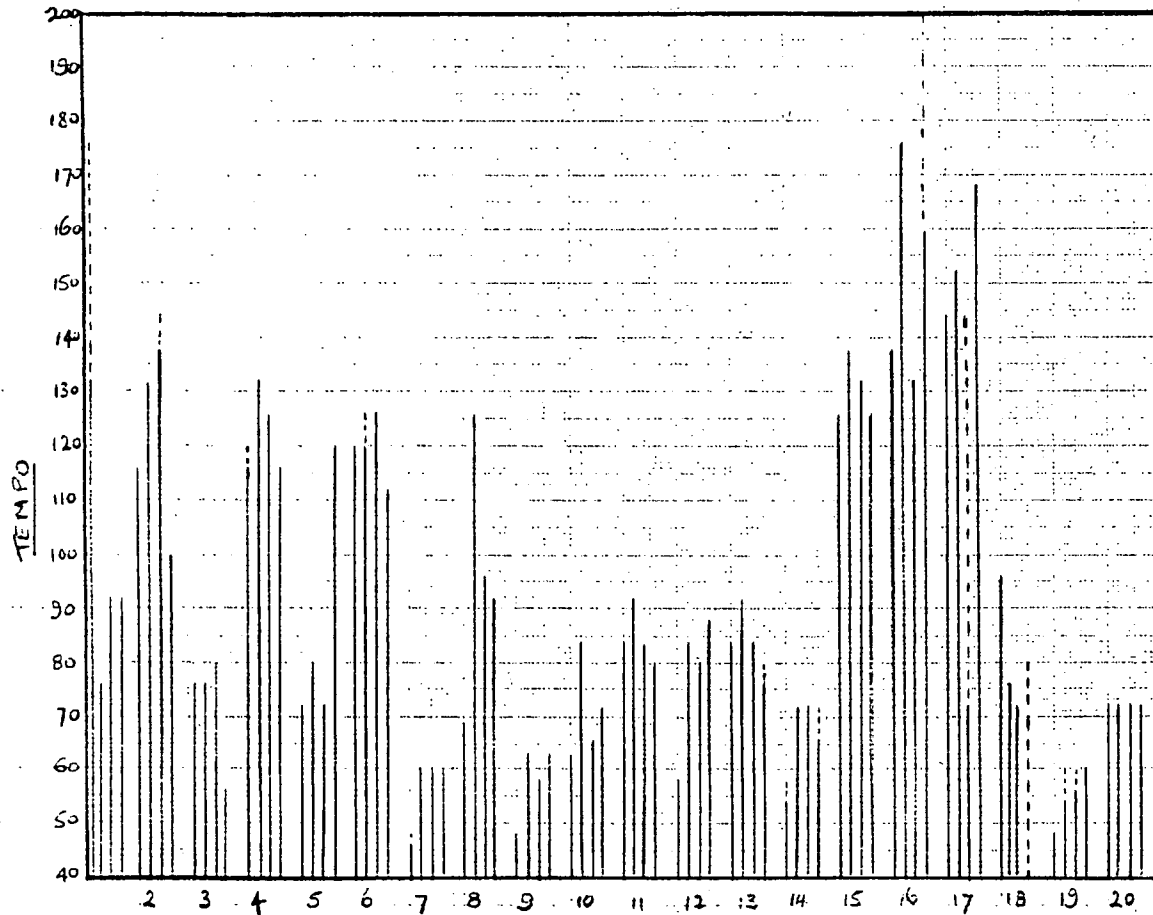
QUARTETS IN ORDER

1. BUSCH
2. HUNGARIAN
3. FINE ARTS
4. AMADEUS

FIGURE IV

OPUS 132

BASIC TEMPO OF EACH SECTION BY FOUR QUARTETS



FOUR QUARTETS BY SECTIONS 1-20

SECTION NUMBER	MVT	TEMPO MARKING	BAR NO	UNIT
1	1	ASSAI SOSTENUTO	1	♩
2		ALLEGRO	9	♩
3		ADAGIO	21	♩
4		ALLEGRO	22	♩
5		ADAGIO	131	♩
6		ALLEGRO	132	♩
7	2	ALLEGRO MA NON TANTO	1	♩
8		L'ISTESSO TEMPO	218	♩
9		L'ISTESSO TEMPO	222	♩
10	3	MOLTO ADAGIO	1	♩
11		ANDANTE	31	♩
12		MOLTO ADAGIO	84	♩
13		ANDANTE	115	♩
14		MOLTO ADAGIO	168	♩
15	4	ALLA MARCIA, ASSAI VIVACE	1	♩
16		PIU ALLEGRO	25	♩
17		PRESTO	40	♩
18		PIU ADAGIO	46	♩
19	5	ALLEGRO APPASSIONATO	1	♩
20		PRESTO	280	♩

