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A BRIEF HISTORICAL SURVEY OF THE HARP AND ITS LITERATURE WITH AN ANALYSIS OF SELECTED HARP COMPOSITIONS FROM THE MID-TWENTIETH CENTURY TO THE PRESENT

By

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A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

Department of Music

1981

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ABSTRACT

A BRIEF HISTORICAL SURVEY OF THE HARP AND ITS LITERATURE WITH AN ANALYSIS OF SELECTED HARP COMPOSITIONS FROM THE MID-TWENTIETH CENTURY TO THE PRESENT

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From the perspective of a harpist having an in-depth knowledge of and interest in how music is written for the harp, this study entails an intensive analysis of four selected compositions and pertinent observations regarding the use of the instrument.

An historical and technical discussion of the harp shows how and why the instrument survived from Antiquity to be elevated from an early historical accompaniment role to that of a solo instrument which has attracted the interests and talents of composers throughout the world.

On the basis of their compositional complexity and their suitability to the harp, the following works were selected for analysis: Fantasy for Solo Harp (1969), by Gunther Schuller (b. New York, 1925); Tranche pour Harpe Seule (1967), by Betsy Jolas (b. Paris, 1926); Toccata for Harp (1961), by Ami Ma'ayani (b. Israel, 1936); and Pour Harpe (1965), by Tadasi Yamanouchi (b. Japan, 1935). Analytical techniques include twelve-tone, set-theory, and conventional methods.

Contrary to any assumptions regarding the harp's limited chromaticism, Schuller's Fantasy (requiring a re-tuning of two strings) is a twelve-tone work with total pitch serialization. The Jolas and Yamanouchi compositions illustrate dissonant contrapuntal sections, and the Jolas and Ma'ayani works exhibit varied contrasting chromatic textures.

Some chromatic limitations of the harp are evident in Fantasy in the numerous required pedal changes, in Tranche in a significantly less use of pitches that have no enharmonic equivalents on the harp, and in an obvious avoidance of pedal changes in Pour Harpe, where a succession of set pedal arrangements controls pitch material that follows. Toccata entails a moderate use of pedal changes as well as a moderate use of chromaticism.

With regard to idiomatic writing, the works analyzed display various textures, timbres and embellishments. Examples of the harp's special effects as used by Schuller and Jolas are notable.

This study shows that the harp can be used effectively and chromatically in complex works representing twentieth-century musical styles. In addition, appendices of selected lists of solo and chamber works show an impressive repertory.

ACKNOWLEDGMENTS

I acknowledge Associated Music Publishers, Inc., Boosey and Hawkes, Inc., Theodore Presser Company and Mr. Tadasi Yamanouchi for granting permission to reproduce scores and musical examples to meet the requirements of this dissertation. For their assistance in providing data for the appendices and for their extraordinary teaching of the harp, I acknowledge Miss Velma Froude and Miss Lucile Lawrence.

I am deeply indebted to Dr. Russell E. Friedewald, who as my thesis advisor and mentor in music theory and analysis, offered valuable expertise and guidance. I am also grateful to members of my guidance committee, Dr. Theodore Johnson, Dr. Merrill Sherburn, Dr. Edgar Kirk and Dr. Heinz Dill for their assistance.

TABLE OF CONTENTS

Chapter Page

I. INTRODUCTION 1

II. A BRIEF HISTORICAL SURVEY OF THE HARP AND ITS LITERATURE 5

III. ANALYSIS OF FANTASY FOR SOLO HARP, COMPOSED BY GUNTHER SCHULLER 32

IV. ANALYSIS OF TRANCHE POUR HARPE SEULE, COMPOSED BY BETSY JOLAS 46

V. ANALYSIS OF TOCCATA FOR HARP, COMPOSED BY AMI MA'AYANI 64

VI. ANALYSIS OF POUR HARPE, COMPOSED BY TADASI YAMANOUCHI 73

VII. SUMMARY AND CONCLUSIONS 86

APPENDICES

A. SELECTED LIST OF HARP WORKS PRIOR TO THE MID-TWENTIETH CENTURY 89

B. SELECTED LIST OF SOLO HARP LITERATURE FROM THE MID-20TH CENTURY TO THE PRESENT 93

C. SELECTED LIST OF CHAMBER WORKS WITH HARP FROM THE MID-20TH CENTURY TO THE PRESENT . . 96

D. REDUCED SCORES OF WORKS ANALYZED IN THIS STUDY 99

BIBLIOGRAPHY 136

CHAPTER I

INTRODUCTION

Whether a musical creation is spontaneous or laborious, systematic or experimental, its realization demarcates an instrumental province.

In Western music history musical manuscripts, publications, extra-musical literature and art data, all chronicle a musical repertory that suggests or corroborates contemporaneous instruments and performance practices. With varying degrees of reliability and revelation these sources trace significant stages in the development of musical instruments. In addition, they reveal a social role of music as well as trends in musical style.

Through its long history the harp has enjoyed a significant though sporadic popularity and has managed to adapt, in several stages of development, to changing societal uses and musical innovations. Unlike its ancient associates, the lyre and the dulcimer, which have become obsolete or have developed into the unrecognizable form of the pianoforte, the harp has retained its basic shape and timbre. However, until the Twentieth Century, and especially the post mid-century mark, its potential in instrumentation has not been realized.

Due to its existence in the shadow of other historically dominant instruments, such as the organ, lute, guitar, virginal, violin, and piano, the harp has been relegated to a more or less subordinate status. It served primarily for poetical accompaniment in Antiquity and the Middle Ages, in court ensembles during the Renaissance, as a continuo-thoroughbass in the Baroque period, as a substitute for keyboard instruments in the Classical period, and as an orchestral color resource in the Romantic period.

With its present physical-mechanical structure, achieved in the early part of the Nineteenth Century, the instrument known as a double-action pedal harp offers an enormous wealth of harmonic and timbral resources. It possesses a range comparable to that of the piano, a capacity for chromatic and multi-voice musical textures, a unique enharmonic provision (by virtue of a flat, natural, and sharp position for each string), and a wide assortment of coloristic timbres. These include special effects executed by a variety of finger or finger-nail plucking, strumming and damping techniques, and distinctive tone colors unique to the various registers.

Yet, because its structure requires a player to pluck the strings (using the thumb and first three fingers of both hands) and to operate seven foot pedals (essential for altering the diatonic tuning), the harp is less well equipped for some rapid passage-work and chromatic changes that could be played more easily on a keyboard. This operational hazard, however, alludes primarily to seventeenth, eighteenth, and nineteenth-century musical styles.

Due to such twentieth-century musical styles as impressionism, atonality, dissonant counterpoint and dodecaphony, all of which are free from tonal restrictions of the previous three centuries, the harp has become an increasingly significant and useful orchestral and chamber music instrument. If notated with regard to performance feasibility in relation to pedaling and fingering, it may be used effectively in various ensembles, in that it blends well and has a unique tone quality and a wide range of dynamics. Furthermore, an expanding post-mid-century solo repertory has enhanced its utilization.

With its singular resources and peculiar performance requirements, the instrument poses difficult problems for composers: unique harp notation symbols (that indicate special timbral effects or pedal positions); a performance practicability (allowing for feasible pedaling and fingering); and an avoidance of pianistic style writing (a common failing, as the harp and piano both utilize two-staff notation).

A selective examination of post-mid-century harp solo literature shows a body of works not only conceived especially for the harp, but one which represents various twentieth-century avant-garde styles (see Appendix B). Following a brief historical survey, this study focuses on an analysis of four works, Fantasy for Solo Harp, by Gunther

Schuller, Tranche, by Betsy Jolas, Toccata for Harp, by Ami Ma'ayani, and Pour Harpe, by Tadasi Yamanouchi. These analyses, using twelve-tone, set-theory, and conventional techniques, disclose varied uses of the instrument's chromatic, coloristic, textural, and enharmonic capabilities. Moreover, they delineate complex, aesthetic, and carefully wrought compositions.

Analytical methods vary among the four studies, as certain procedures adapt more logically than others to each work. The analysis of the Jolas work, for example, involves conventional methods, while the Schuller study requires primarily twelve-tone techniques and a minimal use of set-theory applications. The Ma'ayani study, on the other hand, utilizes set-theory extensively, and includes explanations of techniques that are not generally familiar. Likewise employing set-theory, the Yamanouchi study also utilizes conventional methods. Reduced scores may be found in Appendix D.

CHAPTER II

A BRIEF HISTORICAL SURVEY OF THE HARP AND ITS LITERATURE

The harp has had a long and enchanting history. From Antiquity to modern times, this tuneful, graceful and magical instrument has played a significant role in civilization and culture and has had a unique history of development and survival.

From vestiges of ancient Western civilization in Egypt and Mesopotamia, through epochs of European cultural and political transformations, to a modern, world-wide dissemination of western musical style, it emerges as the only melodic instrument of Antiquity to have survived in professional usage to the Renaissance, and thereafter to have adapted to musical styles from the Baroque period to the present. With an _arched_ or _triangular_ shape and a perpendicular graded free-stringing, the harp could be made to various sizes and tunings, and thereby contend with societal needs as well as musical innovations.

The presence of actual remnants in tombs as well as depictions in representations of funerals and other ceremonials, all suggest a high regard for the instrument in early civilization. The harp is not only prominent in royal or religious processions, but also conspicuous in literary accounts of heroic verse accompaniment and in mythology. For example, mural paintings show harpists leading processions, while vases, carvings and statues depict players sitting, kneeling, standing, marching or dancing. Harps are shown held against a player's right or left shoulder and plucked by either or both hands. In instances of both hands being used, a left-shouldered instrument, for example, would require a player to pluck the lower strings with the right hand and the upper strings with the left hand.

In Antiquity, bow shaped and angular types developed into larger, louder and stronger models with increasing numbers of strings and with various sizes, shapes and positions of resonator boxes. Instruments from ca. 4000 B.C. had fewer than ten strings attached to a concave sound chest. A later type (ca. 2600 B.C.), an upright, floor standing type with seven strings and a deeper sound box, was played by a kneeling musician. During the same era was a 4-string shoulder model, held with its canoe shaped sound box resting horizontally on a player's shoulder. In the tomb of Rameses III (ca. 1250 B.C.) a mural painting shows two 11 and 12 or 13-string floor standing models (6 to 7 feet tall) with standing players.[1]

Two kinds of harps served the Assyrian Empire (950-659 B.C.). One was a horizontal angle harp held by a shoulder strap and played with a plectrum; the other a vertical angle harp held on the lap of a sitting player and plucked with both hands.

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[1] See drawings in Sir J. Gardner Wilkinson, Manners and Customs of the Ancient Egyptians, ed. by Samuel Buch, Vol. I (Boston: S.E. Cassino & Co., 1883), 434-471.

Ancient Phoenicians had a vertical angular harp. The Hebrews, while in Canaan, probably adopted the Phoenician instrument. A Hebrew term for harp, nebel (meaning to inflate or to bulge, and as suitable to an instrument with a bulging resonating body as to inflated skin bottles or clay jugs), is similar to the Phoenician term nabla, which represented a vertical angular harp. Hebrew and Phoenician models had 12 strings, plucked with a plectrum by the Phoenicians and with fingers by the Hebrews. Compared with the ancient Hebrew and Phoenician lyre (kinnor), the nebel or nabla was louder and lower pitched. This is noteworthy inasmuch as a pillarless type could support minimal string tension, and therefore would have a low pitched range. Its loudness depended upon the size of its resonator box.[2]

Political and geographic shifts of power in the first four millenia B.C. account for the harp's changing societal use and status. Greeks and Romans, for example, regarded it as foreign to their culture. Indeed, to Greek philosophers it was sensual, effeminate and injurious to morals, and Romans considered it indecent in respectable houses.[3] However, the harp, along with the lyre, was associated with the muses. A Greek vase from the time of Alexander the Great (350 B.C.) depicts a vertical angle harp held in the lap of Polyhymnia, the Muse of sacred poetry.[4] Also, an account of a harp accompanied poetical narrative is found in Homer's Odyssey (see quote and footnote on page 83).

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[2] Peter Gradenwitz, The Music of Israel, Its Rise and Growth Through 5,000 Years (New York: W.W. Norton, 1949), 52.

[3] Hortense Panum, The Stringed Instruments of the Middle Ages, English translation revised and edited by Jeffrey Pulver (London: William Reeves Bookseller Ltd., 1939. Reprint, New York: Da Capo Press, 1971), 85.

As for the development of the western frame harp, the most significant geographic area of later Antiquity includes the British Isles and Scandinavia. Known to Phoenicians, Greeks and Romans as trading outposts, Northern societies undoubtedly absorbed some Eastern religious and social customs. It is significant to note similarities in the harp's established functions in ancient Eastern cultures and early medieval Northern societies. These include an accompaniment role in pagan religious worship and in bardic narratives of heroic deeds and sagas,[5] as well as a symbolic and inspirational role in mythological characterizations and in quelling the warring spirit of soldiers. For example, an account written in the first century B.C. by Diodorus, a Roman historian, indicates that on an "island off Gaul" worshipers of Appollo accompanied themselves on the harp (or lyre?) while chanting hymns.[6] Early medieval sagas, such as the

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[4] Carl Engel, A Descriptive Catalogue of the Musical Instruments in the Kensington Museum, Revised ed., 1908 (New York: Benjamin Blom, Inc., 1971), 35.

[5] Accompaniment was probably a strumming or plucking of octaves or 5ths in a pentatonic tuning, and verse recitation may have been sung or spoken.

[6] John Thomas, History of the Harp (London: William Reeves Bookseller Ltd., ca. 1910), 8.

Anglo-Saxon Beowulf, have accounts of harper-poets who entertained in the same tradition as that related in the Odyssey. Irish, Welsh and German bardic traditions became established by the 6th Century, and Scandinavian mythology (having an origin in previous centuries, although written in the 13th Century) gives accounts of water spirits or necks who taught and inspired harp playing, recalling the function of the muses, and of the legendary King Gunnar, renowned for his magical harping.[7]

These literary references citing the instrument cannot be considered reliable inasmuch as terminology has not been translated clearly; nor can they be presumed to designate specific types of instruments, but rather, general classifications. Terms representing the harp or lyre are frequently interchanged or mis-translated, and sometimes designate other types of stringed instruments such as the Scandinavian bowed-harp, a fiddle type instrument. Confusion regarding terminology and the fact that many accounts were written centuries after their origin result in inconclusive historical data concerning the harp.

No extant evidence points to a transfer of the instrument from eastern to western centers of Antiquity, nor to its presence in the North prior to the 8th or 9th Centuries, although an established bardic tradition could justify an assumption that it was in use in earlier centuries.

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[7] Otto Anderson, The Bowed-Harp, a study in the History of Early Musical Instruments, Edited by Kathleen Schlesinger (London: William Reeves Bookseller Ltd., 1930), 145.

The instrument could have been adopted from Roman legions occupying Britain, or transported to the British Isles by Phoenician or Greek merchants. It is also conceivable that Roman Christian missionaries, using hymns as a means of acquiring converts, adopted the practice of accompanying themselves with some type of stringed instrument, which they could have transported or that was already familiar to the converts. On the other hand, considering the singular resourcefulness and ingenuity of Northern peoples in skillfully dealing with a harsh climate and seafaring existence, Germans, Britons, Celts and Scandinavians may have developed the harp independently of Eastern influence. What scant evidence exists points to the instrument having been adopted by Angles, Saxons and Jutes of Northern Germany and Denmark and transfered to England during 5th and 6th-century Germanic invasions.

The earliest evidence of the harp in the British Isles survives in depictions on 9th-century Irish stone crosses. These represent both an ancient (pillarless) type and one that appears to have a forepillar (the Ullard harp, A.D. 800). Anglo-Saxons are credited with producing the _triangular_ or _frame_ harp, the forerunner of the modern harp. This amounted to the incorporation of a forepillar between the outermost extensions of the string arm and resonator box in order to support greater string tension, thereby preventing upper strings from buckling when tension was increased on lower strings. This type is not known to have appeared before the 10th Century in Britain. However, a bow shaped instrument with a sprung-in forepillar to support its curved neck was carried by the Finns in their 7th-century migration from Western Siberia. Another feature of the Anglo-Saxon model, the downward position of its sound box, is noted in the harp of the Ostyak tribes of Western Siberia (racially connected with the Finns).[8]

Evidence in the form of pictures and remnants dating from the 10th Century traces the triangular harp on the British Isles from England to Western Scotland, to Ireland (in the 11th Century), and to Scandinavia and Europe by the 12th Century. While the earliest known picture of the frame harp in Britain dates from the 10th Century, the earliest known representation of the Anglo-Saxon type in Ireland dates from the 11th Century, and probably came to Ireland from England. This representation in Ireland shows a harp held on the left shoulder, with the right hand playing the bass strings and the left hand playing treble strings, whereas the English representation depicts an instrument resting on the right shoulder and the left hand playing bass and the right hand playing treble.[9]

In Ireland, the preferred material for strings was metallic (brass, silver or gold) rather than the Anglo-Saxon twisted horsehair. In order to support string tension, the Irish constructed a stronger forepillar. In addition, they added strings and enlarged the sound box thereby producing a stronger and more sonorous instrument than the Anglo-Saxon predecessor. With wire stringing, the Irish harp was played with the fingernails.

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[8] F.W. Galpin, "The Sumerian Harp of Ur, c. 3500 B.C.," Music and Letters, Vol. X, No. 2 (1929), 122-123.

[9] Richard Hayward, The Story of the Irish Harp (Belfast: Arthur Guinness Son & Co., Ltd., 1954), 9.

Evidence points to an Irish influence on Scandinavian harps. The triangular type was probably carried to Scandinavia from Ireland through Viking expeditions. A 12th-century depiction in Scandinavia, resembling an Irish form of the Anglo-Saxon harp, is the earliest known evidence of a harp in Norway. However, there is speculation based on mythological references and the intermix of Irish and Norwegian culture during the Viking era (from the 9th Century), that harps could have existed in Norway prior to that time. A Nordic stone cross depicting an Irish type frame harp was found on the Isle of Man, which was overrun and half colonized by Vikings. Also, an Irish type is found in some pictures associated with the King Gunnar legends.[10]

The question of how the harp was carried to the European continent has not been resolved precisely. No known evidence points to its transfer from Asia (contrary to the known ancestry of all other European instruments), although some evidence in 12th-century manuscripts from the Black Forest shows that the frame harp had been transferred from England by the 12th Century.

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[10] Panum, op. cit., p. 122.

In medieval Europe, in light of an allegorical usage, instruments were considered to be symbolic with regard to mythological morality and Christianity. The harp was represented as having mystical or magical powers that could sooth and inspire, and that could promote or represent divine powers and knowledge. These pervasive powers, also attributed to the harp in Antiquity and having infiltrated the bardic and mythological traditions of the Early Middle Ages, now became synonymous with certain characterizations in medieval Christian allegory.

Long associated with pagan worship as well as with royal processions and court entertainments, the instrument was proscribed during the Patriarchal era of Christianity (4th Century). After the Edict of Milan recognized Christianity (A.D. 313), vestiges of non-Christian life style were forbidden on order to purify Christian worship. With the exception of the organ, these included all musical instruments, because they were looked upon as distractions to Gentile converts.

Hebrew Synagogue worship too, forbade a use of instruments, advocating instead the human voice, with its unique purity, as the only suitable expressive means with which to praise God. Scriptural citations portraying the use of musical instruments, such as those referring to the harp and lyre in Psalms, were acknowledged in fact, although viewed by Christian Patriarchs and Jewish ecclesiastics as instances of God's disapproving acceptance of man's imperfect worship--also demonstrated with regard to animal sacrifices.[11]

However, the frequency of 4th-century prohibitions against the use of certain instruments probably reflects that they were in actual use, if not in liturgical practice, then possibly in some other way related to Christian worship or everyday life.

By the 9th Century, Old Testament instruments were interpreted as having meaning for a Christian if understood as spiritual representations, and were depicted allegorically. This kind of allegorical usage is referred to as Christological exegesis whereby historical events represent symbols or shadows of a higher reality. In this sense, instruments referred to in the Old Testament are justified allegorically, rather than as previously, explained away in terms of their use being in error, but acceptable to God.[12]

The Utrecht Psalter, an early 9th-century illuminated manuscript, provides the earliest extant example of verse illustration of the Psalms, as well as the earliest known evidence of a harp in Europe. In these illuminated miniatures, the harp is depicted symbolically, inasmuch as it represents King David and certain Psalm verses.

Although the Utrecht Psalter and other relics show a harp with some semblance of a forepillar, there is no substantive proof that this type was present in Europe prior to the 12th Century. In fact, it is possible that illuminations were added to the Utrecht Psalter in a later century (perhaps when it was copied and re-copied in England) since they represent the Anglo-Saxon school.[13]

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[11] James McKinnon, "Musical Instruments in Medieval Psalm Commentaries and Psalters," Journal of the American Musicological Society, Vol. 21 (1968), 8.

[12] Ibid., 5-10.

Following the Crusades, illuminated manuscripts depicted fingerboard instruments (lute and guitar), psalteries, and percussion and wind instruments, citing an Eastern (Persian, Arab, Byzantine) influence. One type of psaltery shown in manuscript illuminations after the Crusades consisted of a harp shaped box strung on both sides. This resembled a harp in that it was held in an upright position and was plucked on both sides. However, in the illustrations only one hand is visible and a plectrum is used.

Also following the Crusades was the emergence of German and Anglo-Saxon minstrels and French jongleurs who accompanied their narrative poems with a harp. The jongleurs displayed many talents, including an ability to perform acrobatics and to play several instruments, the most popular of which were the harp, lute and viol. Although originally punished by excommunication, jongleurs eventually were accepted in Church worship as communicants and as performers in holy day celebrations. As professional musicians they played an important role in liturgical dramas and mystery plays by leading processions past religious tableaux and attracting worshippers to special Church feasts. The tableaux, performed on temporary stages at stopping places along the route of a procession, incorporated drama and symbolism into a religious scene or characterization. Processions of this type took place in England, France, Burgundy, Belgium, Spain, and Germany.

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[13] Kathleen Schlesinger, "The Harp," in Encyclopedia Britannica, Eleventh edition (London, 1911, Vol. XIII), 20.

The instruments used in allegorical tableaux and in entertainments were grouped into two categories, _haut_ (loud and shrill) and _bas_ (soft and low). The _bas_ group included vielles, psalteries, harps, rotes, bagpipes, and hurdy gurdies, while _haut_ instruments included field trumpets, drums, cymbals, shawms and bagpipes, or those played by "musicians who are going to stir up . . . gaiety."[14]

In 14th and 15th-century mystery plays, the orchestra and chorus were behind the scenes with _haut_ instruments at ground level and _bas_ instruments in an elevated section. All instruments were used in processions to attract an audience, and were played during entr'acts to maintain audience attention. _Haut_ instruments were used for scenes of Judgment Day, triumphal entries and military scenes, and drums and cymbals represented deeds of the devil. _Bas_ instruments, including harps, lutes, vielles, rebecs, flutes and the portative organ accompanied choirs of angels and scenes of Paradise. Shepherds in Christmas plays were accompanied with flutes, recorders, or bagpipes, and _bas_ instruments accompanied the appearance of Jesus. While some mystery plays designated haut or bas, there were no further indications as to specific instruments.[15]

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[14] Edmund A. Bowles, "Haut and Bas: The Grouping of Musical Instruments in the Middle Ages," _Musica Disciplina_, VIII (1954), 119-120.

As an indoor instrument, the harp was held in highest esteem and was played by members of royal families and the feudal aristocracy. In 1384 a harpist, along with twenty-seven other musicians, was engaged at the court of Philip the Bold, Duke of Burgundy (1342-1404), who is known to have enjoyed bas music after dinner. John of Flanders, Philip's unscrupulous successor (1404-1419), employed 6 harpists, 6 trumpeters, 12 vielle players, a lutenist and wind players, according to a list of payments in 1419. Duke Philip the Good of Burgundy (1419-1467) engaged vielle players, lutenists, harpists and wind players in his chapel.[16]

In court orchestras the harp was used with the vielle, guitar and other guitar-like instruments of various sizes. This kind of instrumentation accompanied carol dancing, usually performed by court ladies. In fact, the 15th-century basse danse was named after these instruments.

According to an hierarchy of instruments in the Middle Ages, the chief instrument was the human voice, followed by artificial instruments. The highest ranking of these were the organ, clavichord and other keyboard instruments, followed by the lute and possibly the harp because of its favored court status. Other string instruments followed, ranking above wind, wood and brass instruments.[17]

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[15] Ibid., 135-137.

[16] Edmund A. Bowles, "Instruments at the Court of Burgundy (1363-1467)," The Galpin Society Journal, VI (July, 1953), 43-46.

In the 15th Century, the harp was a favorite of the English as well as the Flemish nobility. Both Henry V and his French Queen, Katherine, played the instrument, and Henry V was a composer. Other 15th-century monarchs, including Edward IV, Richard III and Henry VII all were patrons of music, as was Charles V of France. Henry IV, however, imprisoned Irish harpers.[18]

Inventory lists, representing 16th-century collections of English dukes and kings, show a prevalence of wind instruments, including flutes, recorders, shawms, organs, cromornes, horns, cornets, bagpipes, reed pipes and trombones. String instruments included virginals, lutes, viols, guitars, clavichords and harps. For the most part, instruments were played in homogeneous groups or consorts, often including several sizes ranging from treble to bass of the same type of instrument. The harp did not fall into this category and was often either omitted from collections and inventory lists or listed with only one or two representatives. This would indicate its use when a harper was available or in accordance with the sovereign's preference.

In 1530, Henry VIII's Band of Musick included one harp along with viols, a fife, lutes, drums, rebecs, sackbuts, trumpets and a virginal. During Edward VI's reign, in 1547, a bagpipe and more viols were added. While English and Irish harpers were present in the court of King James IV of Scotland, Elizabeth I in 1570-76 issued commissions to ban Irish harpers, although she had employed Welsh players in 1567.[19] By 1540, the instrument was replaced in popularity by the lute, which was chromatic, and by viols, recorders, the virginal, clavichord, and especially, the violin.

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[17] John Stevens, Music and Poetry in the English Tudor Court (London: Methuen & Co., Ltd., 1961), 312.

[18] William Henry Grattan Flood, The Story of the Harp (Boston: Longwood Press. Reprint of 1905 edition), 59-65.

During the 16th Century, a significant interchange of music and musicians took place among the royal and noble houses of Europe. French and Flemish instrumentalists traveled to the courts and chapels of Aragon and Castille, and Spanish musicians traveled to Naples and England.

Due to a Flemish influence at the Spanish court of Charles V and that of his son, Philip II, the harp during the 16th and 17th Centuries became a favored instrument in courts and cathedrals and was widely played by amateurs and monks. By the mid-17th Century, Spanish cathedrals and large churches employed harpists who played primarily continuo (and sometimes also served as organists). Many of them had permanent posts at the Royal Chapel of Madrid (until 1733) and at the Cathedrals of Toledo, Salamanca, Avila and Valencia.[20]

A reference to the use of the instrument in mid-16th-century Spain was made by Juan Bermudo in 1555. He wrote,

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[19] _Ibid_., 69-73.

[20] N. Zabaleta, "The Harp in Spain from the 16th Century to the 18th Century," _Harp News_, I, No. 8 (1953), 4.

"Very few players have a harp and there is hardly one celebrated executant. No one tries to play it perfectly or to study in order to know its possibilities." (Declaracion de Instrumentos Musicales, 1555).[21] Of the diatonic harp with 25 or 27 strings he wrote, "The harp has a not negligible imperfection. It is about the number of strings, as it lacks the semitones of a chromatic nature."[22]

By the end of the 16th Century and in the 17th Century, a harp of two orders had become popular. This had two rows of inter-crossed strings (one order corresponding with the diatonic and the other with the chromatic notes on a keyboard) and was capable of music designated for contemporary fretted and keyboard instruments. For this reason, composers indicated, "tecla" (keyboard), "harpe," and "vihuela" (lute) on the title page of their scores.

Like the Irish, Spanish harpists had a unique method of playing. In his method book (Madrid, 1677), Ribayaz advocates a use of two fingers of each hand--the thumb and index finger of the right hand and the index and middle fingers of the left hand. In his treatise (Madrid, 1702-04), Diego Fernández de Huete promotes a technique using the thumb, index and middle fingers of both hands.[23]

The first harp music published in Spain was incorporated in the Tres libros de musica of A. Mudarra. This work, published in Seville in 1546, contains a tiento for harp. Another publication of note is the *Obras de Música para tecla, arpa y vihuela* of Antonio de Cabezón (Madrid, 1578). Designated for keyboard instruments, harp and lute, it contains 130 works by several composers. In a prologue to the works of Antonio Cabezón, his son, Hernando, said, "The harp is so like the keyboard instruments, that anything that can be played on the latter, can be performed on the harp without much difficulty."[24] All notated in tablature, publications associating the harp with keyboard instruments and the lute initiated its ensuing role in the Baroque musical era as an associate or substitute keyboard instrument. While this subjugation diminished its status somewhat, it also points to its capacity to accommodate Baroque compositional innovations.

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[21] Joan Rimmer, "Harps in the Baroque Era," Proceedings of The Royal Musical Association, 90th Session (1964), 69.

[22] Zabaleta, op. cit., p. 2.

[23] Ibid., 8.

With an emerging trend towards expressive instrumental music in the Baroque period, innovations in musical style called for instruments that could provide an expanded range and tonality and a wide range of dynamics. Many instruments were set aside and forgotten, and new instruments emerged.

