MISSOURI JOURNAL OF RESEARCH IN MUSIC EDUCATION

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Lewis B. Hilton, Editor
Wasington University, St. Louis

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N.B. All contributors are advised to keep a copy of any manuscript submitted. The Editorial Committee cannot be responsible for loss of manuscripts.

Published by Missouri Music Educators Association

PREFACE

The *Missouri Journal of Research in Music Education*, published by the Missouri Music Educators Association, is devoted to the needs and interests of the school and college music teachers of Missouri and the nation. This issue, Volume III, Number 2, is the twelfth to appear in as many years.

The members of the Editorial Committee are grateful to those readers who have written suggestions concerning the content of past issues and request that criticisms and suggestions, always welcome and never unheeded, again be sent to the Editor concerning the content of this issue. We strive for a reasonable balance among music theory, history, philosophy or aesthetics, and pedagogy. It is difficult to judge how successful we are without reader response.

The members of the editorial board wish to express their appreciation to Alfred W. Bleckschmidt, Director Emeritus of Fine Arts for the Missouri State Department of Education, for his invaluable contribution to the success of this journal and to the Missouri State Department of Education for its generosity over an eleven year period by providing funds for printing and mailing the journal.

Now we express our deep gratitude to the Missouri Music Educators Association and to its president, Dr. Wynn Harren, for so generously shouldering the Journal's financial burden to make it possible to continue to publish the *Missouri Journal of Research in Music Education.*

The Editorial Board

A CENTURY AND A HALF OF MISSOURI MUSIC

Jack L. Ralston
University of Missouri — Kansas City

INTRODUCTION

Missouri's musical heritage is a proud and interesting one. From the folk and traditional music of the rural areas to the cultivated art music of the urban areas, Missourians have enjoyed music listening, participation, and creativity. Among our Missouri composers we claim Katherine K. Davis, Don Gillis, Robert Russell Bennett, Leith Stevens, Virgil Thomson and many more. Performers, publishers, educators have carried Missouri music throughout the world. Scott Joplin's ragtime piano music and Kansas City jazz are acknowledged to be the finest and are even now receiving a new wave of interest among music scholars who are discovering what the public has known all along.

Ernst Krohn, of St. Louis, first tackled the job of reporting on Missouri Music in a series of articles in the Bulletin of the *Missouri Historical Society* in 1923, later privately printed in his book, *A Century of Missouri Music* in 1924. This book was reprinted in 1971[1] with additional essays and appendices. Important as this book is it does not pretend to cover the outlying areas of the State or the folk or popular music. Jazz, for instance is a later development and the commercial country and western music of Springfield also came along later. Alfred Bleckschmidt compiled a list of composers for the 1971 edition and this author contributed a listing of UMKC musicians.

The Ragtime music which centered in Sedalia and St. Louis in its early days is chronicled in Rudi Blesh's *They All Played Ragtime*[2] which remains a classic in documentation through interviews with the men and women who made it happen.

Kansas City's Jazz did not receive its first full-blown treatment until 1971 when Ross Russell issued his authoritative history, *Jazz Style in Kansas City and the Southwest.*[3] His second venture, *Bird Lives*[4] concentrates on the contributions of Charlie Parker.

Aside from these books there have been dozens of articles and recordings which are of interest to those who are concerned with Missouri's musical heritage. It is the purpose of this article and bibliography to indicate those items which will be of particular assistance to teachers and program planners. It is not meant as a definitive history of Missouri music. The author has based the article

on a short illustrated talk which he has given using slides and taped excerpts before various groups across the state. It was not intended that the talk be comprehensive but that it should cover some of the highlights of Missouri's music and musicians giving a broad coverage which will entertain as well as enlighten. In preparing this article, some of the original text from the talk is retained but in place of the slides and taped examples, bibliographic entries for correlative reading or listening are given. It is hoped that this approach will make the bibliography more useful to the user. Additional suggestions for entries will be welcomed by the author and may be forwarded to him at the Conservatory Library, University of Missouri — Kansas City, 4420 Warwick Boulevard, Kansas City, Missouri 64111.

"SHOW ME" MUSIC

Missouri's music is the story of the men and women who settled along the Mississippi and Missouri Rivers. The discoverer DeSoto came in 1541 and LaSalle a century later. Plans for statehood began in 1818 only 15 years after the Louisiana Purchase. Missouri was admitted to the Union on August 10, 1821.

Gecks, John. "A Musical Family." Missouri Historical Society Bulletin, VI (January, 1950), 162-165.

Haywood, Charles. A Bibliography of North American Folklore and Folksong. 2 volumes. New York: Dover Publications, Inc., 1951, 1961. (Missouri music, Volume I, pages 314-318.)

Howard, John Tasker. Our Contemporary Composers, American Music in the Twentieth Century. New York: Thomas Y. Crowell, 1941. (Missouri composers listed on page 373 Robert Russell Bennett, Ray Green, Albert Stoessel, Dana Suesse, Virgil Thomson.)

Krohn, Ernst C. "A Century of Missouri Music." The Missouri Historical Review, XVII (January, 1923), 130-158).

Krohn, Ernst C. "A Century of Missouri Music." The Missouri Historical Review, XVII (April, 1923), 285-320.

Krohn, Ernst C. "A Century of Missouri Music." The Missouri Historical Review, XVII (July, 1923), 440-463.

Krohn, Ernst C. A Century of Missouri Music. St. Louis: By the author, 1924. Reprinted: New York: Da Capo Press, 1971

Lloyd, Frederic D. J. Lloyd's Church Musicians' Director, 1910. Chicago: Ritzmann and Brookes, and Co., 1910. (Missouri church musicians listed on page 130).

Missouri, A Guide to the "Show Me" State. Compiled by Workers of the Writer's Program of the Work Projects Administration in the State of Missouri. New York: Duell, Sloan and Pearce, 1941. "Music," pages 158-166.

Missouri. Governor's Committee on the Arts. The Arts and the State of Missouri. Report to the Governor Submitted to the Governor's Committee on the Arts and its Incorporated Counterpart the Missouri Council on the Arts, 1964.

Missouri Historical Review. Columbia, Mo. State Historical Society of Missouri, October, 1906- . Quarterly.

Missouri Historical Society. Collections. St. Louis: Missouri Historical Society, 1880-

THE STATE SONG

The succession of Indian, French, Spanish and American populations brought their folk song traditions. The official state song *The Missouri Waltz* epitomizes the confusion of cultures. Its origin is considered to be from Indian or Negro sources but it was Frederick Knight Logan who first published his version of the traditional tune in 1914. It became the State Song on June 30, 1949 during the Truman Administration.

Bean, Helen J. "Songs of the States." Missouri Historical Society Bulletin, XIX (July, 1963), 345-355.

Fuld, James J. The Book of World-Famous Music: Classical, Popular, and Folk. New York: Crown Publishers, 1966, 1971. Missouri Waltz, St. Louis Blues, Maple Leaf Rag, etc.

"The 'Graveyard Waltz' Didn't Die; Now Known as 'The Missouri Waltz'." The Missouri Historical Review, XLIII (July, 1949), 417-418.

"How's This for a State Song?" The Missouri Historical Review, XLII (April, 1948), 294-295.

"Still Lack State Song." The Missouri Historical Review, XLII (October, 1947), 99-101.

"The Story of Missouri's State Song." The Missouri Historical Review, XLIV (October, 1949), 71-72, 417.

INDIAN MUSIC

Indian Tribal music has not made a lasting impression on the art music of our day in spite of a flurry of interest in Indian melodies early in this century. Missouri composers who made idealized settings of Indian melodies include Carl Busch, Thurlow Lieurance of "By the Waters of Minnetonka" fame, Charles S. Skilton, Ernest R. Kroeger of St. Louis and Charles Wakefield Cadman who wrote "From the Land of Sky Blue Waters," and an Indian opera, *Shanewis*.

Atwater, Caleb. "Osages Chant of Peace and War." The Missouri Historical Review, XXXVII (January, 1943), 245-246.

Hofmann, Charles. American Indians Sing. New York: John Day Co., 1967.

NEGRO SPIRITUALS

While the origins of Negro Spirituals may have been African or Afro-American, the impact of the Spirituals on religious, Jazz and art music has been considerable. William L. Dawson, a distinguished arranger of Spirituals was Choral Director for 25 years at the Tuskegee Institute and is a 1925 graduate of Kansas City's Horner Institute, where he studied with Sir Carl Busch. Another arranger of Negro Spirituals was Major N. Clark Smith, teacher and bandsman at Kansas City's Lincoln High School where he exerted considerable influence on the Jazz of the 1930's.

The William Dawson Song Book. The Black Heritage Series, Volume II. Virginia State College Choir. (Contains: Every Time I Feel the Spirit; Mary Had a Baby; King Jesus is A-Listening; Talk About a Child That Do Love Jesus; There is a Balm in Gilead; Lit'l Boy Child; Oh What a Beautiful City; Ain'a That Good News; Hail Mary; Jesus Walked This Lonesome Valley; Soon Ah Will be Done; Behold the Star; Ezekiel Saw de Wheel.)

Fernett, Gene. Swing Out; Great Negro Dance Bands. Midland, Michigan: Pendell Publishing Co., 1970. (Includes Count Basie, Andy Kirk, Cab Calloway, Bennie Moten, W. C. Handy, and others active in Missouri)

Patterson, Lindsay. The Negro in Music and Art. New York: Publishers Company, Inc., 1967-1969. (Contains chapters on Ragtime, Blues, Gospel, Jazz, Popular composers, Famous singers, and Classical music)

Reisner, Robert George. Bird: The Legend of Charlie Parker. New York: The Citadel Press, 1962.

Russell, Ross. Bird Lives! The High Life and Hard Times of Charlie (Yardbird) Parker. New York: Charterhouse, 1973.

Russell, Ross. Jazz Style in Kansas City and the Southwest. Berkeley: University of California Press, 1971.

Southern, Eileen. The Music of the Black Americans: A History. New York: W. W. Norton and Co., Inc., 1971.

OZARK FOLK SONGS

The religious and secular songs of the Mountain Folk are a tradition which continues to this day although threatened by the intrusion of radio, television, and commercialism. Vance Randolph's *Ozark Folk Songs* (1946-50) records hundreds of songs collected in the Missouri Ozarks as does Belden's series of publications printed earlier.

Loman Cansler learned many of these songs as a boy near Springfield and has used them in his teaching in North Kansas City. His version of *Kickin' Maude* is a song about another Missouri product, the mule.

Cansler, Loman. Folksongs of the Midwest. New York: Folkways Records, 1973. (Folkways

FH 5330) Contains: Adam and Eve; The Little Family; The Step-mother; The Last Fierce Charge; Old Mother Hubbard; Ol' King Quine; Aunt Jemima's Plaster; Charley Brooks (Two Letters); Josiah and His Sally; Will, the Weaver; Dick Norman, the Cobbler; The Revolutionary Tea; The Drunkard's Song; Birdie Darling; Little Dame Crump; Wait for the Turn of the Tide.

Cansler, Loman. **Missouri Folk Songs Sung by Loman Cansler.** New York: Folkways Records, 1959. (Folkways FH 5324) Contains: Sally; Arthur Clyde; When I Went for to Take My Leave; Judgement; The Lover's Quarrel; The Two Sisters; Kickin' Maude; Charles Guiteau; Joe Bowers; The Housekeeper's Complaint; I Told 'em Not to Grieve After Me; What is a Home Without Love?; The Blue and the Gray; Far Away.

Lawless, Ray M. **Folksingers and Folksongs in America, A Handbook of Biography, Bibliography, and Discography.** New York: Meredith Press, 1960, 1965. (Contains biography of Loman Cansler, shows Schwarzer Zithers, illustrations by Thomas Hart Benton, etc.)

National Geographic Society. **Music of the Ozarks.** Washington, D. C.: National Geographic Society, 1972. (703 Stereo) Contains: Bunker Hill; Down in the Arkansas; Flop-eared Mule; Harrison Town; Banks of the Ohio; Angel Band; Utha Carl: Wildwood Flower; Old Bill Jones; Bright Morning Stars; Guitar Medley; Trail to Mexico; Run, Johnny, Run; Knoxville Girl; Cripple Creek; Good-by My Susie Gal; The Arkansas Traveler.

FOLK SONGS, AGAIN

The Missouri Ozarks hold a considerable fascination for researchers of folklore as well as for folk music. Vance Randolph and others have written extensively on the subject and the following entries represent only a sampling of the many articles and books on Ozark folk ways in our State. (The author hopes that the sampling is like the Ozark hound scratching for fleas — a sampling of a number of strategic items rather than just a random scratch here and there for effect).

Barbour, Frances M. "Some Fusions in Missouri Ballads." **Journal of the American Folklore Society**, XLIX (1936), 207-215.

Belden, Henry Marvin. **Ballads and Songs Collected by Missouri Folklore Society.** (University of Missouri Studies, XV). Columbia, Mo.: University Press, 1940 (Reprinted, 1955)

Belden, Henry Marvin. **Ballads of the Meeks Murder in Missouri.** Columbia, Mo.: University of Missouri, 1940.

Belden, Henry Marvin. "Old Country Ballads in Missouri." **Journal of the American Folklore Society**, XIX (1906), 231-240, 281-299; XX (1907), 319-320; XXIII (1910), 429-431; XXXIV (1921), 395-396.

Belden, Henry Marvin. **A Partial List of Song-Ballads and Other Popular Poetry Known in Missouri.** Columbia, Mo.: University of Missouri, 1910.

Belden, Henry Marvin. "Three Old Ballads from Missouri." **Journal of the American Folklore Society, XXIII** (1908), 429-431.

Carriere, Joseph Medard, ed. **Tales from the French Folklore of Missouri.** Evanston and Chicago: Northwestern University, 1937.

Collection of Missouri Folk Songs. Collected in 1935 by Charles Van Ravenswaay, Director of the Missouri Historical Society, in the Fayette and Booneville area of central Missouri.

Contains the texts of some 200 folk songs. Unpublished. The manuscript is filed in the Jefferson Memorial Building, St. Louis, Mo.

Davis, Katherine K. The Deaf Old Woman (SATB, accom.) New York: Galaxy, 1947.

Dorrance, Ward Allison. The Survival of French in the Old District of Sainte Genevieve. Columbia, Mo.: The University of Missouri Studies, X (April, 1935).

Dorson, Richard M. American Folklore. Chicago: The University of Chicago Press, 1959.

Ellis, J. Breckenridge. The Little Fiddler of the Ozarks. Chicago: Laird and Lee, 1913.

Fletcher, John Gould. "Some Folk-Ballads and the Background of History." The Missouri Historical Review, XLV (October, 1950), 113-123.

Fletcher, John Gould. "Songbag from the Ozarks' Hollows and Ridgy Mountains." The Missouri Historical Review, XLV (April, 1951), 242-255.

Hamilton, Goldie. "The Play-Party in Northeast Missouri." Journal of the American Folklore Society, XXVII (1914), 289-303.

Hudson, Arthur Palmer. "A Ballad of the New Madrid Earthquake." Journal of the American Folklore Society, LX (1947), 147-150.

Irwin, Wallace. "A Ballad of the Pike." Missouri Historical Society Bulletin, XXII (July, 1966), 468-469.

Joffie, Leah Rachal Clara. "Three Generations of Children's Singing Games in St. Louis." Journal of the American Folklore Society, LX (1947), 1-52.

McDonald, Frank. "A Study of Selected Folk-Songs of Southern Missouri." Unpublished Master's thesis, University of Iowa, 1939.

Moore, J. R. "Missouri Variant of 'The False Lover Won Back.'" Journal of the American Folklore Society, XXXIV (1946), 395-397.

"Murder to Music." The Missouri Historical Review, XXXVIII (October, 1943), 69-73.

Musick, Ruth Ann. "A Missouri Dance Call." Journal of the American Folklore Society, LIX (1946), 323-324.

Musick, Ruth Ann. "Three Folksongs from Missouri." Hoosier Folklore, I (1946), 29-34.

"Publication of Ozark Folksongs." The Missouri Historical Review, XLI (April, 1947), 317-318.

Randolph, Vance. Funny Stories from Arkansas. Girard, Kansas: Haldeman-Julius Publications, 1943.

Randolph, Vance (comp.). Ozark Folksongs. 4 vols. (Edited for the State Historical Society of Missouri by Schoemaker, Floyd C. and Emerson, Frances C.) Columbia, Missouri: University of Missouri Press, 1946.

Randolph, Vance (comp.) Sticks in the Knapsack and other Ozark Folk Tales. New York: Columbia University Press, 1958.

Randolph, Vance (comp.). The Talking Turtle and Other Ozark Folk Tales. New York: Columbia University Press, 1957.

Randolph, Vance. Tall Tales from the Ozarks. Girard, Kansas: Huldeman-Julius Publications, 1944.

Raybum, Otto Ernest. Forty Years in the Ozarks. Eureka Springs, Arkansas: Ozark Guide Press, 1957.

"Second Volume of Ozark Folksongs." The Missouri Historical Review, XLII (April, 1948), 274-275.

Smelser, J. M. "The 'Two Sisters' from Missouri." Journal of the American Folklore Society, XLIV (1931), 295-296.

Wood, Ray. Mother Goose in the Ozarks. Raywood, Texas: The Author, 1938.

Yoffie, L. R. "Yiddish Folk Stories and Songs in St. Louis." Washington University Record, V (1910), 20-22.

THE MISSOURI HARMONY

The Missouri Harmony contains a number of songs from revival and camp meetings as well as hymns, anthems, and fuging tunes. The book was compiled by Allen Carden and was published in 1820 in Cincinnati but carries a St. Louis imprint. *The Missouri Harmony* is a typical oblong tune and instruction book of the period used in singing classes. It was tremendously popular throughout the South and received revisions in 1835 and 1850.

The music in *Music Harmony* is printed in Four-character shape note notation invented by Little and Smith around 1800. The notation consists of a triangle for Fa, a circle for Sol, a square for Law and a diamond for Mi. A major scale ran Fa, Sol, Law, Fa, Sol, Law, Mi, Fa. The system survives in the Rural South and is called Fasola singing.

Carl Sandburg reports in his *American Songbag* that Abraham Lincoln sang "Greenfields" (How tedius and tasteless the hours) and that he parodied the song "Legacy." Two copies of *Missouri Harmony* were owned by Andrew Jackson and are still housed at his home The Hermitage near Nashville, Tennessee.

Bean, Shirley Ann. "The Missouri Harmony, 1820-1858: The Refinement of a Southern Tunebook." Unpublished D.M.A. dissertation, University of Missouri – Kansas City, 1973.

Geil, Wilma Jean. "Christian Harmony Singing in the Ozarks." Unpublished masters thesis, University of Illinois, 1967.

Krohn, Ernst C. "The Missouri Harmony, A Study in Early American Psalmody." Missouri Historical Society Bulletin, VI (October, 1949), 25-33. (Reprinted in Missouri Music, 189-197)

Krohn, Ernst C. "A Checklist of Editions of The Missouri Harmony." Missouri Historical Society Bulletin, VI (April, 1950), 374-399. (Reprinted in Missouri Music, 200-225)

Sandburg, Carl. The American Songbag. New York: Harcourt, Brace and Co., 1927. (Pages 152-155 refer to Missouri Harmony.)

"The Singing School." The Missouri Historical Review, XXXVIII (April, 1944), 325-334.

Windell, Marie George. "The Camp Meeting in Missouri." The Missouri Historical Review, XXXVII (April, 1943), 253-270.

Carden, Allen D. The Missouri Harmony, or a Choice Collection of Psalm Tunes, Hymns and Anthems, Selected from the Most Eminent Authors, and Well Adapted to all Christian Churches, Singing Schools, and Private Societies Together with an Introduction to Grounds of Music, the Rudiments of Music, and Plain Rules for Beginners. St. Louis: Published by the Compiler. Morgan, Lodge & Co., Printers, Cincinnati, 1820.

Carden, Allen D. The Missouri Harmony; or a Collection of Psalm and Hymn Tunes and Anthems, From Eminent Authors: With an Introduction to the Grounds and Rudiments of Music. To Which is Added a Supplement, Containing a Number of Admired Tunes of the Various Metres, and Several Choice Pieces, Selected from Some of the Most Approved Collections of Sacred Music. By an Amateur. Cincinnati: Printed and Published by Morgan and Sanxay, 1835. Stereotype Edition.

Carden, Allen D. The Missouri Harmony; or, a Collection of Psalm and Hymn Tunes, and Anthems, From Eminent Authors With an Introduction to the Grounds and Rudiments of Music. In Four Parts. Containing a Number of Admired Tunes of the Various Meters, and Several Choice Pieces, Selected from Some of the Most Approved Collections of Sacred Music. Revised, Enlarged, and Corrected by Charles Warren, Professor of Music. Cincinnati: Published by Wm. Phillips & Co., 1850.

SING UNTO THE LORD A NEW SONG

Missouri has the distinction of sheltering the headquarters for a number of international religious denominations. Inasmuch as each of these has a denominational press and issues a distinctive hymnal for congregational use it is appropriate to list them. In some cases, a hymnal companion of commentary on the hymns and hymntunes is given as well. The outreach of each group is international in scope and in several instances radio and television ministries are used as a means of disseminating their message of word and song.

ASSEMBLY OF GOD

Anderson, Edwin P. Melodies of Praise. Springfield: Gospel Publishing House, 1957.

Hymns of Glorious Praise. Springfield: Gospel Publishing House, 1970.

CHURCH OF THE NAZARENE

Praise and Worship, the Nazarene Hymnal. Kansas City: Nazarene Publishing House, 195?

Worship in Song, Hymnal. Kansas City: Lillenas Publishing Co., 1972.

DISCIPLES OF CHRIST

The Disciples of Christ, The Northern Baptist Convention. Christian Worship, A Hymnal. St. Louis: The Bethany Press, 1941.

EVANGELICAL AND REFORMED CHURCH
(United Church of Christ)

Evangelical and Reformed Church. The Hymnal. St. Louis: Eden Publishing House, 1941.

Haeussler, Armin. The Story of Our Hymns, the Handbook to the Hymnal of the Evangelical and Reformed Church. St. Louis: Eden Publishing House, 1952.