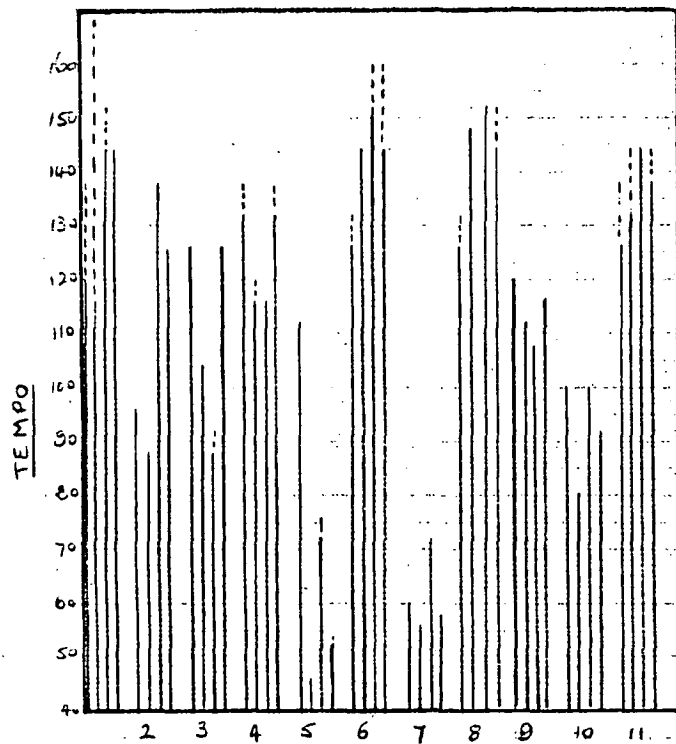
QUARTETS IN ORDER

1. PASCAL
2. HUNGARIAN
3. SMETANA
4. AMADEUS

FIGURE V

OPUS 133

BASIC TEMPO OF EACH SECTION BY FOUR QUARTETS



FOUR QUARTETS BY SECTIONS 1-11

SECTION NUMBER	TEMPO MARKING	BAR NO	UNIT
1	OVERTURA. ALLEGRO	1	1
2	MENO MOSSO E MODERATO	17	1
3	ALLEGRO	26	1
4	FUGA	30	1
5	MENO MOSSO E MODERATO	159	1
6	ALLEGRO MOLTO E CON BRIO	233	1
7	MENO MOSSO E MODERATO	493	1
8	ALLEGRO MOLTO E CON BRIO	533	1
9	ALLEGRO	657	1
10	MENO MOSSO E MODERATO	660	1
11	ALLEGRO MOLTO E CON BRIO	663	1