The harp survived, as did the viols, A newly emerging instrument was the violin. Bassoons, oboes and flutes survived, but many non-expressive reed instruments did not. Since the harp could be played expressively and because of its structural capacity to increase in size, loudness and range, it retained a professional status and was used primarily as a continuo.

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[24] *Ibid*., 2-4.

Customarily, several instruments simultaneously played continuo parts. String or wind instruments would play the bass line, above which chordal instruments, i.e., keyboard instruments (such as the harpsichord or organ), bass lutes (such as the theorbo or chitarrone), large citterns, the bandora, and the harp would play the figurations.[25]

Continuo instruments in 17th-century Italian monodies included the harpsichord, chitarrone (the most popular), clavichord, spinet, theorbo and lute. Also used were the Spanish guitar (having replaced the lute in popularity, although not used as commonly as the harp), the chitariglia (a small, possibly 4-stringed, guitar) and the double harp (arpa doppia). A favorite of the cultured few, the arpa doppia, an expensive aristocratic instrument, was frequently listed on the title page of monodies by aristocratic dilettanti.[26]

With two ranks (one diatonic and one chromatic) of diagonal crossed strings, this was the type of instrument indicated by Monteverdi in a performance of L'Orfeo (scored for 30 to 40 instruments) at Mantua in 1608. In 1581, in his

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[25] Jeremy Montagu, The World of Baroque and Classical Musical Instruments (Woodstock, New York: The Overlook Press, 1979), 18.

[26] Nigel Fortune, "Continuo Instruments in Italian Monodies," The Galpin Society Journal, VI (July, 1953), 10-13.

Dissertation on Ancient and Modern Music, Vincenzo Galilei states that the double harp, or harp with two rows of strings, was common in Italy in his day.[27]

Arpa doppia probably also implied an instrument of "double" size, i.e., a very large instrument capable of a sounding bass part and having a substantial sustaining and carrying power.

During the 17th and 18th Centuries, the triple harp became standard. This type had three vertical ranks of strings (not crossed), with two diatonic outer rows and a chromatic inner row. Originally devised in Italy at the end of the 16th Century or at the beginning of the 17th Century, it represents one of several attempts during the Baroque period to construct a fully chromatic instrument. Others, including the lirone and chitarrone, did not survive the era.[28]

According to Marin Mersenne (Harmonie Universelle, 1635), the triple harp was invented by Eustache and perfected by the composer-harpist, Orazio Michi (Horace Michi), who was in the service of the cardinals and trained in Naples on the arpa doppia. The Italian triple was "right-sided," i.e., held against the right shoulder with the right hand playing in the upper register. A typical Italian model might have had 94 strings, with ranks numbering 32, 31 and 31. Strung thus (i.e., nearly completely in all three ranks, and with a minimum of four and one-half octaves), it could provide a florid melodic line in the bass. This kind of instrument was used as a continuo in aristocratic performances of opera, monody and intermezzi, but was supplanted by the more dynamically brilliant harpsichord.[29]

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[27] Thomas, op. cit., p. 15.

[28] Joan Rimmer, "The Morphology of the Triple Harp," The Galpin Society Journal, XVIII (March, 1965), 90.

In France, the triple harp may have been introduced by Italian musicians at the court of Catherine of Medici, where, in 1582 (according to a contemporary account), an orchestra for a performance of the "Ballet Comique de la Royne" included harps, lutes, hautboys, cornets, sackbuts, lyres, flutes, and bowed strings. This instrumentation was not combined in ensemble, but divided into bands for particular scenes.[30]

Presumably, a triple harp was used in the consort for which the English composer, William Lawes (ca. 1580-5 to 1645), wrote his consort pieces for violin, bass viol, harp and theorbo (1630 to 1640). These are the only known consort pieces having a completely-written part. A musician at the court of Charles I, John Flesle, who was sworn in as "musitien in ordinary for the harp " to Charles or to his French Queen in 1629, presumably played a triple harp in Italian continuo style, as he received training in Italy.[31]

By the end of the 17th Century, a Welsh triple harp was established in Britain, although Welsh stringing, as compared with Italian stringing, was on the right side of the neck, requiring the right hand to play in the bass and the left hand in the treble register. The instrument was held on the left shoulder. The Irish harp is played in the same fashion, although strung on the left side of the neck.[32] A characteristic of a Welsh triple harp is a high pointed pillar, while an Italian triple has a scroll-like pillar. After the end of the 17th Century, the triple harp was found exclusively in Wales, where it yet survives, although there is no record of its appearance in Wales before the end of the 17th Century.[33]

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[29] _Ibid._, 90-93.

[30] Donald Jay Grout, "Some Forerunners of the Lully Opera," _Music and Letters_, Vol.XXII, No.1 (January, 1941), 18-21.

[31] Rimmer, "Harps in the Baroque Era," _op. cit._, 66-67.

In comparison with the nearly-equal string ranks on the Italian triple, the center rank of the Welsh harp starts 4 to 6 strings after the right-hand (bass) rank, and the treble (left hand) rank starts 3 to 5 strings higher than the center rank.[34]

With the instrument having three rows of strings, it was possible for the performer to trill on unison strings (the harp's parallel to a violin bariolage). The middle row, with seven chromatic strings to an octave (instead of five), allowed for a variety in tuning, as it was possible to have seven sharps or seven flats, unisons and enharmonics, although, according to John Thomas, harpist to Queen Victoria and Edward VII, it was impossible for the triple harp to modulate out of the key to which it was tuned.[35] By the mid-18th Century, the Welsh triple had a range of five octaves, extending from G to f^4 or g^4. Encompassing six and one-half octaves, the range of a modern harp is from CC to g^4.

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[32] Since the neck on an Irish harp is centered directly above the box, rather than off-set to the right, the highest strings slant to the left and are out of parallel with the plane of the rest of the strings. Therefore, it is logical to play with the harp resting on the left shoulder and the left hand in the treble.

[33] Joan Rimmer, "James Talbot's Manuscript (Christ Church Library Music MS 1187) VI. Harps," The Galpin Society Journal, XVI (May, 1963), 66-69.

[34] Rimmer, "The Morphology of the Triple Harp," op. cit., p. 96.

At the end of the 17th Century, in order to provide for chromatic tones on a single order of strings, harp-makers (allegedly Tyrolian) mounted U-shaped hooks (crochets) and plates on the harmonic curve,[36] corresponding with certain strings. When moved manually, an individual hook that pressed a string outwards from the string plane shortened its vibrating length by a semitone. This mechanism enabled a player to set a chromatic tone prior to playing it, rather than as was previously necessary, having to execute a chromatic change by pressing the lower part of the string to shorten its vibrating length by a semitone while plucking the string.

However, modulation still was limited inasmuch as a manual chromatic change not only occupied the hand, but could manipulate only one or two hooks at a time, limiting a modulation to only one octave.

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[35] Thomas, op. cit., p. 15.

[36] By the beginning of the 18th Century, and possibly during the last half of the 17th Century, the harp acquired a curved neck (string arm), or, an "harmonic curve," which allowed for proper string length and tension throughout its four to five octaves.

For this reason, the triple harp was still used for concert and professional purposes. Although difficult to play, it accommodated far more elaborate music than the hook harp could. It was for this kind of instrument that Handel conceived his *Concerto in B♭* and scored parts for his works, *Julius Caesar* (1713) and *Esther* (1720).

An early 18th-century pedal invention to turn the hooks, or *crochets*, is attributed primarily to Hochbrucker of Donauwörth, Bavaria in 1720 (an invention concurrent with the use of pedals instead of pull-stops on the harpsichord). Hochbrucker at first used five pedals, and later seven, connected by a lever and wire mechanism from the base and up through the body to hooks controlling the strings.

Although Hochbrucker's invention was improved and modified, it could not be made totally satisfactory as jarring noises occurred simultaneously with the enactment of the pedal mechanism, and fingering was affected by strings pulled out from the string plane.

An improvement on this pedal-hook mechanism that pulled strings out of line (and out of tune) was devised in Paris by Georges Cousineau and his son. The Cousineaus replaced the hooks with small metal crutches (*béquilles*), which were made to grip a string as one turned clockwise and the other counter-clockwise towards it. Along with this mechanism, the Cousineaus invented a slide by means of which the bridge-pin could be raised or lowered to regulate string length.

Although some problems were now eliminated, the harp's modulating capability was still on a par with a horn without crooks.

In the early 1780's, the Cousineaus doubled the number of pedals to fourteen and tuned the instrument to the diatonic key of C♭, rather than E♭. The harp could now be played in fifteen major keys and twelve minor keys, as compared with eight major and five minor keys previously possible with an E♭ tuning. However, the great number of pedals prohibited a practical usage.

In London, in 1792, Sebastien Erard (1752-1831), who in 1796 built the first grand piano, patented a harp with metal forks, fourchettes, instead of béquilles. These fourchettes consisted of two projecting studs that were mounted on rotating brass discs, and that gripped a string.

In 1810, Erard patented a seven-pedal, double movement instrument having a second fork for each string and encompassing six octaves and a fourth from CC♭ to f^4. Tuned to C♭ major, this had a pedal mechanism that could shorten the length of a string by two "notches," or up one semitone and then up a second semitone.

In 1836, Sebastien Erard's nephew, Pierre Erard, patented a model which was larger than the previous Erard style and that had a wider string spacing and a broader soundboard.

This was a "Gothic" model, as compared with previous pedal harps of a "Grecian" design (i.e., having a scroll like forepillar).

Erard's double-action mechanism gave the harp an extensive modulating capability as well as enharmonic features. It is this invention that is credited for the instrument's survival through musical trends and innovations in the 19th and 20th Centuries.

Although works were written or scored for the single-action harp, it was not until after the invention of the double-action mechanism that expanded its modulating capacity, that the harp became commonplace in operatic and orchestral scores, especially those of Berlioz, Liszt and Wagner. Player-composers emerged (Spohr, Bochsa, Dizi, Labarre, Godefroid, Hasselmans, Oberthür and Parish-Alvars) who wrote methods, studies, and some notable solo and chamber works. Most of these, however, were drawing-room pieces, and essentially, use of the harp in 19th-century chamber music was rare.

Perhaps because of the great popularity of the violin and keyboard instruments in the 18th and 19th Centuries in France, Italy, England and Germany, the harp suffered a significant setback. Not only was it neglected by composers, but, of more consequence, by professional musicians who, rather than dealing with some of its impractical attributes and the difficulties of mastering its technique, decidedly geared their technical skills and musical repertory to the more popular instruments.

While the harp continued to have some usefulness as a solo and chamber music instrument in private residences and intimate entertainments, it suffered to the degree that the bulk of musical artisans and patrons concentrated their efforts elsewhere. A result of this has been a belated, and, perhaps crippled repertory as well as a meager number of virtuosi.

On the other hand, some significant chamber works, notably from the French school in the first three decades of the 20th Century, unveiled its usefulness and potential. Due to the emergence of Impressionism, the harp--with a capacity to accommodate whole-tone, pentatonic, modal and 9th-chord glissandos, as well as sumptuous chords, harmonics and other unique timbres--became a significant coloristic and harmonic resource. As a result, the instrument became established in early 20th-century chamber music, including non-impressionistic works (see Appendix A).

From the 1920's to the 1970's, avant-garde musical styles veered strongly towards serialism, atonalism, dissonant counterpoint and various kinds of experimental and chance music. Although these trends espoused few if any remnants of a previous French style, many composers recognized the harp's utility and value. Partly due to the influence of their predecessors and pedagogues (traced through Messiaen, Dupré, Milhaud, Boulanger, Widor and Roussel to d'Indy), some of whom had used the harp to good advantage, and more generally to a recognition of the instrument's unique tone quality and varied timbric resources, composers from the mid-20th Century to the present have significantly expanded its repertory of solo and chamber works (see Appendices B and C).[37]

The following chapters present detailed analyses that delineate the compositional style and idiomatic use of the harp in four contemporary solo works. Because the instrument has had a unique historical usage, development, and survival, and because up until the mid-20th Century its repertory has been minimal due to its "non-chromaticism," the outcome of an in-depth study of post-mid-century works would reveal significant innovations in its compositional usage as well as the instrument's constraints on musical texture.

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[37] Recognition must be given to Carlos Salzedo (1885-1961), who not only instituted a valuable harp pedagogy, but whose determination to establish the harp in 20th-century music influenced many avant-garde composers.

CHAPTER III

ANALYSIS OF FANTASY FOR SOLO HARP, COMPOSED BY GUNTHER SCHULLER

Fantasy for Solo Harp has six sections, each of which is set off by a change of tempo and by a break in rhythmic flow, the latter being achieved by either a rest, a fermata, a ritard, or a combination thereof. In addition, the conclusion of each section is marked by some sort of palindrome, glissando or repetition. Sections unfold in a slow-fast-slow-fast-slow-fast pattern, as follows:

Section 1 (measures 1-13), ♩ = 54
Section 2 (measures 13-27), ♪= 96, 84, 92; ♩ = 54
(almost constant 𝅘𝅥𝅰 motion)
Section 3 (measures 28-34), ♩ = 50
Section 4 (measures 35-60), ♩ = 84-88, 72-76
Section 5 (measures 61-66), ♩ = 54
Section 6 (measures 67-76), ♩ = 84-88

Slow sections, 1, 3 and 5, are similar in that they share a melodic style and consist of two or three phrases. Fast sections, 2, 4 and 6, are marked by ostinati, steady rhythm, and accompanying, punctuated, rhythmical, vertical sonorities.

Measure 35 is structurally significant. Here a fresh melodic idea, i.e., a rhythmic ascending motive, followed by a marcato repeated-note melody (measure 36), introduces Section 4. The same idea recurs at the opening of Section 6 (measures 67-68). Because of this parallelism, in addition to similarities particular to slow and fast sections, the work might be called a "sectional fantasy," with a loose A B A C-B A C format.

Various motives and effects transferred from section to section provide unity. By far the most frequent sonority, the tritone, pervades all six sections. Also distinctive is the major 7th prevailing in Sections 1, 3, 4 and 6. In addition, diminished triads and diminished 7th chords occur melodically and vertically throughout the work.

Special harp effects in Sections 1, 2, 4 and 5 are pedal slides, harmonics, and sonorities played near the soundboard. These effects, along with glissandos in Sections 1, 2, 4 and 6, are used sparingly, offering timbral and textural contrasts as well as unifying elements.

Schuller employs row technique, using a row that is combinatorial:

I

		0	1	4	7	10	9	3	11	5	8	6	2		
	0	E	F	G#	B	D	C#	G	Eb	A	C	A#	Gb	0	
	11	Eb	E	G	Bb	Db	C	F#	D	G#	B	A	F	11	
	8	C	Db	E	G	Bb	A	Eb	B	F	Ab	Gb	D	8	
	5	A	Bb	Db	E	G	F#	C	Ab	D	F	Eb	B	5	
	2	F#	G	Bb	Db	E	D#	A	F	B	D	C	Ab	2	
P	3	G	Ab	B	D	F	E	Bb	F#	C	Eb	Db	A	3	R
	9	Db	D	F	Ab	B	Bb	E	C	F#	A	G	Eb	9	
	1	F	Gb	A	C	Eb	D	G#	E	Bb	Db	B	G	1	
	7	B	C	Eb	Gb	A	G#	D	Bb	E	G	F	Db	7	
	4	G#	A	C	Eb	Gb	F	B	G	C#	E	D	Bb	4	
	6	A#	B	D	F	Ab	G	C#	A	Eb	Gb	E	C	6	
	10	D	D#	F#	A	C	B	F	C#	G	Bb	Ab	E	10	
		0	1	4	7	10	9	3	11	5	8	6	2		

RI

(The first row statement is shown in Example 2 on page 43)

Analysis reveals the following sequence of row forms accounting for all pitches in the row and in the composition: P^0 I^0 R^0 RI^0 (measures 1-8); P^{11} I^{11} RI^{11} R^{11} (measures 9-16); P^8 I^8 R^8 RI^8 (measures 16-22); P^2 I^2 R^2 RI^2 (measures 23-27); P^3 I^3 R^3 RI^3 (measures 27-32); P^9 I^9 R^9 RI^9 (measures 32-39); P^1 I^1 RI^1 R^1 (measures 40-47); P^7 I^7 R^7

(measures 47-56); I^4 R^4 (measures 56-63); P^6 I^6 (measures 63-69); I^9 and R^6, hexachordally combinatorial (measures 69-71); P^1 and I^7, combinatorial by five and seven-note segments (measures 71-73); and I^5, or, a simultaneous verticalization of P^0 and I^4, combinatorial by single notes (measures 73-76).

A pattern of transpositions emerges (0, 11, 8, 2, 3, 9, 1, 7, 4, 6) that closely coincides with the index numbers that designate the initial pitch class of Prime forms in the matrix (0, 11, 8, 5, 2, 3, 9, 1, 7, 4, 6, 10), excluding "5" and "10." It is possible to interpolate P^5 between RI^8 and I^2, giving a more complete sequential representation of transpositions. If incorporated, P^5 would begin with the hexad in measure 22, containing the first pentachord of P^5 (A Bb Db E G), and continue through the first three beats of measure 24, which include the remaining seven pitches (C F# Ab D F Eb B). In this interpolation P^5 appears in the ordering: 1 2 3 4 5 7 6 10 11 12 8 9.

It is, however, more logical not to allude to P^5, but to identify the segment (beginning with the hexad in measure 22 and continuing through the third beat of measure 24) as a continuation of RI^8 and a complete statement of P^2 (from the third beat of measure 23 to the third beat of measure 24), ordered: 1 2 3 4 5 6 7 8 9 12 10 11. The inclusion of P^2 establishes a sequential continuity of all four forms of each transposition up to measure 56, where I^4 breaks off the pattern after P^7, I^7 and R^7.

Two paired row forms are combinatorial: P^0 and I^3, hexachordally combinatorial; and P^0 and I^6, combinatorial by five and seven-note segments.

P^0: $\underbrace{\text{E F G\# B D C\#}}\;\underbrace{\text{G Eb A C A\# Gb}}$

I^3: $\underbrace{\text{G F\# Eb C A Bb}}\;\underbrace{\text{E G\# D B C\# F}}$

P^0: $\underbrace{\text{E F G\# B D}}\;\underbrace{\text{C\# G Eb A C A\# Gb}}$

I^6: $\underbrace{\text{A\# A Gb Eb C Db G}}\;\underbrace{\text{B F D E Ab}}$

Both of these paired row forms are found in Section 6 (measures 69-73), transposed, respectively, to R^6 and I^9 (from the 3rd beat of measure 69) in successive hexachords, and to P^1 and I^7 (from the 4th beat of measure 71) in a simultaneous, 5:7-note usage.

A third type of combinatoriality occurs in measures 73-76. This is a simultaneous pairing of single notes of P^0 and I^4, accounting for a unique succession of [0,4,8] and [0,4] pitch-class sets in the final measures.[1]

This concentration of combinatoriality in Section 6 might be referred to as a type of stretto.

The use of hexachordal combinatoriality in measures 69-71 involves the first hexachord of I^9 (ordered: 1 3 2 6 5 4), followed by the second hexachord of R^6 (ordered: 7 8 10 11 12 9). Although a "combinatorial" usage of these hexachords might be questionable, and, perhaps a more appropriate description of them would be "aggregates," the analysis overrules any other hexachordal designation, and I^9 and R^6 represent the best ordering. A designation of the first hexachord as R^6 and/or the second hexachord as I^9, ordered: 6 5 1 2 4 3 and 11 9 8 12 7 10, respectively, would not be justified.

---

[1] Designating augmented triads, major 3rds and minor 6ths in this segment, an [0,4,8] and [0,4] pitch-class application points to a constraining use of [0,4] (i.e., the major 3rd and its inversion, the minor 6th) in vertical and horizontal segments.

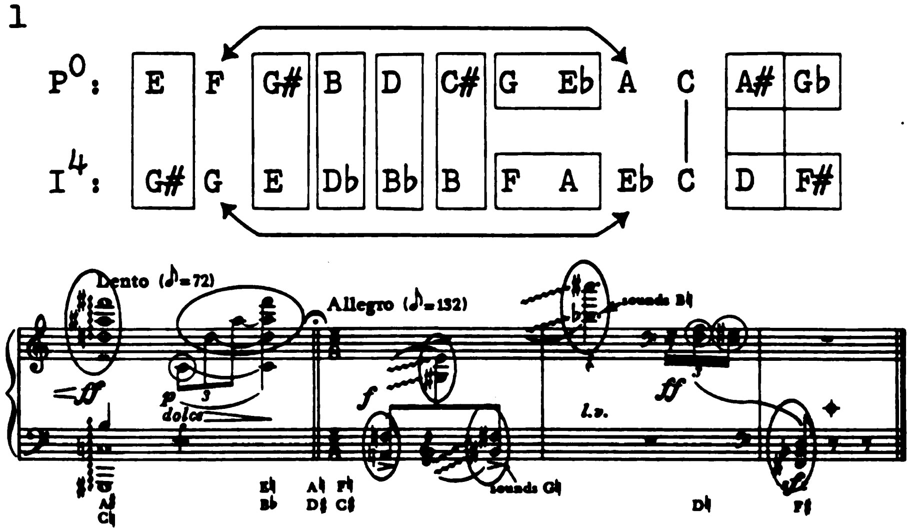
The simultaneous combinatorial use of P^1 and I^7 in measures 71-73 begins on the fourth beat of measure 71, where the first five pitches of P^1 occur successively (F F# A C Eb) in an ascending upper-voice segment. Below, in contrary motion, the first five pitches of I^7 (B Bb G E Db) progress in the lowest voice. The sixth and seventh pitches of I^7, D♮ and G#, are bass notes in the penultimate sonority in the lower staff of measure 72 and in the first sonority of measure 73, completing a 5:7 combinatorial use of P^1 and I^7.

The instance of single-note combinatoriality occurs in the last sector of the piece (measures 73-76) between P^0 and I^4. Consisting primarily of a succession of [0,4,8] and [0,4] pitch-class sets (i.e., augmented triads and minor 6ths or major 3rds), the notated pitches (excluding pitches that are played, but not notated in the glissando in measure 75) compare with a vertical and horizontal selection of paired pitches between the two row forms, P^0 and I^4 (as shown in the notation and diagram in Example 1).

These pairings account for the occurrence of all twelve pitch classes: F, F#, G, G#, A and A# occur in [0,4] or

[0,4,8] pitch-class sets; B and C# occur simultaneously (first beat of measure 25); and C occurs as a single note in measure 73. Of special note is the [0,4,8] pitch-class set consisting of the pitches F#, A# and D. Occurring three times in this sector, it is accounted for in a vertical-horizontal combination of the last two pitches of the paired set forms, P^0 and I^4, as outlined in Example 1.

EXAMPLE 1


P^0: E F G# B D C# G Eb A C A# Gb
I^4: G# G E Db Bb B F A Eb C D F#
Lento (♪=72)
Allegro (♪=132)
sounds B♮
sounds G♮
ff
p dolce
f
l.v.
ff
A♮ C♮
E♮ B♭
A♮ D♯
F♮ C♯
D♮
F♯

measures 73-76

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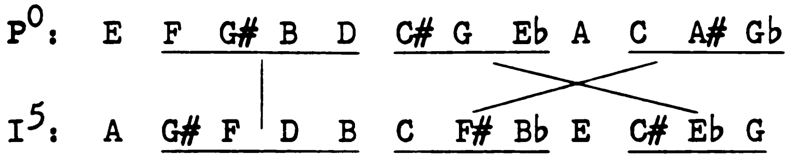
Another possible designation for this sector (measures 73-76) is I^5. Beginning with the upper five pitches of the first sonority of measure 73 (the lowest pitch has already been analyzed as belonging to I^7, preceding it), I^5 falls into place as follows: D B C F# Bb A F G# E D# G♮ C# (ordered 4 5 6 7 8 1 3 2 9 11 12 10, in mixed and interchanged segments). This designation marks off an internal pentachord, the first trichord, and the last tetrachord of I^5.

Another feature of the row, an invariance of row segments through transposition and/or inversion, is particular among several row forms. Segments of P^0 and I^5, for example, keep intact two trichords and a tetrachord, as follows:


P^0: E F G# B D C# G Eb A C A# Gb
I^5: A G# F D B C F# Bb E C# Eb G

Other invariant segments exist between tetrachords, trichords and/or dyads in the following paired row forms: P^0 and P^6; P^0 and P^3; P^0 and P^9; P^0 and P^4; P^0 and I^{10}; P^0 and I^0; P^0 and I^4; P^0 and I^9; and, P^{10} and I^{10}. Use of invariance, however, is not evident.

Hexachords play an important role, appearing horizontally and vertically as entities, and in two, three or four-note segments. Both hexachords of P^0 have the same pitch-class set, [0,1,3,4,6,9] (IT_5 and T_6, respectively). In addition, both are symmetrical individually: dyads in the first hexachord are [0,1] - [0,3] - [0,1], and dyads in the second hexachord are [0,4] - [0,3] - [0,4]. Pitch-class sets derived from [0,1,3,4,6,9], i.e., [0,1], [0,3], [0,4], [0,6], [0,3,6] and [0,3,6,9], are prevalent.

Verticalization of [0,1,3,4,6,9] occurs in measures 26, 58, 62 (twice) and 64, as follows: 2nd hexachord of R^2 (measure 26), Fb-G♮-Db-F#-Bb-Eb; 2nd hexachord of I^4 (measure 58): Gb-F♮-B# (C♮)-D♮-Eb-F♮ (gb' sounds f♮'); 1st hexachord of I^4 (measure 62): Cb-Db-E♮-G♮-Ab-Bb; and

1st hexachord of P^6 (measure 64): A♭-C♭-D♮-E♯-G♮-B♭ (assuming that there is a misprint in the accidentals before the notes, "A" and "c." These accidentals should be natural signs, as the designated pedal changes for a♮ and c♮ occur following this sonority).

Other occurrences of hexachordal segments are concentrated in measures 58 to 67, overlapping Sections 4, 5 and 6. Hexachords of I^4 (measures 58-63) and P^6 (measures 64-67) occur in a variety of independent statements. I^4 unfolds as follows: 1st hexachord (measure 58), segmented; 2nd hexachord (measure 58), vertical; 2nd hexachord (measure 59), in an ascending and descending glissando; 2nd hexachord (measure 59), in an ascending stepwise segment; 1st hexachord (measures 61-62, beat 3), linear; 1st hexachord (measure 62), twice vertically; and, 2nd hexachord (measure 63), linear.

Hexachords of P^6 are stated as follows: 1st hexachord (measures 63-64), segmented in measure 63 and vertical, as [0,1,3,4,6,9], in measure 64; 2nd hexachord (measures 64-66), in a mixed linear ordering; and, 2nd hexachord (measure 67), in mixed dyads.

Prior to measure 58, vertical and horizontal dyad, trichord and tetrachord structures are prevalent. Derived from both consecutive and successive row segments, these frequently occur within hexachords. However, segmentation within hexachords is not consistent, and, in most instances, is a mixture of *consecutive* (i.e., with one segment following another) or successive (with each segment beginning on successive individual pitches) row segments.

Some consistency of segmentation prevails in certain row statements where dyad, trichord or tetrachord row divisions are unique. Segmentation occurs as follows: tetrachord and dyads of I^0 (measures 3-4); trichords and dyads of RI^0 (measure 8); dyads of R^{11} (measures 14-15); dyads of P^9 (measures 32-35); tetrachords or RI^9 (measures 38-39); dyads of P^1 (measures 40-41); and dyads of RI^1 (measures 44-46).

As a rule, hexachords of the row, sometimes reordered within, remain intact in row statements. Only three exceptions, I^3 (measure 29), P^1 (measures 40-41), and I^7 (measures 50-54), show one or two pitches belonging to one hexachord, occurring instead, among pitches of the other.

One further consideration of constraints inherent in the row involves the prevalence of [0,1], [0,3], [0,4], [0,6], [0,3,6], and [0,3,6,9] pitch-class sets in the composition. Tritones, major 7ths, and diminished triads and 7th chords appear frequently enough to be significant unifying elements. Other notable intervals are minor 6ths and minor 10ths, occurring occasionally in Sections 1 and 2, and predominating in Section 6.

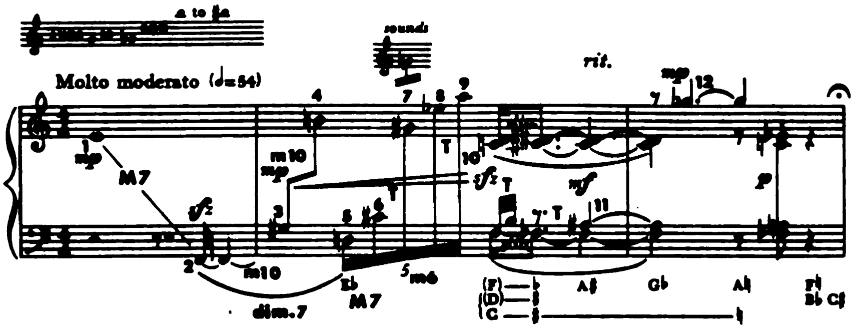
Not only are all of these pitch-class sets derived from the pitch-class set shared by both hexachords, [0,1,3,4,6,9], but their frequency of use is almost directly proportional to their occurrence in other row segments. For example, [0,6] occurs in all nine successive tetrachords ([0,1,4,7], [0,3,6,9], [0,1,3,6], [0,1,3,7], [0,1,2,6], [0,2,6,8], [0,2,5,8], [0,1,3,6] and [0,2,3,6]), in seven of the ten successive trichords ([0,1,4], [0,3,6], [0,3,6], [0,1,3], [0,1,6], [0,2,6], [0,2,6], [0,3,6], [0,1,3] and [0,2,6]), excluding [0,1,4] and [0,1,3], and in two consecutive dyads (between the 6th and 7th and 8th and 9th pitch classes).