EVANGELICAL LUTHERAN (MISSOURI SYNOD)
The Evangelical Lutheran Synodical Conference of North America. The Lutheran Hymnal. St. Louis: Concordia Publishing House, 1941.
Polack, W. G. The Handbook to the Lutheran Hymnal. St. Louis: Concordia Publishing House, 1942.

GENERAL BAPTIST
General Baptist Hymn Book. Poplar Bluff: General Baptist Education and Publications, Inc., 1965. (Shape-note notation)

REORGANIZED CHURCH OF
JESUS CHRIST OF LATTER DAY SAINTS
Cheville, Roy A. They Sang of the Restoration, Stories of Latter Day Saint Hymns. Independence Herald Publishing House, 1955.
The Hymnal. Independence: Herald Publishing House, 1955.
The Saints' Hymnal. Independence: Herald Publishing House, 1933.
Weddle, Franklyn S. How to Use the Hymnal. Independence: Herald Publishing House, 1956.
Weddle, Frederick O. "Philosophy and Development of Music in the Reorganized Church of Jesus Christ of Latter Day Saints." Unpublished master's thesis, University of Kansas City, 1957.

THE GENTEEL TRADITION

The parlour ballad and popular song have had their exponents in Missouri. Composers and publishers have been particularly active in this field since the 1840's. The sheet music business has been big business and the thousands of pieces in the collections of the Gaylord Music Library of Washington University, the Missouri Historical Society of St. Louis, and the UMKC Institute for Studies in American Music are ample evidence of the activity in the State. Notable song writers include Hattie Nevada, Lucien Denni, John Kalder, Burt Bacharach, and the arranger Robert Russell Bennett.

Amateurs in music perform, compose, and support music programs and organizations. The Swinney Conservatory at Fayette, the Powell Symphony Hall in St. Louis, and the Russell Stover Memorial Auditorium at the UMKC Conservatory of Music are public evidences of private support.

Walt Disney, born in Cameron, was not himself a musician but he has contributed much to the appreciation and enjoyment of music through the medium of the film. His *Fantasia* (1940) was the first film to explore the possibilities of stereophonic sound in a repertoire that ranged from Bach's *Toccata and Fugue in D Minor* and Stravinsky's *Rite of Spring* to Schubert's *Ave Maria.* Disney's first studio was located at 31st and Troost in Kansas City and in his early days he often designed sheet music covers for J. W. Jenkins Sons Music Company.

"Folio of St. Louis Sheet Music Covers, 1842-1874." Missouri Historical Society Bulletin, XVII (January, 1961), 146-147.

"Halls of Song." The Missouri Historical Review, XLI (October, 1946), 131.

Krohn, Ernst C. "The Gaylord Sheet Music Collection." The Washington University Librarian, III (January/February, 1971), 1-2.

"Now It's 'Bluebirds Over the White Cliffs of Dover.'" The Missouri Historical Review, XXXVI (April, 1942), 392.

Remember When . . . Love Songs and Fun Songs of Long Ago. Epic LN 3664. "We are indebted to the Missouri Historical Society for these selections from its vast collection of early American popular music . . . The idea for this album was conceived and brought to fruition by Martin Quigley in conjunction with Epic Records."

Richmond, Richard T. "Music That Mirrored the Times." St. Louis Post-Dispatch Sunday Pictures, (May 2, 1971), 1-6.

Withers, Robert Steele, "Singing." The Missouri Historical Review, L (July, 1956), 381-386.

"You Won't Go Wrong if You Learn by Song." The Missouri Historical Review, XXXVI (July, 1942), 513-514.

INSTRUMENTAL MUSIC

Not all Missouri's music has been vocal by any means and there is abundant evidence that the early settlers brought instruments with them to the area. Town bands such as the "Apostles Band" of Herman and the Concordia Band played a varied repertoire ranging from Patriotic tunes to operatic excerpts. The contribution of the bands to the educational programs and the development of appreciative audiences has been considerable.

Achtes Bundes-Kriegerfest. Kansas City, Mo.: vom 20. bis 24. August, 1892. (Programs by the Kansas City Band, directed by A. Winkler).

Burns, Don. "The Star-Spangled Scotsman." Music Journal, XXXII (January, 1974), 18-19, 38-39. R. Ritchie Robertson (Bandsman of Springfield, Mo.)

Cole, Adelaide. "John Philip Sousa in St. Louis." Missouri Historical Society Bulletin, VIII (October, 1951), 81-83.

"Home Town Bands Popular Throughout Missouri History." The Missouri Historical Review, XLV (July, 1951), 380-382.

Lambertson, Milan. "Some Notes on Patrick Gilmore." Missouri Historical Society Bulletin, XX (April, 1964), 218-220.

"To Beat the Band." The Missouri Historical Review, XLI (October, 1946), 135.

BELLS IN MISSOURI

Several instrument makers settled in Missouri and have brought international fame to the state for their craftmanship. The Stuckstede Bell Foundry of St. Louis was established in 1855 and had by 1892 (from the 1892 copy of their catalog) cast and installed 311 bells in the state weighing some 435,000 pounds. There are listings of similar and larger installations throughout the United States. The company continued in operation until the beginning of World War II, when the bronz became scarce.

Gentry, William R., Jr. "The Case of the Church Bells." **Missouri Historical Society**, X (January, 1954), 181-185.

The Henry Stuckstede Bell Foundry Co. **The Henry Stuckstede Bell Foundry Co., Manufacturers of Church Bells.** Catalog St. Louis: The Company, 1892.

Mills, Edwin W. "Pioncer Bell Making in the Ozarks.' **Missouri Historical Society Bulletin**, XVII (July, 1961), 357-360.

THE 'KING OF ZITHER MANUFACTURERS'

The Schwarzer Zither Factory of Washington, Missouri began manufacturing instruments in 1866 and before the demise of the company in the 1950's had built some 11,000 zithers, mandolins, and guitars. Franz Schwarzer called himself the "King of Zither Manufacturers" after he won the first prize at the International Exhibitions in Vienna in 1873 and 1883. The typical zither cost $180.00 and took 3 months to make. There is a display of Schwarzer's shop installed at the capitol in Jefferson City.

Davis, Thomas M., and Beinke, Franz R. "Franz Schwarzer, Missouri Zither Maker." **Missouri Historical Review**, LX (October, 1965) 1-30.

THE KILGEN WONDER ORGANS

The Kilgen Organ Company began its operations in St. Louis in 1870. This was a family organization which remained in business until the 1950's. Hundreds of Kilgens were installed throughout the nation, two of the important instruments are those of St. Patrick's Cathedral in New York built in 1928 and of the St. Louis Catholic Cathedral.

Kilgen Organ Company. **Seven Generations in the Building of Pipe Organs.** St. Louis: The Company, 1946.

Kilgen Organ Company. **The Voice of the Silent Drama.** St. Louis: The Company, 1927?

The Mario Salvadore Concert Series. Sacred Heart Program TMS 3-4. (Contains: Franck, Piece Heroique; Campbell-Watson, Prelude II Puer Natus Est; Schubert-Salvadore, Ave Maria; Bach, Gigue Fugue; Van Hulse, Festival Prelude on Veni Creator.) (Recital played on the St. Louis Catholic Cathedral organ)

MUSIC EDUCATION AND TEACHING

Music has played an important role in the education of Missouri's children. *The Missouri Harmony* was an early day textbook, and J. L. Tracy's *The American School Manual, or Juvenile Harp* appeared in its 6th edition in an 1860 St. Louis imprint. Outstanding music educators in the state have included, in addition to Mr. Tracy, the Robyn family, Mabelle Glenn, and Alfred Bleckschmidt.

American Choral Review. (Since 1967, University of Missouri Press).

Fly, Fenton. "A History of Secondary Instrumental Music in the Public Schools of Kansas City, Missouri." Unpublished D.M.A. dissertation, University of Missouri – Kansas City. (University Microfilms No. 67-8682).

Holgate, George. The Life of Mabelle Glenn. West Yarmouth, Mass.: Rainbow Press, 1965. (Miss Glenn was Music Supervisor, Kansas City Public School, 1925-1950).

Krohn, Ernst C. The Musicians Guild of Greater St. Louis on its Fiftieth Anniversary, An Historical Sketch. St. Louis, Mo.: The Musicians Guild of Greater St. Louis, 1965. Reprinted in Missouri Music, 293-306.

McMillan, Margaret, and Morris, Monia Cook. "Educational Opportunities in Early Missouri." The Missouri Historical Review, XXXIII (July, 1939), 488-489.

Missouri Journal of Research in Music Education. 1962-

Missouri School Music. 1945-

Missouri State Music Teachers' Association. Proceedings, 15th Annual Convention. St. Louis, Mo.: The Association, 1910.

Ralston, Jack L. A Bibliography of Faculty Publications of the Conservatory of Music of the University of Missouri at Kansas City. Kansas City, Mo.: University Press, 1967.

Turville, Bryce. "Elementary Instrumental Music in the Public School of Kansas City, Missouri." Unpublished master's thesis, University of Kansas City, 1962.

MUSIC PUBLISHERS IN MISSOURI

The activities of individual music publishers in the State have been mentioned under their respective cities. In St. Louis we have the Balmer and Weber Company and the Kunkel Brothers, in Sedalia the A. W. Perry Company, and in Kansas City the J. W. Jenkins' Sons Company. There have been numerous other publishers who have printed and distributed both popular and serious sheet music whose publications have been listed in the international sheet music bibliographies which are given here.

Board of Music Trade of the United States of America. Complete Catalogue of Sheet Music and Musical Works, 1870. With a new introduction by Dena J. Epstein. New York: Da Capo Press, 1973. Reprint of the original edition. (Lists the publications of Balmer and Weber).

Dichter, Harry, and Shapiro, Elliott. Early American Sheet Music, Its Lure and its Lore, 1768-1889, Including a Directory of Early American Music Publishers. New York: R.R.

Bowker, 1941. (Lists Balmer and Weber, Compton and Doan, J. J. Dobmeyer, Endres and Compton, and John L. Peters of St. Louis).

Pazdirek, Franz. **Universal-Handbuch der Musikliterature.** 12 vols. Hilversum: Fritz Knuf, 1967. Reprint of the edition of 1904-1910. (Lists the publications of Balmer and Weber, Kunkel Brothers, Lewis Paudert, and the Shattinger Piano and Music Company of St. Louis and J. W. Jenkins' Sons of Kansas City).

MISSOURI'S MUSICAL PERIODICALS

The leading bibliography of Nineteenth Century music periodicals lists some 11 as having been published in Missouri. The list follows this brief paragraph. Today there are a number of periodicals dealing with the field of music education and church much which are published in the State and these have been listed under their appropriate headings. During the earlier period a major portion of the periodicals were given over the musical compositions with only a few pages of letterpress.

Weichlein, William. **A Checklist of American Periodicals, 1850-1900.** Detroit: Information Coordinators, Inc., 1970.

22. BATON: A Monthly Journal Devoted to Western Music Matters.
Kansas City, Missouri
I-IV, No. 4 (April, 1895-October/November, 1897)//?
Publisher: Knapp Printing Company
Issuance: Monthly (later issues bimonthly)
Editor: Robert Wizarde

32. THE CADENZA: Devoted to the Interests of Banjo, Mandolin and Guitar Players.
Kansas City, Missouri
I-XXXI, No. 2 (September/October, 1894-February, 1924)
Publisher: The Partee Company
Issuance: Bimonthly
Editor: Clarence Partee
(After 1900 place of publication moved to Boston)

48. COMPTON'S ST. LOUIS MUSICAL JOURNAL
St. Louis, Missouri
September, 1867-?
Publisher: Compton and Dean
Issuance: Monthly
Editor: Not stated

83: GOLDBECK'S ART CRITIC OR MUSICAL AND GENERAL OBSERVER; A Biweekly Supplement to Goldbeck's Musical Art Monthly.
St. Louis, Missouri
I-? (October, 1884-?)
Publisher: Robert Goldbeck
Issuance: Biweekly
Editor: Robert Goldbeck

85. GOLDBECK'S MUSICAL INSTRUCTOR; Written and Published in the Interests of Teachers, Schools of Music, Singers, Pianists, Organists, and other Classes of Musical Performers, and the Musical World in General, with Contributions of the most Distinguished Musicians, Musical Writers and Teachers of America and Europe.
St. Louis, Missouri
I-III, No. 12 (April 15, 1882-March, 1885)
Publisher: Robert Goldbeck
Issuance: Monthly
Editor: Robert Goldbeck
(Later title: GOLDBECK'S MUSICAL ART . . . (April, 1883–)

89. THE HERALD OF MUSIC.
St. Louis, Missouri
I, Nos 1-3 (July-September, 1897)//?
Publisher: C. F. Kelly
Issuance: Monthly
Editor: Henry Spang (July, 1897)
Not known (August-September, 1897)

108. KUNKEL'S MUSICAL REVIEW
St. Louis, Missouri
I-XXXII (September, 1879-October, 1909)
Publisher: Kunkel Brothers
Issuance: Monthly
Editors: H. Gordon Temple (September, 1878-February, 1880)
I. D. Foulon (March, 1880-1888)
Not known (1889-1896)
Thomas Hyland (December, 1896–?)

185. MUSICAL NEWS; A Monthly Musical Journal
St. Louis, Missouri
I, Nos. 1-11 (September, 1897-July, 1898)//?
Publisher: The Musical News Publishing Company
Issuance: Monthly
Editor: Not stated

236. PERRY'S MUSICAL MAGAZINE
Sedalia, Missouri
1881–? ca. 1956
Publisher: A. W. Perry Sons
Issuance: Monthly
Editor: P. B. Perry

237. PETERS' MUSICAL MAGAZINE
St. Louis, Missouri
January, 1882–?
Publisher: J. L. Peters
Issuance: Monthly
Editor: Not stated
(Each issue contains music and about five pages of advertisements)

247. PREACHER AND CHORISTER
Tipton, Missouri
I-III, No. 5 (January, 1887-May, 1889)//?
Publisher: Rev. F. T. Shore
Issuance: Monthly
Editor: Re. F. T. Shore

ST. LOUIS

In 1904, St. Louis was the site of the Louisiana Purchase Exposition (a year late for the Centennial of the Purchase, but in time for the centennial of the Louis and Clark Expedition). Ice cream cones made their debut and a Ragtime contest sponsored by Thomas "Million" Turpin attested to the popularity of Ragtime piano playing. First and second prizes went to Black men, Alfred Wilson, up from New Orleans, and Charlie Warfield, from Chicago. A Musical Extravaganza by William Hall received 500 performances at the Exposition. Kansas City bands under the direction of Ben Kendrick performed there as did other bands from across the state. Edward Kreiser, organist of the Independence Boulevard Christian Church and Temple B'Nai Jehudah in Kansas City played many recitals on the huge Exposition organ, now housed at the Wanamaker Store in Philadelphia.

Barnes, William Harrison. **The Contemporary American Organ.** New York: J. Fischer & Bro., 1956. Picture of the console of the Wanamaker organ, p. 260

Barnes, William Harrison, and Gammons, Edward B. **Two Centuries of American Organ Building.** Glen Rock, N. J.: J. Fischer & Bro., 1970. Description of the Wanamaker organ, p. 88

ST. LOUIS OPERA

The cover of the *St. Louis Polka* calls to mind the fact that much of the musical activity before the turn of the century took place in the ballrooms or a specially designed room usually called an opera house. In addition to opera productions performed by touring companies, orchestra, choral and chamber concerts were held in these early opera houses across the state. The river towns of St. Louis, Lexington, Kansas City and St. Joseph were considered good theater towns.

Carson, William G. B. **The Beginnings of the Theatre in St. Louis.** St. Louis, Mo.: The Missouri Historical Society, 1928.

Carson, William G. B. **St. Louis Goes to the Opera.** St. Louis, Mo.: The Missouri Historical Society, 1946.

Carson, William G. B. **The Theatre on the Frontier, The Early Years of the St. Louis Stage.** Chicago, Ill.: The University of Chicago Press, 1932.

Jenkins, Speight. "Waiting at the Gateway." **Opera News, XXXII** (May 18, 1968), 19-21.

Krohn, Ernst C. "Bach Renaissance in St. Louis." **Missouri Historical Society Bulletin, XII** (October, 1955), 25-31. Reprinted in **Missouri Music,** 229-235.

Krohn, Ernst C. **The Musicians Guild of St. Louis on its Fiftieth Anniversary.** St. Louis: The Musicians Guild, 1965

Krohn, Ernst C. "St. Louis." **Musik in Geschichte und Gegenwart.** Edited by F. Blume. Vol. XI Kassell: Barenreiter, 1963. Cols. 1258-1262.

Peters, Frank. "In the Steps of McNair Ilgenfritz." St. Louis Post-Dispatch, (November 28, 1971). Biography of Ernst C. Krohn

Rodgers, Eugene L. "Christ Church Cathedral and Its Music." Missouri Historical Society Bulletin, XXIV (April, 1968), 255-271.

Traubel, Helen. St. Louis Woman. New York: Van Rees Press, 1959.

AN EARLY ST. LOUIS MUSIC PUBLISHER

The Civil War song, *Mother is the Battle Over* (A sequel to Root's *Just Before the Battle Mother)* was written by Charles Balmer of the Balmer and Weber Music Publishing Company under the pseudonym of Henry Werner. Balmer was also an organist, serving for 46 years as organist at Christ Episcopal Church in St. Louis. The sub-title of *Tell Them How Their Brother Fell*, another Civil War song, indicates that it was sung by one J. A. Barney at Morrison's St. Louis Opera House.

THOSE MUSICAL ROBYNS

One of the most prominent St. Louis musical families of the 19th century was the Robyn family. Henry Robyn, whose *Belles of Missouri Quadrilles* was published in St. Louis about 1848, was responsible with his brother William for organizing the first symphony west of Cincinnati. Henry was one of the pioneers in this country of the Braille Point System of writing and reading for the blind. He was responsible for inventing a press and a five-type system which made it possible for the blind to set type and print text and music in Braille Point.

Krohn, Ernst C. "The Autobiography of William Robyn." Missouri Historical Society Bulletin, IX (January and April, 1953), 141-154, 231-255. Reprinted in Missouri Music, 239-255.

THE ALPINE STORM

Charles and Jacob Kunkel, notable pianists founded one of Missouri's finest musical magazines. *Kunkel's Musical Review* began in 1878 and closed out publication 31 years later in 1909. Charles' most famous composition was *The Alpine Storm* with suitable descriptive captions.

Krohn, Ernst C. "Charles Kunkel and Louis Moreau Gottschalk." Missouri Historical Society Bulletin, XXI (July, 1965), 284-294. Reprinted in Missouri Music, 280-290.

Haskins, John. "Louis Moreau Gottschalk, The Music." American Musical Digest, I, 6 (1970), 5.

RIVER MUSIC

Missouri's rivers have provided the transportation necessary for the early spreading of its population and culture, a role later taken up by the railroad and highway. Ragtime music and the Blues both supposedly "Came up the River" from Memphis and New Orleans. *The Meeting of the Waters*, statuary group by the Swedish sculptor Carl Milles, is representative of the attention given to the confluence of the Missouri and Mississippi Rivers. It is located in front of the St. Louis Union Station.

Botkin, B. A. (ed.) A Treasury of Mississippi River Folklore: Stores, Ballads and Traditions of the Mid-American River County. New York: Crown Publishers, Inc., 1955.

Thompson, Harold W. (ed.) A Pioneer Songster: Texts from the Stevens-Douglass Manuscript of Western New York 1841-1856. Ithaca, New York: Cornell University Press, 1958.

Wheeler, Mary. Steamboatin' Days: Folk Songs of the River Packet Era. Baton Route, Louisiana: Louisiana State University Press, 1944.

Williams, Dolores Meyer. "Music on the Streckfus Steamers." Missouri Historical Society Bulletin, XXIV (April, 1968), 241-247.

The River by Kansas City-born Virgil Thomson was written in 1937 for a documentary film of the Mississippi River. The opening theme, following the "Dixie" flourishes is the shape-note melody *How Firm a Foundation*. Another tune which figures prominently in *The River* is *My Shepherd Will Supply My Need*, also a shape-note melody.

Hoover, Kathleen O'Donnell, and Cage, John. Virgil Thomson: His Life and Music. New York: T. Yoseloff, 1959.

Thomson, Virgil. Suite from "The River." and, The Plow that Broke the Plains. Vanguard Stereolab VSD 2095.

Thomson, Virgil. Virgil Thomson. New York: A. A. Knopf, 1966.

THE BLUES

Turning the clock back to 1914, the date of William C. Handy's *St. Louis Blues*, we find that the Eades Bridge framed the skyline in those days also.

The blues is a standard 12 bar chord progression with the poetic form of AAB.

Handy claims this is the first successful "blues" published — the chorus or Blues part is taken from an earlier piece for piano, The Jogo Blues.

The Institute's copy of Handy's *Blues, An Anthology* features an inscription by Handy and the illustrator Miguel Covarrubias to

Dudley Murphy who made a film in 1928 called *St. Louis Blues*, one of the first "talkies."

Handy, William C. Blues; An Anthology. Illustrated by Miguel Covarrubias. New York: A. & C. Boni, 1926.

Handy, William C. Father of the Blues, An Autobiography. New York: Macmillan, 1941; London: Sidgwick and Jackson, 1957.

Handy, William C. A Treasury of the Blues; Complete Words and Music of 67 Great Songs from Memphis Blues to the Present Day. New York: C. Boni; Simon and Schuster, 1949.

Suber, C. "St. Louis Blues." Down Beat, XXXVI (July, 1969), 16.

THE ST. LOUIS SYMPHONY

The St. Louis Symphony, founded in 1880, claims to be the second oldest symphony orchestra in the U. S. In 1968, the Symphony moved into its first permanent home, the Powell Symphony Hall. Famous conductors of this orchestra have been Rudolph Ganz, Vladimir Golschmann, and, presently, Walter Susskind.

Krohn, Ernst C. "A Beethoven 'First' in St. Louis." Missouri Historical Society Bulletin, XXIII (October, 1966), 59-64. Reprinted in Missouri Music, 309-314.