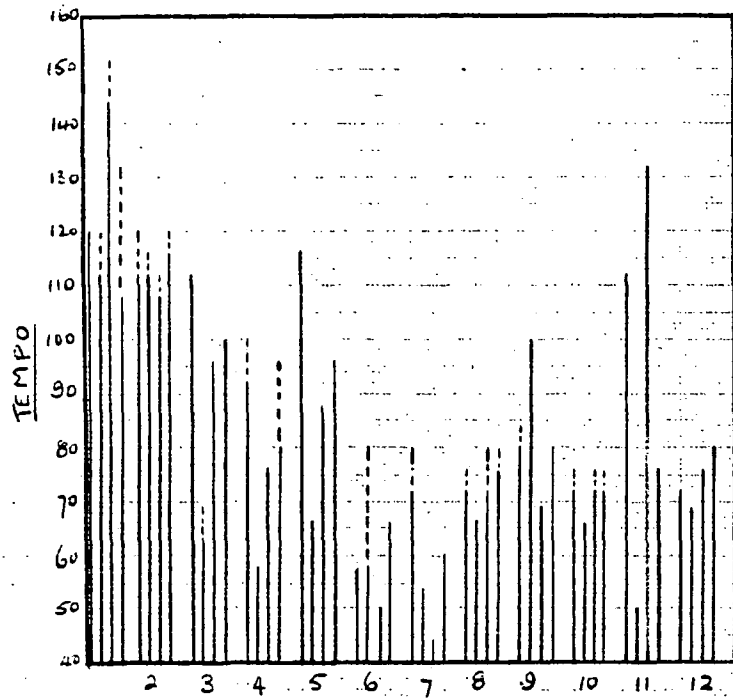
QUARTETS IN ORDER

1. PASCAL
2. BUDAPEST
3. HUNGARIAN
4. AMADEUS

FIGURE VI

OPUS 135

BASIC TEMPO OF EACH SECTION BY FOUR QUARTETS



FOUR QUARTETS BY SECTIONS 1-12

SECTION NUMBER	MVT	TEMPO MARKING	BAR NO.	UNIT
1	1	ALLEGRETTO	1	f
2	2	VIVACE	1	f
3	3	LENTO ASSAI, CANTANTE E TRANQUILLO	1	f
4		PIU LENTO	23	f
5		TEMPO I	33	f
6	4	GRAVE, MA NON TROPPO TRATTO	1	f
7		ADAGIO	12	f
8		ALLEGRO	13	f
9		GRAVE, MA NON TROPPO TRATTO	161	f
10		ALLEGRO	174	f
11		PIU ADAGIO	248	f
12		TEMPO I	250	f

QUARTETS IN ORDER

1. FLONZALEY
2. BUSCH
3. PAGANINI
4. FINE ARTS

BIBLIOGRAPHY

- Apel, Willi, editor. Harvard Dictionary of Music. Cambridge, Mass.: Harvard University Press, Revised ed., 1973.
- Arnold, Denis and Nigel Fortune. The Beethoven Companion. London, Faber, 1971.
- Clough, Francis F., and G.J. Cuming. The World's Encyclopaedia of Recorded Music. Connecticut: Greenwood Press, 1966.
- Czerny, Carl. The Art of Playing the Ancient and Modern Pianoforte Works. London: R. Cocks, 1970.
- Eaglefield-Hull, A., editor. Beethoven's Letters. New York: Dover Publications, 1972.
- Fiske, Roger. Beethoven's Last Quartets. London: O.U.P., 1940.
- D'Indy, Vincent. Beethoven. Books for Libraries Press, 1970. Reprint of 1913 ed.
- Kerman, Joseph. The Beethoven Quartets. London: O.U.P., 1967.
- Kersh, Friedrich, and Edward Krehbiel, editors. Beethoven: The Man and the Artist as Revealed in his Own Words. New York: Dover, 1964.
- Lam, Basil. Beethoven String Quartets. 2 vols. London: B.B.C., 1975.
- Mohaim, Evan. Beethoven: Naissance et Renaissance des Dernier Quatuors. Paris: Desdie de Brouner, 1964.
- Mareck, George R. Beethoven: Biography of a Genius. New York: Funk and Wagnalls, 1969.
- De Marliave, Joseph. Beethoven Quartets. Translated by Hilda Andrews. New York: Dover, 1961.

Mason, D.G. The Quartets of Beethoven. London: O.U.P., 1947.

Mies, Paul. Beethoven's Sketches: Study of his Style from his Sketchbooks. New York: Dover, 1974.

Mozart, Leopold. A Treatise on the Fundamental Principles of Violin Playing. Translated by Editha Knocker. 2nd ed. London: O.U.P., 1951.

The New Grove Dictionary of Music and Musicians. 5th ed. 1980.

S.V. "Amadeus Quartet", "Budapest Quartet", "Fine Arts Quartet", "Flonzaley Quartet", "Hungarian Quartet", "Smetana Quartet".

Radcliffe, P. Beethoven String Quartets. Cambridge: Cambridge University Press, 1978.

Rieman, Hugo. Musik-Lexicon. Mainz: B. Schödt's Söhne, 1975.

Rosen, Charles. The Classical Style. New York: Viking Press, 1971.

Scherman, Thomas K., and Louis Biancolli, editors. The Beethoven Companion. New York: Doubleday and Co., 1972.

Schindler, Anton. Beethoven as I Knew Him. Edited by Donald W. MacArdle. Translated by Constance S. Jolly. London: Faber and Faber, 1966.

Schwann-1: Record and Tape Guide. Boston, Mass.: Schwann Publications, May 1982.

Sonneck, D.G., editor. Beethoven: Impressions by his Contemporaries. New York: Dover, 1967.

Szigeti, Joseph. On the Violin. London: Cassell, 1969.

Temianka, Henri. Facing the Music. New York: David McKay Company, 1973.

Thayer, Alexander Wheelock. Thayer's Life of Beethoven. Revised and edited by Elliot Forbes. Princeton, New Jersey: Princeton University Press, 1967.

Tovey, Donald Francis. Beethoven. London: O.U.P., 1944.

Truscott, Harold. Beethoven's Late String Quartets. London: Dennis Dobson, 1968.