The pitch-class set, [0,1], occurs in five of the successive tetrachords, in four of the successive trichords and in the first and third dyad segments. Another [0,1] pitch-class set occurrence is found between the 9th and 11th (alternate) pitch classes.

Consecutive minor thirds (pitches, 2-3-4-5 in the first hexachord and 8-9-10 in the second hexachord) account for frequent occurrences of [0,3], [0,3,6] and [0,3,6,9]. Occurring between the 6th and 7th and 11th and 12th pitches in the row, [0,4] accounts for a notable occurrence of minor 6ths.

The opening row statement (Example 2) contains four tritones, two major 7ths, a linear octave-displaced diminished 7th chord, two minor 10ths and a minor 6th. Not only setting a precedent by its intervallic content, this statement also introduces significant melodic and rhythmic components, i.e., short, ascending melodic segments and three rhythmic motives, "slow," "quick," and "short-long."

EXAMPLE 2


a to ♯a
sounds
Molto moderato (𝅗𝅥=54)
rit.
1
mp
M7
sfz
2
m10
dim.7
3
m10
mp
4
5
6
T
7
8
9
Eb
M7
5 m6
10
sfz
T
mf
11
mp
12
p
(F)
(D)
C
A♯
Gb
A♮
F♮
Bb C♯

measures 1-3

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Serving only as a pitch-control medium, the row, in succeeding statements, does not provide any demarcation of structural points, such as beginnings or endings of phrases or sections.

Row statements vary inasmuch as they occur in direct or mixed orderings (preserving hexachords), and in variously-mixed horizontal and vertical segments. Frequently, repeated or reiterated pitches occur within a row statement or as an extension of it, and ostinato or trill pitches, belonging to one row form, may overlap with the pitches of another row form. Most row statements, however, are only slightly re-ordered and have no pitch repetitions.

An inherent chromaticism in dodecaphonic writing requires frequent pedal adjustments to alter, chromatically or enharmonically, a diatonic harp tuning. Some pedal changes, requiring athletic skill in order for the player to execute quiet and quick adjustments, detract from an effective performance (note a triple pedal slide in measure 2 requiring one foot to change two pedals simultaneously, and a cluster of pedal changes occurring during a silence in measures 3, 28, 37, 58, 62 and 73-74).

Editing could eliminate some pedal change problems, but no solution is evident to make a significant improvement. To complicate this dilemma, some necessary pedal changes are not indicated, e.g., B♭ in measure 8, D♭ in measure 16, D♭ in measure 36, E♭ and C♮ in measure 43, E♭ in measure 65, and C♮ in measure 73, while one indicated pedal change, C♮ in measure 70, is not necessary. Two pedal indications, "F" in measure 55 and "G" in measure 63, might foil a performance. Both of these should have natural signs.

The work exhibits an extensive use of the instrument's pitch range and incorporates distinguishing timbres. These include harmonics, sonorities played near the soundboard, pedal slides, glissandos, broad arpeggiated chords, an enharmonic trill, fingernail sonorities, and percussive downward-arpeggiated chords.

By mandating a re-tuning of two strings (g♮' to g♭' and b♮'' to b♯''), Schuller has devised a meritorious accomplishment--an appropriate use of the harp in a 12-tone composition that entails total pitch serialization. Analysis shows that this work incorporates some significant aspects of row technique, including combinatoriality, segmentation and a sequential organization of row forms.

CHAPTER IV

ANALYSIS OF TRANCHE, COMPOSED BY BETSY JOLAS

A continuous, constantly changing texture is prevalent in *Tranche*. This texture, having a gradually increasing density, is unified by structural motives and pitches. The French word *tranche*, suggesting a cross section or slice of a harmonious body, is graphically represented on a multi-staff fold-out that portrays a cohesive panorama of gradual pitch-class consolidation and textural thickening.

Tranche consists of five continuous sections. In the first four, the texture thickens horizontally and vertically, and in the fifth, the texture thins out, recapitulating previous material. Analysis reveals increasing textural density through Sections I-IV as follows: a contrapuntal thickening in Section I (measures 1-56), where the texture increases from one to four voices in a fugal exposition; a melodic thickening in Sections II (measures 56-80) and III (measures 81-148), via small-note embellishments and trills of varying lengths and expanding range, as well as frequent recurring pitches and occasional vertical sonorities; a vertical and horizontal thickening at the end of Section III, where various successive percussive effects reach a climactic point; and further vertical thickening in Section IV (measures 149-180), resulting from a quickening rhythmic interaction of recurring pitches in a three to six-voice stratum.

While textural thickening is one manifestation of increasing density, the presentation of pitches in Sections II through V shows another type of aggregate, i.e., a gradual consolidation of all twelve pitch classes. Section I arbitrarily presents individual pitch classes at prominent structural and melodic points, Sections II, III, and IV prepresent selective pitches in gradually accumulating groups, and Section V presents all twelve pitch classes collectively and consecutively, though not in any obvious significant ordering.

Tranche also implies a series of consecutive numerical digits, such as those in a number or in the successive parts of a financial issue or a lottery. If this definition applies to the composition, it is possible that pitch selection and/or rhythmic groupings are subject to some pre-disposed ordering, but this is not apparent.

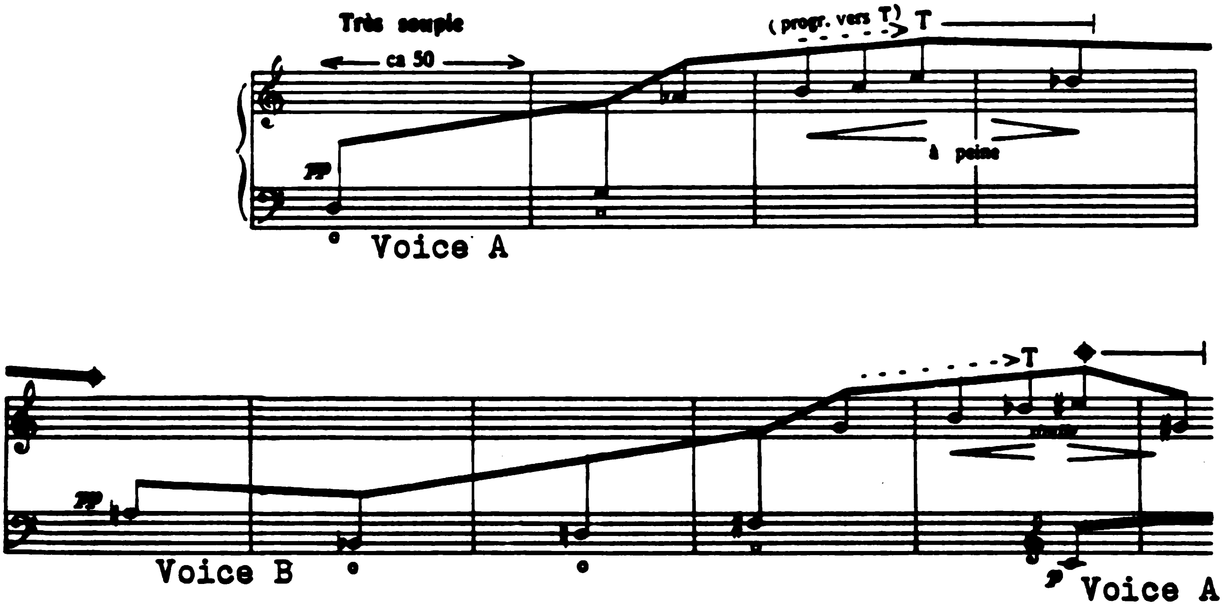
It is also possible, with reference to "lottery" digits, that some durational or melodic properties are a result of chance occurrence. If indeed there are any chance occurrences, it is only possible to conclude that spatial and dynamic elements would in different performances result in different interpretations. In performance, one note might be closer to or more distant from another, and trill lengths and dynamic contrasts would vary, but the ordering of notes would not change.

Conceivably, the composer used chance elements in the ordering or length of some pitch material, such as trills, small-note embellishments, and phrases, but this is not evident. What is evident is a unifying occurrence of falling intervals and high and low notes, and a prudent selection of pitches.

Section I (measures 1-56) divides into three subsections: measures 1-18, measures 19-35 and measures 36-56, with the last note, c♭' (measure 56), eliding with the beginning of Section II. The three subsections of Section I contain 48, 37 and 49 separate single-note sonorities respectively and are 18, 17 and 20 measures long. These near equal subsections mark off two-voice, three-voice and four-voice entries in a fugal setting.

In measure 1, Voice A begins on d' (sounding d', as a harmonic, but played, where it is notated, on the string an octave below). Voice B enters at the lower fourth in measure 5. The "Subject," Voice A (measures 1-4), and "Answer," Voice B (measures 5-10), have in common, five pitches (d', g', a♭', b' and d♭'') and two ascending intervals (minor 2nds and major thirds). Their melodic shape is similar, with both voices ascending to a penultimate note and ending with a falling interval. Voice A ends with a descending minor 3rd, and Voice B ends with a descending major 6th, the complementary interval of a minor 3rd. In view of their similar melodic shape and identical pitch and interval components, the first two voice entries function as Subject and Answer (Example 1).

EXAMPLE 1


Très souple
ca 50
(progr. vers T)
T
pp
à peine
Voice A
pp
Voice B
T
p
Voice A

measures 1-10

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Interaction of Voices A and B continues through the first subsection, with Voice A becoming the lower part and having a legato characteristic and Voice B taking on a staccato characteristic.

An obscure germinal trill in subsection 1 becomes a motivic characteristic in Section III. In measures 1-37, e'' and e#'' occur alternately as high points in the successive phrases in the upper staff, creating an extremely augmented "trill." These non consecutive occurrences of e'' or e#'' are found in measures 3, 9, 11, 14, 16, 20 and 37 (notated in measure 37 as "f''").

Voice C, a Subject entry, commences at the outset of subsection 2 (measure 19) as an inner part. The first five notes of Voice C are c', db', g', b' and d' (measures 19-23). These pitches correspond with those in the Subject (measures 1-4) and contain the intervals of an ascending minor 2nd and major 3rd, common to both Subject and Answer. The falling major 6th, b'- d', in Voice C, recalls the falling major 6th, e#''- g#', in the Answer phrase (measures 9-10). Voice B reappears in measure 20, keeping its staccato characteristic and at times appearing in three-note fragments (measures 20-21, 22, 26-29 and 34).

A descending tritone and perfect 4th, e#''- b'- f#' (measures 20-21), in Voice B, is a germinal motive, recurring intact in measures 37-38, in a transposed retrograde inversion, D-G-c#, in Section III (measures 140-141), and in two overlapping ascending segments, db-g-c'-f#', in Section V (measures 193-194). Other occurrences in Section V are d'- A-Eb in measures 182-184, Eb-A-d in measures 190-191, and a vertical statement, d'- ab'- eb'', in measure 197.

Voice A, now in a lower range than in the first subsection, takes on an augmentation characteristic with notes having durations of two or more measures (measures 20-34). In keeping with the "thickening" qualities of the piece, the contrapuntal texture in the second subsection thickens vertically as a result of the fragmentation of Voice B, the lower range of Voice A, and the addition of Voice C.

In subsection 3, Voice B, still staccato, has the function of a Subject entry (measure 36). This entry begins with an ascending major 6th (e♭- c'), proceeds upwards through an ascending perfect 5th and minor 7th to f'', then falls in two leaps through a tritone and perfect 4th to f#' (measures 37-38). Voice A begins on e♮ in measure 37 and continues as the bass line in long-note durations through measure 52, ending on BB♭. Voice C appears mid-range (measures 39-42) in long-note durations and continues in measures 45-55, proceeding upwards to a♭'''. Voice D enters in measure 38 on d♭''', continues as the upper voice through measure 51 and ends on f♭ in measure 54.

High and low notes, d♭''', a'', BB♭ and a♭''', occurring in subsection 3 (in measures 38, 48, 52 and 55, respectively), are germinal. All four recur in Section II (where d♭''' becomes d♭''), and in the successive percussive effects in Section III (where a♭''' becomes a♭). BB♭, a'' and a♭''' occur as outer horizontal planes in Section IV, and d♭'''' occurs as a long, unison trill in Section V (measure 198).

The first two notes of Voice D, the upper part in subsection 3, comprise a falling major 6th (enharmonically), d♭'''- e'' (measures 38-40). Adding further emphasis to the use of a falling major 6th is the elision of Section I with the beginning of Section II (measures 55-56). This elision comprises the pitches, a♭'''- c♭', which encompass two octaves plus a major 6th.

While the predominant falling interval in Section I is a major 6th, the descending major and minor 3rd, perfect 4th, minor 7th, major 9th and tritone intervals also make a strong appearance at the end of melodic phrases. At phrase endings, a falling interval usually follows a succession of ascending notes or a single ascending interval, which point to its distinctive melodic characteristic.

In Sections I and V, falling intervals occur both in individual voices and through interacting contrapuntal phrases. In Sections II and III, they occur in single melodic phrases, and in Section IV, they occur between interacting voices.

Throughout Sections II and III, falling intervals undergo various transformations. In Section II, for example, they receive a rhythmic propulsion when grace notes, occurring as part of the intervals or just prior to them, spur their impact. In Section III, where falling intervals occur between non successive high and low notes in embellishment figures, they become wider as pitch material expands outwards. In a culminating transformation at the conclusion of Section III, falling intervals permeate the perameters of range, dynamics, rhythmic propulsion and textural density as they occur among climactic percussive sonorities.

Through its five sections, united by falling intervals and certain high and low pitches in a constantly changing texture, the work is essentially a presentation of individual pitch classes in various textural transformations. All twelve pitch classes appear in some conspicuous way in Section I. Some occur at structural points, e.g., at the beginning or end of phrases, some occur at high and low points, and some are prominent by virtue of their frequent occurrence. For example, the pitches, d' (measure 1), c' (measure 19), and e♭ (measure 36), occur at the beginning of subsections 1, 2 and 3, respectively; g'' occurs at the beginning of the second phrase of subsection 3 (measure 44); and c♭' occurs at the conclusion of subsections 1 and 3. High and low points, d♭''', a♮'', BB♭ and a♭''' occur respectively in measures 38, 47, 52 and 55. Alternating high points, e'' and e#'', occur regularly in measures 3-37; and g♭', the most frequently occurring pitch in Section I, occurs at the end of several melodic phrases in Voice B (measures 18, 21, 22, 38, 41, 44 and 47), and at various other points in the contrapuntal texture.

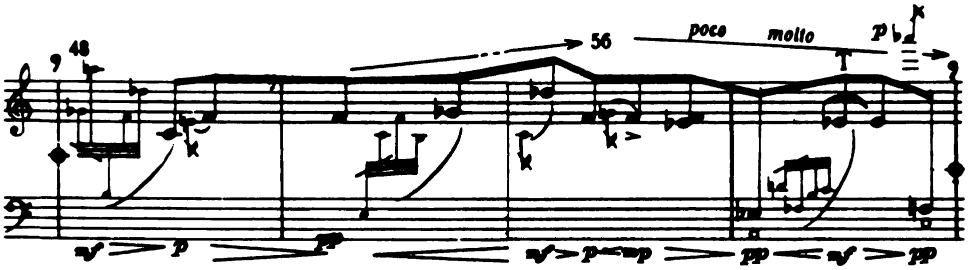
This arbitrary selection of individual pitches comprises all twelve pitch classes. No particular ordering or grouping is evident, and all twelve pitch classes do not appear consecutively until the end of the work (measures 197-199).

Essentially, pitch classes undergo a continuous spinning-out in various groupings in Sections II, III and IV. In each section a few pitch classes appear initially followed by a tonal expansion to all twelve pitch classes. As successive embellishments gradually accumulate pitches, their widening tonal range and increasing length effect continuous textural transformations. The most frequently occurring pitches in all three sections are e♭', f' and g♭', while "e" and "b" occur consistently, but not as frequently.

The initial phrase (measures 56-61) of Section II is similar to the melodic phrases in Section I, considering its shape, length and interval content. In successive phrases in Section II, melodic (large-note) material condenses to repetitions in a narrowing tonal range, while embellishment (small-note) material occurs with more frequency and with increasing tonal range and dynamic variety (Example 2).

This gradual condensation of melodic material and

EXAMPLE 2



measures 74-77

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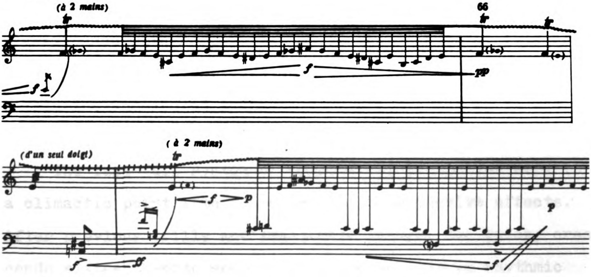
expansion of embellishment material taking place in Section II continues in Section III where the beginning of the first phrase (measure 81) is similar to that of the phrases in Section II, creating a smooth transition. Initial melodic material entails a small number of pitches within a narrow range, and, as phrases progress, additional pitches alter the tonal make-up and range. From measure 82 to the end of Section III, phrases take on unique characteristics and sonorities, such as repeated notes ad lib., expanding embellishments, single and double trills, isolated single notes and vertical sonorities, and percussive effects. These elements are used with increasing frequency and duration in a continuous and changing texture through Section III (see Example 3 below, and Example 4 on page 57).

EXAMPLE 3



measures 121-124

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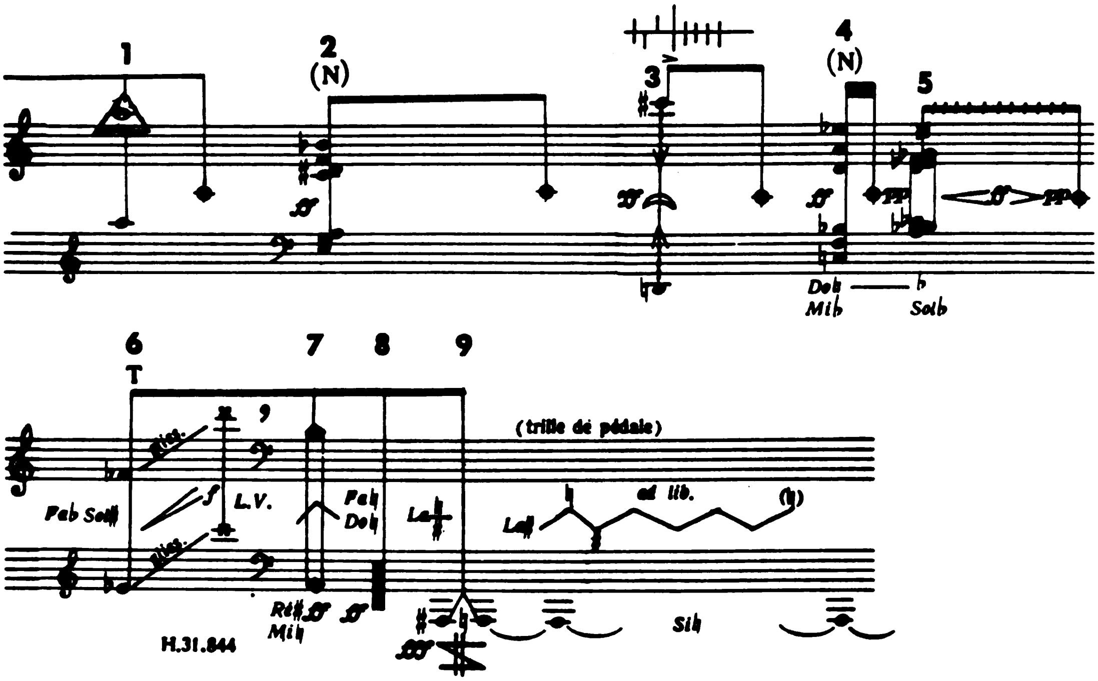
The five phrases of Section III are increasingly longer than the six phrases in Section II. The last phrase of Section III, for example, begins with measure 109 and continues to the end of measure 148. Some of the measures in this phrase, measures 138, 134 and 144, 121, 124 and 148, are, respectively, two, three, four, six, and fifty-two times the regular length. A regular measure, indicated as, M.M., "ca 50," through Section I, fluctuates between "42" and "66" through Sections II and III, remains at "ca 48" through Section IV, and fluctuates in Section V between "ca 42" and "ca 84." These tempi are subject to many accelerandos and ritardandos in Sections II, III and V. In effect, much of the segment between measures 121 and 148, inclusive, in Section III, is unmeasured.

A double barline occurring in Section III between measures 135 and 136 does not have any apparent structural significance with respect to the sections or total time span of the work. It does, however, mark a time span mid point within the unmeasured segment, from measure 121 up to the first percussive effect in measure 148.

The last full system of measure 148 brings the work to a climactic point with a succession of percussive effects. After previous trills and small-note groups, two quick, crescendo sixteenth-note sonorities suddenly step up rhythmic momentum. The first of these is a vertical major 7th, and the second is a vertical [0,1,5] pitch-class set, encompassing a minor 9th. Both are played near the soundboard.

Immediately following these two sonorities is a long, crescendo embellishment figure and a series of nine more percussive effects (Example 4). The first of these is a single note, a'', played with the forefinger of the left hand pressing hard on the string as closely to the soundboard as possible, and the forefinger of the right hand plucking the middle of the string (the resultant effect compares favorably to a muted xylophone).

EXAMPLE 4


1
2
(N)
3
4
(N)
5
Dob Mib
Solb
6
T
7
8
9
(trille de pédale)
Fab Sol#
gliss.
f
L.V.
Fa♮ Do♮
La♮
La♯
ad lib.
Ré♯ Mi♮
Si♮
H.31.844

(From the middle of the last full system of measure 148)

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A seven-note vertical sonority (encompassing e to b♭') follows, containing all intervals ranging from a minor 2nd to a minor 9th. Next, a rip-type glissando in contrary motion is played with the fingernails of both hands moving towards each other from D♮ and c#'''; the right hand fingernails and left thumb nail proceed as instantaneously as possible along the strings in a descending and ascending sweep respectively. Next is a "normally-played," fortissimo open-spaced chord containing a vertical compilation of two perfect 4ths, a major 3rd, perfect 5th and tritone in the middle range, dampened immediately.

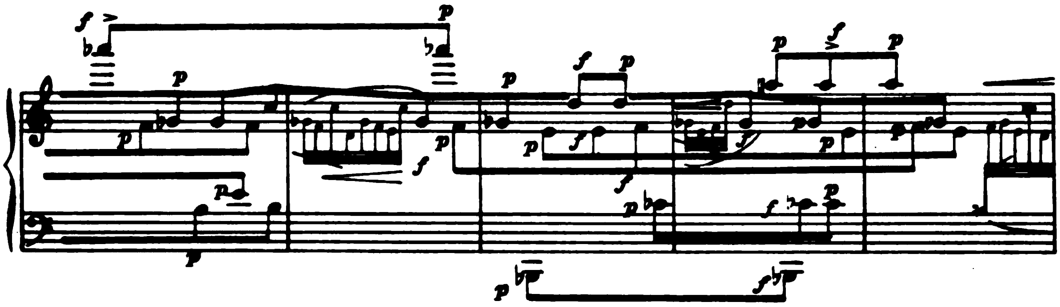
Increasing momentum, a plectric-sounding, rapid strumming-sonority requires the fingernails and fingertips of both hands to oscillate in short back and forth motions, with one hand whisking along ascending strings as the other brushes descending strings in fast, alternating, short strums. Immediately following, an ascending, brittle-sounding, secundal glissando is played with the index and middle fingers of the right hand near the soundboard on adjacent strings.

The final three effects follow in quick succession--a whistling timbre made by rubbing the open left hand rapidly and vertically along as many wire strings as are within reach, a striking of the strings between approximately C and e with the palm of the left hand, and a pedal trill on AA# and AA♮. The attack timbre of the trill is a loud metallic buzz triggered by the player holding the "A" pedal between the sharp and natural positions with the right foot, and plucking the AA string very loudly. As the string vibrates, a continuous up and down motion of the "A" pedal between the natural and sharp positions produces a pedal trill. The trill decays gradually, first losing the metallic buzz, then fading as the vibrating string loses momentum.

With the decay of the pedal trill, a climactic rhythmic and dynamic thrust ceases. Section III ends at the conclusion of measure 148 with a gradually slowing small-note embellishment in a low dynamic range. This creates a smooth transition to Section IV.

Voicing in Section IV, ranging from three to six vertical planes, consists of repeated pitches in each voice interacting with those of other voices (often creating a falling interval effect). The vertical thickening due to multiple voicing, and an increase in rhythmic motion from interacting voices, enrich textural density (Example 5).

EXAMPLE 5



measures 163-167

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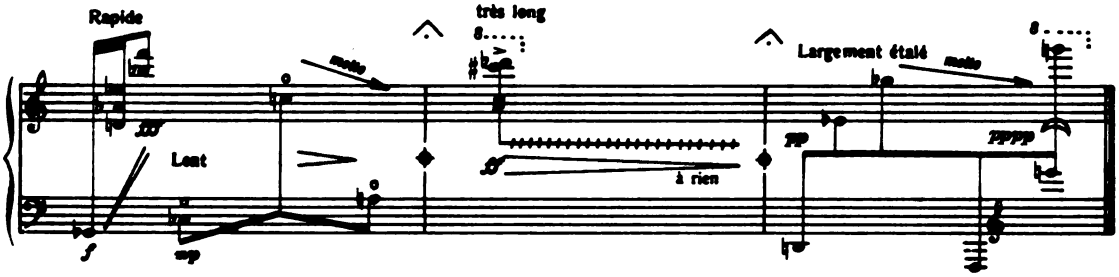
A persistent, almost drone-like, repetition of pitches in individual voices in Section IV gives a richness to the texture and accentuates high and low registers, thereby expanding vertical density. Frequent and inter-weaving dynamic contrasts along with interlocking small-note figurations add further thickening elements. These small-note figurations use the same pitch material that appears in thematic segments, but in a free, melodic style, rather than in repeated-note fashion.

Following the thick vertical texture and closely interacting lines of Section IV, an immediate contrast in Section V is achieved by the reappearance of a two-voice texture and flowing melodic phrases. In addition to the initial ascending phrase-motive (measures 181-182, 190, 193-194 and 199), reminiscent of the ascending beginning of phrases in Section I, Section V reiterates timbral effects and motives from various sections. These include muffled (staccato) notes (measures 186-187), harmonics (measure 197), and sonorities played near the soundboard (measures 183 and 191) from Section I, a single grace note (measure 182) from Section II, small-note embellishment groups (measures 187 and 196) from Sections II, III and IV, and isolated single-note and vertical sonorities (measures 185 and 191) and percussive effects (measures 191, 194-195 and 197) from Section III. A descending phrase-beginning in measure 192 is reminiscent of that in measures 20, 34 and 43 in Section I, and phrase lengths and motion of Section V are, in general, reminiscent of Section II.

In Section V, pitch classes finally occur in collective statements. In measures 181-187 eleven pitch classes appear, excluding b♭. Beginning with the embellishment figure in measure 187 and up to the end of measure 191, all twelve appear. Finally, in measures 197-199 (Example 6), all occur consecutively starting with a♭' and b♭'', respectively, in the initial two vertical structures (measure 197), and continuing to the end of the composition through c♭', c''', a', c#'''', D, e♭', g♭'', FF, e''' and g''''. This sequence of pitches is the only successive statement of all twelve pitch classes; however, it does not appear to be significant with regard to pitches in previous sections of the work.

EXAMPLE 6



measures 197-199

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Considering an occurrence of nine or ten dominant pitches in Sections II, III and IV, rather than a more equal representation of all twelve pitch classes, it is likely that the physical construction of the harp forces a constraint on selection.

Indeed, it is possible to adjust pedals to vary a pitch selection during continuous melodic movement and to embrace all twelve chromatic pitches. This occurs in Section V where texture and melodic motion taper off. However, texture and tempo in Sections II, III and IV limit the use of chromatic segments. For example, execution of melodic segments, embellishment figures, and multi-voice vertical texture may be limited to the speed that a player can move necessary pedals. And, if tempo is a constraint, chromatic pedal adjustments would be limited to the feasibility of foot work.

Consistently, the composer uses groups of pitches, selecting from up to ten distinct pitches that dominate each section, and two (g and d, g and a, and g and c# in Sections II, III and IV, respectively) in relatively isolated occurrences.

Since the pitches, g, a and d, have no enharmonic equivalents among the possible chromatic alterations of the harp's C-major tuning, it would be logical to conclude that their limited use in complex chromatic textures (Sections II, III and IV) is due to the mechanical limits of the harp. In the case of c# or d♭, a prevalence of d♮ and c♮ would be a constraint in the same segment.

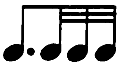
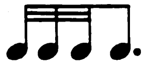
Some pitch limitations might be expected, inasmuch as the harp is not totally chromatic. However, Tranche exhibits an idiomatic use of the instrument in a unified and varied atonal texture. Furthermore, the work exploits the harp's registral timbres and unique percussive effects.