Krohn, Ernst C. "The Development of the Symphony Orchestra in St. Louis, An Historical Sketch." Read at the 46th Annual Meeting of the MTNA, St. Louis, December 30, 1924. Reprinted in Missouri Music, 165-177.

Krohn, Ernst C. "How Old the St. Louis Philharmonic?" Focus/Midwest, IV (1965), 4, 9.

Krohn, Ernst C. "Some Notes on the Philharmonic Orchestra and Related Amateur Orchestras in St. Louis." Missouri Historical Society Bulletin, 169-173. Reprinted in Missouri Music.

Krohn, Ernst C. "The St. Louis Symphony and Its Conductors." Focus/Midwest, II (June, 1963), 16-19.

Mueller, John H. The American Symphony Orchestra, A Social History of Music Taste. Bloomington: Indiana University Press, 1951. St. Louis.

Mueller, John H., and Hevner, Kate. Trends in Musical Taste. Bloomington, Indiana: University Press, 1942. (Includes St. Louis Symphony Orchestra.)

Newton, M., and Hatley, S. Persuade and Provide – The Story of the Arts and Education Council in St. Louis. New York: Associated Councils of the Arts, 1970.

Peters, Frank. "Young People and Old Music." American Musical Digest, I, 5 (1970), 28-29. St. Louis and Vienna.

Peters, Frank. "Sock It in St. Louis." American Musical Digest, I, 6 (1970), 20-21.

THE ST. LOUIS MUNY OPERA

The St. Louis Municipal, or Muny Opera was established in 1919 in a natural ampitheater in Forest Park where the Louisiana Purchase Exposition had been held.

Bowen, Elbert R. "Amusements and Entertainments in Early Missouri." The Missouri Historical Review, XLVII (April, 1953), 307-317.

Bowen, Elbert R. "Negro Minstrels in Early Rural Missouri." The Missouri Historical Review, XLVII (January, 1953), 103-109.

Clifford, Charles V. St. Louis' Fabulous Municipal Theatre; Fifty Seasons of Summer Musicals. Louisiana, Mo.: Midland Graphic Arts Corp., 1970.

"Melodies and Soft Shoes in Blackface." The Missouri Historical Review, XXXVIII (January, 1944), 192-199.

"Music Under the Stars." The Missouri Historical Review, XXXVIII (July, 1944), 454-462.

SEDALIA MAKES A SHOW

Sedalia's A. W. Perry Music Publishing House was founded in 1856 and the *Perry's Musical Magazine*, was started in 1881 and passed with the firm's closing about 1965. The Helen G. Steele Music Club in Sedalia began in 1893 and presently has some 250 members. The Sedalia Symphony, established in 1935 continues under the direction of Mr. Abe Rosenthal.

Hill, W. D. "Struggle to Keep Music Press Running." The Sedalia Democrat, (October 24, 1965).

THE KING OF RAGTIME

Scott Joplin (1868-1917) is generally acknowledged as the "King of Ragtime." He was born in Texarkana, but by 1896 had found his way to Sedalia, playing in the Maple Leaf Club and taking courses in music at the George Smith College for Negroes. John Stark, a white music publisher, liked Joplin's *Maple Leaf Rag*, bought it and published it, thereby beginning a collaboration which took both of them to St. Louis. The New York Public Library has issued an edition of Joplin's works and there have been a number of his pieces recently released on records. There will be a Scott Joplin Festival in Sedalia on July 25-27, 1974.

Blesh, Rudi and Janis, Harriet. They All Played Ragtime. New York: Grove Press, Inc., 1959.

Brockhoff, Dorothy. "Ragtime Professor." Washington University Magazine, XLII (Summer, 1972), 34-39. Trebor Jay Tichenor

Darch, Robert R. "'Blind' Boone: A Sensational Missourian Forgotten." Missouri Historical Society Bulletin, XVII (April, 1961), 245-250.

SCOTT JOPLIN ON RECORDINGS

E. Power Biggs Plays Scott Joplin. Columbia M 32495.

Heliotrope Bouquet Piano Rags. Nonesuch H-71257.

Max Morath Plays the Best of Scott Joplin and Other Rag Classics. Vanguard VSD 39/40.

Monster Concert. Columbia M 31726

Scott Joplin – 1916. Biograph BLP 1006Q.

Scott Joplin, Piano Rags. Nonesuch H-71248.

Scott Joplin Ragtime – Vol. 2. Biograph BLP 1008Q.

Scott Joplin. The Red Back Book. Angel S-36060.

SPRINGFIELD – RADIO CITY OF COUNTRY MUSIC

The Country and Western music tradition is a logical outgrowth of the Ozark vocal and instrumental music of the turn of the century. Even though the center of broadcasting and recording has shifted to Nashville, the principal performers and writers began or furthered their careers in Springfield. The Ozark "Opera" is to be found throughout the state and young performers are still entering the field, some with "conservatory" degrees!

Gentry, Linnell. A History and Encyclopedia of Country, Western, and Gospel Music. Nashville, Tenn.: McQuiddy Press, 1961. (Contains articles and biographies of musicians. "Springfield, Mo. – Radio City of Country Music." by Phil Dessauer, among others.)

Gilmore, Ken. "The Merle Haggard Story." JEMF Quarterly, VII (Spring, 1971), 13-22.

Gruver, Rod. "Sex, Sound, Dows and the Blues." JEMF Quarterly, VI (Spring, 1971), 37-39.

Koon, William Henry. "Grass Roots Commercialism." JEMF Quarterly, VII (Spring, 1971), 5-11

Malone, Bill C. Country Music U.S.A., a Fifty-Year History. Austin: The University of Texas Press, 1968.

UP TO DATE IN KANSAS CITY

In spite of the fact that Kansas City (1850) is a younger town than St. Louis (1764) or its immediate neighbors, Independence and Westport, there has been a progression of music events there which are of interest. Scott Joplin's first rag, *Original Rags*, was published there and it is the home of Kansas City Jazz, Charlie "Bird" Parker, and Bobby Brookmeyer. Families such as the Cranstons, Rendinas, and the Jenkins have made an important contribution to Missouri's music.

One of the earliest Kansas City musical imprints is the *Kansas City Schottische*, published by Abram Kimmel in 1869. Many early concerts were held in Kimmel's Music Room at his store.

Crabb, Milford. "A History of Music in Kansas City, 1900-1965." Unpublished D.M.A. dissertation, University of Missouri – Kansas City, 1967. (University Microfilms No. 68-3570).

Kennedy, Lyle. "105 Years of Opera in Kansas City" KC The Kansas City Magazine .LXIII (September, 1973), 30-31.

Ralston, Jack L. "Kansas City, Mo." Grove's Dictionary of Music and Musicians. 6th ed. New York: Macmillan, 1975 or 76.

THE KANSAS CITY SPIRIT

The Kansas City Talking Machine Co. served as the distributor for Columbia Graphophones. Hattie Nevada, wife of the owner, Frank Woodbury, wrote *The Letter Edged in Black* one evening as a sort of "lark". Mr. Woodbury published it in 1897 and distributed copies to his subsidiary dealers. Thousands of copies were sold as well as many cylinder and disc recordings of this piece. The song has even entered the folk and oral tradition.

Charles L. Johnson (1876-1950) whose *Dill Pickle Rag* and *Powder Rag* brought him fame, was a pianist who made a number of player piano rolls. This piece, *The Belle of Havana Waltzes* was published by J. W. Jenkins Sons in 1899 in at least 15 different arrangements. The composition, although a series of waltzes rather than marches, is cast in the same mold as ragtime pieces.

The *Kansas City Spirit* is a quality often mentioned across the country. A march by this name by Eugenio Sorrentino commemorates the rebuilding of Convention Hall in 90 days. The fire of April 4, 1900, destroyed the former hall erected just two years before. On July 4, the Democratic National Convention opened in the new building, nominating William Jennings Bryan to run for president. (McKinley won but was assassinated and Theodore Roosevelt became president.) Sorrentino's Banda Rosa performed several seasons at Kansas City's Electric Park (47th and Paseo), as did the Third Regiment Band (Hiner's Band) directed by Dr. E. M. Hiner and Ben Kendrick.

Walter Fritschy and other impressarios scheduled hundreds of musical events in Convention Hall until the opening of Music Hall in 1936. Convention Hall was located on the southwest corner of what is now the Auditorium Garage. The Kansas City Lyric Theatre was established in 1958 to present opera in English under the direction of Russell Patterson. The Kansas City Starlight Theatre has given

summer musicals under the stars in Swope Park since 1951.

THE TWELFTH STREET RAG

Moving a block north of the Auditorium to Twelfth Street we meet an old friend . . . *The Twelfth Street Rag* which sums up the night life along that famous street pretty well. This Rag, written by Euday Bowman in 1914, has become one of the best known rags of all time with the possible exception of Joplin's *Maple Leaf Rag.*

In a sequel to the *Twelfth Street Rag, The Pettycoat Lane Rag* had its cover printed in pink symbolizing the ladies-wear shops located on 11th from Grand to Main, officially designated as Pettycoat Lane. John Taylor's Store (now Macy's) had as its advertising motto, "Just a step ahead on Pettycoat Lane."

KANSAS CITY JAZZ

Whether it was because of prohibition or political corruption, big band jazz developed in the night spots of Kansas City. This was the era of prosperity of musical ideas based on the Blues which saw the rise of Bennie Moten, Andy Kirk, Count Basie, Cab Calloway, Jay McShann. Late comers on the scene were Charlie "Yardbird" Parker and Bobby Brookmeyer. By the coming of World War II, the golden era of Kansas City Jazz was over but there is a revival of interest among the musicians themselves to preserve the tradition along the lines of the preservation activities in New Orleans. The Charlie Parker Memorial Foundation, Ths Musicians Foundation, and the Kansas City Federation of Musicians are all working toward this end.

"'Jazz Week' Jives Up Town." Variety, CCXXXVIII (April, 1965), 55.

"Kansas City Brass; Ed Lewis' Story as told to Frank Driggs." Jazz Review, II (April, 1959), 28.

"Kansas City Group Mapping Jazz Hall of Fame." Variety, CCLVI (October, 1969), 11.

"Kansas City Jazz Fans Make Marathon Bash a Hit." Down Beat, XXXV (June, 1968), 14.

Mazon, D. "Caught in the act." Down Beat, XXXVI (July, 1969), 28-29.

Miquet, B. "Jay McShann ou la Legende de K.C." Jazz Hot, CCXXXV (October, 1967), 23-25.

Postgate, J. "The St. Louis Sound." Jazz Monthly, XIV (April, 1968), 2-6.

Quinn, J. "Third Annual Jazz Week, Another Click in Solid Kansas City." Variety, CCXLII (May, 1966), 195.

Rosenthal, H. F. "Caught in the Act." Down Beat, XXXIII (June, 1966), 17.

Russell, T. "The Kansas City Dog Walkers." Jazz Monthly, CLXVIII (February, 1969), 8-10.

Tate, C. J. "Julia Lee (The Last of the Great Blues Singers)." Second Line, XI (January-February, 1960), 9-12.

Wilson, J. S. "College Jazz – Post-Grad Style (Intercollegiate Jazz Festival)." High Fidelity, XVIII (September, 1968), 22-23.

Woo, W. F. "Jazz in Kansas City." Musical America, LXXXII (May, 1962), 8-9.

Young, Henry. "Normour and Smith – A Brief Biography." JEMF Quarterly, VII (Spring, 1971), 31-34.

KANSAS CITY JAZZ ON RECORDINGS

Bobby Brookmeyer
- The Art of Jazz. Seeco-Celp-4520.
- Brookmeyer. VIK LX-1071.
- Clark Terry – Bobby Brookmeyer Quintet. Mainstream MRL-320.
- Gloomy Sunday and Other Bright Moments. Verve V-8455.
- The Ivory Hunters. United Artists UAL 3044.

Jay McShann
- Going to Kansas City. The Jay McShann All Stars. Master Jazz Recordings MJR 8113.

Charlie "Yardbird" Parker
- Bird and Diz. The Genius of Charlie Parker, no. 4. Verve V6-8006.
- Core of Jazz. MGM SE-4737.
- Early Modern. 1946 concert recordings . . . Milestone MSP 9035.
- The Essential Charlie Parker. Verve V6-8409.
- The Genius of Charlie Parker. Savoy MG 12014.
- The Greatest Jazz Concert Ever. Prestige PR 24024.

Count Basie
- The Essential Count Basie. Verve V-8407.
- Kansas City Jazz. Decca DL 8044.

KANSAS CITY PHILHARMONIC

As early as 1886 attempts were made to form a Philharmonic orchestra in Kansas City. Sir Carl Busch, John Behr, Dr. N. DeRubertis, George Elliott Simpson, and Arnold Volpe each in his turn organized and directed orchestras. The Kansas City Philharmonic Orchestra was founded in 1933. Its conductors have been Karl Krueger, Efrem Kurtz, Hans Schwieger, and presently, Jorge Mester.

The Works Project Administration (W.P.A.) carried on extensive music programs in jazz and classical music during the 1930's.

Haskins, John. "Let's Check Our Record." American Musical Digest, I, 1 (1969), 22-23. Comments on area composer Gail Kubik's lament for more performances by major orchestras of American composer's works.

Haskins, John. "Nonreview." American Musical Digest, I, 3 (1969), 15. This is a nonreview of a concert that did not happen.

Krueger, Karl. The Way of the Conductor. New York: Charles Scribner's Sons, 1958. (Mr. Krueger was conductor of the Kansas City Philharmonic Orchestra, 1933-1942).

Mueller, Kate Hevner. Twenty-seven Major American Symphony Orchestras, A History and Analysis of Their Repertoires, Seasons 1842-43 Through 1969-70. Bloomington: Indiana University Studies, 1973. Kansas City & St. Louis.

Peters, Frank. "A Comparative Report – Pessimism." American Musical Digest, I, 4 (1970), 18-19. Kansas City Philharmonic's financial problems.

S.P.E.B.S.Q.S.A.

In 1938 the Society for the Preservation and Encouragement of Barbershop Quartet Singing in America was begun as the result of two Tulsa business men who happened to cross paths in the Kansas City Muehlbach Hotel. The Society now has its headquarters in Kenosha, Wisconsin. The Institute for Studies in American Music has sponsored two Barbershop Quartet Workshops using the Heart of America Quartet Chorus directed by Don Webb.

McMahon, Peg. "Society for the Preservation and Encouragement of Barber Shop Quartet Singing in America (or, just S.P.E.B.S.Q.S.A.)." The Kansas City Star Magazine, I, no. 41 (October 11, 1970), 26-28.

Martin, Deac (C.T.). Deac Martin's Book of Music America. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1970.

Mattfeld, Julius. Variety Music Cavalade 1620-1961: A Chronology of Vocal and Instrumental Music Popular in the United States. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1962.

TEACHING LITTLE FINGERS (AND TOES) (AND EARS)

John Thompson's highly successful piano method books have initiated thousands to the thrill of having their little fingers taught to play the piano. He was a member of the faculty of the Kansas City Conservatory since 1917 and was its director from 1932-39. Jessie Gaynor, Ernst Kroeger, Ernst Krohn, Wiktor Labunski have been powerful influences on Missouri's music through their piano pupils. Organ teachers of note include Thomas S. Skinner, Luther Spayde, Hans C. Feil, Powell Weaver and Edna Scotten Billings.

An addition to the very important area of private music teaching is that of instruction through example. Recitals and lecture-recitals conducted in small informal groups have shown their value as transmitters of musical enjoyment and education, i. e. informative performances, or informances. These special programs are given regularly under the auspices of Young Audiences, Inc. throughout the State. Booking for the groups is provided through the offices of Young Audiences, Inc. in St. Louis and Kansas City. Although most of these programs are given in the public schools it is possible to book most groups for evening concerts for adult audiences as well.

SIR CARL BUSCH

Sir Carl Busch was an influential teacher, conductor and composer. Born in Denmark, he came to Kansas City in the 1880's where he was a shaping force in the musical activities of that city until his health failed in the 1930's. Among his distinguished pupils are William Dawson, Robert Russell Bennett (Broadway and movie composer-arranger), and Leith Stevens (movie and television composer-conductor).

Barney, Mildred Howard. Sir Carl Busch. Kansas City, Mo.: The University of Kansas City, Press, 1942. (Based on material on deposit at the Library of the University of Missouri – Kansas City).

Bolton, Jacklin Talmage. "Religious Influences on American Secular Cantatas, 1850-1930." Unpublished Ph.D. dissertation, University of Michigan, 1964. (University Microfilms No. 65-5879) (Discusses the cantatas of Sir Carl Busch, and others).

Lowe, Donald R. "Sir Carl Busch: His Life and Work as a Teacher, Conductor, and Composer." Unpublished D.M.A. dissertation, University of Missouri – Kansas City, 1972.

Souvenir Program, a Recognition Concert, Sunday, November 25, 1923. Gratefully dedicated to the unselfish life and genius of Carl Busch. Kansas City, Mo.: Lambda Phi Delta Sorority, 1923.

LEITH STEVENS

Leith Stevens was a 1927 graduate of the Horner Institute, an antecedent of the UMKC Conservatory of Music. He has a large number of film scores to his credit, including: *Destination Moon*, *The James Dean Story*, *When Worlds Collide*, *Wild One* and *The Five Pennies*. He also composed the scores for the TV series *Mr. Novak* and was music supervisor for Paramount Studios at the time of his death in 1970. His scores and records have been placed in the UMKC Conservatory Library. His family has also given his electronic composition equipment (Moog synthesizer, Yamaha organ, etc.) to the Conservatory.

LEITH STEVENS ON RECORDINGS

Destination Moon. Columbia CL 6151.
Exploring the Unknown. R.C.A. Victor LPM 1025.
The Gene Krupa Story. Verve MGV 15010.
Hell to Eternity. Warwick W 2030.
The Interns. Colpix CP427.
The James Dean Story. Capitol W 881.
Jazz Themes for Cops and Robbers. Coral CRL 57283.
Jazz Themes from "The Wild One." Decca DL 8349.
A New Kind of Love (With Erroll Garner). Mercury SR 60859.

THEY LOVED ME IN ST. JOE

Kansas City's place as a transportation center is symbolized in the *Southern Belle* song cover. The building of the Burlington bridge across the Missouri River caused a shift of commerce from St. Joseph to Kansas City. However, St. Joseph still has contributed one of the best known composers of our time — Katherine K. Davis. Her "Carol of the Drum" is one of the most popular Christmas songs, second only to "White Christmas." The St. Joseph Symphony, an area orchestra, performs under the direction of Russell T. Waite.

INDEPENDENCE

Independence is the hometown of President Harry S Truman and the headquarters of the RLDS (now Saints) Church. Emma Smith, wife of the first President of the Latter Day Saints Church was concerned about the hymn texts for use in the new church. Her interest caused her to write and to request others to write humns. These were published first in the *Evening and Morning Star* newspaper in Independence in 1831. The first hymnal for the church was issued in 1835, the most recent revision appeared in 1956.

Among the musical organizations of the Saints Church are the Auditorium Orchestra, the Messiah Choir and formerly, the Auditorium Chorale. In 1966, the Church commissioned composer David H. Williams to write a work *On the Resurrection of Christ* for the Chorale. The work was recorded and broadcast throughout the world.

THE FUTURE

The Future of music in Missouri is most promising. Within the educational framework the responsibility for developing and sustaining programs is clearly placed on the local school board. In higher education a number of innovative and imaginative programs are being developed. Extension musical services are available to any community in the State who wishes to use them. It is expected that the Revolutionary Bicentennial projects of many communities will include musical and theatrical activities.

There is a rising generation of potential performers and composers whose needs will have to be met through educational channels. But, perhaps more importantly, the future consumers of musical culture have educational needs which must be handled in the public schools in an active program of appreciation and understanding of the needs of informed listeners. The task is a large one — even if there were enough music educators to cover every class the job cannot be

managed. Music must be a part of the preparation of every teacher certified in the State. The ability to integrate music and all the arts in any subject should be developed. The love and appreciation of things cultural are the birthright of each citizen of the State. It is a matter of improving the quality of life for our citizens.

Missouri has been fortunate in having in its cultural heritage a number of musical leaders. For this we are thankful. Missouri has been blessed in having had generations of dedicated teachers who have brought our musical awareness to its present level. The future is in the hands of Missouri's teachers whether music educators or general studies teachers who will shape and develop the cultural awareness through their own enlightened instruction and example.

[1] Ernst C. Krohn, Missouri Music (New York: Da Capo Press, 1971).

[2] Rudi Blesh and Harriet Janis, They All Played Ragtime: The True Story of an American Music (New York: Grove Press, 1959).

[3] Ross Russell, Jazz Style in Kansas City and the Southwest (Berkeley: University of California Press, 1971).

[4] Ross Russell, Bird Lives! The High Life and Hard Times of Charlie (Yardbird) Parker (New York: Charterhouse, 1973).

ORTHODONTIC TREATMENT AS A FACTOR IN THE SELECTION AND PERFORMANCE OF BRASS MUSICAL INSTRUMENTS

Neil Bjurstrom — St. Louis, Missouri

(This paper is based on the author's doctoral dissertation of the same name presented as partial fulfillment for the requirements of the PhD degree at the University of Iowa, 1971.)

The subtitle "Buckteeth, Braces, and Brass" is frequently used by the writer in reference to his doctoral research area.[1] This attempt at alliteration to avoid the somewhat pedantic title of the study, however, does describe the work accurately. Buckteeth, or protruding upper front teeth, is a common type of malocclusion. Braces, or orthodontic appliances, are used by dentists to correct poor teeth position. Many brass instrumentalists in school music programs wear or will wear such appliances. The pressures exerted on teeth and the function of embouchure during brass performance is of particular interest to dentists since controlled pressure on teeth is used to change their position. The physical discomfort and performance problems incurred by brass instrumentalists during orthodontic treatment is a source of concern to students, parents, and music instructors as well.

THE PROBLEM

In many areas of our country, youngsters wearing orthodontic appliances are commonplace rather than comparatively rare, as they were three or four decades ago.

The incidence of instrumental music students engaged in performance activities while receiving orthodontic treatment appears to be a steadily increasing factor in our school instrumental music programs. This trend is causing a corresponding growth in the number of questions asked of instrumental music instructors and musical instrument sales personnel about problems unique to this situation, not only by students who are anticipating or undergoing orthodontic treatment, but also by their parents. Many of these concerned students and parents have had an opportunity to read recent feature articles in magazines and daily newspapers proclaiming such information as "the choice of musical wind instruments can also help to prevent or correct orthodontic problems,"[2] or "proper orthodontic treatment might be helped by playing a wind instrument."[3] A caption below a picture of several school-age brass instrumental students accompanying one of these feature articles which was widely circulated nationally reads: "The Answer to a Tooth Problem? Play music to straighten them by."[4] The cover of a dental reception room magazine directs the reader "INSIDE: Music — and Its Importance to Dental Harmony."[5] And most recently a

column headline in a metropolitan daily newspaper suggested "Brass instruments aid orthodontic treatment"[6] in a feature story that supposedly reviewed this writer's research.[7] It would appear reasonable to assume that such information creates a desire for many of those involved in this situation to seek further professional advice.

Most published information regarding this unique problem is limited to the various national, state, and other specialized dental journals. The views of two dental authorities, Strayer and Kessler,[8] writing in several of these dental journals, appear to have influenced recommendations made by many orthodontic specialists to their patients regarding the selection or playing of musical instruments.[9] Strayer and Kessler stated that certain wind musical instruments can have positive or negative effects on particular types of orthodontic corrections, and, consequently, the wind musical instrument played by students involved with orthodontic treatment should be chosen accordingly.[10] These articles also appear to be the basis for the previously mentioned newspaper and magazine articles directed toward the general public.

These same dental authorities have also expressed concern over evidence indicating that instrumental music instructors often make recommendations to their students regarding instrument selection in direct conflict with prevailing orthodontic theory. Kessler states in this regard:

> As is known, some music teachers love to give a clarinet to a child with a severe Class II type of occlusion [lower jaw receded in relation to the upper jaw and, frequently, protruding upper front teeth] because the mouthpiece "just fits." As a rule, this is one of the worst things that could be done to this child's dentition . . . This pupil would be better off with a trumpet or [a] trombone.[11]

It should be clearly stated at this point that it is not uncommon for instrumental music instructors to make recommendations to their students regarding a choice or change of instrument based on observations of these students' natural dentofacial conditions or embouchures. Such recommendations suggest their professional concern that a student's natural dentofacial condition be reasonably compatible with the mouthpiece of a specific musical instrument. This has been called by one dento-musical authority an embouchure of comfort.[12] This concept stresses the importance of a wind instrument player gaining the maximum efficiency possible from his natural dentofacial condition. The desirability of maximum embouchure comfort is not only important, it is a basic premise to which instrumental music teachers devote considerable attention. This condition contributes to a student's individual musical achievement and, therefore, to his potential contribution to any

performing groups in which he participates.

However, a student's involvement with orthodontic treatment concurrent with wind musical instrument performance introduces an additional factor which may in certain cases supersede any recommendation of an instrument based on that student's natural or existing dentofacial condition. These circumstances might also suggest a change of a previously selected instrument which is in apparent conflict with the student's orthodontic treatment and/or dental goals.[13]

Previously cited dental authorities recommended brass musical instruments to instrumental music students in a number of instances because of their potential contribution to the orthodontic correction of certain dental irregularities, especially those involving protruding front teeth.[14] This opinion has been reinforced by recent research which reported that brass instruments do produce "significantly great lingually [inner] directed pressure against the incisors [front teeth] than any other instruments."[15]

Unfortunately, students playing brass instruments while wearing orthodontic appliances also incur varying degrees of physical discomfort and performance problems unique to this situation. Such problems are reportedly more prevalent among these brass instrumentalists than those reported by students playing woodwind instruments under similar circumstances.[16]

Problems of the music-orthodontia situation included (1) a deficiency of detailed information regarding problems incurred by brass students while wearing orthodontic appliances, (2) an apparent lack of understanding by some music instructors of the relationship between wind instrument performance and orthodontic treatment and goals, (3) insufficient communication procedures in school music programs among students, parents, dentists, and music instructors regarding orthodontic treatment as a factor in the selection, performance, and/or change of a musical instrument, and (4) a lack of data documenting the dimension or size and general characteristics of the music-orthodontia situation.

NEED FOR THE STUDY

An exploratory investigation of orthodontic treatment as it related to the selection and performance of brass musical instruments provided (1) a collation of dental literature applicable to the subject designed specifically for the convenient comprehension of instrumental music teachers; (2) data relating to the school grade levels at which the various phases of awareness to the situation occur as a guide to improving communication procedures; (3) data concerning the size and characteristics of the problem and the status of current communication among students, parents, music instructors, and dentists as potential indications of need for further research of the

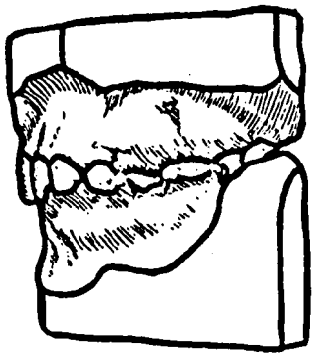
problem and improved procedures in school music programs relating to the problem; and (4) data concerning the physical discomforts and performance difficulties occurring during this situation as a basis of improved guidance to students.

SUMMARY OF RELATED LITERATURE

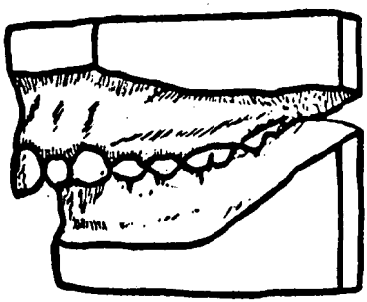
Concern for the potential positive or negative influence that performance of certain wind musical instruments could exert on the orthodontic correction of various types of malocclusion was first expressed by Strayer[17] and reiterated by Kessler,[18] two prominent orthodontic specialists and authors having a particular interest in the wind instrument-orthodontic problem. A significant feature of this concern was a recommendation that brass musical instruments could aid orthodontic correction of Class I malocclusion involving protruding upper front teeth and Class II, Division 1 malocclusion (Figure 1.) which is characterized by protruding upper front teeth and a lower jaw abnormally receded in relation to the upper jaw. Conversely, single reed instruments, particularly the clarinet, were strongly contraindicated in this situation. Other orthodontic specialists Heskia and Hospital,[19] and Seidner[20] reported agreement with Strayer and Kessler regarding these aforementioned recommendations. Engleman[21] further contributed research data from a research project at Washington University, St. Louis in 1964, indicating that the inner directed force produced by brass instruments on the upper front teeth is considerably greater than that produced by either woodwind instruments or by maximum muscle pressure. He therefore advocated giving brass instruments particular consideration in the management of protruding upper front teeth.

Parker[22] disagreed with the contention that single reed instruments should not be recommended for situations involving protruding upper front teeth. He contended that they were not a factor causing this protrusion. Parker, however, was in agreement with the mentioned body of orthodontic writers who postulated the value of wind musical instruments to certain orthodontic corrective efforts. They emphasized that the primary value of these instruments was in strengthening the desired lip and mouth muscles rather than their having an effect on the mesiodistal relationship of the teeth. Several authors noted the effects and value of these instruments during the retention period of the orthodontic correction process.

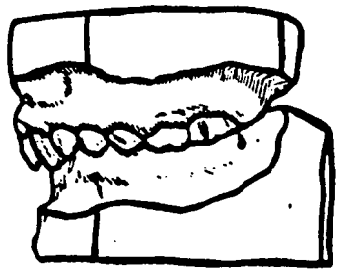
The desirability of certain dentofacial conditions as an aid to function (i.e., the performance of wind instruments, particularly brass instruments) was demonstrated by Cheney's[23] research data from the University of Michigan. Cheney also indicated appropriate situations where orthodontic correction of dental irregularities was plausible and potentially valuable to wind instrument performance.



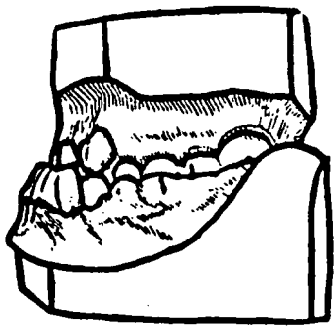
Class I malocclusion.



Class II, Division 1, malocclusion.



Class II, Division 2, malocclusio



Class III malocclusion.

Figure 1. Angle's Classification System of Malocclusion. From A. Hruby and H. Kessler, "Dentistry and the musical wind instrument problem," Dental Radiography and Photography, XXXII/1, 1959, 3. Used by permission

Agreement with Cheney's findings and views was expressed by Seidner[24] and Porter.[25] Porter articulated and broadened many of these concepts into textbook proportion.

Information in the literature concerning the relationship of orthodontic treatment to wind instrument performance reveals that much of it is theoretical in nature. Research data upon which valid conclusions or definitive statements may be based are very limited. An investigation of the music-orthodontia situation in selected school instrumental music programs was undertaken partially to obtain data, not previously existing, which would indicate the extent or size and general characteristics of the situation in these schools. These data, if warranted, would furnish additional justification and motivation for continued research of the music-orthodontia problem.

An analysis of the literature, however, does disclose certain areas of agreement. Orthodontic theorists and researchers agree that brass musical instruments merit consideration in orthodontic situations involving the correction of malocclusion characterized by protruding front teeth and/or a lower jaw abnormally receded in relation to the upper jaw. (A complete discussion of the dental authorities referred to may be found in the report of the writer's research project.)

ORTHODONTIC THERAPY AS IT RELATES TO BRASS MUSICAL INSTRUMENTS

Brass instrumental performance is directly related to the orthodontic corrective theory and practice because performance on a brass instrument is a source of extraordinary facial musculature activity and an extra-oral force upon the upper and lower front teeth.

The embouchure of brass players during performance involves tensing and shaping muscles of the mouth, lips, chin, and cheeks. Over twenty-two muscles are so involved.[26] A primary factor in this musculature complex is the orbicularis oris, the powerful muscle of the lips which completely circumvents the mouth. The lips function as the source of vibrations which are amplified and projected through the instrument. These vibrations result from breath being blown between the lips while they are held in a state of tension.[27] The tension and conformation of these embouchure muscles is essential to the brass performer's range of pitches, intonation, tone quality, flexibility, and dynamic capability.[28] These small muscles must accomplish all this with the strength and endurance to continue for several hours a day.

A brass instrumentalist also exerts inwardly directed force on the upper and lower front teeth during performance. The contraction of the mouth muscles acts as a protection to the brass player — a "defense against mouthpiece pressure"[29] that is applied during performance in varying amounts. The amount or degree, the exact

location and the duration of force varies according to the individual musician's manner of playing, the tessitura of the music being performed at any given point, the position, type, size, style, et cetera, of the cup-shaped mouthpiece being used, the length of the music being played, and the fatigue of the performer.

Many brass instrumentalists whose lower jaws are slightly receded thrust them forward to adjust the alignment of their teeth. The upper and lower front teeth held exactly in line enable "the upper and lower lips [to be] directly opposite each other, in an up and down consideration."[30] It has been estimated by orthodontic authorities in the United States, writes Graber, "that approximately two thirds of the patients that undergo treatment have mandibular retrusion characteristics. Only 2 to 3 per cent exhibit mandibular protrusion."[31]

Facial muscle function and extra-oral force on teeth are involved in the orthodontic corrective process and, therefore, are particularly relevant to brass instrumentalists who are receiving, contemplating, or have finished orthodontic treatment for malocclusion of the teeth. Authors of current orthodontic textbooks frequently reiterate the importance of the normal functioning of the orbicularis oris and other facial muscles to certain orthodontic correction and retention of malocclusion.

Orthodontic authors have thus theorized and, in some cases, presented limited research data that brass musical instruments can be of particular positive value to the orthodontic correction and retention of certain types of malocclusion. The basic value of these brass instruments to these situations, according to the orthodontic writers, is due to their ability to (1) stimulate the perioral musculatures as an aid to their normal or proper function, (2) utilize the desired anteroposterior jaw relationship conducive to corrective efforts of certain malocclusion, and (3) exert extra-oral lingually directed force or pressure on the upper and lower incisors during performance.

PROCEDURE AND METHODS

A series of preliminary interviews were held with a limited group of school-age brass instrumentalists who were undergoing orthodontic treatment. These interviews were an initial effort to gather current information regarding these students' orthodontic treatment as it might have been a factor in the selection of a musical instrument and of the various problems reportedly incurred by brass students in this situation. Such discussions with students yielded a wide spectrum of information from which the succeeding data-gathering procedures were developed.

An investigation was developed to gather valid data bearing upon two statements: *Orthodontic therapy is a factor affecting students'*

choices of musical instruments, and Playing brass musical instruments while wearing orthodontic appliances causes physical discomforts contributing to performance difficulties.

A determination was made by the investigator to utilize both a written questionnaire, to which a sample of instrumental music students involved with orthodontic therapy responded, and subsequent personal interviews restricted to the brass instrumentalists. This procedure functioned with a minimum of inconvenience to the students and school music staffs. Each of the data-gathering methods contributed uniquely to the investigation's objectives, and, in combination, facilitated statistical procedures which ascertained the reliability and validity of the students' responses.

The Sample of Instrumental Music Students and the Questionnaire

The first statement to be investigated, *Orthodontic therapy is a factor affecting students' choices of musical instruments*, was formulated to provide an insight into the nature and state of communication among students, parents, dentists, and music instructors regarding the selection, change, or discontinuance of a musical instrument as it might involve orthodontic treatment. Additionally it provided indications of the magnitude and characteristics of the orthodontic-instrumental music situation in the school music programs sampled, e. g., grade level, age, sex, and instrument played.

Data for the investigation were obtained from a sample of elementary, junior high, and senior high school instrumental music students who were either undergoing or had completed orthodontic treatment. These wind, string, and percussion students were participating in the music programs of thirty-eight schools located in Iowa and Illinois. The sample, although selected so as to represent various geographic and socio-economic differences in students, was not a systematic attempt to provide categorical representation. An attempt was made to include in the sample all instrumental students who were involved with orthodontic treatment in each of the participating schools.

The Instrumental Music Student Questionnaire was formulated to gather data on this aspect of the investigation. The questionnaire served two purposes, (1) to provide general information on a selected sample of students, and (2) to provide a screening device to help select a subsample of brass players for personal interviews.

The questionnaire, a direct outgrowth and refinement of this investigation's preliminary study, was designed to be student answered. A specific series of questions were formulated to be answered by selecting a response from a multiple-choice format. In addition, the opportunity existed for students to express their own,

individual comments to each question. The project was specifically designed to facilitate anticipated aid from computer data-processing methods.

Sample of Brass Instrumental Students and the Individual Interviews

Certain physical discomforts are reportedly experienced by many brass instrumental students while wearing orthodontic appliances. The second statement of the investigation, *Playing brass musical instruments while wearing orthodontic appliances causes physical discomforts contributing to performance difficulties,* was formulated to gather information related to this unique problem. A determination was made by the investigator to obtain data relating to this situation directly from students who were involved in orthodontic treatment. It was felt that personal, open-ended communication would enable each brass student to discuss his unique experiences with the investigator, and thus furnish the study with a wide range of data.

Individual interviews were arranged and conducted by this investigator with 110 brass students who had previously answered the questionnaire. These students were wearing orthodontic appliances at the time of the interview or had worn such appliances previous to the interview. The interview was designed to elicit a wide range of responses from each individual student about his unique experiences as well as ensure responses about a variety of known or anticipated problem areas.

Follow-up Interviews

A series of follow-up interviews were held with a subsample of the brass students approximately twenty months after the first interviews. The intent was to inquire about any physical discomfort or performance difficulties related to orthodontic treatment these students might have experienced since the earlier interviews.

On the basis of a randomizing procedure, thirty of the original 110 brass instrumentalists were chosen for the follow-up interviews. Members of this subsample were interviewed by the investigator at their schools.

The questions posed to this subsample paralleled many of the questions used in the earlier interview. Specific areas of concern were (1) physical discomforts resulting from irritations of the inner lip and mouth tissue, routine adjustment of orthodontic appliances, and changes of appliance features; (2) performance problems such as range, endurance, tone, dynamics, tonguing, and lip accuracy or flexibility; (3) problems in performance groups and instrumental music lessons; and (4) performance problems resulting from the removal of fixed orthodontic appliances.

Reliability, Validity, and Computation of Data

The primary data for this exploratory survey were obtained directly from students involved in the subject under investigation who related their experience by means of written questionnaires and oral responses during individual interviews. A procedure was designed, which operated during these data-gathering efforts, to provide an indication of (1) the reliability of students' responses, and (2) the validity of these responses.

Reliability of Students' Responses

Reliability indices of students' responses were obtained by structuring parallel questions (1) within the questionnaire, (2) within the interview, (3) between the questionnaire and the interview, and (4) between the initial interview and the subsequent follow-up interview.

Parallel questions structured within the Instrumental Music Student Questionnaire were concerned with the school grade levels reported for the students' beginning orthodontic treatment, beginning instrumental instruction, awareness of orthodontic treatment at the time of instrument instruction, and explanation for a change of instrument.

Parallel questions structured within the individual interviews held with the brass students concerned physical discomfort factors such as inner lip irritation, bulk of the appliances, and periodic dental adjustment of orthodontic appliances; and performance factors involving range, span of performance, tone, tonguing, flexibility or accuracy, and dynamics. The consistency of students' responses to these sets of questions was computed and reported as reliability indices.

Brass students were asked to reiterate certain information during the interview which was originally requested from their questionnaires. Responses from the questionnaires and the interviews were also compared and reported as reliability indices. Similarly, during a follow-up interview held approximately twenty months later, students were asked to reestablish various experiences they had reported in the earlier interview. Reliability indices were then obtained by comparing students' responses reported during the two interviews.

The satisfactory level of consistency regarding the student responses obtained in the investigation is demonstrated by the following ranges of the reliability indices: internal consistency of the questionnaire, .88 to .96; internal consistency of the brass student interview, .97 to 1.00; consistency of questionnaire to brass student interview, .88 to .95; and consistency of the brass student interview to the follow-up interview, .67 to .88.

Validity of Student Responses

Various categories of information involved in the investigation as they pertained to individual students were validated by persons outside of the student sample, such as the students' parents, the instrumental music teachers, and the orthodontists. Parents were aware of the chronological sequency of their children's instrumental and orthodontic involvement, dental factors being corrected by orthodontic treatment, orthodontists' comments and recommendations regarding instrumental activity, and students' home practice habits and related difficulties. Instrumental instructors were aware of the students' instrumental performance difficulties in music instruction situations and in group rehearsals. Orthodontists were sources of information regarding factors involved in students' orthodontic corrective treatment and recommendations made to students regarding instrumental selection or performance. Information obtained from students was verified by comparing it to data received from these sources. The range of indices obtained by the comparison of such data was from .83 to .97. The investigator was satisfied that the basic experiences reported by the students were credible for the purposes of this exploratory survey.

Coding and Computation of Data

The questionnaire used to survey the sample of instrumental music students involved with orthodontic therapy was designed to facilitate machine data-processing.

Data obtained from the interviews and follow-up interviews with the brass students were recorded by the investigator on a specially designed response tally sheet. A code system was developed to record many of the responses and to facilitate the transposition of much of the information to a quantitative form for data-processing. Individual answers by students which could not be coded, or when coding was not desired, were recorded verbatim, paraphrased, or summarized in appropriate topic categories on the response tally sheet.

An IBM S/360 Model 50 computer was used to process the data. The specific system of computer subprograms found to be especially appropriate for the variety of survey data obtained in this investigation is called SPSS or Statistical Package for the Social Sciences.[32]

SUMMARY OF DATA

The investigation sought to examine orthodontic therapy as it is a factor or consideration in the selection of musical instruments — particularly brass instruments — and to document various problems incurred by brass students wearing orthodontic appliances.

An examination of the dental literature applicable to the wind instrument-orthodontia situation reveals substantial agreement among dental authors that performance on brass instruments can be beneficial to the orthodontic treatment of certain malocclusions involving protruding front teeth and/or a receded lower jaw. However, only a limited amount of actual research data is available to substantiate the opinions of these dental sources and recommendations based upon them. A concern of this investigation was to furnish data concerning the dimensions and nature of the wind instrument-orthodontia situation which might justify or motivate continued research of the problem.

Frequency of Instrumental Music Students Involved with Orthodontic Therapy

Insights into the size, nature, and other general characteristics of the wind instrument-orthodontia situation were obtained by investigating the statement, *Orthodontic treatment is a factor affecting students' choices of musical instruments*, in thirty-eight public school instrumental music programs located in Iowa and Illinois. Approximately 20 per cent, or 535 students of the 2,754 instrumental students surveyed in this project, was or had been involved with orthodontic treatment.

It is interesting to note that the wind instrument-orthodontia situation was not unique to students living in the large city suburban area included in the investigation. The percentage of students involved with orthodontic treatment in instrumental music programs located in Iowa communities such as Davenport, Iowa City, West Branch, Tipton, et al. (18.2 per cent) was generally similar to the percentage indicated for students in Chicago, Illinois suburban communities such as Evanston, Northfield, Des Plaines, Winnetka, Park Ridge, et al. (19.6 per cent).

A predominance of girls or of boys did not exist in the sample group. Involvement of an equal amount of boy and girl instrumentalists with orthodontic treatment can be anticipated.