CHAPTER V

ANALYSIS OF TOCCATA FOR HARP, COMPOSED BY AMI MA'AYANI

Toccata for Harp is a study of rhythmic contrasts and melodic transformations. Its arch form, A B C B' A', is a vehicle by which, on the one hand, tempo and other idioms rise to the mid-portion of Section C, and decline thereafter; and, on the other, increasing elaboration and reiteration to the end of Section B' show a gradual textural propulsion and a widening declining axis.

In a five part toccata fantasy design, the work consists of alternating contrapuntal and non contrapuntal sections, individually containing distinctive rhythmic and melodic properties.

Two textural-melodic ideas occur in Section A. The initial one, a melodic segment accompanied by whole-tone sonorities (measures 1-3), is followed by a succession of melodic segments, dominated by the rhythmic figures,  or .(measures 4-10). These ideas are reiterated in Section A' in reverse order, rounding out the form. Contrapuntal sections, B and B', consist of a lower melodic line, occasionally in octaves, versus pedal points and ostinati. Section C forms an apex, in that its mid-portion represents both a culmination of progressive increases in tempo, rhythmic momentum, pitch level and dynamics through prior sections, and an apex of a more or less symmetrical layout of tonal centers, pitch-class sets, and rhythmic material.

Marked, "Lento (♩= 44)," Sections A and A' (measures 1-11 and measures 136-160) present varied rhythmic figures in quarter-note units. Many of these rhythmic figures involve a thirty-second-note triplet or an eighth-note triplet. Others entail an octave grace-note or a triple-alternating-octave grace-note figure.

Picking up the triplet motive, Section B (measures 12-41), marked, "Allegro (♪= 120)," along with its elaborated counterpart, Section B' (measures 98-135), takes off in a perpetuum mobile sixteenth-note-triplet texture. And, Section C (measures 42-97), stepping up momentum with impetuous thirty-second notes and punctuating grace notes, brings the work to a climactic, "Allegro vivo (♪= 144)," in its mid-portion (measures 66-81).

With occasional shifts to triple, quintuple, or septuple meters, sections progress basically in duple and quadruple meters.

Incipient material occurs in the opening melodic phrase in measures 1-3 (Example 1). Accompanied by vertical whole-tone sonorities in the upper staff, this entire pitch sequence, for the most part moving in octaves in the lower staff, may be designated as a primary segment.

Imbrication (i.e., the extraction of sequential melodic subcomponents) of this segment reveals pertinent three-note pitch-class sets, as diagramed in Example 1. The pitch-class set, [0,2,6], for example, represents the pitches c f# ab in the ordering, f# ab c. This pitch combination may be represented as a whole-step, [0,2] (two half-steps) plus a tritone, [0,6] (six half-steps).

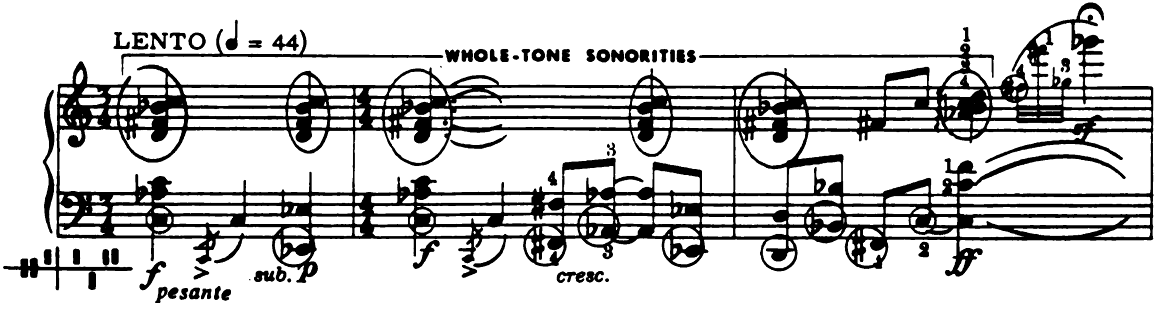
Other significant components of the segment in Example 1 are its melodic contours, embellishment figures, all-interval content, and pitch selection. While a strong whole-tone flavor would appear significant, in light of ensuing whole-tone segments in Sections A, B, B' and A', it is but one sonorous ingredient. What is pertinent is the pitch content, c d eb gb ab bb, and the three-note pitch-class sets derived from the melodic material in the lower staff.

EXAMPLE 1

[0,2,6] [0,1,6] [0,4,8]

c eb c f# ab eb d bb f# c f#

[0,3,6] [0,2,5] [0,1,5] [0,2,6]



measures 1-3

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Germinal, although not immediately apparent as such, these three-note sets derived from successive segmentation of the primary segment in measures 1-3 become the melodic material of triplet configurations in Sections A and A'. In turn, the most frequently occurring pitch-class sets in these triplet figures, [0,2,5] and [0,2,6], become prominent as melodic segments in Sections B and B'. In addition, the successive tonal centers, i.e., pedal points, in Section C may be construed as [0,2,5] groupings:

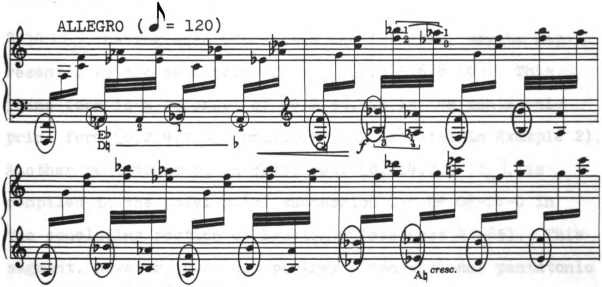
Tonal centers:	F D# C	(measures 42-65)	[0,2,5 IT_5]
	C F D#	(measures 82-89)	[0,2,5 IT_5]
	D# G# Bb	(measures 88-93)	[0,2,5 T_8]

The pitch-class sets [0,2,6] and [0,2,5] represent whole-tone and quartal derivatives, respectively, as they are subsets of the prime forms, [0,2,4,6,8,10], representing the whole-tone scale, and [0,1,3,5,6,8,10], representing the major scale (since the pitches of the major scale may be notated as a series of 4ths, derivatives in atonal music may be considered quartal).

Quartal elements appear prominently through Sections B and B'. Octave-fifth, [0,7], ostinati alternating with octave-tritone, [0,6], ostinati are prevalent in both sections. Greatly expanding quartal elements, Section B' contains [0,2,7] ostinati (measures 108-123), and ends with quartal related tonal centers: Eb (measures 115-120), Bb (measures 121-122), and F (measures 124-235).

The melodic segment, B♭-A♭-F, [0,2,5 IT$_{10}$][1], first appearing in measures 101-102, becomes a focal point of a textural thrust in Section B'. Through repetition (measures 105-106), rhythmic alteration (measures 111-114), and inversion (measures 128-131), this motive punctuates a prevailing F tonal center, including an F-minor segment (measures 108-115), an F-Dorian segment (measures 128-135), and a pentatonic sub-stratum beneath an over layer of ostinati in measures 104-115 and 119-120. This latter segment embraces accentuated pitches F A♭ B♭ D♭ E♭ in the lower staff, as encircled in Example 2 (citing measures 104-107).

EXAMPLE 2



measures 104-107

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[1] [0,2,5 IT10] represents the pitch classes B♭ A♭ and F in descending order (inverted, or "I") and designating B♭ as 0. Since B♭ is the tenth integer in a chromatic series ascending from C♮, the set is considered to be transposed 10 times (or, T$_{10}$).

These F-minor, F-Dorian, and pentatonic segments are technically quartally derived, having the prime forms,[2] [0,1,3,5,6,8,10 IT_1], [0,1,3,5,6,8,10 T_2], and [0,1,2,4,7, 9 T_1], respectively.

Another quartal entity is the prime form of the three glissandos occurring in Section B' (measures 119, 120 and 134). This prime form, [0,1,3,5,6,8,10], in two different transpositions, T_7 and T_2, represents, in respective glissandos, an Eb-Mixolydian scale (measures 119-120) and an F-Dorian scale (measure 134).

F-minor, F-Dorian and Eb-Mixolydian are related by inversional equivalence (i.e., their pitch-class sets, [0,1,3,5,6,8,10 IT_3], [0,1,3,5,6,8,10 T_2], and [0,1,3,5,6, 8,10 IT_1], having been transposed and inverted, may be represented by the same prime form, [0,1,3,5,6,8,10]. This prime form is a superset of [0,2,5], as is the pentatonic prime form [0,2,4,7,9] (previously illustrated in Example 2). Another pentatonic pitch-class set, [0,2,4,7,9 IT_0], is compiled in the pedal-point succession C-F-D#-G#-Bb-C in the concluding portion of Section C (measures 42-65). This segment, however, does not portray a conventional pentatonic coloration.

Further study and comparison of the prime forms of glissandos reveals a significant correlation of basic interval patterns, or bips (i.e., a tally of successive intervals in a pitch-class set). Glissandos occurring at the end of Sections A and B (measures 11 and 41) have the same prime form, [0,1,3,4,6,8,10], as do those in Section B' (measures 119, 120 and 134), in which case the prime form is [0,1,3,5, 6,8,10]. Two glissandos in Section A' (measures 147 and 149) also have the prime form [0,1,3,5,6,8,10]. A third glissando in Section A' (measure 152) is identical to that at the end of Section I, having the prime form [0,1,3,4,6, 8,10]. These two prime forms, [0,1,3,5,6,8,10] and [0,1,3, 4,6,8,10], have an identical bip, 112222, representing two semitones and four whole-tones.

---

[2] A prime form is an ascending numerical ordering, beginning with 0, of the integers of a pitch-class set.

Only the final glissando in Section A' (measure 159) entails a bip variation. Having the prime form, [0,1,3,5, 6,7,9], and a 111222 bip, the pitch content of this glissando, with the exception of one pitch-class, is identical to the glissando at the end of Section B (measure 41). While the glissando in measure 41 includes f♮ and that in measure 159 includes a♮, both share the pitches b♭ c d e♭ g♭ and a♭.

The significance of these commonly shared pitches cannot be overlooked. As components of the initial melodic segment and accompanying vertical whole-tone sonorities (measures 1-3), and of the final melodic segment and accompanying whole-tone ostinato (measures 153-158), they unify the opening and closing segments of the piece--abutments of the arch, so to speak.

A substitution of e♮ for e♭ in this pitch selection as occurs in measure 5 results in a whole-tone entity, prime form, [0,2,4,6,8,10] (a superset of [0,2,6]). Ensuing whole-tone segments occur in Sections A and A' (measures 3-6:beat 3, 7-8:beat 3, and 153-156:beat 1) and in Sections B and B' against an F pedal point and ostinati (measures 12-19, 37-38, 100:beat 2-103:beat 4, and 124-125). In alternating segments in Sections B and B' (measures 20-21, 39-40, 98-100:beat 3, and 103) e♭ replaces e♮, thus presenting the original pitch selection.

While most whole-tone segments involve the pitches c d e g♭ a♭ b♭, a whole-tone complement, d♭ e♭ f g a b, occurs in measures 116-118. Also prominent are whole-tone derived pentatonic sonorities (measures 104-115 and 119-120) and tritone structures (measures 18-19, 25-26, 101-102, and 107-110) juxtaposed in perpetuum mobile ostinati in Sections B and B'.

Other well defined tonalities include F minor (measures 108-115) and F Dorian (measures 128-135), a dominant 7th arpeggio, V^7 of F# (measure 140), and modal glissandos. Executed prominently, these encompass E♭-Mixolydian (measures 119 and 120), F-Dorian (measure 134), B-Ionian (measure 147), and B-Phrygian (measure 149) scales. Brief and usually contextually unrelated, they occur so distinctly as to merit recognition as an integral part of a fantasy design. Yet their brevity, textural inconspicuousness, and individual infrequency, compare them to ingredients that tint rather than color a musical texture.

Perhaps more idiomatic, although still in a sense coloristic, are the quartal characteristics of Sections B and B' and the secundal attributes of Section C. Significantly, these features represent one aspect of the arch form, i.e., a progressive narrowing of intervals to the mid-portion (measures 66-81) of Section C, and a widening thereafter.

Another arch aspect is a quasi symmetry of tonal centers: F# in Section A; F♮ in Section B; F-E♭-C, C, and C-F-D#-G#-B♭-C, respectively, in the three portions of Section C; F♮ in Section B'; and F# in Section A'. Having a consistent C pedal point and an [0,1 T_{11}] pitch-class set in each measure, the mid-portion of Section C (measures 66-81) could be considered a transitive tuple, as its successive measures are interrelated in having two constant features.

In this work, form is a logical and consolidating force, and melody and rhythm exert a singular influence in each section. While there are only a few harpistic effects (glissandos and harmonics), the perpetuum mobile ostinati and varied harmonic colorations enhance the use of the harp.

CHAPTER VI

ANALYSIS OF POUR HARPE, COMPOSED BY TADASI YAMANOUCHI

In its three movements, Pour Harpe incorporates a motivic unity in various contrapuntal idioms, and amalgamates a succession of heptatonic and hexatonic pitch-class sets.

While each movement is sectional, the work exhibits a progressive tightening of structure. Movement I, primarily in two voices, with some octave doublings, entails an introduction (measures 1-12), an A section (measures 13-30), a B, freely developmental, section (measures 31-55), another A section (measures 56-62), and a coda (measures 63-64). Movement II, in ternary A B A' sections (measures 1-8, 9-16 and 17-31 respectively), is a conglomerate of rhythmic forces. Sections A and A' consist of two-part counterpoint accompanied by paralled chords, and section B comprises two to four voices. Movement III, in a well defined A B A' B' A'' design (measures 1-14, 15-26, 27-46, 47-51 and 52-65, respectively), has a highly organized contrapuntal format. Sections A, A' and A'' consist of two distinct parts, one of which is in constant sixteenth-note motion, and the other a more varied rhythmic counterpart. Sections B and B' entail three voices in a transparent texture. In Movements II and III, sections B and A', respectively, are developmental.

Playing an important role in the structure of each section, certain contrapuntal techniques, e.g., repetition, sequence and ostinato, occur significantly. In Movement I, for example, sequences, ostinati and repetition occur in short fragments, usually consisting of six or fewer notes. Sometimes exact repetition (measures 13-14 & 19-20) or exact transposition (measures 15-18 & 21-24 and 31-36 & 37-43) occurs. In this instance transposition is up a half-step.

In Movement II, repetition occurs frequently, both within a single measure (especially in the A and A' sections), and in comprising one or two-measure phrases (measures 4 & 5, 12-13 & 14-15, 21-22 & 24-25 and 27 & 28) in all three sections.

In Movement III, repetition becomes even more prevalent, involving nearly all material. Sections A and A'' are identical in measures 1-13 and 52-64. Section A' (measures 27-46) consists of three, five-measure sequential stages (measures 27-31, 32-36 and 37-41:1) in an ascending minor 3rd relationship, and a repetition of measures 41-42 in diminution in measures 43-44. At the interval of a perfect 4th, measures 47-51:1 in Section B' reiterate measures 15-22 in Section B.

Serving an important unifying function in this varied contrapuntal texture, are certain frequent and prominently occurring rhythmic motives. Based on either an uneven (♪♩.) or an even (♫) rhythmic cell and occurring in several intervals, they appear variously in retrograde, diminution, augmentation or inversion. What is significant is their unique appearance in individual sections or movements.

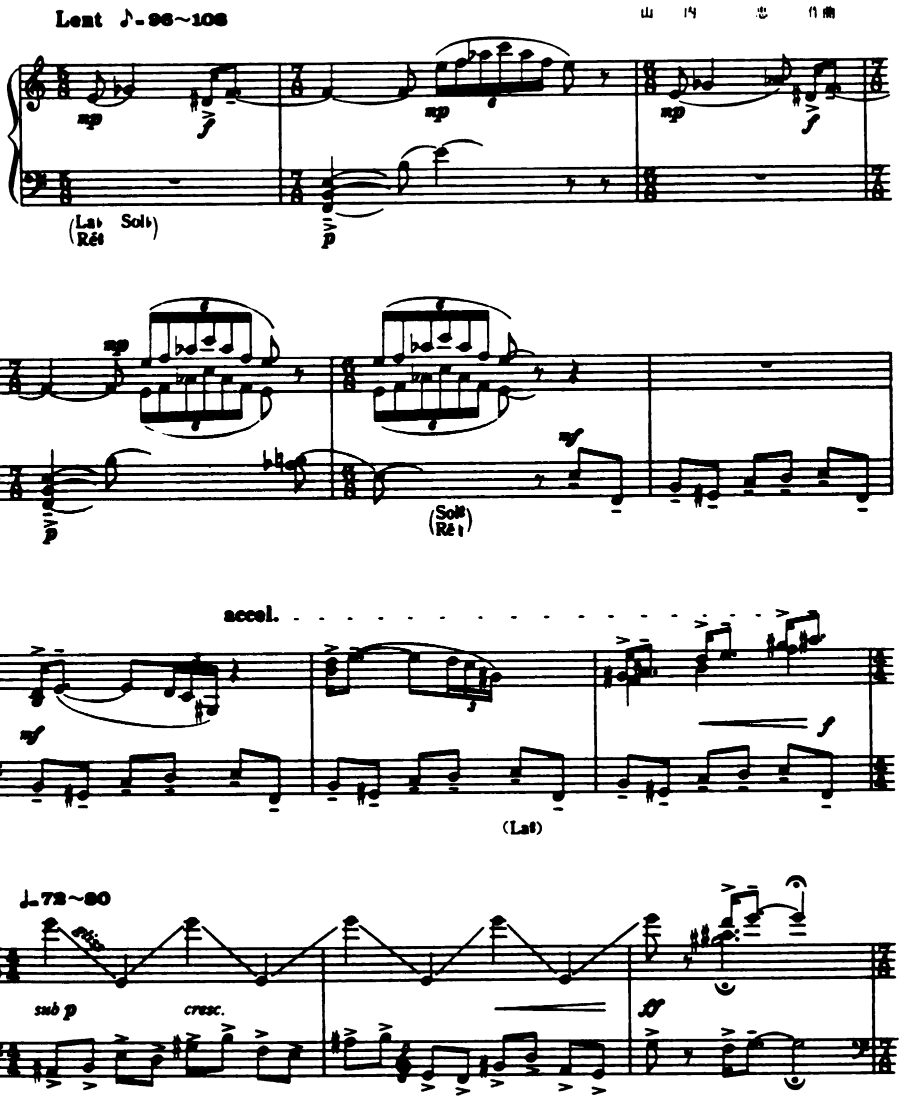
For example, the motive ♪♩. first occurs in the Introduction section (Example 1) of Movement I (measures 1, 3, 7, 8, 9 and 12) in ascending half-steps or whole-steps, and is later reiterated in the B section (measures 51 and 53). In section B of Movement II, this motive occurs in ascending octaves (measures 15-16) and, in the B and B' sections of Movement III, in ascending whole and half-steps (measures 15, 17, 18, 20, 22, 47, 49 and 51).

In the A section of Movement I, this ascending short-long motive is transformed to a descending long-short (♩.♪) form (measures 26:4 and 30:1) involving a simultaneous descending minor 2nd and tritone.

In ensuing sections, this descending long-short form occurs in [0,5] and [0,6] intervals in section A' of Movement II (measures 22, 25 and 26), and in octaves (♫) in the A and A' sections of Movement III (measures 14, 31, 36 and 46).

A descending short-long form (♪♩.) occurs in half-steps in the A and B sections of Movement II (measures 8 and 12 respectively), and in rhythmically displaced descending tritones in the A, A' and A'' sections of Movement III

EXAMPLE 1


Lent ♪=96~108
山内 忠 作曲
mp
f
p
(La♭ Sol♭ Ré♭)
mp
mf
(Sol♯ Ré♮)
accel.
mf
f
(La♯)
♩.=72~80
gliss.
sub p
cresc.
ff

measures 1-12 (Introduction section of Movement I)

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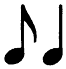
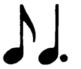
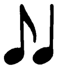
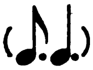
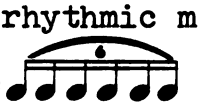
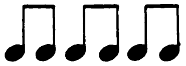
(measures 3-4, 7-8, 28, 29 and 58-59). Also rhythmically displaced are [0,6], [0,7] and [0,8] intervals in the A' section (measures 28, 29, 33, 34, 38 and 39).

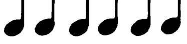
Making an initial appearance in Movement I, in both ascending and descending forms, but not in retrograde, is a short-long  (or ) motive. This appears in ascending form in the Introduction (Example 1, measures 1 and 3), reiterated in measures 51 and 53, and in descending form in the A and B sections (measures 13, 19, 24, 25, 28, 31, 33, 36, 37, 39, 40, 43 and 44), and reiterated in section A' (measures 56, 62 and 63).

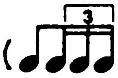
This motivic idea () recurs in the A' section of Movement II in descending major 7ths and tritones (measure 20), and in a rhythmically displaced major 7th (measures 22-23). In the A and A'' sections of Movement III, rhythmically displaced major 7ths in augmentation () occur in measures 4, 8, 55 and 59.

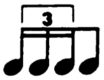
Significant rhythmic motives that are based on an even rhythmic cell are  and . Both occur in the Introduction section of Movement I (Example 1, measures 2, 4, 5 and 6-11, respectively), but do not recur in close association thereafter.

The six-note ascending-descending sixteenth-note pattern from measure 2 recurs prominently in the A, A' and A'' sections of Movement III (measures 3, 7, 11-12, 27-30, 32-35, 37-40, 54, 58 and 62-63). A descending six-note sixteenth-note figure occurs in the A and A' sections of

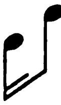
Movement II (measures 2 and 18), and a corresponding ascending sixteenth-note figure appears in the B and B' sections of Movement III (measures 21-23 and 50).

Melodic segments, based on the  rhythmic pattern recur in the B and A' sections of Movement I and in the B section of Movement II. Sometimes occurring in ostinati, repetition or sequences, these patterns create a continuous, eighth-note motion in various metric divisions. These continuous-eighth-note sections in Movements I and II, along with the constant-sixteenth-note A, A' and A'' sections in Movement III, alternate with rhythmically varied sections in their respective movements.

A motive first occurring in the Introduction of Movement I (Example 1, measures 7 and 8) in descending form (

), later occurs in the A and A' sections of Movement II in an inverted retrograde form (

) in measures 1, 4, 5, 17 and 30.

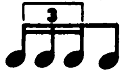
Another significant melodic-rhythmic motive in Movement I (A#-B-e-d), first occurring in the initial four eighth-notes in the lower part of measure 10 (Example 1), and recurring transposed in the A section (measures 13, 19, 25 and 28) and A' section (measures 56 and 62), occurs in rhythmically displaced sixteenth-note diminution in measures 26 and 29. This motive reappears in the B section of Movement II in quarter-note augmentation (measure 13) and in broken octave, , figures in measure 15.

Glissandos also fit into ascending and descending forms in various sections and movements. While a continuous down-up-down-up pattern occurs in the Introduction (Example 1, measures 10-11) and B sections (measures 49, 52 and 54) of Movement I, in the B section of Movement II (measures 13 and 15), and in the A' section of Movement III (measures 41-44), ascending glissandos occur in the B section of Movement I (measures 31 and 37), and descending glissandos occur in the A and A' sections of Movement II (measures 1, 4, 5, 17 and 30) and in the A, B and A' sections of Movement III (measures 13, 25, 26, 31, 36 and 45). A final single down-up glissando occurs at the end of Movement III (measure 64).

In addition to having a unifying appearance in different sections and/or movements, rhythmic motives also serve a unifying function in creating a smooth transition from one section to another.

Another overall unifying element is the pitch-class set [0,1,6] (consisting of a tritone and a minor 2nd or major 7th). In various melodic and vertical forms, this accrues prominence by its frequent occurrence in Movements I and II, and by its occurrence both in significant rhythmic motives and at strategic structural points. In the Introduction of Movement I (Example 1), for example, [0,1,6] in the form of a descending major 7th followed by an ascending tritone, e-F-B, in measures 5-6, occurs at the outset of even eighth-note ( ) segments. This motive recurs in ostinato in measures 7-9 and is transposed in measures 15, 30-31, 42, 45-48 and 58. In Movement II, Section A', it occurs transposed in measures 22-23.

Another [0,1,6] pitch-class set in Movement I, A#-B-e, at the beginning of measure 10 (Example 1) recurs in measures 13, 19, 25, 26, 28, 29, 56 and 62. In Movement II, this motive is inverted (fb'-cb-bb and gb'-db'-c', in measures 2 and 18, respectively).

A third [0,1,6] set in yet another melodic form occurs at the beginning of Movement II, a'-bb'-e''. This motive, also associated with a significant rhythmic figure (), is transposed in measures 4, 5 and 17 and reiterated in measure 30.

An [0,1,6] pitch-class set occurs in vertical structures in the Introduction (Example 1, measures 2 and 4), in the A section of Movement I (measure 24), and in Movement II (measures 1-2, 4-8, 17, 19, 30 and 31).

While [0,1,6] does not occur significantly in Movement III, individual components of [0,1,6], i.e., major 7ths and tritones, are prevalent.

A notable frequency of [0,1,6,7] occurs in the A and B sections of Movement I (measures 15, 16, 21, 22, 30-31, 33, 36, 39-42 and 48) in both a melodic form, such as d#''-e'-bb'-a' (measure 15), and in vertical-horizontal forms, such as $\substack{a' \\ d\#'}$ - $\substack{bb' \\ e'}$ (measure 16) and d'- eb- $\substack{g\#' \\ a}$ (measure 33).

From another organizational standpoint, i.e., a use of heptatonic and hexatonic sets in successive musical segments, the work may be said to have a veritable synthetic scale organization. While this may or may not be the case, analysis points to a use of six or seven pitch classes in sections or parts of sections, involving individual phrases or groups of phrases, as if the composition were conceived by a succession of pre-set pedal arrangements on the harp.

In the Introduction section of Movement I (Example 1), for example, the heptatonic pitch-class sets, [0,1,2,3,5,8, 9 T_3] and [0,1,3,5,6,7,9 IT_5] (having the *bips* 111123 and 111222, respectively), divide the section into two portions. The first pitch-class set involves measures 1-5, and the second, beginning with the last two eighth-notes of measure 5, continues through measure 12. These two sets control pitch material in the Introduction, inasmuch as they are set by the pedal positions of the harp, and all of their pitch-class components (D# C♮ B♮ F♮ G♭ A♭ and D♮ C♮ B♮ E♮ F♮ G# A#) occur in the respective melodic material.

A study of pitch selection in successive groupings in the remainder of the work reveals a significant occurrence of the *bip* 111123 in pitch-class sets in Movements I and II, and of the *bip* 111222 in Movements I, II and III. Having the *bip* 111222, the most frequently occurring set is [0,1, 3,5,6,7,9]. Certain others, creating specific *bips*, are unique to Movements II and III. In Movement II, for example, hexatonic and heptatonic sets having the *bips* 11223 and 111113, respectively, make a strong appearance, while in Movement III, hexatonic pitch-class sets having the *bip* 11222 are prevalent.

In part, these *bip* correlations point to a major occurrence of repetition and exact transposition, although most repetition involves only short melodic segments. Other than *bips*, no identifiable correlation among pitch-class sets in the work is apparent. Short melodic segments within hexatonic and heptatonic divisions are otherwise prominent by their association with a rhythmic motive, or notable by virtue of their repetition or transposition in other sections.

Whereas pitch-class sets are not related to a pre-established tonal or atonal compositional idiom, certain motivic and formal elements succumb to a somewhat quasi impressionistic rendering of the titles of the three movements:

I. "La muse jouant le cithara à Hélicon"
II. "La musicien jouant la harpe"
III. "Bahram Gur chassant avec Azadé"

While unrelated in a literary sense, these designated titles depict three interrelated images invoking certain contrasts in mood and reflection: a muse playing a lyre while sitting on Mt. Hélicon; a musician playing a harp, thus inspired by a muse; and a Persian epic involving two characters in a hunt or a chase.

A rendition of such an epic is described in the *Odyssey* (Book Eight: "The Songs of the Harper"). Endeared by a muse, the blind Phaeacian Court musician, Demodocus, prepares to render an inspired narrative with song and harping:

> The crier soon came, leading that man of song
> whom the Muse cherished; by her gift he knew
> the good of life, and evil--
> for she who lent him sweetness made him blind.
> Pontónoös fixed a studded chair for him
> hard by a pillar amid the banqueters,
> hanging the taut harp from a peg above him,
> and guided up his hands upon the strings, . . .
> In time, when hunger and thirst were turned away,
> the Muse brought to the minstrel's mind a song
> of heroes whose great fame rang under heaven:[1]

Some symbolic representation of a muse, a musician and an epic chase occurs in *Pour Harpe*. Figuratively representing a supernal abode and free spirit of a muse, Movement I in slow to moderate tempos entails primarily ascending motivic forms in a free developmental style. Movement II, also in slow to moderate tempos, represents a muse inspired earthly musician. Here, descending forms of motives from Movement I occur in repetitious segments within the constraint of an A B A' format. Movement III, in fast to moderate tempos, represents an epic chase and "heavenly intervention." In A B A' B' A'' form, the movement presents a steadily moving line in hexameter pursuit of an irregular leaping contrapuntal line in its A sections, and a lyrical pyramiding of muse motives (reflective of Movement I) in one to three-measure segments in its B sections. Although distinct, symbolic motives do not suggest a leitmotif usage, and individual movements do not suggest character depiction beyond subtleties of their structural design.