School Grade Levels of Students Involved with Instrumental Music and Orthodontic Therapy

Although cases were reported of students beginning their orthodontic treatment at every school grade level from the first grade to the eleventh, most of the students surveyed began to wear fixed orthodontic appliances in the period from the fifth to the eighth grade, and they wore appliances for about two years (Table I). These data indicate that the wind instrument-orthodontia situation existed, in these schools, most frequently in the late elementary grades and particularly in the junior high school. The percentage of students

TABLE I

COMPARISON OF BEGINNING ORTHODONTIC TREATMENT TO BEGINNING OF INSTRUMENTAL MUSIC INSTRUCTION BY SCHOOL GRADE LEVELS

School Grade Levels	Iowa Schools		Chicago Suburban Schools		Total Sample	
	Beginning orthodontic treatment	Beginning instrumental instruction	Beginning orthodontic treatment	Beginning instrumental instruction	Beginning orthodontic treatment	Beginning instrumental instruction
1	1.1	0.5	1.1	0.9	1.0	0.6
2	2.7	0.0	2.1	1.4	2.4	0.9
3	3.3	3.3	3.6	3.7	3.6	3.6
4	8.7	25.1	6.3	37.2	7.0	33.3
5	20.2	55.7	9.6	34.4	13.2	41.7
6	23.5	10.4	20.2	11.6	21.2	11.2
7	19.7	4.4	31.4	5.1	27.4	4.9
8	13.1	0.0	13.4	2.6	13.5	1.7
9	4.9	0.5	8.8	3.1	7.5	2.2
10	2.2	0.0	1.4	0.0	1.7	0.0
11	0.5	0.0	1.1	0.0	0.9	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
Total Cases	(183)	(183)	(352)	(352)	(535)	(535)
Per Cent of Total	100.0	100.0	100.0	100.0	100.0	100.0

wearing appliances decreased proportionately during the senior high school years. It must be emphasized that, although wearing fixed appliances for approximately two years was the mean length reported by students in the survey, students reported wearing fixed appliances for a period ranging from less than one year to almost four years. Each case has its unique requirements, and, thus, its individual timetable.

Students indicated that they tended to choose and to begin instruction on musical instruments before they began to wear fixed orthodontic appliances, e. g., 80 per cent of the sample group began instrumental instruction by the fifth grade level as compared to 27 per cent of the group who had begun orthodontic treatment at the same grade level. However, it must be noted that about half of the total sample of students (46 per cent) stated they were aware of forthcoming orthodontic treatment at the time they selected an instrument. This awareness was due in part to students' preliminary visits to orthodontists (83 per cent) and family discussion of orthodontic treatment.

Instruments Selected by Students Involved with Orthodontic Treatment

Students involved with orthodontic treatment did not appear to favor any particular type of instrument according to data based on the total sample of 535 students. The types and frequencies of instruments played by the sample group were similar to what might be found in any school instrumental music programs. It is interesting to observe, bearing in mind the recommendations of dental writers previously cited, that students reporting protruding front teeth as a factor in their orthodontic treatment did not appear to favor any particular type or category of instrument, e. g., of students reporting protruding front teeth as a factor in the malocclusion, fifty-six students played clarinet and fifty-three students played trumpet/cornet.

Advice or Comment Based upon Orthodontic Rationale Made to Instrumental Music Students Involved with Orthodontic Treatment

A minority of students (21 per cent) reported receiving advice from parents, orthodontists, or music instructors concerning instrument selection based on an instrument's potential effect on orthodontic treatment.

The recommendations of the dental writers cited in previous sections of this report regarding the consideration of certain instruments for their value in an orthodontic situation appears to be a rather small factor in the total pattern of advice given to students. Data indicate that only fifty-eight students in the sample (11 per

cent) reported receiving advice from orthodontists regarding instrument selection. However, there were indications that parental advice to students often reflected the advice given to parents by orthodontists. Influence of this advice is possibly reflected by the instruments students played. Of the total sample of 535 students, 31 per cent elected to play brass instruments. Of students in the total sample who (1) reported being aware of forthcoming orthodontic treatment at the time they selected an instrument, and (2) reported having protruding front teeth as a factor in their orthodontic treatment; sixty students or 42 per cent elected to play brass instruments. The larger percentage of students playing brass instruments in the latter group is perhaps an indication of recommendations given to them by their orthodontists and parents based upon an orthodontic rationale. This group consisted of students most likely to benefit from brass instrument performance according to the recommendations of formerly cited orthodontic writers.

A change of instrument for reasons relating to orthodontic treatment was reported by eighteen students (3 per cent). Of these students, four reported changing from a single reed to a brass instrument at the request of their orthodontists.

Physical Discomforts and Performance Difficulties

An examination of the statement, *The playing of brass instruments while wearing orthodontic appliances causes physical discomfort contributing to performance difficulty*, indicated that such an inter-relationship of problems was reported by 96 per cent of the brass students wearing fixed appliances.

The physical discomforts reported by students can be grouped basically into three categories: (1) irritation of inner lip and cheek tissue and the tongue by appliances during brass performance, (2) general mouth pain or sensitivity resulting from the periodic adjustment of appliances, and (3) disturbance of the embouchure or mouthpiece setting and hindrance of muscle functions due to the bulk or physical presence of appliances.

Irritation of Inner Lip, Cheek, and Tongue Tissue

Mouthpiece pressure and the action of the facial muscles used in brass performance cause mouth tissue to come into contact with orthodontic appliances. This situation produced pain and irritations to 95 per cent of the brass students immediately after the application of fixed appliances (Table II). Conditions were reported to improve partially in succeeding months. After wearing appliances for six months, 54 per cent of the brass students reported lip irritations. After one year, 46 per cent of the students continued to report this problem.

Data from the brass players who wore their appliances while in high school indicated that after one year 75 per cent of the particular students continued to report problems with lip irritations. This situation suggests that certain conditions more commonly experienced by players at a high school performance level, such as higher tessituras and more frequent and longer performance periods than might be experienced in lower school grades, contributed to the severity of a student's problem with lip irritation.

Data obtained from a subsample of brass students, concerned with their experiences wearing appliances for a period longer than one year, revealed that half of these students continued to report lip irritations as a problem of varying degrees during the entire time they wore fixed appliances.

An interesting aspect of the inner lip irritation problem was that many players of the various types of brass instruments seemed to share the problem. Students playing instruments with large cup mouthpieces as trombone, baritone, and tuba, often reported problems in a similar manner as students playing on smaller cup mouthpieces as trumpet, cornet, and French horn. However, of particular interest were the comments from students who changed from the smaller cup mouthpiece instruments to larger cup mouthpiece instruments, primarily to reduce lip irritation. All reported some degree of success in this endeavor. These particular students mentioned that they were able to alter their mouthpiece positions during the change-over process so as to minimize the mouthpiece rim-orthodontic appliance impact area.

Canker sores contributed to some students' lip irritations. These sores, occuring at locations irritated by appliances, added to the discomfort of 47 per cent of the brass sample.

The temporary dislocation of various connecting wires (metal ties or ligatures) used as part of the appliances were also reported to cause irritation of inner mouth tissue. Pain from such situations frequently necessitated discontinuance of performance activity by a student until his orthodontist could correct the condition.

Brass performers who reported using above average mouthpiece pressure reported more severe lip irritation, as a group, than was common for the total sample of brass students. Students who wore appliances on both the top and bottom teeth usually reported the discomfort or irritation to be more severe on the top lip. Appliance features that involved sharp protrusions in the vicinity of the mouthpiece rim-lip impact area as hooks, spurs, springs, et cetera, always created greater discomfort for the individual student.

Aids to Reduce Inner Lip Irritation

Efforts were made by students and their orthodontists to reduce the lip irritations caused by orthodontic appliances. One method consisted of applying some sort of buffer or cushion between the

TABLE II

SEVERITY OF INNER LIP IRRITATION REPORTED BY BRASS STUDENTS AT THE 1ST, 2ND, 6TH, AND 12TH MONTH

Severity Rating	1st Month	2nd Month	6th Month	12th Month
Severe pain plus bleeding	(17) 18.3	(8) 8.6	(1) 1.1	(1) 1.1
Severe pain	(37) 39.8	(16) 17.3	(6) 6.5	(5) 5.4
Moderate pain	(24) 25.8	(26) 28.0	(21) 22.6	(13) 14.0
Slight pain	(10) 10.8	(27) 29.0	(22) 23.7	(24) 25.8
No pain	(5) 5.4	(16) 17.2	(43) 46.3	(50) 53.8
Total Cases	(93)	(93)	(93)	(93)
Per Cent of Cases	100.0	100.0	100.0	100.0

NOTE: (1) All cases included in this table and in other tables concerned with the relationship of orthodontic appliances to difficulties incurred during brass instrument performance consisted of students wearing fixed appliances or nonremovable plates with bow wires. These appliances were located, on both top and bottom teeth (77 per cent), top teeth only (20 per cent), and bottom teeth only (3 per cent). All cases reported in the table involved appliances consisting of arch or bow wires attached to dental bands (28 per cent), along with appliances that included these features plus attachments for elastics, springs, and head or neck gear (72 per cent).

(2) No differentiation was made for styles of arch wires or brackets in the table.

(3) Removable appliances and types of fixed appliances located in mouth areas remote from conflict with brass performance were not included in the table (seventeen cases were removed from the sample of 110 brass student sample creating a refined sample of ninety-three cases).

appliance and the lip. The most common material used as a cushion between the inner lip and appliances was dental wax. Dental wax was the only material reported to have achieved any degree of success as a buffer in reducing such irritation. Although this "success" was reported with mixed results, the students did state that the dental wax was, at least an alternative to greater pain, or, as they would say, "It was better than nothing." A substantial number of brass students mentioned not being aware of dental wax as a potential comfort aid.

A negative aspect of the use of wax was the addition of bulk to the appliance, a persistent problem by itself. The soft dental wax is also very pliable at mouth temperature making it very susceptible to the mouthpiece pressure which wears through its protective shield. Other negative features of wax mentioned by students involved hygiene, appearance, displacement, inconvenience, and entanglement in the appliances.

In another method to reduce discomfort, the orthodontist polished or contoured the edges of the appliance to minimize irritations caused to inner lip and other mouth tissues. Students reported that this technique did reduce irritation considerably.

Discomfort from Appliance Adjustments

Discomfort, of a nature other than the irritation resulting from appliance-tissue contact, was experienced by most all students immediately following the periodic or routine adjustment of their appliances. The mouth area, or more specifically, the teeth, gums, and jaws, were very sensitive at this time to any environmental pressures, particularly the mouthpiece pressure of brass performance. Many students found it necessary to discontinue performance for a day or two at this period. Most of those students who did continue to play reported it to be very uncomfortable. Appliance adjustments generally occurred every three to five weeks for the entire period students wore fixed orthodontic appliances. The actual days of discomfort for an individual student at any given occurrence would be contingent upon the exact nature of the orthodontist's adjustment. Although the period of discomfort reported by brass students ranged from one to seven days, two or three days was most common.

Interference of Appliance Bulk to Brass Embouchure and Muscle Function

The intial application of orthodontic appliances to a brass performer's teeth abruptly changes the embouchure condition to which the player has been accustomed. This problem was experienced by a majority of the brass students (78 per cent) and was particularly evident during the first months of the student's orthodontic treatment. After a six month period, however, three out of every four players reported becoming adjusted to the situation.

The remaining students who continued to experience such difficulties needed up to three years to become completely adjusted to the situation.

Performance Difficulties

The various physical discomforts incurred by brass instrumentalists wearing orthodontic appliances frequently manifested themselves, according to the students, in various performance difficulties. Immediately following the application of orthodontic appliances, most brass players reported (1) an abrupt reduction in the length of their performance routine due to pain and fatigue, (2) difficulty with "high notes," (3) a deterioration of tone quality, and (4) less lip flexibility or control. Other difficulties which occurred less often involved (5) volume control and (6) tonguing or attack. The patterns of severity and frequency of these performance difficulties paralleled the patterns reported for the physical discomforts. The performance difficulties tended to improve in the succeeding months after the intial setbacks. However, it must be emphasized that these problems and patterns of improvement are contingent upon the unique features of each student's appliances and the exact nature of each student's performance circumstances. Some students experienced problems of range, poor tone, and the necessity to shorten and alter their performance routines throughout most of the time they wore appliances. In some cases, this period lasted from three to four years.

The various types, frequency, and severity of performance difficulties were shared similarly by students playing French horn, trumpet/cornet, and trombone. Tuba players, although reporting similar physical discomforts as brass players of the aforementioned instruments, appeared to experience fewer performance difficulties.

The thirty brass students who were playing in senior high school musical organizations during the period they wore appliances reported considerably higher degrees of severity and frequency of physical discomfort and performance difficulties than did the brass sample as a whole.

Alteration of Lessons, Practice, and Performance Group Situations

Approximately one third to one half of the brass players temporarily discontinued home practice, individual lessons, and band/orchestra rehearsals for a few weeks immediately after the application of the appliances due to the discomforts they experienced. Of those students who did report attending rehearsals of school groups during the period immediately following the application of orthodontic appliances, many said they played a minimum amount of time and/or rested frequently, if they played at all. It was not uncommon for a student to mention changing positions within the performance group to a position which made

less technical demands on him, i. e., musical parts which were more in keeping with the performance limitations imposed on him due to wearing orthodontic appliances.

Removal of Orthodontic Appliances

Perhaps the final musical problem that brass students are likely to encounter during their orthodintic treatment is the situation created when their appliances are removed. The embouchure must readjust to the feel and dimensions of the natural teeth causing immediate performance difficulties for many students. No pain was associated with the problem, however, frustration was commonly reported. The problem, as it negatively affected performance, was reported to last only a week or two for most students except for players who began their instrumental performance after they began wearing orthodontic appliances. Those players all reported taking a longer period of time to adjust to their embouchures which were unadorned by orthodontic hardware for the first time in their performance experience.

CONCLUSIONS AND RECOMMENDATIONS

Orthodontic Treatment As a Factor Involved in the Selection of Brass Musical Instruments

A review of dental literature pertaining to the orthodontia-wind musical instrument situation points to the desirability of communication among students, parents, dentists, music instructors, instrument sales personnel, et cetera, in regards to students' selection and performance of wind instruments as related to these students' orthodontic treatment. Such communication could contribute to both the students' dental and musical well being. Yet, an investigation of such communication among the persons mentioned reveals this communication to be minimal. A need exists for its improvement. Only a minority of students involved in the orthodontia-instrumental situation reported receiving advice pertaining to instrument selection based on an orthodontic rationale of any kind from any source, and an even smaller number of these students reported that such advice came from dentists. The substantial group of students who potentially could benefit from such improved communication is illustrated by data indicating that one of every five students in the school instrumental programs investigated were or had been involved with orthodontic treatment.

Orthodontic Treatment As a Factor Contributing to Brass Instrumental Performance Problems

Findings of the investigation indicated that most students playing brass instruments while wearing orthodontic appliances incurred a variety of physical discomforts which were detrimental to their

musical performance. Such discomforts can best be described as irritations of inner mouth tissue, pain resulting from periodic adjustments of orthodontic appliances, canker sores or more frequent canker sores, and interference with muscles in the dentofacial area used in brass performance. These various physical discomforts, singly, and in combination, contributed to performance problems for the brass players involving range, length of performance, tone quality, accuracy, tonguing, volume, and mouthpiece placement.

Problems tended to be most severe in the months immediately following the application of the brass students' orthodontic appliances. Except for pain resulting from periodic appliance adjustment, the various problems generally improved in succeeding months and years for many students, although there were some instrumentalists who continued to experience various difficulties for much of the period that they wore fixed appliances. The recurring pain resulting from the periodic adjustments of students' appliances and its negative influence on performance usually paralleled the period such adjustments were necessary. This was often reported to continue for the entire period students wore fixed appliances.

The various interrelated physical discomforts and performance problems were generally indicated to be detrimental to the students' performance activities such as individual practice, music lessons, and band/orchestra participation. High school brass students, in particular, reported problems to be more severe than were reported by the total sample of brass players. This particular situation was probably due to the length and frequency of their performance activities and to the advanced technical nature of the music they played.

The use of dental wax was reported to be helpful in reducing irritation of inner mouth tissue during brass instrumental performance. Although dental wax was reported to have certain inherent shortcomings that detract from its use and effectiveness, which students readily discussed, approximately one third of the students were unaware of wax as a comfort aid. Students should be encouraged to discuss its potential use with their orthodontists.

Each of the several students whose orthodontists polished or contoured the metal surfaces of the appliances reported this technique to be effective in reducing inner mouth irritations.

All problems did not end, as many brass instrumentalists anticipated with the removal of their fixed appliances. This situation merely signaled the beginning of a varying period when students' embouchures had to readjust to the feel and dimensions of the unadorned teeth. This caused immediate performance difficulty for many students, although no pain was associated with the problem. Readjustment was most difficult for students who began instrumental music activities while wearing fixed appliances, and

instructors are cautioned to be particularly cognizant of this problem.

Recommendations Regarding Music Instructors

Music instructors responsible for the recruitment and development of beginning school instrumental music programs are in a particularly favorable position to instigate communication among students, parents, and orthodontists regarding instrument selection.

When the instructor knows a potential relationship can exist between a student's musical instrument performance and his orthodontic treatment goals, he can recommend to students aware of future orthodontic treatment, and to their parents, that they consult with their orthodontists before deciding upon a particular instrument. Advice at the time of instrument selection would lessen the potential of the orthodontist's recommending a later change or discontinuance of an instrument which was inappropriate to a student's specific orthodontic treatment, though a considerable investment of effort and money has already been made. The music instructor may include a brief paragraph in the literature usually distributed to parents during the formation of beginning school instrumental music programs suggesting:

> In the event you are contemplating orthodontic treatment for your child, it is strongly recommended that you seek the advice of your orthodontic specialist in regard to the selection of a musical instrument. Your orthodontist or dentist can then determine to what extent the choice of instrument should be influenced by your child's specific orthodontic situation.

Recommendations Regarding Students Wearing Orthodontic Appliances

Many brass instrumentalists who begin to wear fixed orthodontic appliances are abruptly confronted with the variety of problems previously discussed. This beginning period is also the time at which these problems seem the most frequent and severe, contributing to a situation that is frustrating and demoralizing for many of the students involved. Music instructors cognizant of these problems can be a valuable source of guidance to students in this situation by being aware, sympathetic, knowledgeable, and helpful regarding the unique problems likely to be incurred during orthodontic treatment. A music instructor can help the student anticipate problems likely to be encountered and provide some insight as to their nature, severity, and duration. The instructor can be alert to the student's individual circumstances and suggest modifications of the student's instrumental activities in an effort to at least minimize problems which do occur.

Recommendations Regarding Comfort Aids

The reported shortcomings of dental wax as a comfort aid suggest the need for the development of a device that could conveniently be placed over the teeth and appliances. It should be as thin as possible to minimize bulk, but yet contribute some degree of protection to guard the lip against the abrasive action of the appliances. The device should remain secure during performance yet be convenient to place and remove.

The polishing or contouring of orthodontic appliance features was also reported to lessen irritation caused to inner mouth tissue during brass performance. However, very few students reported having such polishing done. It would appear appropriate to suggest that brass students be encouraged to take the initiative and articulate their unique discomfort problems to their orthodontists. Perhaps they should take their mouthpieces to their dental appointments to demonstrate difficulties. Unless there is such dialogue, an orthodontist may not be aware of the intensity of students' problems. The orthodontist can then determine the potential benefits of wax or polishing of the appliances.

Recommendations Regarding Continued Research

Data obtained by the investigation should provoke conjecture as to the total magnitude of the wind instrument-orthodontia situation in our schools. Of the instrumental music students investigated here, 20 per cent wore orthodontic appliances. This may illustrate the need for long range research efforts to supplement current information that is largely theoretical. Dental researchers have documented the forces or pressure that brass instrument performance can exert on teeth. Dental writers have theorized and are in agreement that brass instruments can be beneficial to the orthodontic correction of certain types of malocclusion. However, the investigation could not locate any data from actual cases of orthodontic correction which documented benefits derived from brass instrument performance, or, conversely, that performance on single reed instruments was harmful to certain orthodontic goals. Data are also lacking which document the effects wind instruments might have, positive or negative, upon the retention of students' occlusions after orthodontic treatment ends. In this regard, it should be noted that brass students reported increasing the amount of performance time on their instruments from elementary school to high school by 269 per cent. This increased amount of performance time implies a corresponding increase in the amount of force exerted on the teeth by a wind instrument. Such an increase of force could have implications regarding malocclusions orthodontically treated.

It would appear that an appropriate future phase of the wind instrument-orthodontia situation would involve long range, or longitudinal, cooperative research programs by interested teams of

orthodontists and music instructors. Such research efforts could perhaps compare the progress, effectiveness, and retention of orthodontic cases involving similar types of malocclusion between students playing various wind instruments and between these students and students who do not play instruments. The difficulties of such research with the array of variables inherent in this situation are indeed recognized by the investigator. Well-documented results from such research would enable instrumental music teachers to more effectively assist their students involved with orthodontic therapy.

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THE SIGNIFICANCE OF THE WIND ENSEMBLE IN AMERICAN MUSIC EDUCATION

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The Wind Ensemble

The wind ensemble is a performing organization which is having more and more influence in American music education at all levels from conservatory to elementary school. Since 1952 the term wind ensemble has been used to describe wind performing groups of approximately 30 to 55 players. The term was first used by Dr. Frederick Fennell when he organized a group of winds at the Eastman School of Music, Rochester, New York, and used it to describe the new ensemble. Since then, the ideas and concepts which began there have grown in musical, intellectual, and educational stature and have caused or aided major changes in the basic philosophy of music education in the areas of wind performance and the curriculum of wind performance groups. It is the purpose of this paper to examine the wind ensemble and this relatively new philosophy in regard to music and music education of the past, to determine its status at present, and its possible growth in the future.

Major Trends Prior to the Wind Ensemble

In order to view the wind ensemble in perspective it is necessary to examine the course of instrumental music in America on a professional, amateur, and educational level. This is not intended to be a complete history of instrumental music, but a highlighting of events pertinent to music education and wind music.

For many years in the area of art music, America had to import professional talent from Europe. Even after American orchestras were established, they relied heavily on European performers to fill their ranks. Only in this century, and especially after World War I have American players generally reached a level of performance adequate to or surpassing that of their European counterparts. America is now the place to study music. Much of the credit for this is due to the inclusion of instrumental music in the curriculum of the public schools, and of course, the establishment of professional conservatories of music and departments of music in colleges and universities.

> "Organized instrumental music first made its appearance in America at the turn of the 19th century when Gottlieb Graupner, a German immigrant, arrived in America and immediately set himself to the task of building an orchestra in Boston. His mastery of the oboe, piano, clarinet, and string bass equipped him with sufficient

musical knowledge to attract capable musicians to his organization. By 1882, his orchestra was giving regular public performances. These pioneering efforts by Gottlieb Graupner earned him the title of "Father of the American Orchestra" and eventually led to the organization of the Boston Symphony Orchestra."[1]

On the amateur level many groups and societies became active in organizing and giving concerts such as the Handel and Haydn societies in Boston and the Moravians. Some of the earliest performances of Mozart and Haydn are attributed to the Moravians who also organized a trombone choir, and performed music of their own composers. Bands made an early appearance — as early as 1773, J. Flagg established a band in Boston but there is no record of how long it survived.[2]

The first service band was the Marine Band which was established in 1798.

> " . . . which at the turn of the century was composed of two oboes, two clarinets, two horns, a bassoon, and a drum. The usual size of the early American bands was between eight and fifteen players, with an instrumentation similar to that of the U. S. Marine Band."[3]

1853 marks the first truly professional band which created interest in America. This was organized by Antoine Jullien, the son of a French bandmaster, who came to the United States and organized a band of European musicians who had fled to America following the revolutions in Europe in the 1840's. This band presented spectacular concerts and greatly influenced Patrick Gilmore, who became a greater showman than Jullien.[4] The Gilmore band and his successor, John Phillip Sousa, who organized his first professional band in 1892, made the band an American tradition and supplied needed entertainment in this period of American history. The professional bands likewise spurred the founding of many amateur community bands across the country, which became recreational outlets for those involved. The Sousa era came to an end about 1925 with the advent of radio, the phonograph, movies, and the automobile, which marked the demise of the amusement parks, the mainstay of the band's employment. In addition the rising popularity of jazz and dancing to jazz aided in the decline of the larger bands, which had also played for dancing.

The first college bands date back to the early 1800's, and were usually associated with military activity. Both Harvard and Yale had bands around 1827, but these only existed for a short time. The early bands were brass bands — the woodwinds began to be included around 1890.

> "Frank Springer, a student at the State University of Iowa in 1865, petitioned the University Board of Trustees for $300—$400 to buy instruments for a band of seven pieces. Springer noted that brass bands were becoming common among colleges in the East."[5]

The Notre Dame band, begun in 1840, holds claim to having the oldest college band in continuous existence. The reason this band survived is probably due to the appointment of a faculty member as director which was not common at this time. Bands were also started in many of the Land-Grant colleges which were required to offer military training. The bands were necessary for drill purposes and became a part of the R.O.T.C. units.

> "The Board of Trustees at the Illinois Industrial University (University of Illinois) required that music, 'consisting at least of the drum and fife', be provided for military drills. In 1871, 16 students who already owned brass instruments, asked the Board of Trustees for music instruction so that they might act as a band for the University Battalion. Sixty dollars was appropriated for that purpose."[6]

The University of Illinois is known as the "home of the college band." Bands really got a start there in 1905 when Albert Austin Hardin was appointed director of bands, a position he held until 1948. His concert band numbered 124 players in 1938 and it served as a model for all other college bands as did his marching band. The men who were his assistants and who were trained under his guidance went on to other schools and the Harding influence is still alive today, especially at Illinois.

A brief review of music in the public schools is also pertinent. Music first became associated with the Boston schools in 1838 through the efforts of Lowell Mason.

> "About this same time, pestalozzian philosophy began to take effect in the schools, and was largely responsible for the firm foothold of music in the curriculum. In brief, Pestalozzi reacted against the exclusive presentation of second hand or "book-knowledge." He contended that the purpose of education was to develop individual powers and talents, and that the key to this process was through direct sense impression. On this premise, music's place in the curriculum could hardly be challenged."[7]

Instrumental music is a relatively recent development in public education, appearing around 1900. It began largely because of the

success of vocal music and also because of the philosophy of pragmatism expressed in progressive education. With progressive education the school expanded and many new courses were added to the curriculum. The idea of musical instruction was in keeping with the progressive spirit.[8]

> "As the school sought to duplicate community life within its walls (even to student newspapers and governments), the firehouse band moved into the school-house, just as did the singing school in 1838."[9]

The orchestra was the first instrumental performing group established in the schools, but it was soon joined by the band and overshadowed by the band. There were several reasons for this development. Basically they were:

1. Adaptation of class instruction to the teaching of instruments — The Maidstone Movement — started in England in 1908 and brought here by Albert Mitchell in 1911.
2. Greater flexibility of the band — greater usefulness to the community and to athletics. The band could perform parades, rallies, at games, and at concerts. Greater appeal to youth.
3. Music contests — involvement of youth in a competitive activity. These grew to a national level by 1928. Whereas 30 bands participated in 1923, 1,949 schools took part in regional contests by 1940. These were curtailed in World War II due to travel restrictions.
4. Social aspects of music. Music educators using the slogan "If you teach a boy to blow a horn, he'll never blow a safe" to sell music education to the public. Basically the philosophy expressed in the *Music Man*, of Meredith Willson.
5. Commercial interests boosting instrumental music. The instrument manufacturers and music publishers saw the commercial potential in instrumental music and helped sponsor many of the contests for bands.
6. After World War I, the military bands had inspired band music. Also many potential teachers returned from military bands.
7. Many of the things that led to the decline of the professional band aided the rise of the school band. When sound movies came in 1928, this along with the depression, threw hundreds of pit musicians out of work and into the teacher's college.[10]

So the band flourished to the point where it is presently found in virtually every school in the country, both public and private. The rise in popularity of football helped to cement the band's standing in the community, so much so that in some communities the band is supported as much or more as the football team. Half-time shows continue to be more grandiose and spectacular until the saturation point, if it is not already here, is not far off.

The marching and functional aspects of the band program are

obvious benefits of the band that the public views, but the band director often sees his role as being primarily a conductor of the concert band. The concert band, inheriting the Gilmore-Sousa tradition, for many years of its existence played programs very similar to the programming of these grand bandmasters. Marches, overtures, arrangements of movements of the symphonic repertorie, and novelty selections were the mainstay of the literature. As bands increased in size and in proficiency, band directors began looking to other sources for literature for the concert band, or "Symphonic Band", a name originated in 1928. In looking for new music, band conductors discovered some original works for band, such as the two suites by Gustav Holst written in 1909-1911, and the *Folk Song Suite* and *Toccata Marziale* of Ralph Vaughn Williams (1924). These were "listenable" works which are well written for the band. Music publishers were not idle, and many new works appeared, basically geared for the "educational market." In 1945, Richard Franco Goldman reviewing music for the band stated:

> "(One might note that a great deal of pompous garbage is written, for band and otherwise, called 'symphonic' or 'grand' or bearing some other type of inflated description, to foster some baseless illusion in the mind of the composer or the audience or both. It is a great misfortune for our youngsters that so much 'educational' music falls into this category.) Most of the new band works of the composers named can stand on their own merits if they are taken for what they are: music written for a certain combination of instruments, to be played for a mass audience waiting to be entertained. Within that sphere they may justly be considered 'major' works."[11]

Also, in the same source, Goldman comments on the texture of the band of 1945:

> "As constituted today, the band tends to be out of balance; it often produces a sound of which the outstanding characteristic is its thickness. Most of the instruments found in quantity in a band have thick or heavy sounds: the saxhorns, clarinets, and saxophones, for example. These instruments are also largely grouped in the middle registers, giving the band an overweight which is made even more apparent by its weakness in the extreme top register. The additions made to the instrumentation of the modern band have mostly been instruments of middle and low register, while the higher instruments have been disappearing. There is nothing in the band even remotely comparable to the top tones of the violins, nor does the

flute stand out against the heavy blend of clarinets and cornets with the clarity it possesses in the orchestra. The high registers of the clarinets are shrill, unpleasant, and out of tune. The lowest register of the band suffers from a different handicap: not a lack of instruments, but too great a variety."[12]

The Wind Ensemble – A New Direction

This was the state of the band in the middle of the 20th century. A medium that was overly large, unbalanced, basically found only in educational institutions, and trying to find a new repertorie to help to justify and continue its existence and improve its status in the musical and academic community. In the fall of 1952 at the Eastman School of Music, Rochester, N. Y., Dr. Frederick Fennell organized a new type of wind performing group which he called the wind ensemble.

> "The Eastman Wind Ensemble was organized in the Fall of 1952. It came to its establishment out of twenty years of work with the Eastman School Symphony Band which I began to organize when a freshman in 1933. The two decades had been filled with thorough study and careful performance of the significant music literature of the wind band, original and transcribed, plus a long and varied association, as conductor, with the music of chamber and symphony orchestra. Sibley Music Library and my faculty privilege to browse had allowed me to become aware of that sprawling and significant music literature for assorted combinations of wind instruments in ensemble that did not fall into the pattern of the traditional wind quintet or the concert band, and which was performed only rarely — mostly because there existed no ensemble which considered its performance to be a part of the repertory."[13]

Dr. Fennell explained the choice of naming the new group:

> "I didn't call the group a *band* simply because from my experience with all kinds of them I didn't think that it was a band. To qualify for that distinguished classification a group should be uniformed in the tradition of the band, should be able to march and play in the open air in the tradition of that band, should perform the traditional music of the band and maintain those time-honored traditions and associations to which the public and its institutions had become so rightfully accustomed."[14]

The size of this new group was the main physical difference in its makeup. Also the size was one that *fluctuated*, something that the proponents of the concert band had long fought to correct. Band directors had been bemoaning the lack of a standard instrumentation for years, mainly due to the difference of band size and instrumentation found in the bands in the various European countries. One of the main projects of the College Band Directors National Association (C.B.D.N.A.) was the standardization of band instrumentation. Now along comes Frederick Fennell:

> "It had long been my conviction that matters of instrumentation have always been the province of composers rather than committees; the music to be played would be the only factor to govern the choice of instruments that would be assembled. At the outset it listed 25 reeds, 18 brass, 8 percussion, harp, etc., an instrumental force permitting performance of the exemplary music written for the wind band; these forces, when reduced or expanded to those required for music which in no way lay within the band medium offered a group capable of performing a rich and neglected music literature."[15]

With these statements a new philosophy of band performance is divulged. The *composer* is now the primary force behind the medium, transcriptions are not the rule but the exception, and the instrumentation is of a more transparent nature, more like the wind section of a symphony orchestra, which changes its size depending on what piece is being performed. The instrumentation specified by Fennell, consisting of a maximum of 45 players is as follows:

Reeds

2 flutes and piccolo
2 oboes and Eng. Hn.
2 bassoons and contra bassoon
1 E^b clarinet
8 B^b clarinets, or A clarinets divided in any manner desired or fewer in no. if desired
1 alto clarinet
1 bass clarinet
2 alto saxophones
1 tenor saxophone
1 baritone saxophone

Brass

3 cornets in B^b or
5 trumpets in B^b
2 trumpets in B^b
4 horns
3 trombones
2 euphoniums
1 E^b tuba
1 BB^b tuba or 2 if desired

Other Instruments

Percussion, harp, celeste, piano, organ, harpsichord, solo string instruments, and choral forces as desired.[16]

The group described above developed into a professional quality performing group and gained fame through a series of recordings on the Mercury label. Fennell's new wind ensemble became the talk of the band world and imitative groups began to appear in colleges and high schools. Today, twenty-one years later, the concept is firmly established, many schools having replaced the concert band with the wind ensemble, or both existing side by side and performing different repertorie.

The wind ensemble concept is perhaps best described by Donald Hunsberger, the present conductor of the Eastman Wind Ensemble:

> "The symphonic wind ensemble is in actuality a concept . . . a philosophy of musical life based upon the premise that wind music has the potential to earn its rightful position in the over-all musical hierarchy.
>
> The eventual goal of the symphonic wind ensemble movement is the *unqualified acceptance of concerted wind music on the same level as all other forms of instrumental or vocal composition.* To achieve this goal, the concept functions through these premises:
>
> A. Development of the performer as an *individual* as well as an ensemble performer.
>
> B. Development of a wind repertorie, original and transcribed/arranged, which is uncompromising in its artistic quality demands.
>
> C. Development of an image of the wind band as a serious yet flexible musical organization whose existence is visible only through its devotion to *concert music and its composers* who are held to be the *original creators* in the performance processes.
>
> The basic principles guiding the composer, conductor and performer in the symphonic wind ensemble concept may be stated as:
>
> 1. Specified instrumentation
> 2. Single performer approach
> 3. Orchestral concept of performance
> 4. Development of individual instrument tone colors."[17]

A new philosophy emerges with several major changes in theory and practice. A chamber music concept, with emphasis on the wishes of the composer and the training of the individual performer is stressed. This is a major change from the previous ideology of the symphonic band. In a dissertation written in 1955, Odegard discusses the status of the symphonic band:

> "Frequently cited reasons for carrying a large personnel include the extension of training benefits to as many

capable students as possible without affecting musical objectives too adversely, and the need for training replacements due to course changes, illness, and other emergencies."[18]

This study offers a detailed description of much of the available band literature up to this period. Average figures are computed for full band scores vs. symphonic band scores and figures are given for duration average, price average and *average cost per minute!* In discussing the budget for new music of a school organization the author quotes Prescott and Chedester, *Getting Results with School Bands*, P. Schmitt, 1945, which was an influential text for many years.

> "Prescott and Chidester suggest that twenty-five percent of the 'New Music' budget money should be spent for overtures; twenty percent for operatic selections, rhapsodies and medleys; ten percent for suites and symphonies; about nine percent for miscellaneous heavy concert music, etc. This seems to be a reasonable norm. However, an easy overture is often about forty percent in the march idiom, and a suite can be anything from an early dance to a modern symphonic suite."[19]

This is obviously thinking along different philosophical lines than that of the wind ensemble.

Perhaps the most published and eloquent spokesman for the concept of the wind ensemble is Dr. David Whitwell, currently conductor of the wind orchestra at California State University, Northridge, and recently elected president-elect of the C.B.D.N.A. Dr. Whitwell is a musicologist as well as a conductor and has done extensive research in music for wind instruments. In a recent publication he outlines the new philosophy, and claims that the problem of the contemporary band not being fully accepted as a cultural force is because of its failure to control two basic dimensions of all cultural mediums: defining its (1) aesthetic goals and (2) the nature of its history. Aesthetic music is defined as:

> "music of inward significance which in its communication enables the listener to perceive an original intuitive idea, an artistic truth which lifts his spirit through catharsis."[20]

The important elements of this definition are:

1. Aesthetic music must be of substance, of inward significance.
2. It must be faithfully performed, so as to communicate the composer's original idea.
3. It must be received by a listener capable of proper contempla-

tion. Entertainment music is that in which either the first or the third of the above elements is missing.

> "Entertainment music is music which does not communicate an intuitive truth to a contemplative listener."[21]

On the subject of the band's history, Dr. Whitwell claims that it must face a choice. Either the band's cultural forebearers were the military bands leading to the Gilmore, Sousa — entertainment tradition or the band's cultural forebearers were Mozart, Berlioz, Gounod, Strauss, etc. in their works for winds alone. He states that a musical composition is only a moment's manifestation of some idea, unless its idea speaks *beyond* its moment. If it does, then the historian is needed to establish its relationships — the sociological view of music. Therefore the past never changes, but history always does, therefore we now have to look at the band (in the form of the wind ensemble) in a new light and see it as the proper culmination of the long past history of wind literature which Dr. Whitwell has documented.[22]

Needless to say, while these views have been widely hailed in the band field, they are not universally accepted or put into practice as of this date. The immediate past-president of the C.B.D.N.A., Dr. Richard W. Bowles, of the University of Florida wrote in 1970:

> "We wish to make the point that the association of bands with situational music, particularly of an ambulatory nature, is not only historically sound, but is almost irreradicable from the thinking of the general public. We view this association not as something which should be resisted, but with considerable satisfaction and pride. The band . . . must never become so sophisticated that it turns its back on the common people, or forgets the vital nature of its situational responsibilities."[23]

In another recent article[24] Dr. Bowles expresses his dismay that recent band composers such as Paul Yoder and Clifton Williams are not dealt with or given due recognition by historians and musicologists. He reaches the conclusion that band directors have failed to bring their names to the attention of the general public and have completely failed to impress the historians.

Dr. Richard Franko Goldman, conductor of the Goldman Band of New York looks upon the band as a popular medium:

> "The band is not 'high-brow' and should not try to be. The high-browism one occasionally finds in band circles not only leads to a dead end, but is culturally regressive. The

band as a medium of *popular* culture, does have a responsibility in that area: it can contribute significantly to improving the quality of the popular culture in which it thrives . . . one should not play second-rate original band music just because it is 'original'. The band will be better off continuing to play Poet and Peasant, and the audience would rather hear that . . . the band concert, always remembering the band's various publics, and the functions of the band in both education and entertainment, should be a lively miscellany."[25]

It is interesting to this author to note that, although Dr. Goldman was for many years a member of the faculty of the Juilliard School of Music in New York, a band was never a permanent performing organization at that institution, although of course many performances of wind chamber music take place there constantly. Another prestigeous conservatory, the Curtis Institute in Philadelphia also is without a permanent band organization. Several other major conservatories, noteably Eastman, of course, and also the New England Conservatory in Boston and the Manhattan School in New York now have permanent wind ensembles. So the lines are drawn, what is a band, what are its functions and reasons for existence? Perhaps a look at the composer will provide us with some answers.

The Composer and the Wind Ensemble

If the wind ensemble has rejected the historical base of the military-Sousa tradition as it apparently has, then one further question needs to be thoroughly investigated. *Is* there a sufficient body of wind literature existing throughout the history of music, combined with contemporary additions, to warrant serious acceptance of the wind ensemble as a performing medium equal in importance and scope to the symphony orchestra, string quartet, chorus, opera house, solo pianist, organist, or leider signer? With a cursory glance at music history the answer must be *no*. Hunt, writing in 1949 states:

> "In due time, I made an exhaustive study in the field of original literature for concert band with the ultimate discovery that there is actually no significant music for wind-band from the 'masters' of the Baroque, Classic and Romantic epochs. Why had not Bach, Beethoven, Haydn, or Brahms written effectively for the band as well as for the orchestra? On the other hand, a surprising number of contemporary composers have favored the band with their writings, and often with excellent musical results."[26]

To this author it appears that the philosophical and historical

roots of the wind ensemble are on shaky ground because the literature for winds only is, for the most part, the *minor* literature of any period or any composer, major or minor in stature. The case for pure wind literature is being overstated. In looking at the history of wind music it is certainly true that composers of the 19th, and especially the 20th centuries were and are drawn to wind instruments, but basically not in the sense of *limiting* themselves to wind instruments alone. For the most part, both in works for small and large ensemble alike, they were *unwilling* to forego the added and desireable color of the *strings* — therefore the majority of the works are for orchestra or mixed wind and string ensembles. Romantic composers were interested in *color* — that is why the string quartet literature declined through the 19th century and the piano or clarinet, or some other solo wind was added to the string quartet. For the same reason mixed quintets of piano and winds or mixed octets such as the Schubert octet were favored. Dvorak could not resist adding a cello and contrabass to his lovely serenade. Dr. Whitwell is correct in stating that the serenades and divertimenti of Mozart and Haydn are not just Tafelmusik, but their true historic perspective and importance lies in their function of exposing composers to the possibilities of the winds which led to the full acceptance and the use of the winds in the *orchestra*, not the wind band.

What about the 20th century? It is true that the winds have enjoyed a great popularity, but not necessarily in works limited to winds alone. Stravinsky wrote several works for winds; *The Symphonies of Wind Instruments* (completely ignored by bands for many years), *the Octet*, *Circus Polka*, and *Ebony Concerto*. Also other works feature predominant winds such as the opera, *Mavra*, and the *Concerto for Piano and Wind Orchestra*. These works certainly do not represent the best or a cross-section of Stravinsky. Several major composers of the 20th century have written a few works for wind ensemble: Hindemith, Milhaud, Persichetti. The real bulk of the 20th century output has come from lesser known composers who appreciate the opportunity for performances and exposure. Hartley states:

> "It might be asked at this point why I, as a composer of serious aspirations and some recognition of same, should have come to concentrate so much effort (no less than ten works in the past three years) on a performance medium still often considered a comparatively limited one? In the first place, I truly love writing wind music; in the second place, the response in my case from ensembles, directors and (presumably) audiences all over the United States has been most encouraging; performances abound, there are recordings, and commissions like that from South Florida

have been gratifyingly frequent. In fact it is mainly (if not entirely) owing to my wind ensemble music, and my solo and chamber music for wind and brass instruments, that I have attained to whatever degree of celebrity I have."[27]

The above is ample evidence of reasons for composing music for winds alone, few of which are musical ones.

The Wind Ensemble and the Music Educator

As has been previously stated the foundations and much of the history of music education in the United States has been *performance* oriented. More recent trends, such as the symposia at Yale in 1963 and Tanglewood in 1967 and the Contemporary Music Project beginning in 1962 have tried to influence a change in emphasis from music education that is performance based to a program that is much more all inclusive — combining all of the areas of music — history, performance, analysis, composition and giving the student a background in all of these. How does the wind ensemble fit into this picture? It would have to be viewed as a step in the right direction. Anything which reveres the wishes of the composer and the presentation of "aesthetic" music should not be too severely criticized, especially in the light of past music education. However as a complete answer to the music education of the future it *fails miserably.*

Music education should not strive to make any type of music or any type of performing group more or less than it is. What *it is* depends a great deal on your philosophical outlook toward music — whether you are a Romantic, who believes that masterworks are created by geniuses who have "seen the light" and speak eternal truths to all ages, or whether you are a Sociologist, who believes that the value of music *changes* with how it is accepted or rejected by a given era. The advocates of the entertainment-concert band are Romantics who are asking us to continue to worship the glory of a bygone era. The advocates of the aesthetic-wind ensemble are sociologists who are asking us to give new importance to basically secondary literature of the past.

Music educators should not overdo the emphasis on any particular literature just because it is written for any particular *group of instruments.* The works of any composer should be judged on merits other than what performing medium it is written for — that is just one aspect of a musical composition. The band and the wind ensemble have served a definite purpose in music education and this purpose should not be belittled *or* overstated. What music educators need to do is to re-evaluate the purposes and goals of performing and the type of performing groups used in relation to the total goals of the total music education program and strengthen the types of performing that aid these goals and delete those which do not. Music

education that stresses only performance *without* understanding is gravely deficient, no matter what literature is being performed.