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[1] Homer, *The Odyssey*, translated by Robert Fitzgerald (Garden City, New York: Anchor Books, Doubleday & Company, Inc., 1963), 127.

Besides structural inferences and some suggestion of motivic imagery, the work exhibits other impressionistic properties, e.g., synthetic scales, parallel chords, tritone structures, and a prevailing tonal ambiguity. These properties imply in name only, a certain Debussyian character, as they occur in this work in highly dissonant textures. For example, linear and vertical tritones and major 7ths, often appearing together in [0,1,6] pitch-class sets, create incessant dissonance. Underlying synthetic six and seven-note scales having three, four or five semitones create dissonant linear and contrapuntal patterns. Parallel octave-fifth (Movement II, measures 21-22 and 24-26), octave-third (Movement III, measures 15-16), octave-third-fifth (Movement III, measures 18-19 and 48), and octave-minor 2nd (Movement III, measures 21 and 23) harmonies, converging with dissonant linear motives, intensify dissonance texturally and rhythmically.

Such prevailing dissonance, luxuriant with tritones, major 7ths and a chromaticism attributable to pre-set pedal positions of the harp, has inherent tonal ambiguity. Only a marked occurrence of the pitch-class e♮ or f♭ designates any semblance of pitch center. Occurring as the first and final pitch of the work and in the concluding sonorities of each of the three sections in Movements I (measures 12, 55 and 64) and II (measures 8, 16 and 31), e♮ also occurs in 80% of the designated synthetic scale pitch fields. Concurrently, the pitch classes a# or b♭ and f♮ or e# occur in 70% of these designated pitch fields. What results is a centric priority of e♮, a tritonic polarity between e♮ and a# in Movement I, transposed to other pitches in ensuing movements, and a distinctive motivic chromaticism involving an initial descending major 7th or ascending minor 2nd in motives in all movements.

As its title infers, Pour Harpe could not be performed on any other instrument. Besides calling for glissandos, harmonics and pedal slides, the work contains passages requiring the harp's unique enharmonic capacity. And, apart from being extremely dissonant, as well as tightly organized in terms of rhythmic-melodic motives, repetition, form and contrapuntal techniques, it lends itself to an expressive reminiscence of an ancient legacy, i.e., the historical role of the harp in mythology and in narrative accompaniment.

CHAPTER VII

SUMMARY AND CONCLUSIONS

The four works analyzed in this study not only use the harp well and represent contemporary compositional styles, but illustrate some challenges that the instrument presents to performers and composers. These concern the harp's diatonic nature and the pedal mechanism devised to make it chromatic. All four works are chromatic, atonal, contrapuntal and dissonant, and exhibit constraints in the form of pedal usage and pitch selection.

Schuller's Fantasy, a twelve-tone work that requires a re-tuning of two strings, masters the harp's chromatic limitations but necessitates many pedal changes. Yamanouchi, on the other hand, avoids pedal fatigue in Pour Harpe with pre-set pedal arrangements having a built-in chromaticism. Jolas, in Tranche, utilizes a pitch selection that does not require extensive pedal work, but that displays a minimal use of certain pitches having no enharmonic equivalents on the harp. Ma'ayani uses perpetuum mobile ostinati with subtle chromatic changes in Toccata, exemplifying an effective chromaticism, but avoiding cumbersome pedal changes.

Perhaps Berlioz had a solution for chromatic limitations when he wrote in 1843:

> Three synonyms are therefore still wanting on the harp: D, G and A. This defect (for such it is indeed) would disappear if the manufacturers would provide . . . a triple action for the pedals of the three notes C♭, F♭ and G♭, which would permit raising these strings by three semitones.1

With regard to the harp's singular percussive and special timbres, it would appear that they may be used effectively at a minimum, as in the Yamanouchi and Ma'ayani works, or at a maximum, as by Schuller and Jolas. The instrument is used to a good advantage in ostinato passages by Ma'ayani, Schuller and Yamanouchi, and in contrapuntal textures by all four composers, as voices in different ranges are delineated by distinguishing registral timbres. In addition, all four works emphasize the tritone.

A review of selected solo and chamber works points to a great increase in the number of harp works from the 1950's through the 1970's as compared with a selected list of pre-1950 works (see Appendices A, B and C). While these listings not only represent idiomatic writing, they also exemplify concurrent trends in compositional style, such as polytonality, dodecaphony, atonalism and dissonant counterpoint, and point to a significant repertory.

To the extent that it can be traced through history,

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[1] Hector Berlioz, Treatise on Instrumentation, enlarged and revised by Richard Strauss, translated by Theodore Front (New York: E.F. Kalmus, 1948), 142.

the harp has upheld a professional function in the mainstream of Western musical activity. While its usefulness has varied due to the extent of its chromatic or modulatory limitations in various musical styles, it has retained an accompanyment, symbolic and coloristic usage, and in its present-day structure, has become a significant resource for twentieth-century compositional innovations. In an instrumental grouping or standing soloistically, the harp remains serene and enchanting.

APPENDICES

APPENDIX A

SELECTED LIST OF HARP WORKS PRIOR TO THE MID-TWENTIETH CENTURY

Bach, Carl Philipp Emanuel. Sonata for Harp. Edited by Lucile Lawrence. New York: Lyra Music Company, 1963.

Badings, Henk. Capriccio (Quintet No. 3), for flute, violin, viola, violoncello and harp. New York: C.F. Peters Corporation, 1933.

-------. Sonate voor Harp (1944). Amsterdam: Donemus Foundation, 1965.

Bax, Arnold. Elegiac Trio for flute, viola and harp (ca. 1916). London: J. & W. Chester, 1920.

Beethoven, Ludwig von. Variations on a Swiss Air for solo harp, Op. 183 (ca. 1798). Edited by Lucile Lawrence. New York: Lyra Music Company, 1971.

Berezowsky, Nicolai. Concerto for Harp and Orchestra, Op. 31 (1944). Harp part edited by Carlos Salzedo. Philadelphia: Elkan-Vogel Co., Inc., 1947.

Brahms, Johannes. Vier Gesänge, Op. 17, No. 1, for women's chorus, two horns and harp (1860). New York: C.F. Peters Corporation, 1965.

Britten, Benjamin. A Ceremony of Carols, Op. 28, for treble voices and harp (1942). Boosey & Co., Ltd., 1943.

Büsser, Henri. Pièce de Concert, Op. 32, for the harp. Paris: Alphonse Leduc, 1945. New York: Belwin Mills Publishing Corporation, Kalmus Harp Series.

Caplet, André. Conte Fantastique for harp and string quartet. Paris: Durand et Cie, 1924.

-------. Divertissement à l'espagnole. Paris: Durand et Cie, 1925.

-------. Divertissement à la française. Paris: Durand et Cie, 1925.

Debussy, Claude. Danse Sacrée et Danse Profane (1904). Edited for pedal harp by H. Renié. Paris: Editions Durand et Cie., 1947, c1904. New York: Lyra Music Co.

-------. Sonate pour flûte, alto et harpe (1915). Paris: Durand et Cie, 1916.

Dresden, Sem. Sonata for flute and harp. Paris: Editions Salabert, 1924.

de Falla, Manuel. Psyche, for mezzo-soprano, flute, harp, violin, viola and violoncello. London: J. & W. Chester, Ltd., 1927.

Fauré, Gabriel. Impromptu pour la harpe, Op. 86. Paris: Editions Durand et Cie, 1904. Bryn Mawr; Theodore Presser Co.

Forst, Rudolf. Trio for flute, harp and violoncello (1947). Unpublished.

Goossens, Eugene. Suite for flute, violin and harp. London: J. & W. Chester, 1917.

Gould, Morton. Harvest, for vibraphone, harp and strings. New York: Chappell & Co., 1945.

Handel, George Fr. Concerto in B♭ for Harp, Op. 4, No. 6 (1738). Edited by Lucile Lawrence. New York: Lyra Music Co., 1972.

Harrison, Lou. Suite for Violoncello and Harp (1949). New York: Peer International Corp., 1950.

Hindemith, Paul. Concerto for woodwinds, harp and orchestra (1949). Mainz: B. Schott's Söhne, 1950.

-------. Konzertmusik für Klavier, Blechbläser und Harfen (2 harps). Mainz: B. Schott's Söhne, 1930.

-------. Sonate für harfe (1939). Mainz: B. Schott's Söhne, 1940.

Ingelbrecht, D.E. Sonatine for flute and harp (1918). Paris: Alphonse Leduc, 1920.

Koutzen, Boris. Trio for flute, harp and violoncello (1930-32). New York: Lyra Music Co., 1965.

Lawes, William. "Select Consort Music," (1630-40), for violin, division viol, theorbo and harp, transcribed and edited by Murray Lefkowitz, in Musica Britannica. London: Stainer & Bell, Ltd., 1963. Bodleian Library MS.

Mason, Daniel Gregory. Three Pieces (Sextet) for harp, flute and string quartet, Op. 13. New York: G. Schirmer, 1923.

Mozart, Wolfgang Amadeus. Concerto in C Major for flute harp and orchestra, K299 (1778). Flute and harp parts edited by Carlos Salzedo (1951). San Antonio: Southern Music Company, 1958.

Pierné, Gabriel. Impromptu-Caprice pour la Harpe, Op. 9. Paris: Alphonse Leduc., [1955]. New York: Lyra Music Co.

Ravel, Maurice. Introduction et Allegro pour Harp avec acc. de Quatuor à cordes, Flûte et Clarinette (1905-06). Paris: Editions Durand et Cie, 1906.

Riegger, Wallingford. Divertissement for flute, harp and violoncello, Op. 15. New York: American Composers Alliance, 1933.

Roslavetz, Nicholas. Nocturne for oboe, harp, 2 violi and violoncello; or, for harp and string quartet (1913). New York: Lyra Music Co., 1971.

Rota, Nino. Sarabanda e Toccata per Arpa (1945). Milan: G. Ricordi & Co., 1955.

-------. Quintet for flute, oboe, viola, violoncello and harp (1935). Milan: G. Ricordi, 1937.

-------. Sonata for flute and harp (1937). Milan: G. Ricordi, 1977, 1939.

Roussel, Albert. Impromptu, Op. 21. Paris: Editions Durand & Cie, 1919.

-------. Serenade, Op. 30, for flute, violin, viola, violoncello and harp. Paris: Durand et Cie, 1926.

Ruyneman, Daniel. Hiëroglyphs, for 3 flutes, 2 mandolins, 2 guitars, celesta, harp, cup bells or vibraphone, and piano. London: J. & W. Chester, 1918.

Saint-Saëns, Camille. Fantaisie pour Harpe, Op. 95 (1893). Paris: Editions Durand et Cie., [n.d.]. New York: Edwin F. Kalmus.

-------. Fantaisie pour Violon et Harpe, Op. 124. Paris: Durand et Cie, 1907. New York: Lyra Music Company.

Salzedo, Carlos. Concerto for Harp and Seven Woodwinds (flute/piccolo, oboe, 2 clarinets, bassoon, horn, trumpet). Unpublished (1925-26).

-------. Preambule et Jeux, for harp and nine instruments (flute, oboe, bassoon, horn, string quartet and double-bass), Unpublished (1929).

-------. Prelude for a Drama, for one or several harps (1948). New York: M. Baron Co., 1951.

-------. Scintillation for Harp (1936). Philadelphia: Elkan-Vogel Co., Inc., 1937.

-------. Sonata for Harp and Piano (in one movement) (1922). New York: Lyra Music Company, 1978.

Schaposhnikov, Adrian. Sonata for Flute and Harp (1924). Moscow: Muzyka, State Music Publishers. Reprint, Lyra Music Company, New York.

Schoenberg, Arnold. Herzgewächse, Op. 20, für Hoher sopran, celesta, harmonium und harfe. Vienna: Universal Edition, 1920. Available through Belmont Music Publishers, Los Angeles.

Spohr, Ludwig. Sonata Concertante, Op. 113, for harp and violin. Revised and edited by Marjorie Call and Louis Kaufman. Bryn Mawr: Theodore Presser Co., 1958.

Starer, Robert. Prelude for Harp (1948). New York: Peer International Corp., 1950.

Webern, Anton von. Fünf geistliche Lieder, Op. 15, for voice, flute, clarinet (or bass clarinet), trumpet, harp and violin (or viola). London: Universal-Edition, 1924.

-------. Zwei Lieder, Op. 8, für Gesang und acht Instrumente. London: Universal-Edition, 1926.

APPENDIX B

SELECTED LIST OF SOLO HARP LITERATURE FROM THE MID-20TH CENTURY TO THE PRESENT

Avni, Tzvi. Chaconne for Harp. Tel-Aviv: Israel Music Institute, 1962.

Ben-Haim, Paul. Poème. Tel-Aviv: Israeli Music Publications Limited, 1959.

Berio, Luciano. Sequenza II (1963). London: Universal Edition, Ltd., 1965.

Berkeley, Lennox. Nocturne for Harp. London: Stainer and Bell. New York: Galaxy Music Corp., 1967.

Boucourechliev, André. Archipel 5A-Harpe (1970). Paris: Editions Musicales Alphonse Leduc et Cie, 1972.

Britten, Benjamin. Suite for Harp, Op. 83 (1969). London: Faber Music Ltd., 1970. New York: G. Schirmer.

Bussotti, Sylvano. Fragmentations pour un Joueur de Harpes (1962). Firenze: Aldo Bruzzichelli, Editore, 1963.

Capanna, Robert. Phorminx for solo harp. New York: G. Schirmer, 1975.

Castelnuovo-Tedesco, Mario. Rhapsody for Harp (1967). Hastings-on-Hudson, New York: General Music Publishing Co., Inc., 1973.

Chávez, Carlos. Invention iii, for Harp (1967). New York: Belwin Mills Publishing Corp., 1969.

Creston, Paul. Olympia, Rhapsody for Harp Solo, Op. 94. New York: G. Schirmer, Inc., 1968.

Dello Joio, Norman. Bagatelles for Harp. New York: Edward B. Marks Music Corp., 1969.

Devcić, Natko. Structures Transparentes, for harp. Cologne: Hans Gerig, 1966. Melville, New York: MCA Music.

Feld, Jindřich. Toccata e Passacaglia (1976). New York: G. Schirmer, 1980.

Fox, Charles. Ancient Dance. New York: Peer International Corp., 1968.

Friedewald, Russell E. Sonatina for Harp (2 movements). Unpublished (Michigan State University, 1953).

Glanville-Hicks, Peggy. Sonata for Harp. New York: Weintraub Music Company, 1953.

Haines, Edmund. Sonata for Harp, [1970]. Unpublished.

Harrison, Lou. Music for Harp. Santa Monica: Salvi Publications, 1978.

Holliger, Heinz. Sequenzen über Johannes 1:32, für Harfe (1962). Mainz: B. Schott's Söhne, 1965.

Jolas, Betsy. Tranche, pour harpe seule (1967). Paris: Heugel et Cie, 1968.

Jolivet, André. Prélude Pour Harpe. London: Boosey & Hawkes Music Publishers Ltd., 1966.

Krenek, Ernst. Sonata for Harp (1955). Kassel: Bärenreiter-Verlag, 1959.

de Leeuw, Ton. The Four Seasons, for Harp (1964). Amsterdam: Donemus, 1964. C.F. Peters Corporation, New York, Sole Agents.

Lomon, Ruth. Dust Devils, for Solo Harp. Washington, D.C.: Arsis Press, 1976.

Ma'ayani, Ami. Maquamat, for harp (1964). Tel-Aviv: Israeli Music Publications Ltd., 1965. New York: Lyra Music Co.

-------. Sonata (1979). New York: Lyra Music Company, 1980.

-------. Toccata for Harp (1961). Tel-Aviv: Israel Music Institute, 1962 and 1969.

Milhaud, Darius. Sonate pour Harpe (1971). Paris: Editions Max Eschig, 1972.

Natra, Sergiu. Sonatina for Harp, Revised 2nd edition (1978). Tel Aviv: Israel Music Institute, 1965.

Persichetti, Vincent. Parable for Solo Harp, Op. 119. Bryn Mawr: Elkan-Vogel, Inc., 1973.

Rands, Bernard. Formants I, "Les Gestes," for harp. London: Universal-Edition, 1965.

Rochberg, George. Ukiyo-E (Pictures of the Floating World) (1973). Bryn Mawr: Theodore Presser Co., 1976.

Rodrigo, Joaquín. Impromptu para arpa. Madrid: Union Musical Española-Editores, 1963.

Rorem, Ned. Sky Music (1976). New York: Boosey & Hawkes, 1976.

Schifrin, Lalo. Continuum for Solo Harp. New York: Associated Music Publishers, Inc., 1970.

Schuller, Gunther. Fantasy for Solo Harp. New York: Associated Music Publishers, Inc., 1969.

Sheinfeld, David. Patterns for Harp. New York: Hendon Music Company, 1972.

Sheriff, Noam. Invention for Harp (1968). Tel-Aviv: Israel Music Institute, 1969.

Siegmeister, Elie. American Harp, suite for solo harp (1966). Bryn Mawr: Theodore Presser Co., 1971.

Srebotnjak, Alojz. Five Preludes. New York: G. Schirmer, 1966.

Tal, Josef. Intrada, for harp. Tel-Aviv: Israeli Music Publications, Ltd., 1959.

-------. Structure (Mivnim) for Harp Solo. Tel-Aviv: Israel Music Institute, 1962.

Tomasi, Henri. Invocation et Danse. Paris: Alphonse Leduc et Cie, 1969.

Weber, Alain. Chant de Biwa, estampe pour harpe. Paris: Alphonse Leduc et Cie, 1971.

Yamanouchi, Tadasi. Pour Harpe (1965). Tokyo: International Music Publishers Co., Ltd., 1965.

APPENDIX C

SELECTED LIST OF CHAMBER WORKS WITH HARP FROM THE MID-20TH CENTURY TO THE PRESENT

Badings, Henk. Cavatina, for alto flute in G (or violin) and harp. C.F. Peters Corp. Amsterdam: Konemus Foundation, 1952.

-------. Ballade, for flute and harp. Amsterdam: Donemus Foundation, 1950.

Berio, Luciano. Circles, for female voice, harp and two percussion ensembles. London: Universal-Edition, 1961.

Boulez, Pierre. Improvisation sur Mallarmé: "le Vierge, le vivace et le bel aujourd'hui . . .", for soprano, vibraphone, percussion and harp. London: Universal-Edition, 1958.

-------. Improvisation sur Mallarmé: "Une Dentelle S' Abolit," for soprano, harpe, jeu de cloches-tubes, vibraphone, piano, celeste, 4 percussionists. London: Universal-Edition, Ltd., 1958.

de Braal, Andries. L'illumination de Queekhoven 1968 (harp and trumpet). Amsterdam: Donemus, 1969. New York: C.F. Peters Corporation.

Capanna, Robert. Piece for Flute and Harp (1980). Unpublished.

Chou Wen-chung. Suite for Harp and Wind Quintet (1950). New York: C.F. Peters Corp., 1962.

-------. Three Folk Songs for Harp and Flute. New York: C.F. Peters Corp., 1950.

Crumb, George. Ancient Voices of Children (1970), for soprano, boy soprano, oboe, mandolin, harp, electric piano and percussion. New York: C.F. Peters Corp., 1970.

-------. Madrigals, Book III, for soprano, harp and percussion. New York: Mills Music Inc., c/o Belwin-Mills Publishing Corp., 1969.

-------. Madrigals, Book IV, for soprano, flute/alto flute/piccolo, harp, double-bass and percussionist. New York: Mills Music Inc., c/o Belwin-Mills Publishing Corp., 1969.

Dohnányi, Ernö. Concertino for harp, string quartet, bass, flute, oboe, clarinet, bassoon, horn and tympani (1950). New York: Lyra Music Company, 1980.

Eakin, Charles. Improvization for Harp and Pizzicato Piano. Unpublished (University of Colorado, 1974).

Eben, Petr. Ordo Modalis for oboe and harp (1964). Prague, 1966.

Felciano, Richard. Background Music, a theatre piece for Harp and Electronics (Sympathetic Piano, Stereophonic Tape, FM Tuner and Transister Radio). Boston: E.C. Schirmer Music Co., 1974.

Flothuis, Marius. Pour le Tombeau d'Orphée, danse élégiaque pour harpe seule, Op. 37. Amsterdam: Donemus, 1950.

Holliger, Heinz. Mobile, für Oboe und Harfe. Mainz: B. Schott's Söhne, 1962.

-------. Trio for oboe, viola and harp. Mainz: B. Schott's Söhne, 1966.

Jolivet, André. Alla Rustica, for flute and harp. London: Boosey & Hawkes Music Publishers Ltd., 1963.

Kardos, Iztván. Poem and Humoresque for violin, viola and harp. Boston: General Music Publishing Co., Inc., 1969.

Ma'ayani, Ami. Improvisation Variée, trio for harp, viola and flute. New York: Lyra Music Co., 1969.

Natra, Sergiu. Music for Violin and Harp. Tel-Aviv: Israel Music Institute, 1960.

Persichetti, Vincent. Serenade No. 10, Op. 79, for flute and harp. Bryn Mawr: Elkan-Vogel, Inc., 1961.

Rands, Bernard. Action for 6, for flute, viola, violoncello, harp and 2 percussionists (1962-63). London: Universal-Edition, 1965.

-------. Formants II, "Labyrinthe," for harp (playing Formants I solo piece), clarinet, trombone, viola, violoncello, piano, celesta and 2 percussionists. London: Universal-Edition, 1966, revised 1969.

Rorem, Ned. Book of Hours, for flute and harp (1975). New York: Boosey & Hawkes, Inc., 1978.

Saylor, Bruce. St. Ulmos Fire, for flute and harp (1978). Unpublished.

Schafer, R. Murray. The Crown of Ariadne, for harp and percussion (all played by harpist). Bancroft, Ontario: Arcana Editions, 1980.

-------. Requiems for the Party Girl, for soprano and 9 instruments. Toronto: BMI Canada, Ltd., 1966.

-------. Sappho, for mezzo soprano, harp, guitar, piano and percussion (1967-69). Unpublished.

Smit, Leo. In Woods, for oboe, harp and percussion (1978). Unpublished.

Srebotnjak, Alojz. Fantasia Notturna, for 3 violins, B♭ clarinet and harp. Unpublished.

Stravinsky, Igor. Four Songs, for soprano, flute, harp and guitar. London: J. & W. Chester, Ltd., 1955.

Takemitsu, Toru. Stanza II, for harp and tape. New York: Editions Salabert Music Publishers, 1972.

Tal, Josef. Qinah Lament, for violoncello and harp. Tel-Aviv: Israeli Music Publications, Ltd., 1950.

Urata, Kenjiro. Metaplasm IV, for Oboe and Harp. Tokyo: Academia Music, Ltd., 1973.

Wuorinen, Charles. Bassoon Variations, for bassoon, harp and tympani. New York: C.F. Peters Corp., 1972.

-------. Harp Variations, for harp, violin, viola and violoncello. New York: C.F. Peters Corp., 1976.

Zaimont, Judith Lang. Two Songs for Soprano and Harp (1980). Unpublished.

APPENDIX D

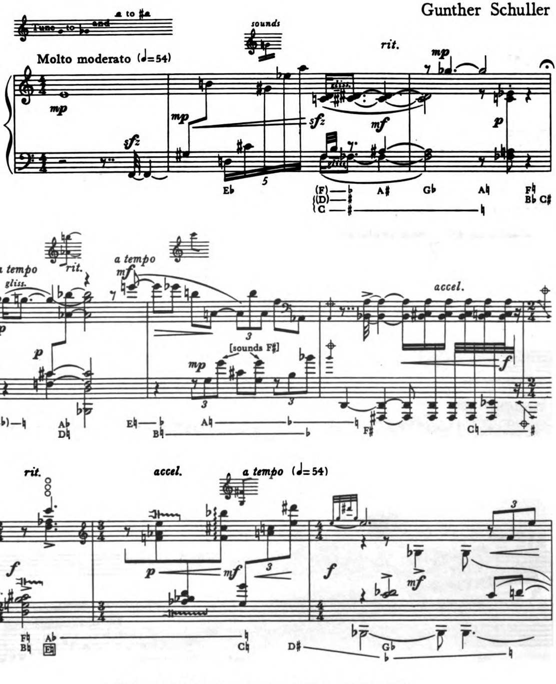
REDUCED SCORES OF WORKS ANALYZED IN THIS STUDY

For Sonya

FANTASY

for Solo Harp

Gunther Schuller


Tune to and to
sounds
Molto moderato (♩=54)
mp
sfz
mp
sfz
gliss.
mf
rit.
mp
p
5
E♭
(F)
(D)
C
A♯
G♭
A♮
F♮
B♭ C♯
a tempo
gliss.
p
rit.
a tempo
mf
p
[sounds F♯]
mp
3
3
accel.
f
(G♭)
A♭
D♮
E♮
B♮
A♮
F♯
C♮
rit.
accel.
a tempo (♩=54)
f
p.d.l.t.
p
mf
3
f
mf
F♮
B♮
A♭
E♮
C♮
D♯
G♭

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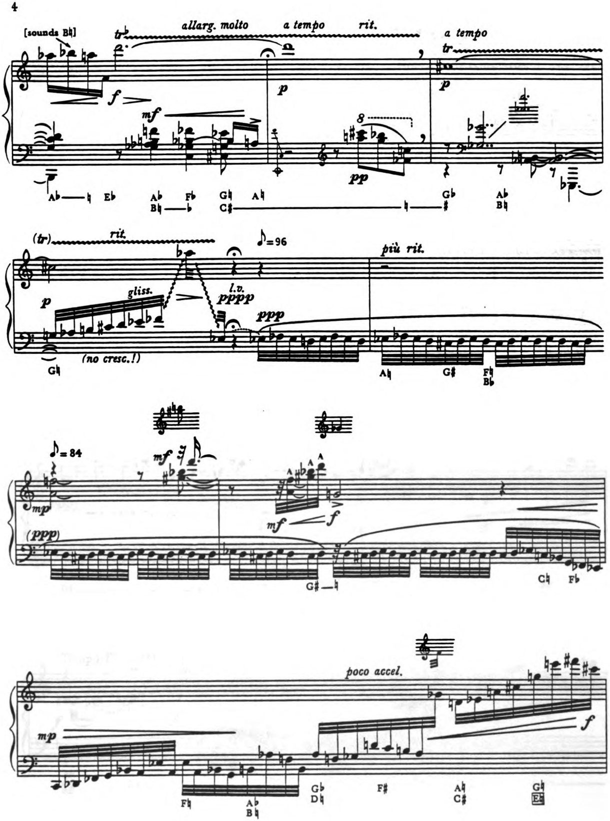
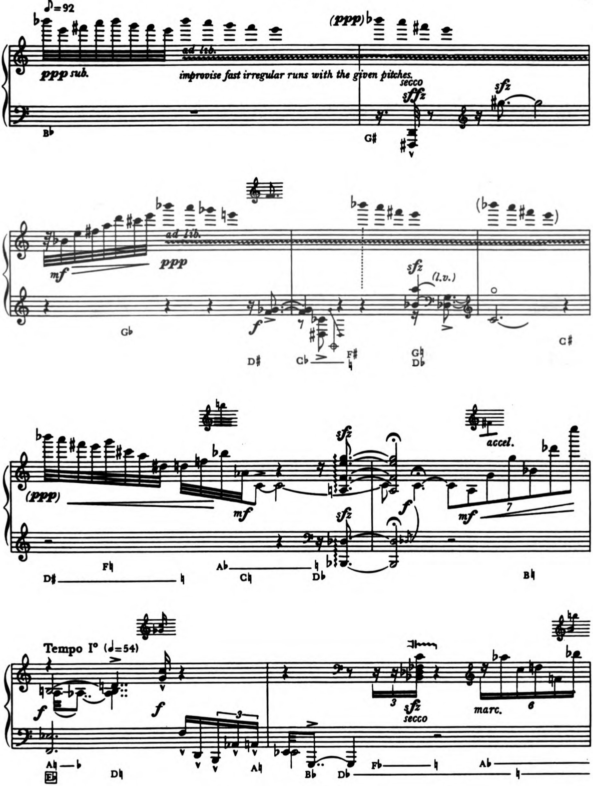
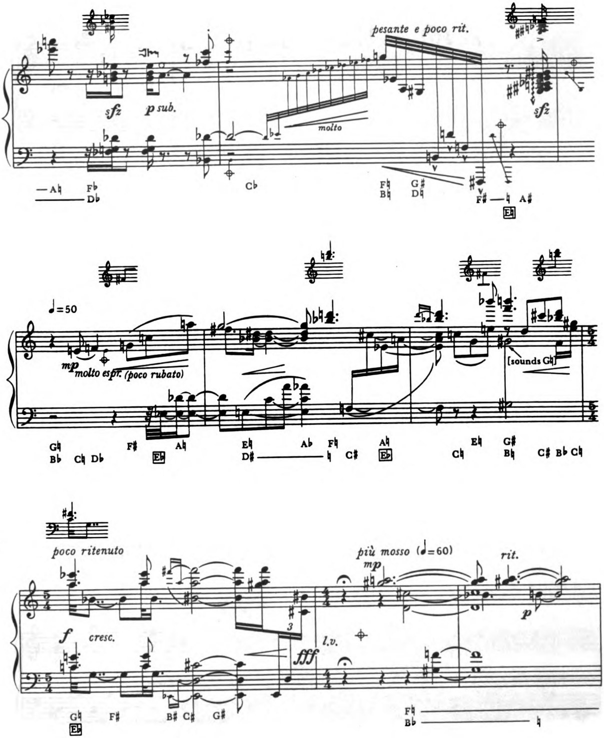
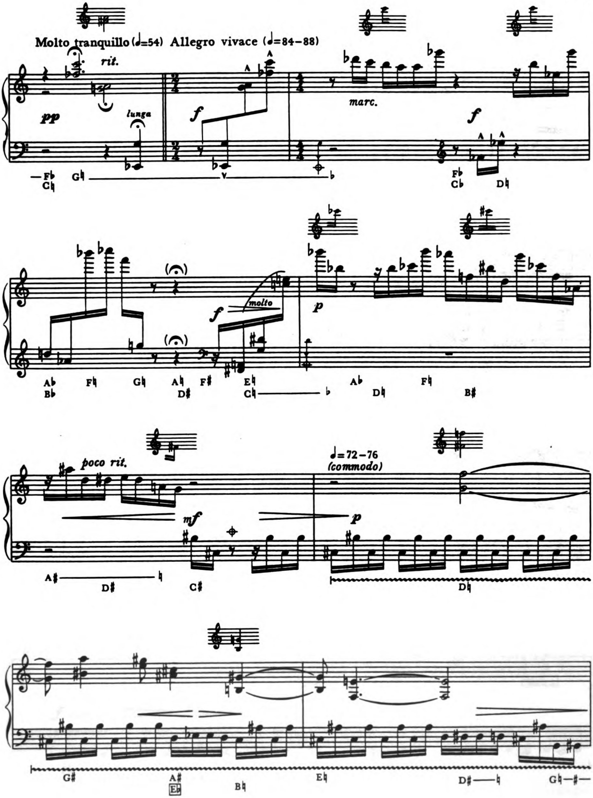
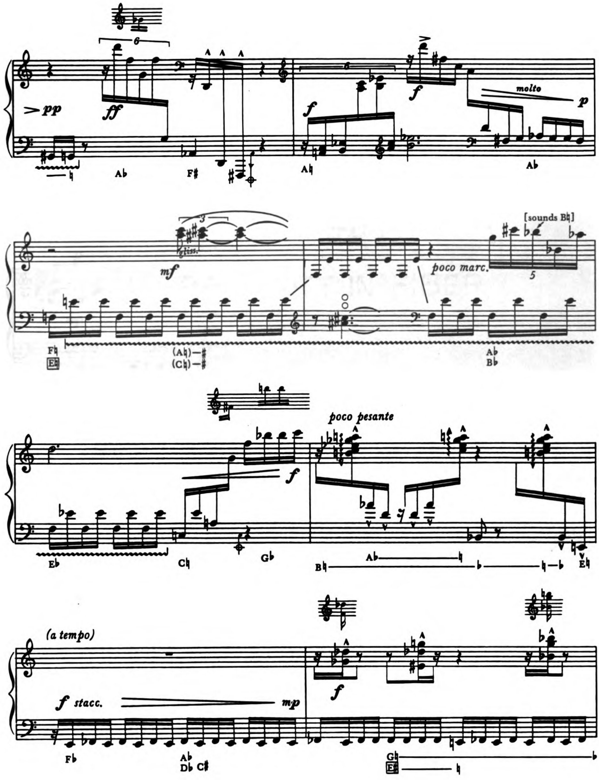

4
[sounds B♮]
allarg. molto
a tempo
rit.
a tempo
f
mf
p
pp
8
A♭ — ♮ E♭ A♭ B♮ — ♭ F♭ G♮ C♯ A♮ — ♮ — ♯
G♭ A♭ B♮
(tr)
rit.
gliss.
♪ = 96
l.v.
pppp
ppp
più rit.
(no cresc.!)
G♮
A♮ G♯ F♮ B♭
♪ = 84
mp
mf
(ppp)
G♯ — ♮
C♮ F♭
poco accel.
F♮ A♭ B♮ G♭ D♮ F♯ A♮ C♯ G♮ E♮

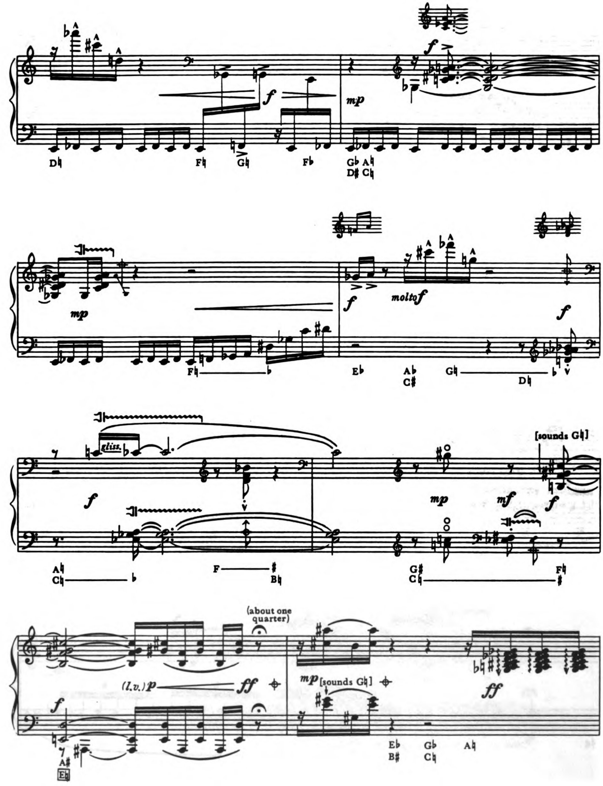

♪=92
ppp sub.
ad lib.
improvise fast irregular runs with the given pitches.
(ppp)
secco
sffz
sfz
B♭
G♯
ad lib.
mf
ppp
sfz
(l.v.)
f
G♭
D♯
C♭
F♯
♮
G♮
D♭
C♯
(ppp)
mf
sfz
f
accel.
7
D♯
♮
F♮
A♭
♮
C♮
D♭
B♮
Tempo I° (♩=54)
f
f
3
sfz
secco
marc.
6
A♮
♭
E♭
D♮
A♮
B♭
D♭
F♭
♮
A♭
♮

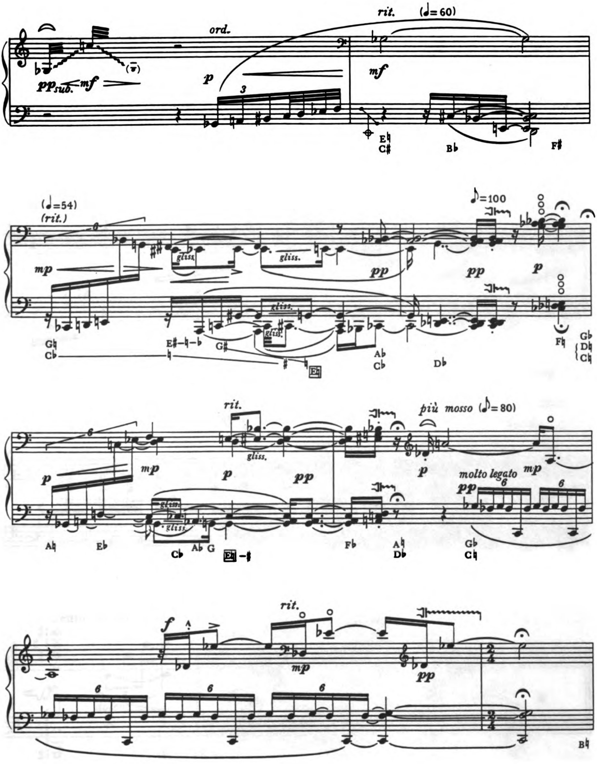
6

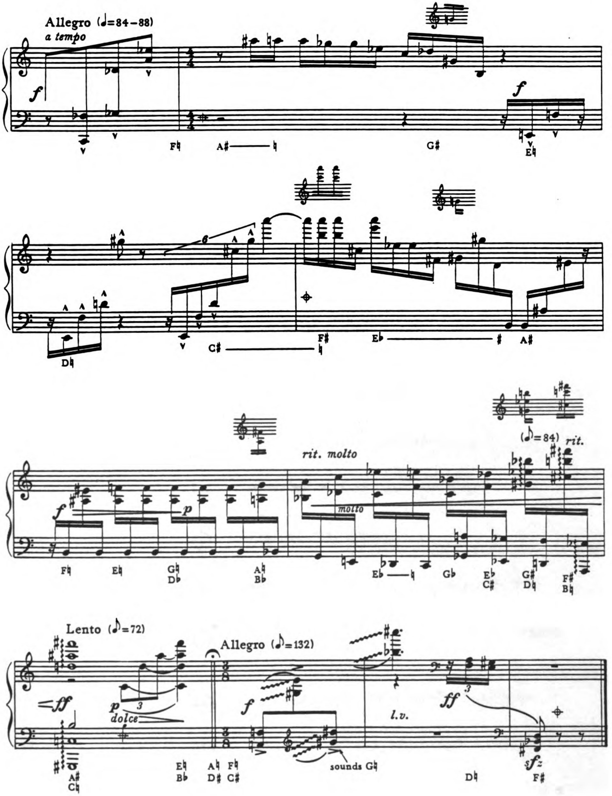

pesante e poco rit.
sfz
p sub.
molto
sfz
— A♮
F♭
D♭
C♭
F♮
B♮
G♯
D♮
F♯ — ♮
A♯
E♭
♩=50
mp molto espr. (poco rubato)
[sounds G♮]
G♮
B♭
C♮
D♭
F♯
E♭
A♮
E♮
D♯ — ♮
A♭
F♮
C♯
A♮
E♭
C♮
E♮
G♯
B♮
C♯ B♭ C♮
poco ritenuto
f
cresc.
3
fff
più mosso (♩=60)
mp
rit.
p
l.v.
G♮
E♭
F♯
B♯ C♯
G♯
F♮
B♭ — ♮


Molto tranquillo (♩=54) Allegro vivace (♩=84–88)
rit.
pp
lunga
f
marc.
f
— F♭ C♮ G♮ v ♭
F♭ C♭ D♮
molto
f
p
A♭ B♭ F♮ G♮ A♮ D♯ F♯ E♮ C♮ ♭
A♭ D♮ F♮ B♯
poco rit.
mf
♩=72–76
(commodo)
p
A♯ D♯ ♮ C♯
D♮
G♯ A♯ E♭ B♮ E♮ D♯ — ♮ G♮ — ♯ —


pp
6
ff
Ab
F♯
f
6
f
molto
p
A♮
Ab
3
gliss.
mf
[sounds B♮]
poco marc.
5
F♮
E♮
(A♮)—♯
(C♮)—♯
Ab
Bb
poco pesante
f
Eb
C♮
Gb
B♮
Ab
E♮
(a tempo)
f stacc.
mp
f
Fb
Ab
Db C♯
G♮
E♮


f
mp
D♮
F♮
G♮
F♭
G♭ A♮
D♯ C♮
mp
F♮ ♭
f
molto f
f
E♭
A♭
C♯
G♮
D♮
♭
gliss.
f
A♮
C♮ ♭
F ♯
B♮
mp
mf
f
[sounds G♮]
G♯
C♮
F♮
♯
(about one quarter)
(l.v.) p
ff
f
A♯
E♮
mp
[sounds G♮]
ff
E♭
B♯
G♭
C♮
A♮


rit.
(♩= 60)
ord.
pp sub.
mf
p
3
mf
E♮
C♯
B♭
F♯
(♩=54)
(rit.)
6
mp
gliss.
pp
♪=100
p
G♮
C♭
E♯–♮–♭
G♯
E♮
A♭
C♭
D♭
F♮
G♭
D♮
C♮
rit.
mp
p
pp
più mosso (♪= 80)
molto legato
A♮
E♭
C♭
A♭ G
E♮ –♯
F♭
A♮
D♭
G♭
C♮
f
2
4
B♮


Allegro (♩=84–88)
a tempo
f
F♮
A♯ — ♮
G♯
f
E♮
6
D♮
C♯ — ♮
F♯
E♭ — ♯
A♯
rit. molto
(♪=84)
rit.
f
p
molto
F♮
E♮
G♮
D♭
A♮
B♭
E♭ — ♮
G♭
E♭
C♯
G♯
D♮
F♯
B♮
Lento (♪=72)
ff
p
dolce
3
A♯
C♮
E♮
B♭
Allegro (♪=132)
A♮
D♯
F♮
C♯
f
sounds G♮
l.v.
ff
3
D♮
sfz
F♯

NOTE

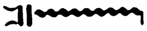
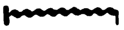
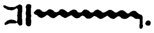
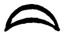
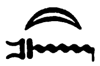
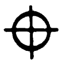
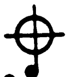
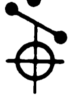
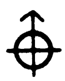
As indicated in the first measure, the tuning of the two strings G and B is to be maintained throughout the piece; *the octaves of these strings are* not *to be so tuned*. The adoption of this tuning procedure is essential, many of the harmonics and pitches in the work being impossible to perform otherwise.

The performer is to play the pitches notated in the staff; the smaller cue notes, placed above the staff, indicate the actual resultant pitch.

All harmonics are written as played; their sound, therefore, is an octave higher.

On occasion, pedals (normally operated with the right foot) need to be operated with the left foot. Where this occurs, the pedal marking appears in a box —for example $\boxed{E\flat}$.

The following indications and symbols are used:

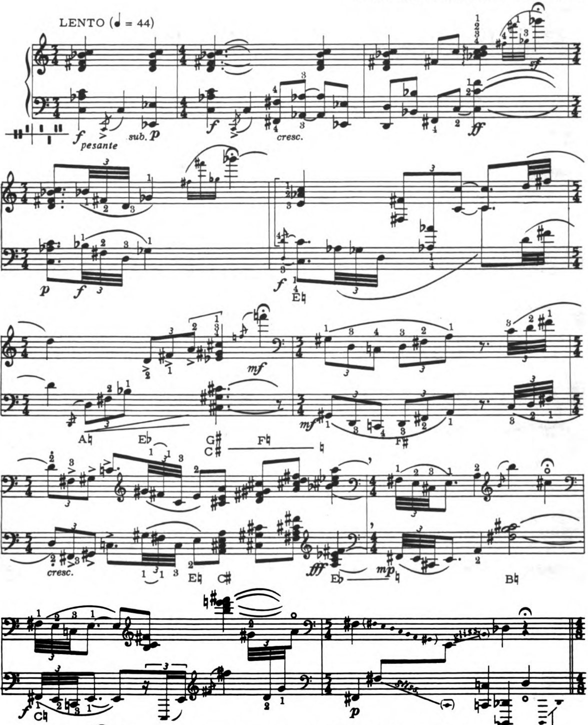
	to be played very near the sounding board.
	to be played low on the strings, but not as close to the sounding board as .
	to be played with the fingernails.
	to be played with the fingernails near the sounding board.
l.v.	means "laissez vibrer", let vibrate or let ring.
	means to damp all strings.
	means to damp only the string or strings indicated.
	means to damp all strings lying between and including the two indicated.
	means to damp the strings indicated by the arrow.
ord.	means to cancel any previous method of playing.

G. S.

TOCCATA
FOR HARP

טוקטה
לנבל

AMI MA'AYANI עמי מעייני


LENTO (♩ = 44)
f pesante
sub. p
cresc.
ff
sf
p
f
mf
E♮
A♮
E♭
G♯ C♯
F♮
♮
F♯
cresc.
E♮
C♯
fff
E♭
mp
B♮
C♮
gliss.
p
F♮
D♭
G♮—♭

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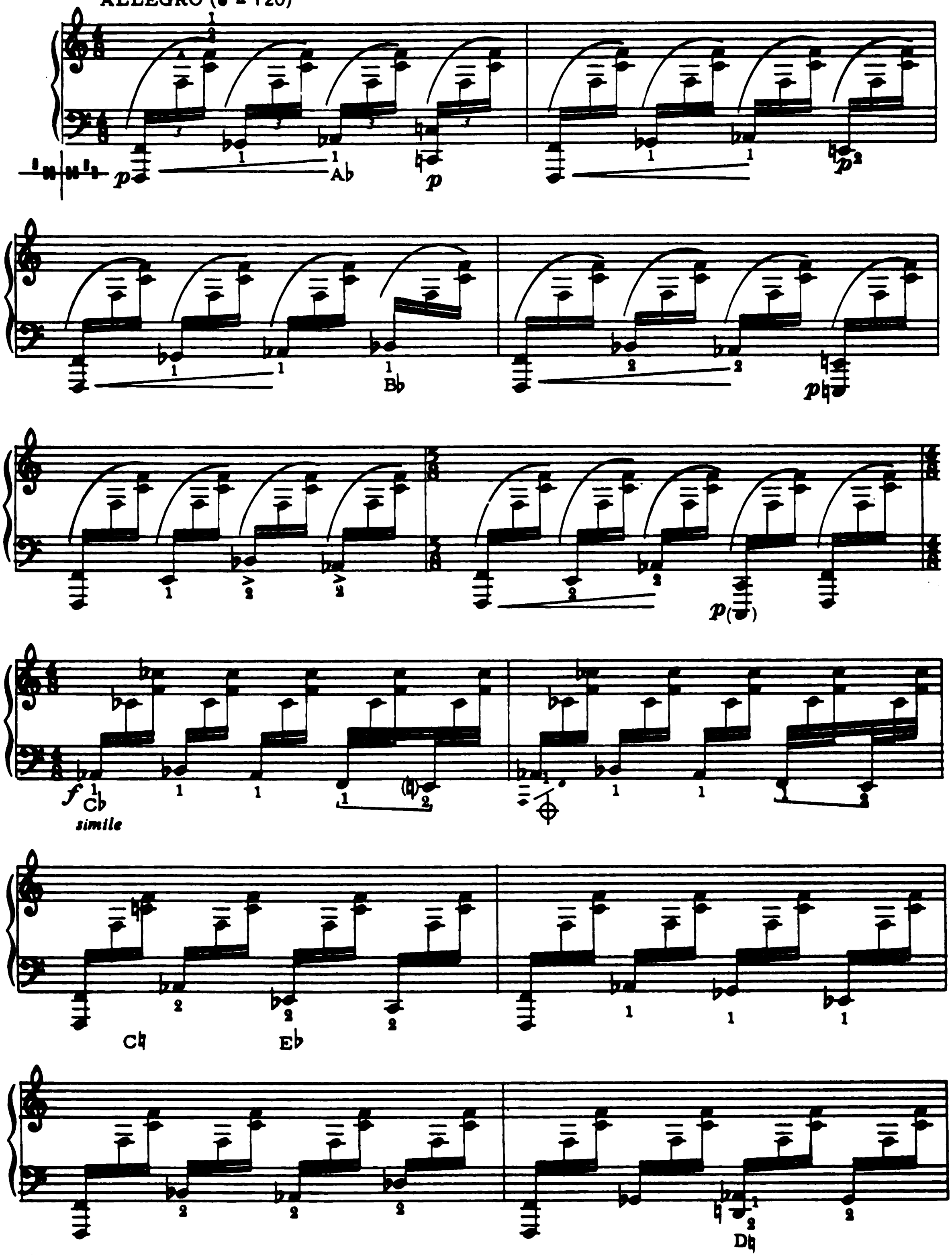
2nd. edition rev.

Dur.: 6' ca.

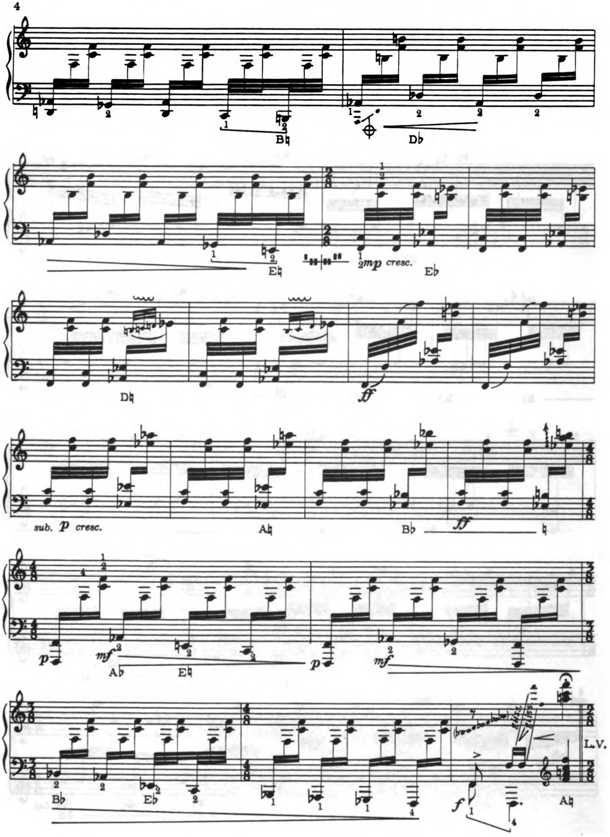
3

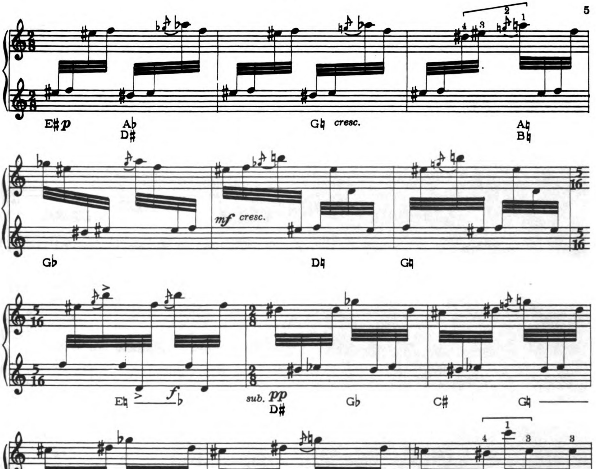
*) ALLEGRO (♪= 120)

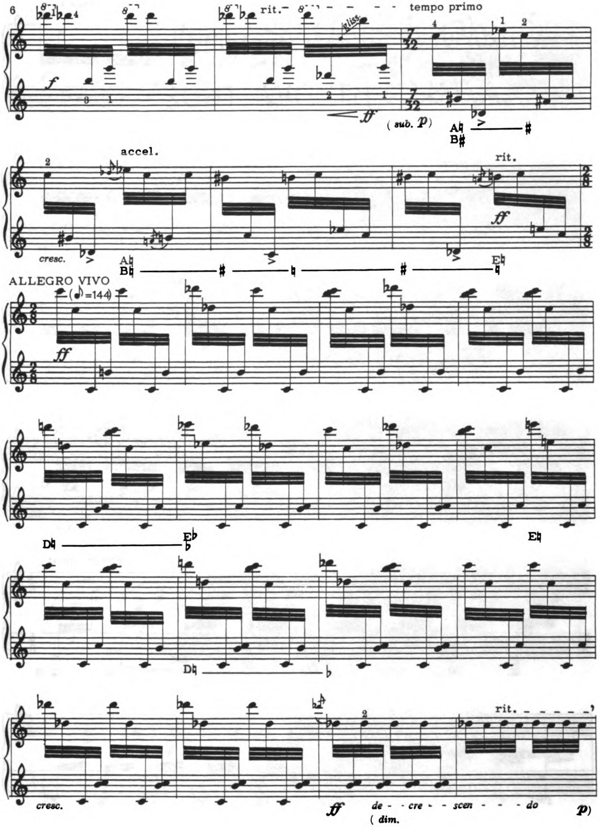

p
A♭
p
p
B♭
p♮
p
f
C♭
simile
C♮
E♭
D♮

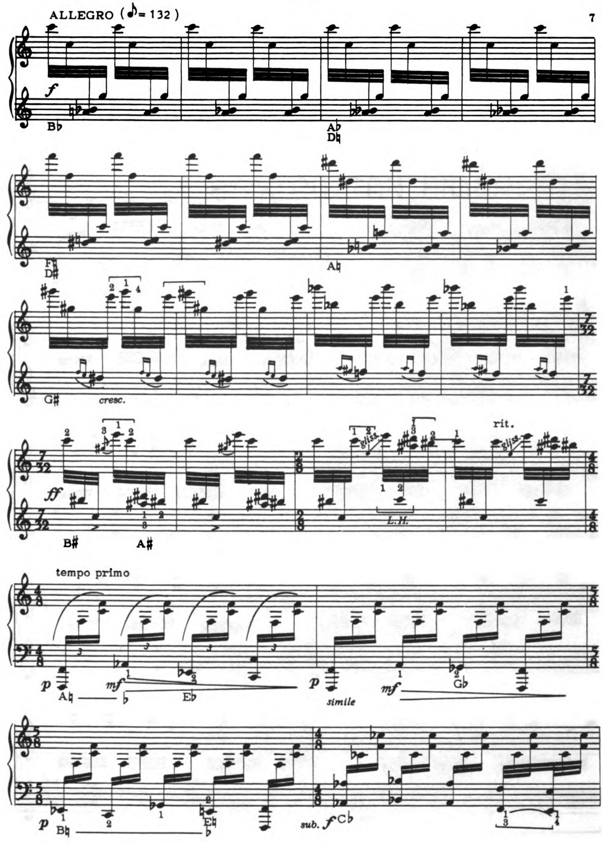
---

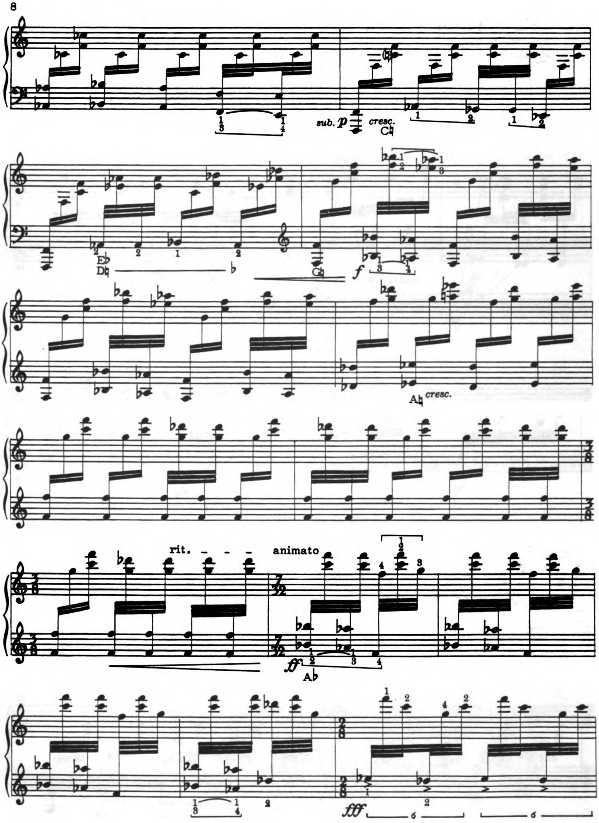
*) aussï vite que possible

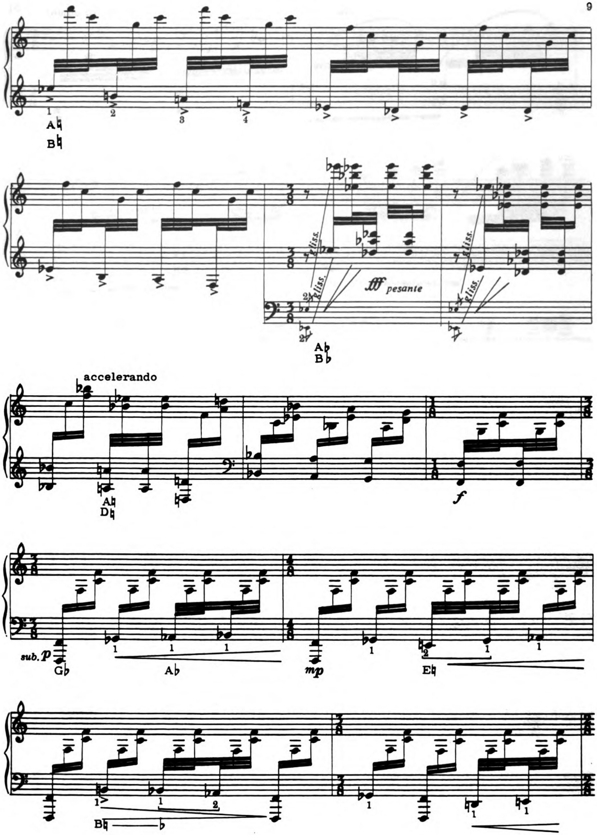

4
B♮
D♭
E♮
mp cresc.
E♭
D♮
ff
sub. p cresc.
A♮
B♭
ff
p
mf
A♭
E♮
p
mf
B♭
E♭
f
L.V.
A♮

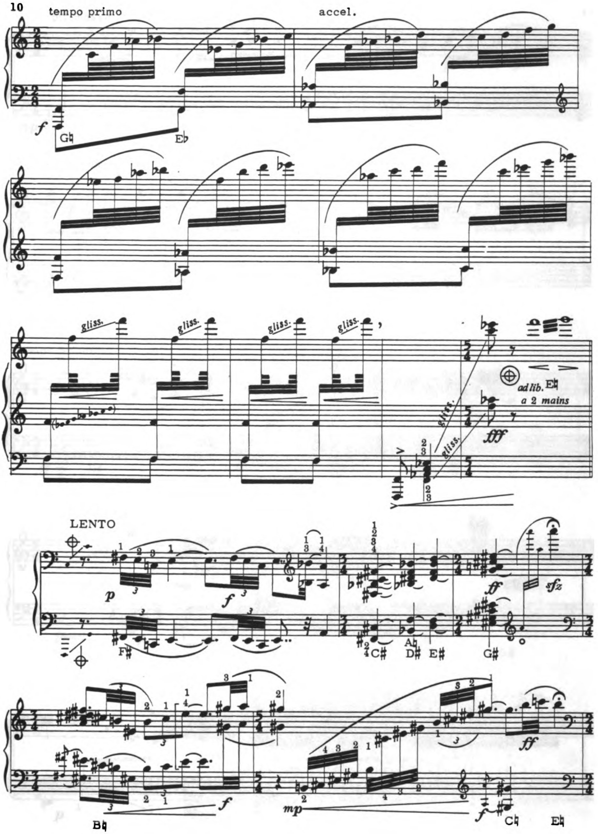

5
E♯ p
A♭
D♯
G♮ cresc.
A♮
B♮
G♭
mf cresc.
D♮
G♮
E♮
f
♭
sub. pp
D♯
G♭
C♯
G♮
♭
B♯
G♮
F♯
C♮
mp
A♭
A♮
♯
D♮
♭
♮
ff
♭
B♮
sub. pp
B♯
♮
♭
♮
mf
cresc.