Music historians and musicologists deal daily with value judgements regarding music. Much of this has been passed on to us in music history courses and in our observations of the total musical world around us. Can any thinking musician or music educator say that a student should be better acquainted with the wind literature of Mozart instead of or before knowing the late symphonies, the operas, or even the string quartets? Yet how many college *wind majors* know the string quartets of Mozart or anyone else equally as well as they know the literature they have performed in four years of band? It depends on where your values lie. Should Berlioz's *Funeral and Triumphal Symphony* (with ad-lib string parts) be given greater importance or exposure than the *Symphonie Fantastique* which elevated wind instruments to prominence almost in a single stroke? Transcriptions are not the answer either. The works for winds of any composer should be presented to students in terms of the total output of that composer and the period of music history in which they were written and evaluated in that light. No more — no less. Incidentally, eliminating all entertainment music from music education as Dr. Whitwell suggests would cut out a large bulk of the repertorie and it would also set us to the task of deciding which works have "substance or inward significance." Has the science of aesthetics become that exacting as yet?

At the earlier stages of music education, in elementary and junior high school, the problem has been in finding literature for performance by students. The Juilliard Repertory Project has been one attempt to fill this need with "good" literature. Obviously, beginning and intermediate students cannot perform the masterworks, and therefore suitable easier works, often of "lesser" quality or arrangements of the "classics" have to be used. The point is that more advanced students in high schools and colleges *can* perform the "better" works and, for the most part *have not*. Music educators must be held responsible for this. Some of the reasons for this are rooted in the use of the band as primarily a functional and entertainment unit, which has, in turn, been promoted and presented to students as a performing organization of much greater importance to music than its literature of the past or present warrants, *both* in the fields of entertainment and/or art music. Band directors and band organizations constantly bemoan their lack of respect by the musical community and the general public. The reasons are not because of the quality of their performance, which has never been better, but because of the *literature* for this medium, whether by Mozart, Beethoven, Reinagle, or Godfrey.

A far-fetched hypothetical case will be used to illustrate the point. Suppose that some early music educator had liked the accordion, was successful in teaching it to a group of students, organized them into

an accordion ensemble, and sold the board of education on the idea that the best path for music education in the schools to take was for everyone who was interested to learn the accordion. If he had been successful, today we would find thousands of music teachers trying to justify the accordion and searching the archives for aesthetic literature for the accordion. (Most likely this does occur with many private accordion teachers.) There is nothing wrong with literature for the accordion if it is recognized as such and not made into something more. The point is that there is nothing wrong with knowing about and performing "lesser" works, but if this is at the expense of *not* knowing about and performing masterworks, then a grave injustice has been done.

Implications for the Future

In a recent article addressed to band directors, Sperry states:

> "We must avoid thinking of the band as something exclusive and self-sufficient. We must relate the band to the total music scene in every way. If, as a musicologist said recently in a surprising, matter-of-fact fashion, contemporary compositions of significance are in three areas: electronic, aleatoric, and those for winds and percussion, then it becomes essential that we accept our role as Leaders of the music world."[2 8]

Are we (band directors) leaders of the music world? It is the view of this author that we are not, and very likely never will be. With a few exceptions, the pattern in music has been: (1) discovery of the medium, (2) perfection of the performer, and (3) acceptance and use by the composer. This author believes the wind ensemble came about 100 years too late. Composers have already discovered winds and they have written for winds — although not always *totally* for winds. If there is any "hot" new medium it has to be electronics, which is still in its infancy. We may see a period of winds plus electronics, but a period of interest in winds alone is remote at best. If music education is to improve it will have to reflect and impart a much more total picture of the literature and practice of music than any band, wind ensemble, or any other single performing group can provide by itself. The wind ensemble is a step in the right direction, but it is not the ultimate answer.

Footnotes

1. Jack Mercer, The Band Director's Brain Bank (Evanston, Ill: The Instrumentalist Co., 1970), p. 14.

2. Ibid., p. 15.

3. Richard Colwell, The Teaching of Instrumental Music (New York: Appleton-Century-Crofts, 1969), p. 4.

4. Mercer, op. cit., p. 15.

5. Lamar McCarrell, "The Birth of U. S. College Bands," The Instrumentalist, Vol. 27, No. 3, Oct., 1972, p. 32.

6. Ibid., p. 32.

7. Robert House, Instrumental Music for Today's Schools (Englewood Cliffs, N. J.: Prentice Hall, Inc., 1965), p. 9.

8. Ibid., p. 10.

9. Emil A. Holz and Roger E. Jacobi, Teaching Band Instruments to Beginners (Englewood Cliffs, N. J.: Prentice Hall, Inc., 1966), p. 4.

10. Frederick Fennell, Time and the Winds (Kenosha, Wis.: G. Leblanc Co., 1954), p. 47.

11. Richard Franco Goldman, The Concert Band (New York: Rinehart & Co., 1946), p. 201.

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13. Frederick Fennell, "Inception – From Long Distilled Thoughts," The Instrumentalist, Vol. 26, No. 7, Feb., 1972, p. 17.

14. Ibid., p. 17.

15. Ibid., p. 17.

16. Frederick Fennell, Time and the Winds (Kenosha, Wisc.: G. Leblanc Co., 1954), p. 52.

17. Donald Hunsberger, "The Symphonic Wind Ensemble – An Overview for the 1970's," The Instrumentalist, Vol. 26, No. 7, Feb., 1972, p. 18.

18. Edfield A. Odegard, "The Current Status of the Symphonic Band: The Medium and its Music," Diss. Univ. of Iowa, 1955, p. 40.

19. Ibid., p. 77.

20. David Whitwell, A New History of Wind Music (Evanston, Ill.: The Instrumentalist Co., 1972), p. 75.

21. Ibid., p. 75.

22. Ibid., pp. 78-9.

23. Richard W. Bowles, "Situation Well In Hand," The School Musician Director and Teacher, Vol. 42, No. 2, Oct., 1970, p. 60-1.

24. Richard W. Bowles, "Today's Unknown Composers," Journal of Band Research, Vol. 7, No. 1, Fall 1970, pp. 16-18.

25. Richard Franko Goldman, "What Music is Band Music?", Perspectives in Music Education: Source Book III (Washington, D. C.: M.E.N.C., 1966), p. 115.

26. Charles B. Hunt, "The American Wind Band: Its Function As A Medium in Contemporary Music," Diss. U.C.L.A., 1949, p. 1.

27. Walter S. Hartley, "Reflections on my Symphony for Wind Orchestra," Journal of Band Research, Vol. 9, No. 1, Fall 1972, p. 10.

28. Gale Sperry, "The Position of the Band in Relation to Our Society", The Instrumentalist, Vol. 25, No. 5, Dec. 1970, p. 56.

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INTER-SUBJECT INVOLVEMENT

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One of the problems in teaching is overcoming compartmentalization. Both the Contemporary Music Project (CMP) and the Manhattanville Music Curriculum Program (MMCP) emphasize the need to broaden the scope of music curriculums. "Many of our present modes of instruction and curriculum practices lead to a fragmented view of the total art."[1] The fragmented approach narrows the student's perspective of the total subject through restricted experiences or overemphasis on systematic procedures, which may in turn lead to intellectual closure.[2] "Closure develops when the student's education narrows rather than broadens his intellectual curiosity — when his insights are so confined he is unwilling or unable to make judgments of new experiences."[3]

A statement by Bruner reinforces the need for a broad approach: "Learning that has fallen short of a grasp of general principles has little reward in terms of intellectual excitement."[4] Subjects should be taught in such a way that the initial grasp of general principles may be applied to a variety of specific situations. This "transfer" of general principles to specific situations by students represents true intellectual development. As Bruner states: "The leap from mere learning to using what one has learned in thinking is an essential step in the use of the mind."[5]

Bruner, CMP, and MMCP all help to point out the trend in contemporary educational processes towards elements of Gestalt-field psychology. The central idea of Gestalt-field psychology is "that a thing can best be understood by a study of it as a totality rather than a study of its constituent parts."[6] "More recent Gestalt-field theorists say that learning is a relativistic process . . . relativistic in the sense that insightful learning is concerned with a basic sense of, or feeling for, relationships."[7] MMCP furthers this view by stating that their objectives "cannot be conceived in isolation from one another."[8]

Integration of all the separate subject headings in a particular field into a complete, comprehensible whole, or Gestalt, is a monumental problem, let alone integrating different fields (such as music, art, history, math, natural science, physics, etc.) into the students' thought processes. Separation and specialization of classes is a necessity; however, some attempt should be made to show the student how differing fields may inter-relate with one another. Many general principles of specific fields are applicable to several differing fields of study.

Students who forget all they know about a particular subject as soon as they leave that special classroom are conditioned to do so by the system of compartmentalization and fragmentation in education.

Teachers should, whenever the opportunity arises, give assignments and projects that will force the student to draw on a variety of subject backgrounds. Overcoming narrowness of approach should be one of the objectives of education.

The trend in education should not only be towards a Gestalt of general principles within a subject, but also towards general principles and relationships between differing subjects. What is needed is to extend Bruner's idea (of transfer of knowledge of general principles to specific situations) to include the Gestalt or totality of all education. As stated by CMP: "If we are to broaden the horizons and understandings of all musics — past, present, and future — for our students and future professionals, we, the teachers, will first have to take on the challenge of broadening our approach."[9]

The following is an example of a project that employs a broad, inter-subject approach to such a traditional topic as musical form and analysis. This project involves the student in a variety of subjects including musical form and analysis, music history, general music theory, biography, math, geometry, natural science, botany, art, art history, and ancient history. The project lends itself well to class projects as well as individual reports. It consists of analyzing the first movement of Bela Bartok's "Music for Strings, Percussion, and Celesta" using the Fibonacci Series as a basis.

The Fibonacci Series was discovered by "Leonardo of Pisa, often called Fibonacci, that is, son of Bonaccio. During his life he travelled extensively about the Mediterranean visiting Egypt, Syria, Greece, Sicily, and southern France, and knowledge thus gleaned regarding arithmetic systems used by merchants of different countries was the basis of a notable work, entitled *Liber Abaci*, which he wrote in 1202."[10] The full title of his treatise was *"Liber abbaci a Leonardo filio Bonacci compositus, anno 1202 et correctus ab codem anno 1228.* It was first printed in 1857 by Baldassure Boncompagni, Rome."[11] "This is a storehouse from which for centuries authors got material for works on arithmetic and algebra. The Hindu-Arabic system of numerals was here strongly advocated and illustrated, and the work did much to introduce it into Europe."[12] One of the mathematical problems of the twelfth century which he solved by the series asks the question: "How many pairs of rabbits can be produced from a single pair in a year? It is supposed (1) that every month each pair begats a new pair which, from the second month on, becomes productive; and (2) that deaths do not occur. From these data it is found that the number of pairs in successive months would be as follows:

1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377. These numbers follow the law that every term after the second is equal to the sum of the two preceding."[13]

In this series "(as in the Ø series) each term is equal to the sum of

the two preceding ones, and the ratio between two successive terms tends very rapidly to $\varphi = 1.618$."[14]

$$\text{Ex.} \quad \frac{8}{5} = 1.6, \quad \frac{89}{55} = 1.618\ldots$$

The Fibonacci Series is an approximation of a φ series. A more accurate substitute series would be: 118, 191, 309, 500, 809, 1309, 2118, 3427, 5545, 8972, etc. "One term of this series divided into the other equals 1.6180."[15]

The project may be further extended by researching the relationship between the Fibonacci Series and the Golden Section of φ series. This would involve the student in the ancient history of the Golden Section, its math (use of irrational numbers), and the use of the Golden Section in art and nature. However, without further elucidation it should be understood that the Fibonacci Series is a numerical approximation of the relationships involved in the Golden Section principle. (See Bibliography for sources.)

"The Fibonacci Series reflects, in fact, the law of natural growth."[16] The series can be observed in the growth patterns of many plants. "The Golden Section of a circle, having 360°, subtends an angle of 222.5° on one hand, and 137.5° on the other. It can be observed in a large number of plants; e.g., palms, poplars, catkins, etc., that each bud, twig, or leaf subtends an angle of 137.5° with the next one. Also, each new branch divides the former fields of section according to the rules of the Golden Section: so twig 3 divides the right-hand field between 1 and 2; twig 4 the left-hand field between 1 and 2; twig 5 does the same with the field between 2 and 3, ad inf."[17] (See fig. 1, below) The Fibonacci Series is evident in this illustration in that the field between 2 and 3 is divided by 5, the field between 3 and 5 is divided by 8, and the field between 5 and 8 is divided by 13, etc.[18]

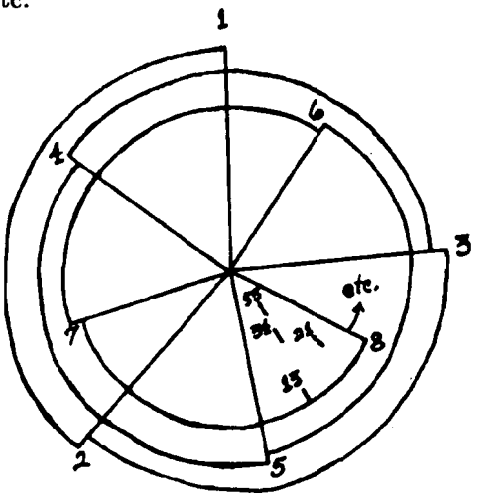


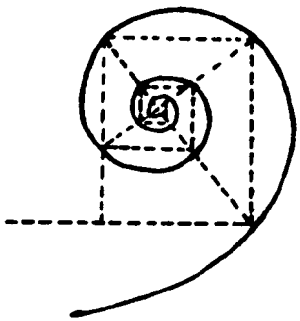
fig. 1

Mr. Hambidge defines phyllotaxis (Gk. phyllon, leaf, and taxis, order) as the distribution or arrangement of leaves on the stem, and the laws which collectively govern such distribution.[19] "The operation of the law of leaf distribution and its connection with the summation series of numbers is explained by Professor Church, who uses as illustration the disk of the sunflower."[20] "The most perfect examples of phyllotaxis easily obtainable are afforded by the common sunflower . . . A fairly large head, 5-6 inches in diameter in the fruiting condition, will show exactly 55 long curves crossing 89 shorter ones. A head slightly smaller, 3-5 inches across the disk, exactly 34 long and 55 short; very large heads give 89 long and 144 short; the smallest tertiary heads reduce to 21-34, and ultimately 13-21 may be found."[21]

Pine cones also show evidence of growth structure which exhibits the Fibonacci Series, especially fir cones. "Proceeding from the center of its disc, logarithmic spirals are seen to move clockwise and anti-clockwise in a closed system where the numbers of the spirals always represent values of the Fibonacci Series. (If we turn the cone upside down, we can also see the system of two spirals along the junction lines of the scales.) Each of the spiral systems contain all the scales of the cone. There are cones which the numbers of the spirals present still higher series values: 3, 5, 8, 13, 21."[22]

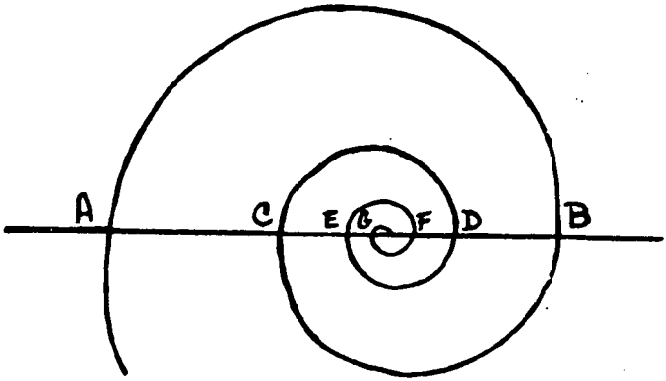
"The mathematical curve most intimately related to living growth and to the pulsations of the rigorous ϕ series and of its approximation, the Fibonacci Series, is the equi-angular or logarithmic spiral in which the angles between the radii grow in arithmetical progression but the radii themselves grow in an exponential progression. This curve has the property of gnomonic growth, that is: two of its arcs are always 'similar' to each other, varying in dimension but not in shape (in the same spiral), and the same applies to the surfaces determined by the vector radii and even the volumes controlled by logarithmic spirals as in marine shells. Each logarithmic spiral is associated to a characteristic rectangle and proportion, and the spirals whose quadrantal proportions are ϕ and the square root of ϕ are the most frequently met with in organic growth and especially shells."[23] (See fig. 2)

fig. 2



The shell that epitomizes this curve is the survivor of pre-historic times, the cephalopod nautilus. The spiral growth curve of the nautilus is illustrated in fig. 3 below. "The diagonals drawn in any direction through the center provide a pattern in which the center always remains in the positive or negative Golden Section of the fields marked A-B, B-C, C-D, D-E, E-F, F-G."[24] (The positive section refers to the larger of the two, and the negative section is the smaller of the two. On a given line divided by a Golden Section measurement, the choice of placing the larger or smaller section first is an arbitrary one.)

fig. 3



The logarithmic spiral, as typified by the nautilus, may be superimposed onto both rectangles and triangles that have been constructed and sectioned according to the proportions of the ϕ series or its approximation, the Fibonacci Series. The rectangle in fig. 4a below has been sectioned three times and the spiral is easily superimposed on the result, as in fig. 4b.

fig. 4a

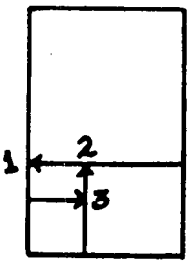
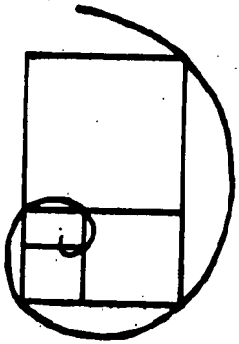


fig. 4b



In fig. 5a on page 81 an isosceles triangle has been sectioned five times according to the divine proportion (each time resulting in another isosceles triangle), and fig. 5b shows how the spiral may be superimposed infinitely if the sectioning is continued.[25]

fig. 5a

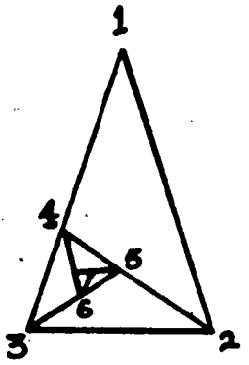
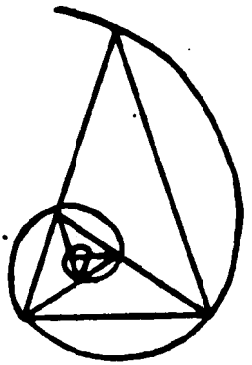


fig. 5b



A logarithmic spiral may be observed to form at the tip of an elephant's trunk when the muscles are relaxed and the trunk curls into its natural shape,[26] and the tusks of the extinct great mammoth also inscribe the infinite spiral.[27]

"You can see the logarithmic spiral at the tip of an unfolding fern leaf — the so-called fiddlehead. If you have a very fast camera and the right kind of light, you can catch the motion of a breaking wave; it too describes a logarithmic spiral."[28]

The principles of the proportion of the Golden Section and the Fibonacci Series have been applied to architecture, sculpture, and painting since early recorded history, and there are numerous books and articles which deal with these principles in works of art. However, few authors have written about the application of the "Divine Porportions" to music.[29] One such author, Erno Lendvai, speaks of musical structures that are based on the Fibonacci Series in his book titled *Bela Bartok, An Analysis of His Music.* In the following paragraphs I will explain Lendvai's premise, and offer some further proposals that will refine his thesis on how the Fibonacci Series may be applied to the first movement of Bela Bartok's "Music for Strings, Percussion, and Celesta."

According to Lendvai, the first movement of Bartok's "Music for Strings, Percussion, and Celesta" may be analyzed in such a way so that significant musical events occur in *groups of measures* that correspond to numbers of the Fibonacci Series.[30] (See Chart I, page 84.)

In order to make his thesis work, Mr. Lendvai requires that an extra measure of silence be added to the end of the movement "in accordance with the Bulow analyses of Beethoven."[31] The author of this paper has not been able to find any references which would verify Bulow's practice of extending Beethoven by a measure of silence; however, when an extra measure of silence is added to the end of the first movement of Bartok's work, the result is eighty-nine measures, the exact number of measures needed to complete the

summation series: 1, 2, 3, 5, 8, 13, 21, 34, 55, 89. (All measures are regarded as equal and time changes are disregarded.)

If accepted that the movement is to be 89 measures long, then it should follow that a Golden Section of 89, (.618 x 89 = 55.002), would result with a division of the movement into two sections, one of 55 measures and the other of 34 measures. The division would be the bar line between measures 55 and 56, and indeed, exactly at this point, the climax of the movement occurs. This is also the loudest point in the movement, and, as shown on the chart, the movement begins pp, gradually crescendos until reaching the climax at fff at the downbeat of measure 56, and then quickly diminuendos down to ppp at the end of the movement.

Each of the two sections may be further divided according to the numbers of the Fibonacci Series. The first section of 55 measures would be divided into sections of 34 measures and 21 measures. Measure 34 is the first entrance of any percussion instrument, (the timpani roll), and also the measure in which the strings begin to remove their mutes.

The dividing line would be drawn, using the Fibonacci Series, between measures 34 and 35. Measure 35 is the first instance of the entire string section playing without mutes.

The first section of 34 measures may be further divided into two sections, one with 21 measures, followed by the remainder of 13 measures. The first 21 measures contain five successive entries of the fugue subject, and the fifth entry ends with a long held G in the first and second basses in measure 21. Measure 22 is the first measure in the movement not containing a statement of the fugue subject, so that the dividing line may be drawn between measures 21 and 22.