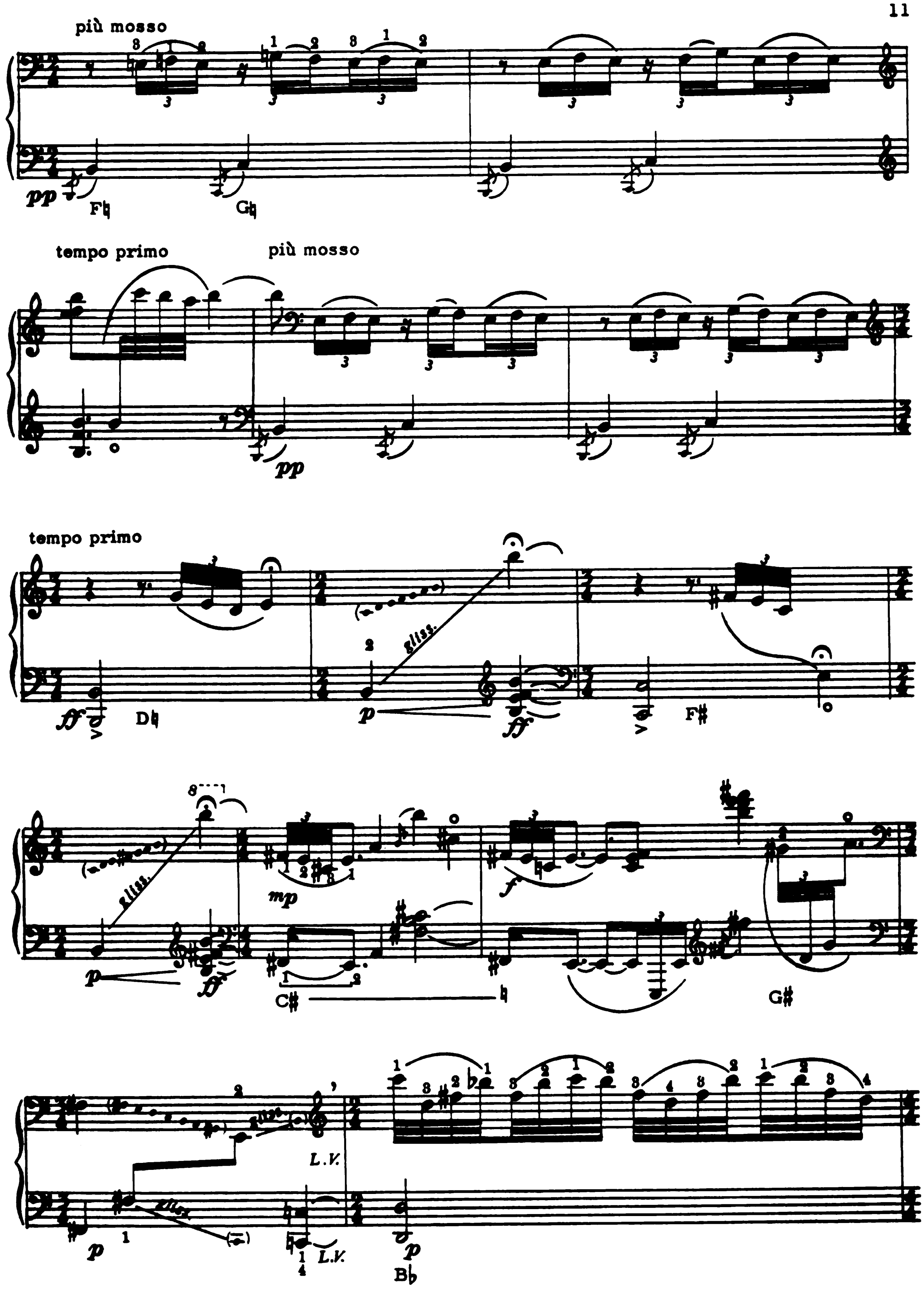

6
rit.
tempo primo
gliss.
f
ff
(sub. p)
A♮
B♯
♯
accel.
rit.
cresc.
A♮
B♭
♯
♮
♯
E♮
ALLEGRO VIVO
(♪=144)
ff
D♮
E♭
♭
E♮
D♮
♭
rit.
cresc.
ff
de - cre - scen - do
(dim.
p)

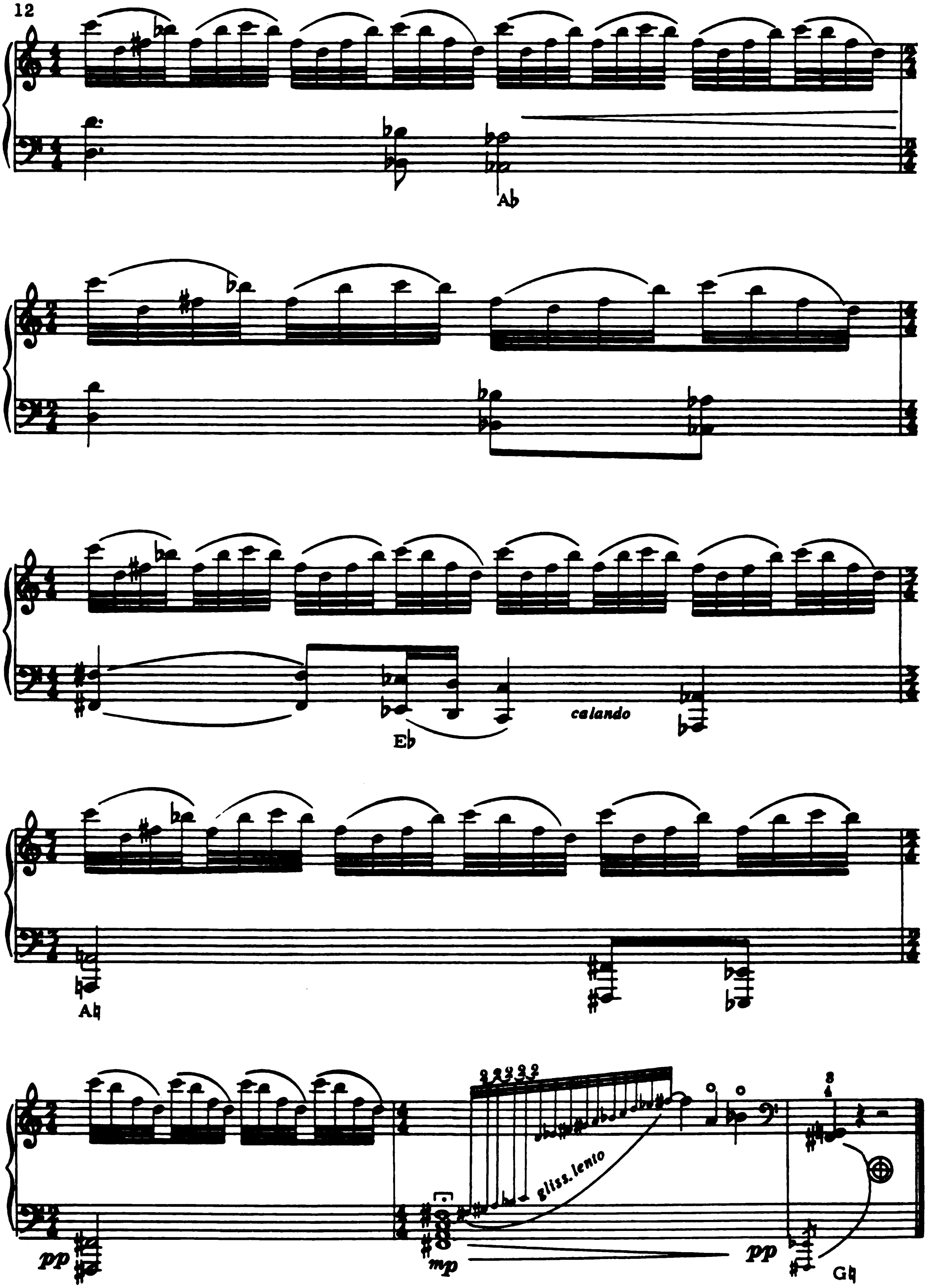

ALLEGRO (♪= 132)
7
f
B♭
A♭
D♮
F♮
D♯
A♮
G♯
cresc.
ff
B♯
A♯
gliss.
L.H.
rit.
tempo primo
p
mf
A♮
♭
E♭
simile
G♭
B♮
E♮
sub. f
C♭

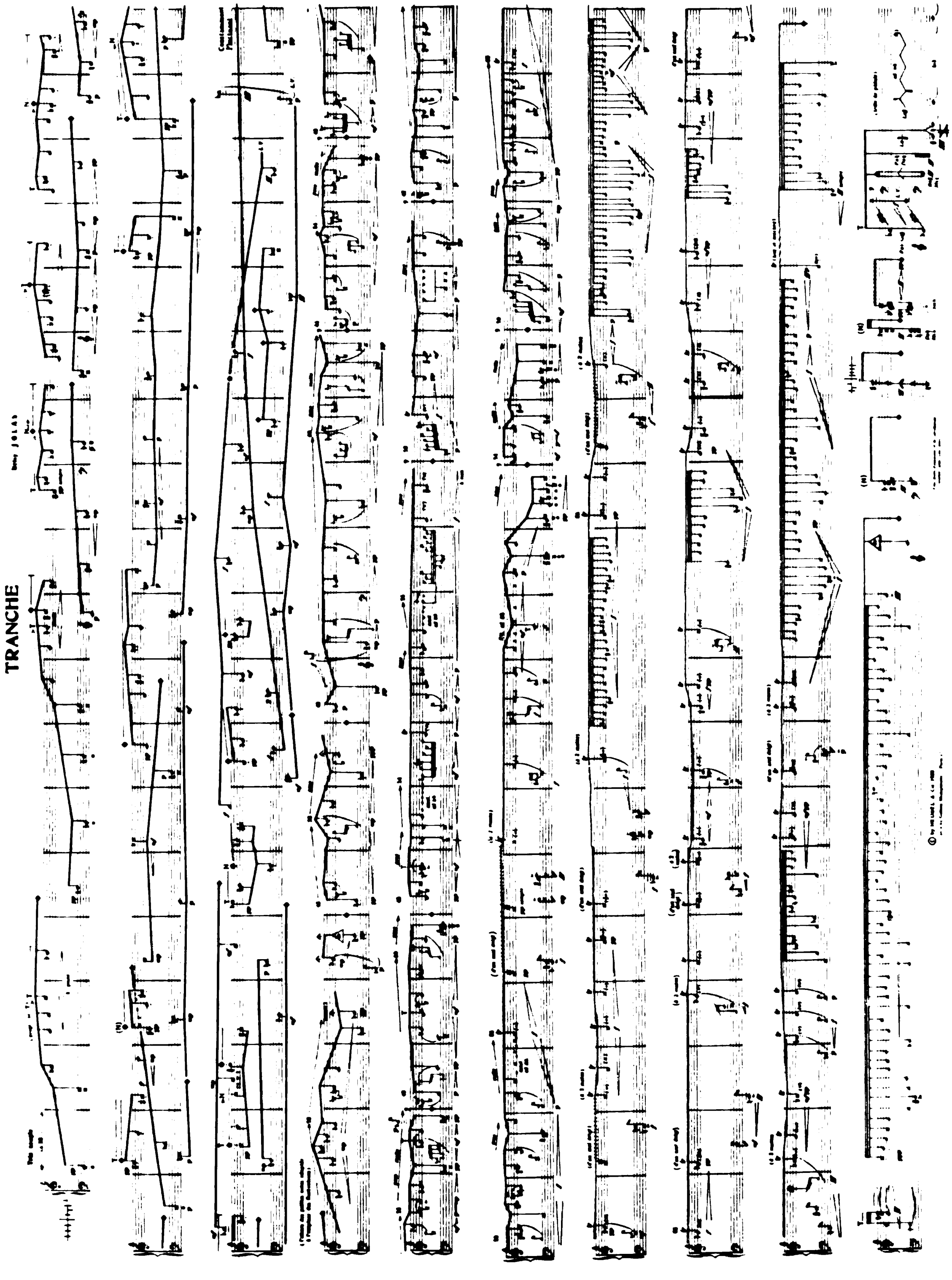

8
sub. p
cresc.
C♮
E♭
D♮
♭
C♮
f
A♮ cresc.
rit.
animato
ff
A♭
fff
6
6


9
A♮
B♮
gliss.
gliss.
fff pesante
gliss.
A♭
B♭
accelerando
A♮
D♮
f
sub. p
G♭
A♭
mp
E♮
B♮
♭


10
tempo primo
accel.
f
G♮
E♭
gliss.
gliss.
gliss.
gliss.
ad lib.
E♮
a 2 mains
fff
gliss.
gliss.
LENTO
p
f
F♯
C♯
A♮
D♯
E♯
ff
sfz
G♯
f
mp
f
B♮
C♮
E♮
ff


più mosso
pp
F♮
G♮
tempo primo
più mosso
pp
tempo primo
ff
D♮
gliss.
p
ff
F♯
8
gliss.
p
ff
mp
C♯
♮
f
G♯
p
L.V.
L.V.
p
B♭


12
A♭
E♭
calando
A♮
pp
gliss. lento
mp
pp
G♮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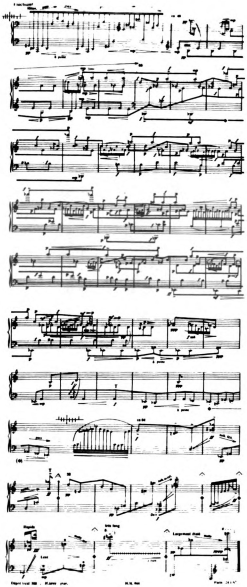

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NOTATION

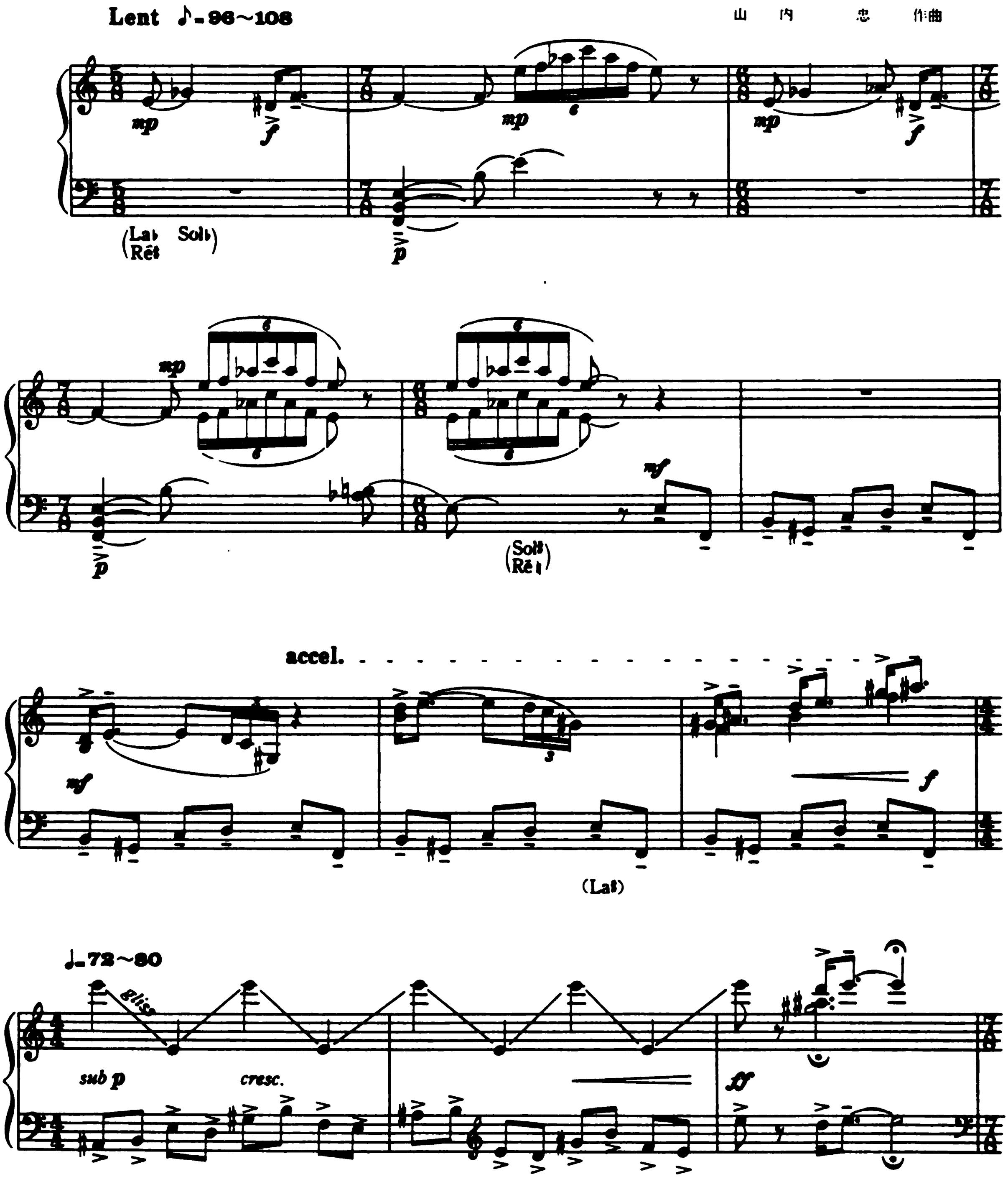
◆	— Étouffer	— Dampen resonance	— Sofort abdämpfen
T	— À la table (sauf trait de prolongement, cette indication ne concerne que la note qu'elle surmonte)	— « À la table » (sound board) unless followed by a line, this sign applies only to the note which bears it.	— Am Schallkasten (« à la table ») dieses Zeichen bezieht sich nur die Note über der es steht, es sei denn, die Linie ist verlängert.
N	— Position normale	— Normal position	— Normale Position
⌒	— Avec l'ongle	— With fingernail.	— Mit dem Fingernagel
↕	— Étouffer « à la table » et jouer au milieu de la corde	— Dampen « à la table » and play in the middle of the string.	— Am Schallkasten (à la table) abdämpfen und in der Mitte der Saiten spielen.
↕	Glissando très rapide avec les ongles des deux mains en mouvement contraire, à partir des notes indiquées.	— Very fast glissando with fingernails of both hands in contrary motion, starting from designated notes.	— Ein sehr schnelles Glissando mit den Fingernägeln beider Hände in entgegengesetzter Richtung ausführen und hierzu bei der jeweils angegebenen Note beginnen.
▯	— Va-et-vient très rapide à deux mains du bout des doigts entre les notes indiquées.	— Very fast to and fro motion with fingertips of both hands between designated notes.	— Die Fingerspitzen beider Hände sehr schnell zwischen den notierten Saiten hin und her bewegen.
▯	Avec la paume, glisser rapidement de bas en haut sur les cordes métalliques.	— With the palm, slide rapidly from bottom to top of metal strings.	— Mit der flachen Hand schnell von unten nach oben über die Metallsaiten gleiten.
♪	Frapper les cordes avec la paume dans le registre indiqué	— Strike strings in designated register with the palm.	Die Saiten mit der flachen Hand im angegebenen Tonregister schlagen.
♮	Maintenir la pédale entre deux crans avant d'attaquer la note.	— Engage pedal between two notches before attacking the note.	Vor dem Anschlagen der Note das Pedal zwischen zwei Kerben festhalten.

Durée 5' environ

Pour Harpe

I. *La muse jouant la cithara à Hélicon*

山内 忠 作曲


Lent ♪=96~108
mp
f
mp
6
p
(La♭ Sol♭ Ré♯)
mp
6
6
mf
(Sol♯ Ré♮)
accel.
mf
3
f
(La♯)
♩=72~80
gliss.
sub p
cresc.
ff

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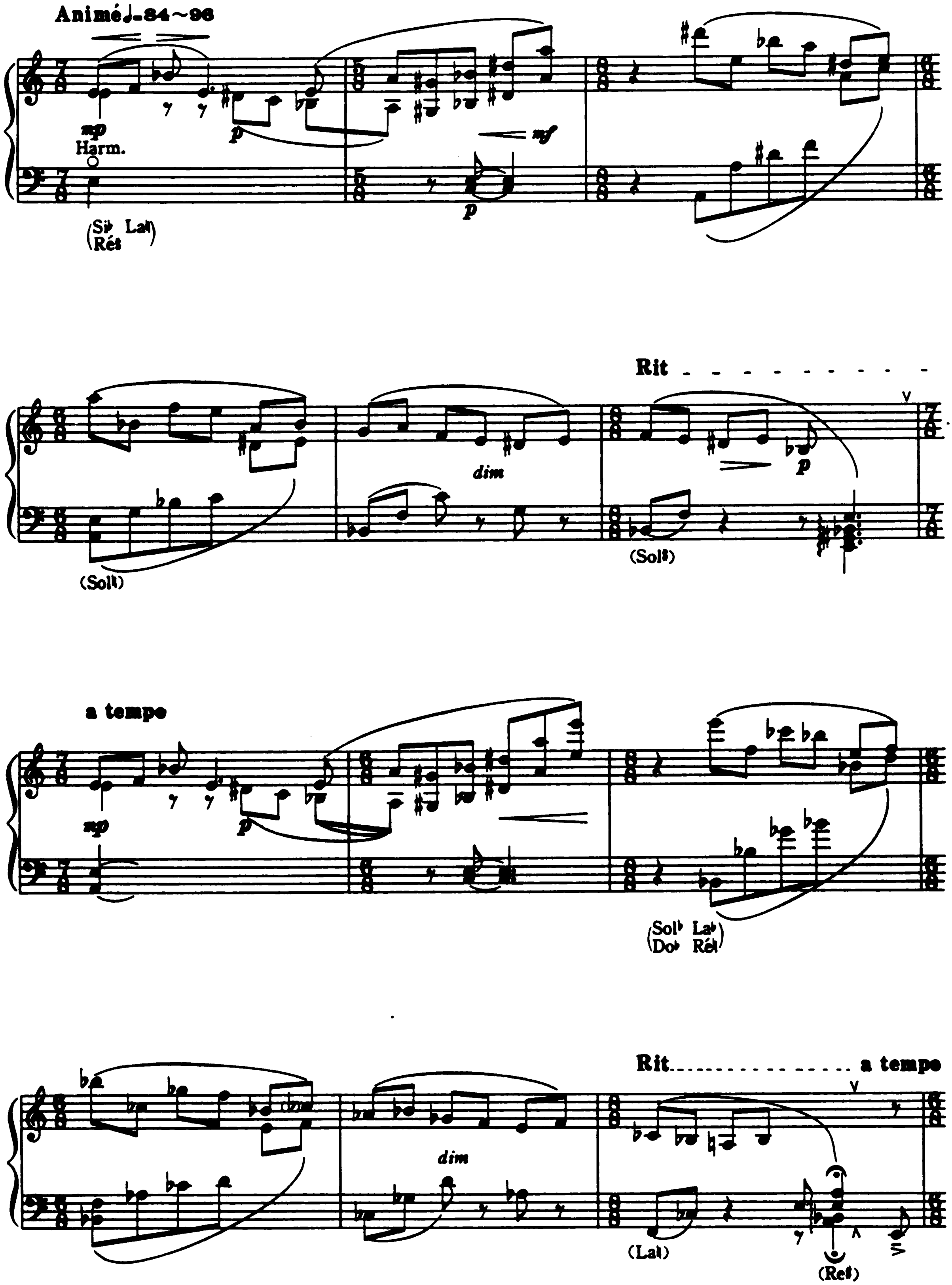
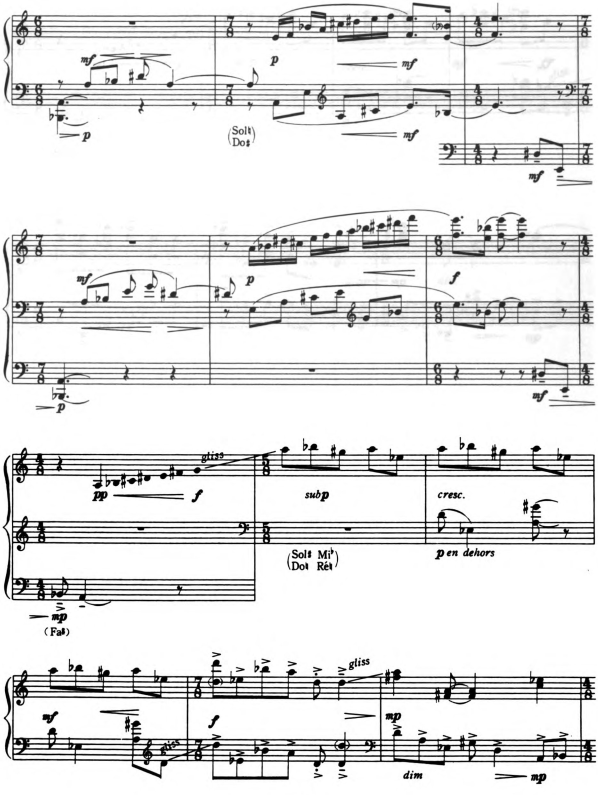
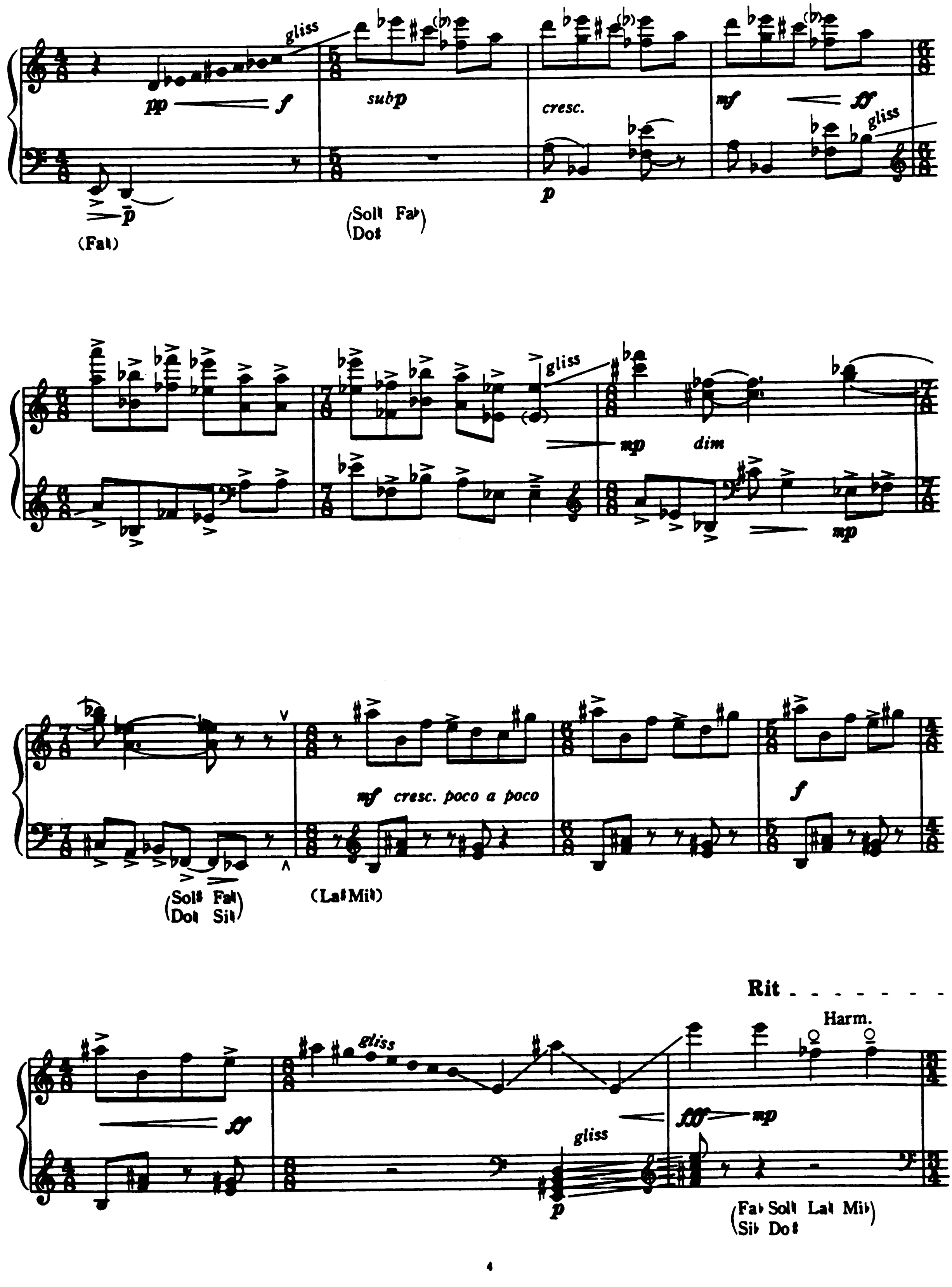
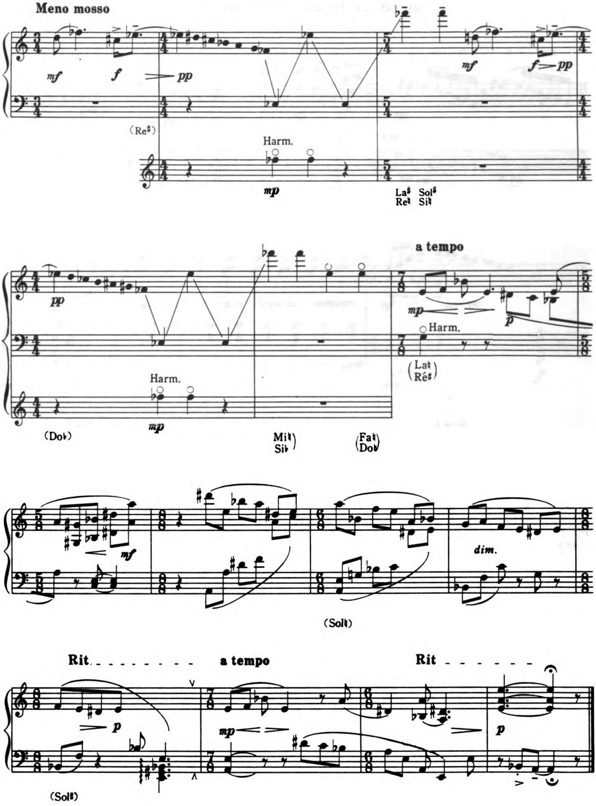

Animé ♩=84~96
mp
Harm.
p
mf
p
(Si♭ La♮
Ré♮)
(Sol♮)
dim
Rit
p
(Sol♯)
a tempo
mp
p
(Sol♭ La♭
Do♭ Ré♮)
dim
Rit
a tempo
(La♮)
(Re♯)

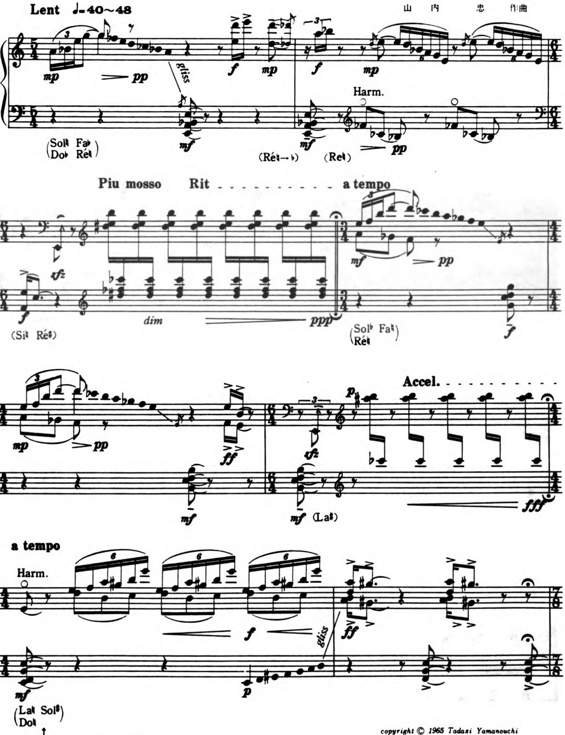

mf
p
p
mf
mf
(Sol♮ Do♯)
mf
mf
p
p
f
mf
pp
f
gliss
subp
(Sol♮ Mi♭ Do♮ Ré♮)
cresc.
p en dehors
mp
(Fa♯)
mf
gliss
f
gliss
mp
dim
mp


gliss
pp
f
subp
cresc.
mf
fff
p
(Fa♮)
(Sol♮ Fa♭
Do♯)
gliss
mp
dim
mp
gliss
mf cresc. poco a poco
f
(Sol♯ Fa♮
Do♮ Si♮)
(La♯ Mi♮)
fff
Rit
Harm.
gliss
gliss
p
fff
mp
(Fa♭ Sol♮ La♮ Mi♭
Si♭ Do♯)


Meno mosso
mf
f
pp
(Re♯)
Harm.
mp
La♯ Re♮
Sol♯ Si♮
mf
f
pp
pp
Harm.
mp
(Do♭)
Mi♮ Si♭
Fa♮ Do♭
a tempo
mp
p
Harm.
La♮ Ré♯
mf
(Sol♮)
dim.
Rit.
a tempo
Rit
p
mp
p
(Sol♯)

II. *Le musicien jouant la harpe*

山 内　忠 作曲


Lent ♩=40~48
mp
pp
gliss
f
mp
Harm.
(Sol♮ Fa♭
Do♭ Ré♮)
(Ré♮→♭)
(Re♮)
Piu mosso
Rit
a tempo
sfz
dim
ppp
(Si♮ Ré♯)
mf
(Sol♭ Fa♮
Ré♮)
ff
Accel.
p
fff
(La♯)
a tempo
Harm.
(La♮ Sol♯
Do♮)
3
6

sliding upwards quickly with the nail

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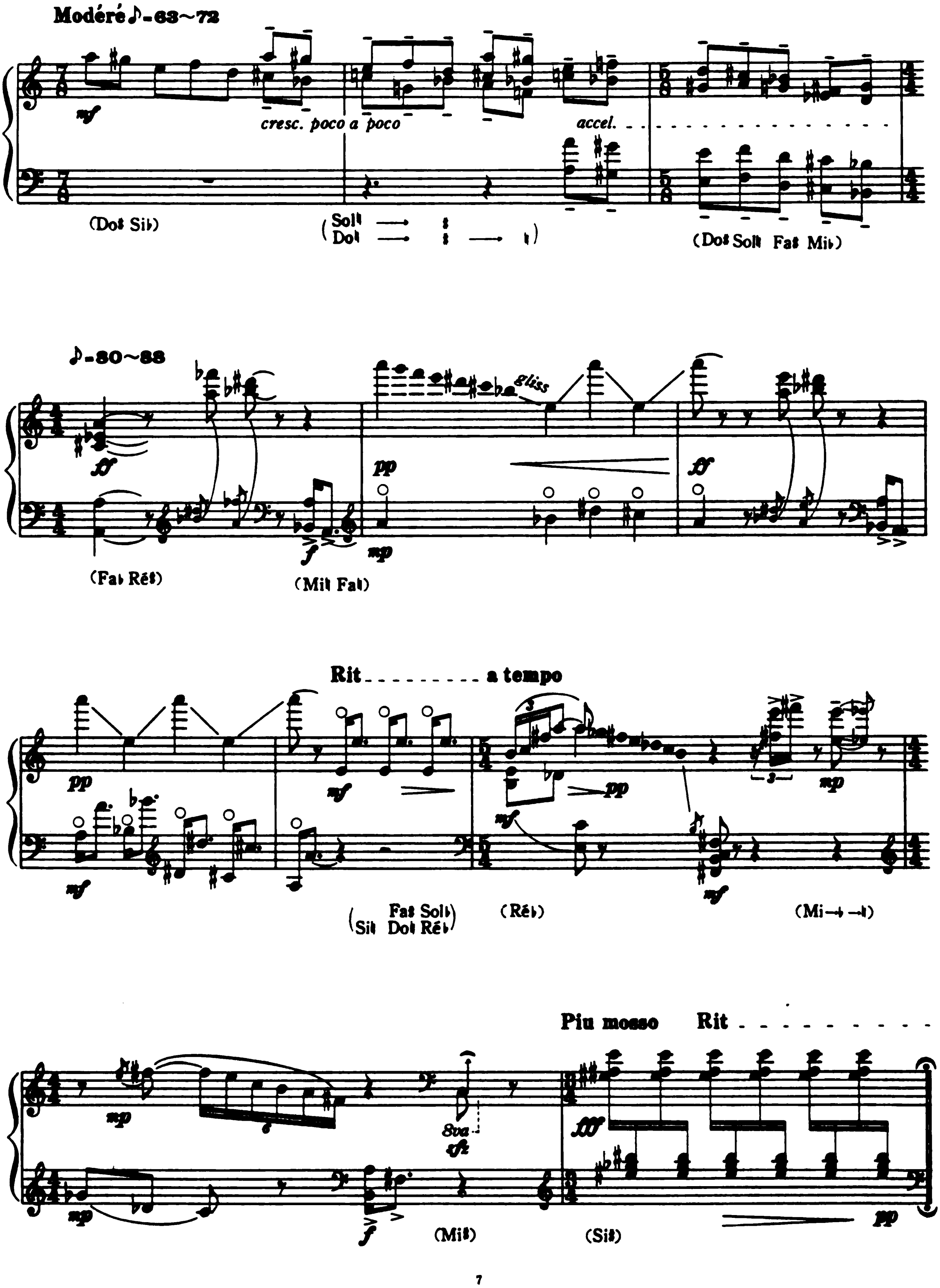
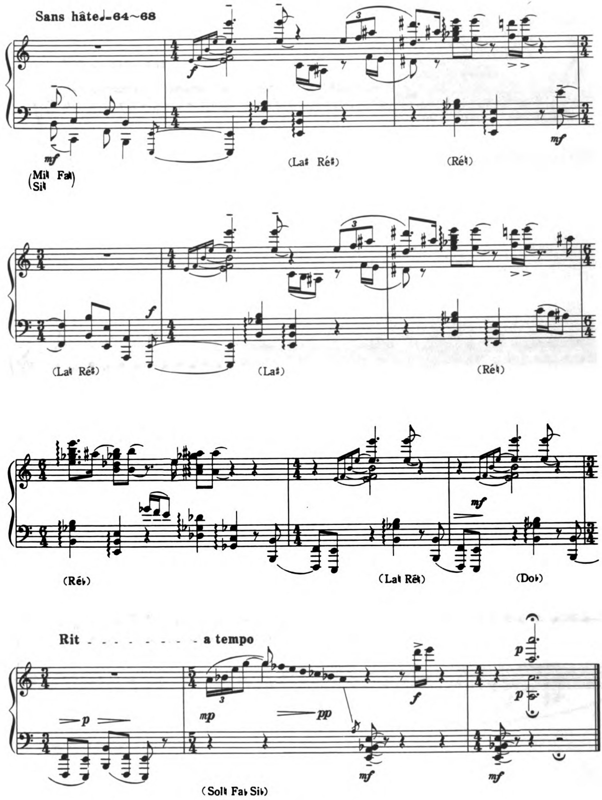
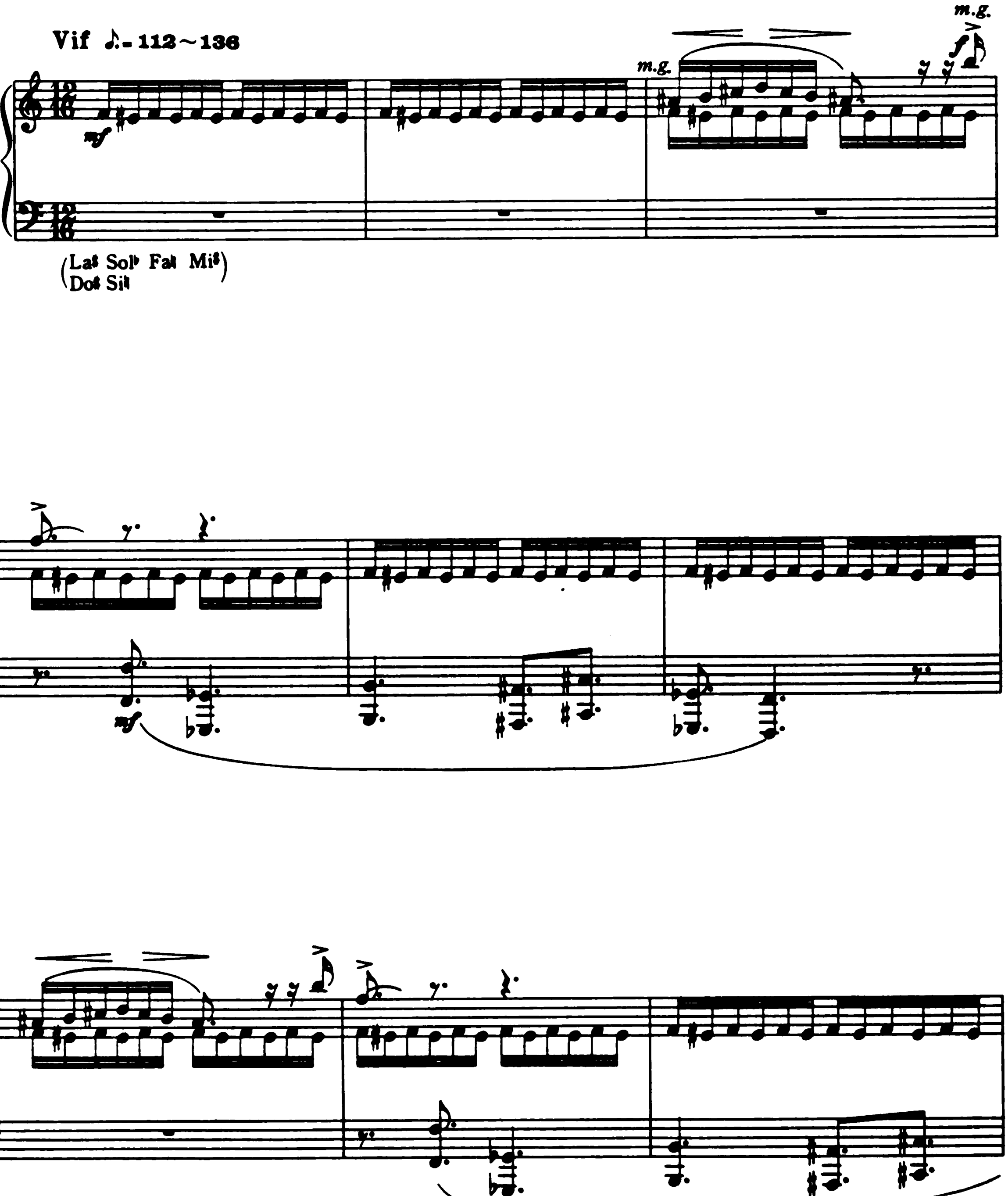

Modéré ♪=63~72
mf
cresc. poco a poco
accel.
(Do♯ Si♭)
(Sol♮ → ♯
Do♮ → ♯ → ♮)
(Do♯ Sol♮ Fa♯ Mi♭)
♪=80~88
ff
f
(Fa♭ Ré♯)
(Mi♮ Fa♮)
pp
mp
gliss
ff
Rit
a tempo
pp
mf
mf
pp
3
mf
mp
(Fa♯ Sol♭
Si♮ Do♮ Ré♭)
(Ré♭)
(Mi→♭→♮)
mp
8va
sfz
f
(Mi♯)
Piu mosso
Rit
fff
(Si♯)
pp


Sans hâte ♩=64~68
f
mf
(Mi♮ Fa♮ Si♮)
(La♯ Ré♯)
(Ré♮)
mf
3
f
(La♮ Ré♯)
(La♯)
(Ré♮)
3
(Ré♭)
(La♮ Ré♮)
mf
(Do♭)
Rit . . . . a tempo
p
mp
3
pp
f
mf
p
p
mf
(Sol♮ Fa♭ Si♭)

III. *Bahram Gur chassant avec Azadé*

山 内 忠 作曲


Vif ♪.=112~136
m.g.
m.g.
f
mf
(La♯ Sol♭ Fa♮ Mi♯
Do♯ Si♮)
mf

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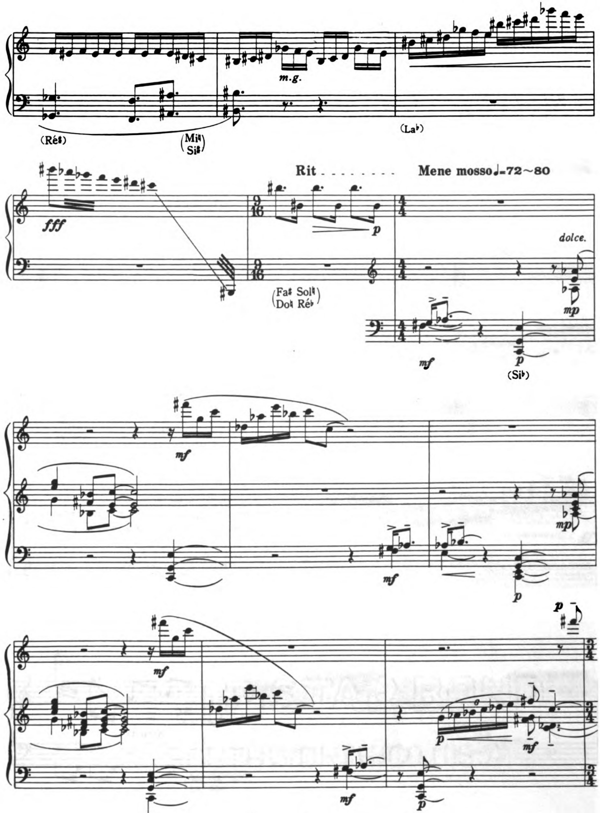
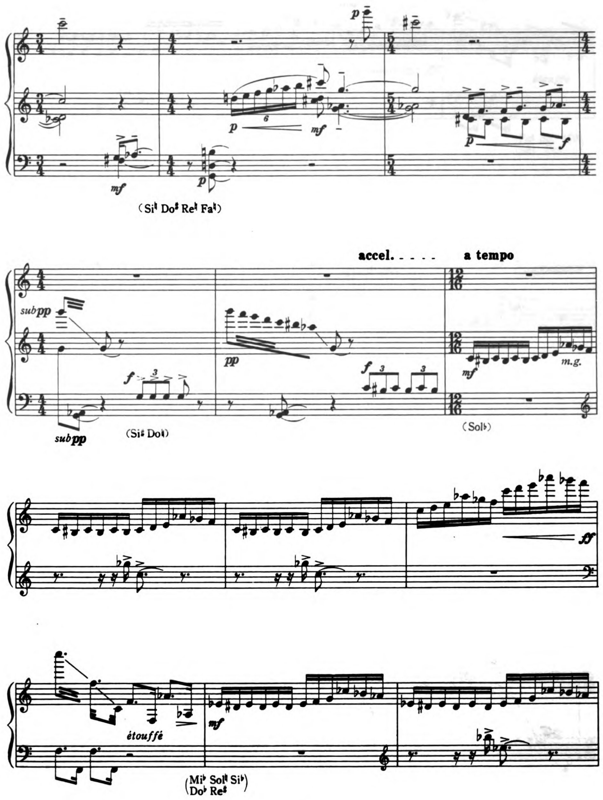
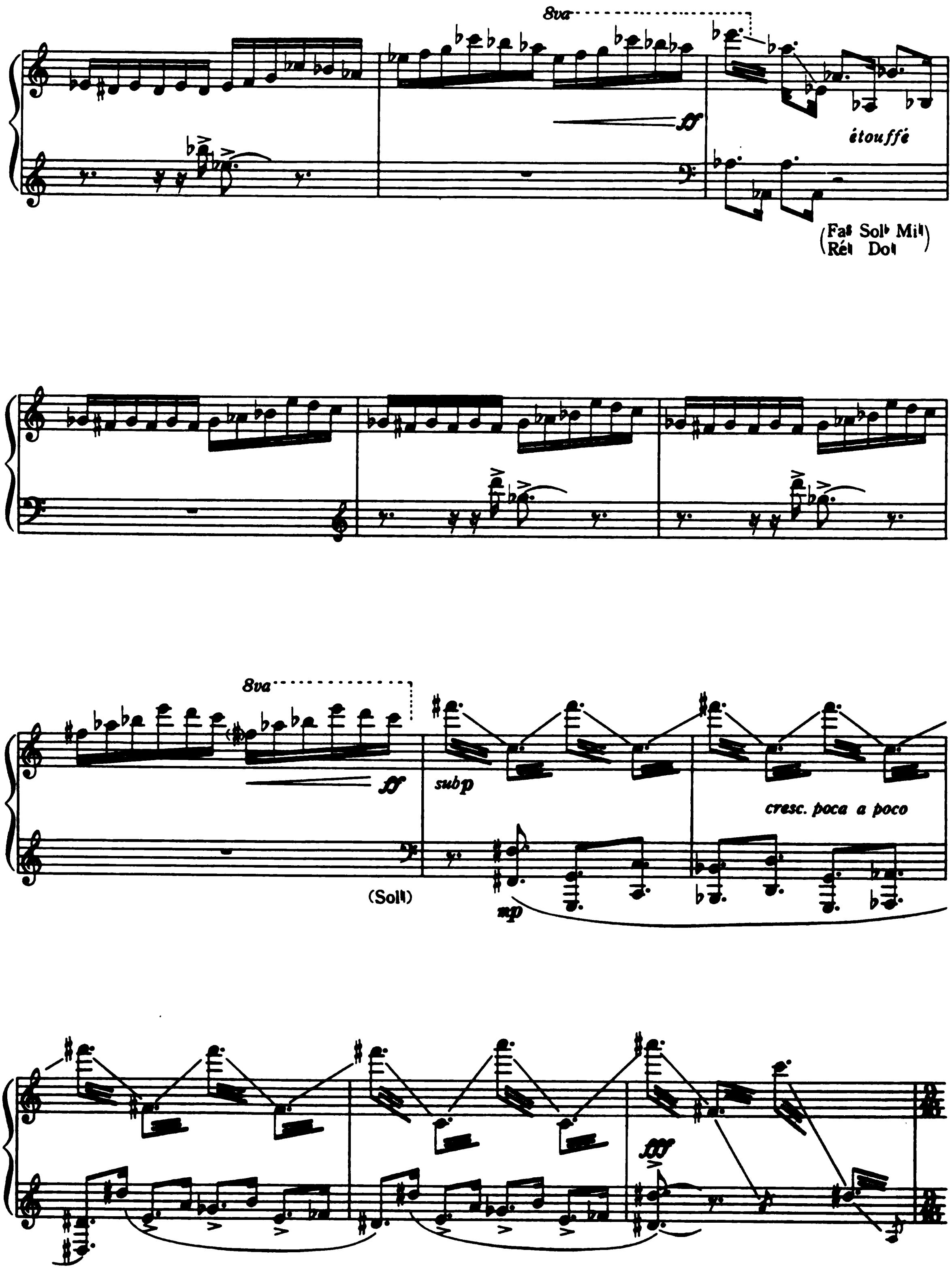
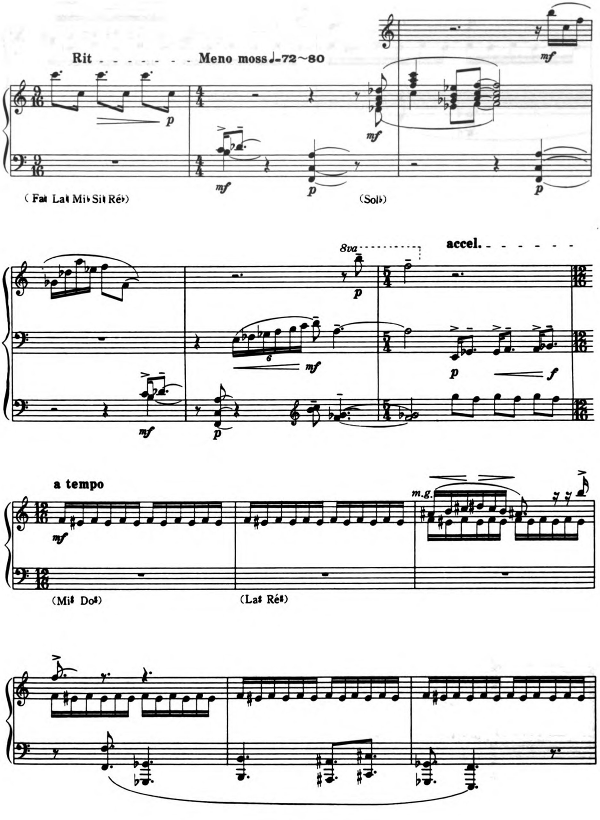
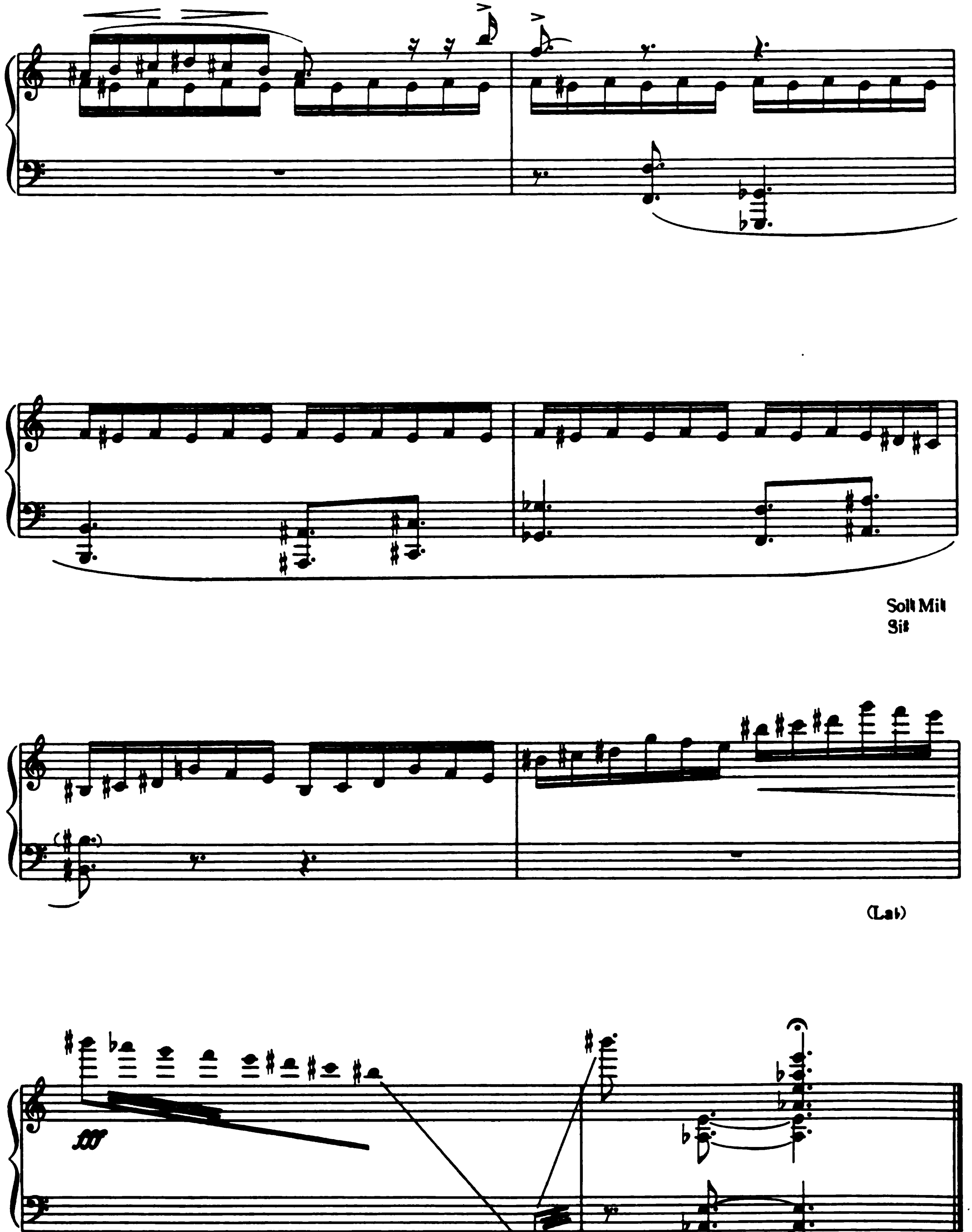

(Ré♯)
(Mi♮ Si♯)
m.g.
(La♭)
fff
Rit
Mene mosso ♩=72~80
p
dolce.
(Fa♯ Sol♮ Do♮ Ré♭)
mp
mf
p
(Si♭)
mf
mf
mp
p
mf
p
mf
p
mf
p


p
p
mf
6
mf
p
f
(Si♮ Do♯ Re♮ Fa♮)
accel. - - - - -
a tempo
sub pp
f
3
pp
f
3
3
sub pp
(Si♯ Do♮)
mf
m.g.
(Sol♭)
ff
étouffé
mf
(Mi♭ Sol♮ Si♭
Do♭ Re♯)


8va
ff
étouffé
(Fa♯ Sol♭ Mi♮
Ré♮ Do♮)
8va
ff
(Sol♮)
subp
mp
cresc. poca a poco
fff


Rit
Meno moss♩=72~80
mf
p
mf
p
mf
p
(Fa♮ La♮ Mi♭ Si♮ Ré♭)
(Sol♭)
8va
accel.
p
mf
p
f
mf
p
a tempo
mf
(Mi♯ Do♯)
(La♯ Ré♯)
m.g.


Sol♮ Mi♮
Si♮
(La♭)
fff

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