After the climax between measures 55 and 56, the remaining 34 measures (with the addition of the silent measure) may be divided again into two sections of 21 measures and 13 measures; however, this time the order of which section precedes, the larger or the smaller, is reversed. In each division beforehand, the larger, or positive, section was always placed first, followed by the smaller, or negative, section. The last 34 measures are divided into 13 and 21. The section of 13 measures after the climax contains diminishing momentum and dynamics, and partial entries of the inverted fugue subject. The division comes between measures 68 and 69, where in measure 69 complete inverted fugue subjects enter in violins III & IV and violas I & II. Also at this point the strings put on their mutes again as in the beginning.

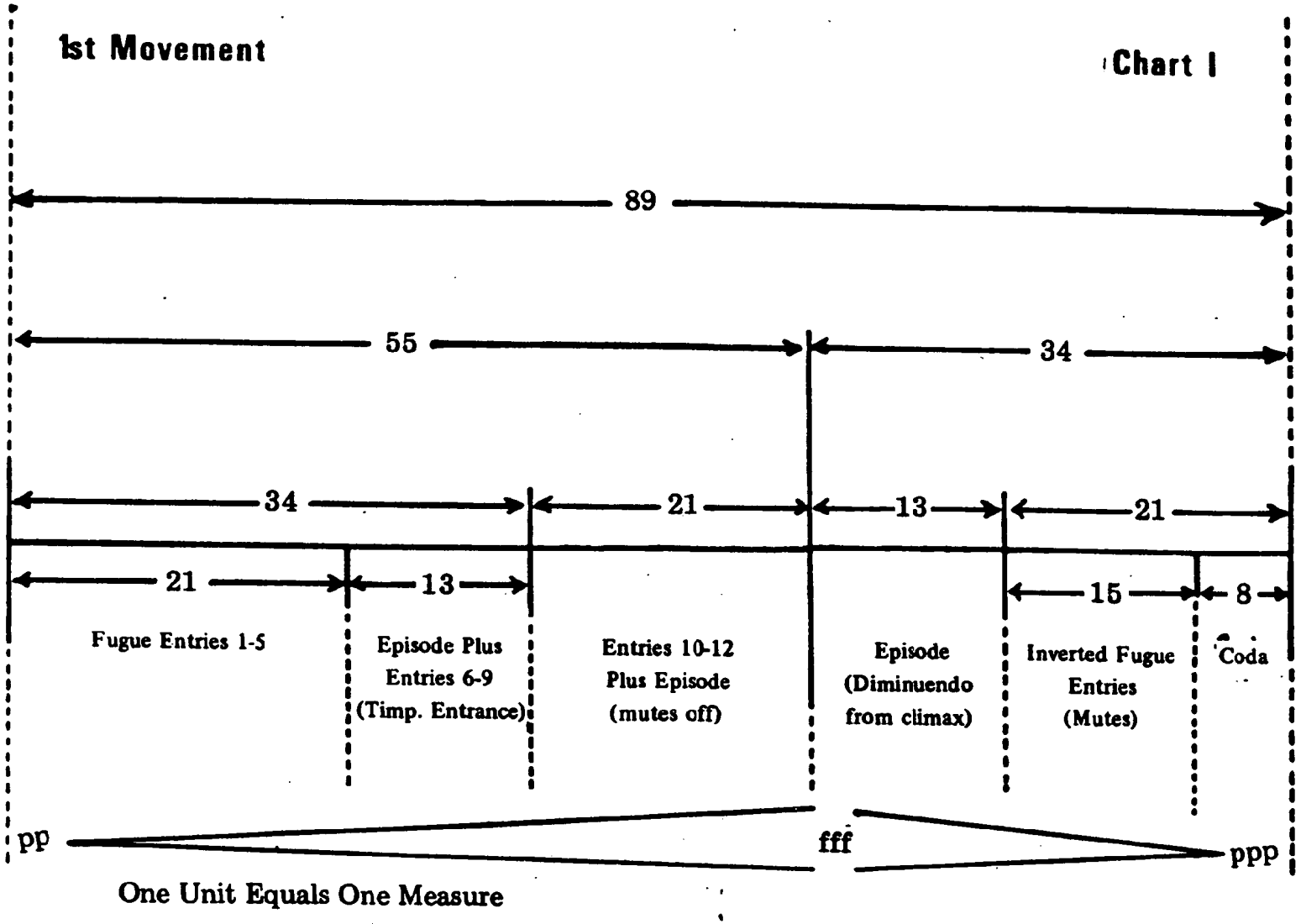
The last section of 21 measures may be further divided into two sections. The division comes between measures 81 and 82. The first section of 13 measures, starting at measure 69, contains the inverted fugue subject entries, and the entrance of the celesta, while violins I & IV play rhythmically distorted fugue subjects, both in original and inverted versions, through the held tremolos and harmonics of the

remaining strings. The last section of 8 measures (including the measure of silence) is a coda. The beginning of the fugue subject is stated, followed by an inverted answer. This idea of subject followed by a stretto inverted answer is repeated until in measure 86, both fugue subject and its inversion are stated simultaneously, note against note, bringing the movement to a close.

By analyzing the first movement of Bartok's "Music for Strings, Percussion, and Celesta" according to major timbral and thematic changes, the number of measures in each section are always numbers of the Fibonacci Series, and the summation of two smaller sections always equals the next integer of the Fibonacci Series in a pyramid-like structure which is constructed of inner triangles of similar shape. (See Chart II, page 85.)

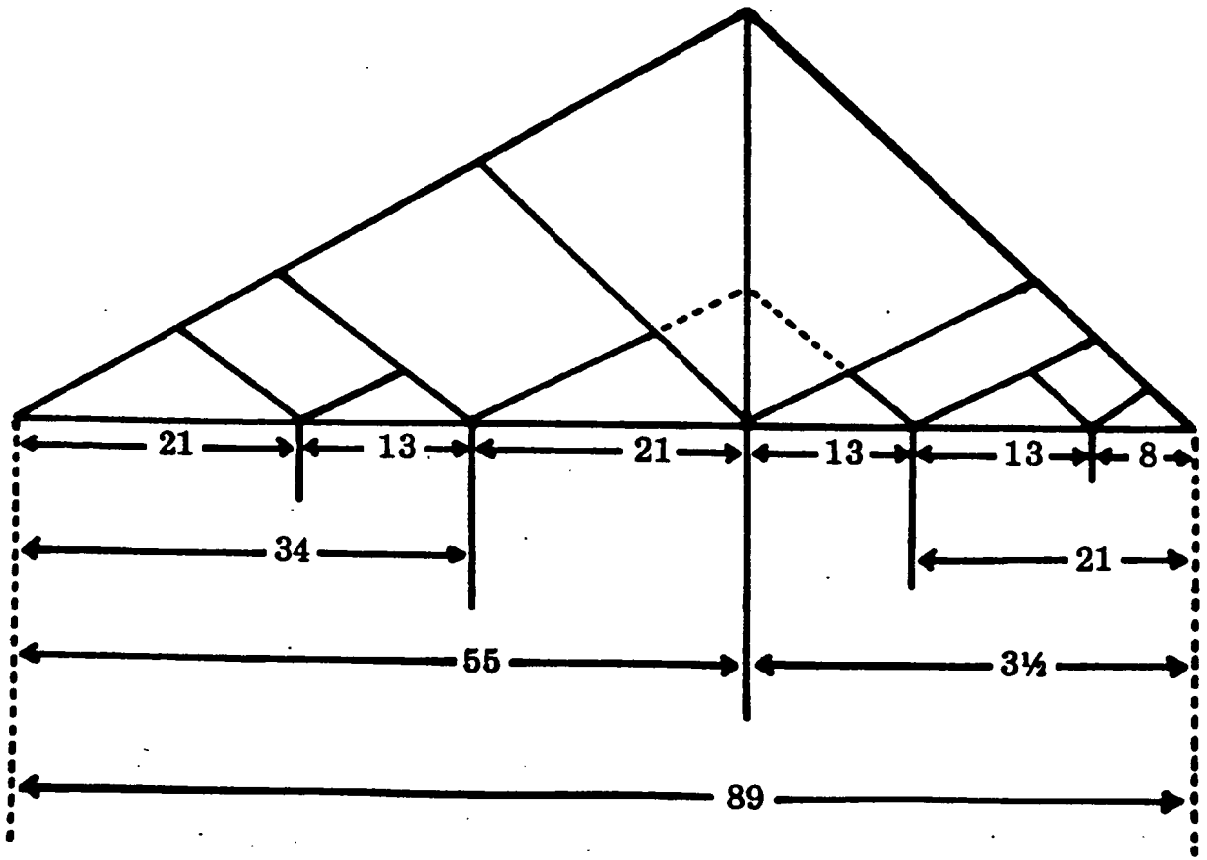
The project could be extended again in three different directions. First, if the students have a thorough grasp of the principles involved in analyzing the first movement according to the Fibonacci Series, then let them proceed to the third movement of Bartok's "Music for Strings, Percussion, and Celesta", and apply the same method to that movement. The second extension could involve intensive reading of biographies of Bartok by students to see if they could find any references as to whether Bartok consciously applied the principles of the Fibonacci Series or the Golden Section to his music. The third extension could be to look for rhythmic illustrations of the Fibonacci Series in music (not necessarily the music of Bartok).

The author hopes that from the above example the reader will be able to see the relevance of inter-subject involvement, and the possiblities it offers for the enrichment of a total education. As quoted before from the CMP, if we, as teachers, are to broaden the the horizons and understandings of our students, we must first take on the challenge of broadening our approach.[32]


1st Movement
Chart I
89
55
34
34
21
13
21
21
13
15
8
Fugue Entries 1-5
Episode Plus Entries 6-9 (Timp. Entrance)
Entries 10-12 Plus Episode (mutes off)
Episode (Diminuendo from climax)
Inverted Fugue Entries (Mutes)
Coda
pp
fff
ppp
One Unit Equals One Measure

1st Movement

Chart II



One Unit Equals One Measure,
One Sixteenth Inch Equals One Unit.

206

86

906

Footnotes

1. Contemporary Music Project. **Comprehensive Musicianship: An Anthology of Evolving Thought** (CMP 5). Washington, D.C.: Music Educators National Conference, 1971, p. 101.

2. Ronald B. Thomas. **Manhattanville Music Curriculum Program: Synthesis** (USOE No. 6-1999), **A Structure for Music Education**. Purchase, New York: Manhattanville College, 1969, p. 5.

3. Ibid., p. 5

4. Jerome S. Bruner. **The Process of Education**. Cambridge: Harvard University Press, 1960, p. 31.

5. Jerome S. Bruner. **On Knowing; Essays for the Left Hand**. Cambridge: Harvard University Press, 1962, p. 124.

6. David P. Willoughby. **Institutes for Music in Contemporary Education: Their Implications for the Improvement of Undergraduate Curricula**. Ann Arbor: University Microfilms, 1971, p. 30.

7. Ibid., p. 31.

8. Thomas. Op. cit., p. 8.

9. CMP. Op. cit., p. 103.

10. Raymond Clare Archibald. **Outline of the History of Mathematics**. Lancaster, Pa.: Lancaster Press Inc., 1932, p. 23.

11. Raymond Clare Archibald. "Fibonacci Series". **American Math Monthly**. Vol. 25, 1918, p. 235.

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14. Matila Ghyka. **A Practical Handbook of Geometrical Composition and Design**. London: Alec Tiranti Ltd., 1964, p. 36.

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16. Erno Lendvai. **Bela Bartok; An Analysis of His Music**. London: Kahn & Averill, 1971, p. 29.

17. Ibid., p. 30.

18. Ibid., p. 31.

19. Hambidge. Op. cit., p. 138.

20. Ibid., p. 1.

21. A. H. Church. **On the Relation of Phyllotaxis to Mechanical Laws**. London: Williams & Wingate, 1904, p. 5.

22. Lendvai. Op. cit., pp. 32-33.

23. Ghyka. Op. cit., pp. 36-37.

24. Lendvai. Op. cit., p. 31.

25. D'Arcy Wentworth Thompson. On Growth and Form. Vol. II. Cambridge: University Press, 1952 (3rd edition, orig. 1917), pp. 761-762.

26. Ibid., pp. 748-750.

27. Ibid., pp. 898-899.

28. Dr. Victor B. Scheffer. "Go Now and Look for Beauty". National Wildlife. Vol. 9, no. 5, 1971, p. 10.

29. For an example of how the Golden Section and the Fibonacci Series were used in Medieval and early Renaissance music, especially the Mass "Missa super Maria zart" by Obrecht (1452-1505), see the text titled "Secret Structure" by M. Van Crevel in Jacobus Obrecht: Opera Omnia. Vol. 1, Part 7. Amsterdam: SRO, 1964, pp. LV-CXLI.

30. Lendvai. Op. cit., p. 28.

31. Ibid.

32. CMP. Op. cit., p. 103.

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THE TWENTIETH CENTURY: A SECONDARY TEACHER'S GUIDE FOR THE INTRODUCTION OF TWENTIETH CENTURY MUSIC WITH EMPHASIS UPON AMERICAN COMPOSERS

Douglas Leonard Turpin
Parkway School District

This paper is based upon the author's dissertation entitled *The Twentieth Century: A Secondary Teacher's Guide for the Introduction of Twentieth Century Music With Emphasis Upon American Composers*, written at Washington University, as partial fulfillment for the degree of Doctor of Music Education. This paper was presented to the Research Division of the Southwest Music Educators National Conference, March 1973.

Intent of the Study

The main objective of this work is to provide the secondary music teacher with certain introductory information that might be pertinent to the study of twentieth century art music. While a general overview is provided which includes the works and compositional techniques of European as well as American composers, the main emphasis is on the American (United States) composer. This came about because most of the important works which deal with twentieth century music place the main emphasis on the European composer. Certainly, all musicians are aware of the important role that the European composer has played in the development of music throughout its history, but often the teacher, as well as the student, is unaware of the significant role the American composer is playing during this, the twentieth century. Even though this work is most specifically designed with the secondary general music teacher in mind, it could also be used by teachers of special classes. For example: (1) the American composer; (2) theory classes; (3) the twentieth century; (4) intermediate or advanced analysis; (5) a twentieth century composition class; and (6) the study of synthesized music.

Need for the Study

Much twentieth century art music, while existing for some seventy-two years, can be traced harmonically to Wagner's *Tristan und Isolde*, or, more especially, to the orchestral transition between scenes one and two in Act One of *Parsifal*. Concerning rhythm, Copland[1] believes that:

> In Mussorgsky's music we find the germ of many of those later rhythmic developments that have so pro-

> foundly influenced all new music. The rhythmic freedom to be found in Stravinsky's early works, and therefore in the works of a whole generation of modern composers is directly attributable to the innovations of Mussorgsky and his fellow Russians.

With the music of Debussy we find not only a disenchantment with traditional forms but an even further disengagement from functional harmony. The Romantic style, as a fertile and creative means of composing, probably climaxed with works such as Strauss's *Salome* and *Elektra*, with Mahler's *Eighth Symphony*, and with Schoenberg's *Gurrelieder*. It was during the premiere years of these works that twentieth century composers began to look for new means of expression. Schoenberg, after his Romantic inclinations, moved quite naturally into atonality while Stravinsky shocked the listener's eighteenth and nineteenth century concept of rhythm with the barbaric pulsations found in his *Le Sacre du Printemps*. From this point on composers have continually searched for different and unique ways to express themselves. This continual experimentation has made it difficult for writers to define clearly the route by which twentieth century music is evolving. But, nevertheless, twentieth century music does exist and the young composer is being influenced by it and, of course, contemporary composers influence one another.

Twentieth century music seems to be the summing up of the entire history of music; a time for composers to utilize all those compositional devices of the past while being unrestricted by the bondage of functional harmony, traditional form, and even those physical limitations inherent in human beings with regard to performance. Today's composer can turn to the computer and synthesizer and create any sound that he is able to imagine. The modern composer is equipped with more compositional techniques, more pertinent historical information, and more ways of having his music performed than in any other time in the history of music. Yet, his music, for the most part, is not performed, nor consumed by the public, or even studied in depth at the university, much less in the secondary schools.

This problem has been defined by many contemporary educators. Youngsberg[2] says:

> . . . Today's adult audiences (and not only the unenlightened ones) generally avoid concerts of contemporary music. They are disturbed by angular melodic lines, dissonant harmonies, and complicated rhythms. They listen in wrath or with boredom and leave at the intermission, if not before.

In other words, " . . . the public has not kept pace with this musical evolution."[3]

When Lukas Foss[4] was asked by the Newsletter of the American Symphony Orchestra League to suggest ways to help audiences enjoy contemporary music he replied:

> That is a very difficult question to answer except with the cliche word education . . . First, your mind has to be opened to the beauty of that particular thing; and how do you open somebody's mind? There is only education for that . . .

Foss, while admitting that education is one way to alleviate that problem, does use the word education reluctantly. This composer, like many contemporary educators, is aware that education in music appreciation and understanding is almost uninvolved with twentieth century music. Archibeque[5] expresses this view when she says, "Traditionally, music taught in the public schools has been predominantly music of the eighteenth and nineteenth centuries." Sherman and Hill[6] write that:

> Except for the limited amount of contemporary music performed at collegiate institutions, and the even more limited number of graduate courses partially or entirely devoted to the music of our time, music education has not arrived at the twentieth century.

Adler[7] shares this opinion and says:

> The truth is, however, that most of our institutions, especially those concerned with higher learning, have perpetuated an outmoded, unscrutinized system of teaching and curriculum for many years now.

Sherman and Hill[8] further acknowledge the fact that a need exists to present, as an integrated part of the curriculum, the music of the twentieth century:

> Technical accomplishments in music during the present century has shown a rate of increase comparable to many of the sciences. As the years pass, the gap between the art and the school curriculum becomes increasingly large. Unless concerted efforts are made to create a music curriculum more independently couched in twentieth century aesthetics and related pedagogy, we will become a nation hopelessly untutored in the music of our own time .

Curriculum reform concerning twentieth century music is needed at all levels of education — kindergarten through graduate school. Grentzer[9] reminds us:

> As teachers we have the development of musical tastes of future generations on our hands. The genius will succeed in spite of us, but the masses depend on us for the exploration of new music and for guidance and insight into an art which, in this century, is diverse and somewhat confusing. We need to remind ourselves that the children who are in the schools today will be the audience of the twenty-first century and they should be schooled as such. . . . the unfamiliar tonalities and musical textures of some of the twentieth century compositions is a 'foreign language' to their Mozartian and Schubertian trained ears.

The Music Lab

One of the first concerns of the writer was the construction of a model music classroom with equipment designed to meet the needs of the contemporary music educator with regard to the introduction of musical dimensions via twentieth century music. The suggested equipment was as follows: (1) ElectroComp Studio Synthesizer; (2) Manual Controller; (3) tape recorders; (4) stereo; (5) general supplies; (6) saw; (7) percussion instruments; (8) piano (for preparing); (9) wire music; and (10) monochord.

Introduction to Musical Dimensions

A series of experiments were then designed for the following reasons: (1) to provide the class with an opportunity to understand specific musical dimensions and the various characteristics associated with these dimensions; (2) to provide an aural demonstration of simultaneities; (3) to demonstrate how simultaneities can affect timbre; (4) to demonstrate through participation some of the rhythmic characteristics inherent to this century; (5) to become familiar with some of the techniques and terminology associated with Electronic Music and *Musique Concrete;* and (6) to learn to use the equipment found in the Model Classroom.

The basic concept of music is that of the organization of sounds and silence. The study of the musical tone is basic to the understanding of organized musical sounds. The characteristics of the musical tone which are studied in this thesis are as follows: "... (1) frequency and pitch; (2) intensity and loudness; (3) growth, steady-state, decay, and duration; (4) portamento; (5) timbre; and (6) vibrato."[10] Simultaneities, simultaneities and texture, and an introduction to rhythm are also included.

In subsequent chapters the writer used selected pre-twentieth and twentieth century European or American compositions to trace the evolvement, often from antiquity, of specific musical dimensions such as (1) rhythm; (2) pitch organization (horizontal and vertical);

(3) texture, density, and harmonic rhythm; and (4) form. These dimensions were further subdivided so that the completed sequence of study was as follows (see below):

Figure I

I. RHYTHM
   - A. The Takt
   - B. The Barline
   - C. Polyrhythm or Cross Rhythm
   - D. Shifting Meters
   - E. Polymeter
   - F. Displaced Accents

II. PITCH ORGANIZATION (HORIZONTAL)
   - A. Codification of Pitches
   - B. Major and Minor Scales
   - C. Other Scales
   - D. Symmetry and Asymmetry
   - E. Diatonic and Chromatic Lines
   - F. Intervals
   - G. Pointilism
   - H. The Tone Row
   - I. Declamatory Style (Sprechstimme)

III. SIMULTANEITIES (VERTICAL)
   - A. Tertian Harmony
   - B. Altered Chords
   - C. Simultaneities in the Twentieth Century (Atonality)
   - D. Serial Music
   - E. Tone Clusters
   - F. Pandiatonicism
   - G. Bitonality
   - H. Musique Concrete
   - I. Hindemith's Harmonic System

IV. TEXTURE
   - A. Heterophony
   - B. Monophony
   - C. Polyphony
   - D. Homophony
   - E. Amphony

V. DENSITY AND HARMONIC RHYTHM

In the concluding chapter formalistic aspects of selected American

(United States) compositions were investigated. Apel[11] defines musical form as "The general principles and schemes that govern the over-all structure of a composition." Paramount among those principles which were considered are: (1) repetitions; (2) variations; (3) contrasts; and (4) development; each of these aspects were discussed with respect to an elementary listening approach. Those compositions selected possessed easily understandable musical elements with regard to content repetition, variation of a theme or motive, and contrasts or development. The reason for these criteria is quite obvious in that most secondary music students would probably be unable to understand the more complex theoretical approaches that are often associated with musical form. If the students understand that music does have form, and are able to listen for certain aspects of this form, then this should suffice during an introductory unit. Composers from the United States were selected because the writer believes that American students should be aware that the American composer exists and is contributing greatly to the music of this century.

Those American composers whose compositions were chosen for analytical study are shown below:

Figure II

Composer	Composition
Charles Ives	Variations on America The Unanswered Question
Henry Cowell	Amerind Suite Short Symphony (No. 4)
Aaron Copland	Orchestral Variations Passacaglia (for piano)
Roy Harris	Toccata for Piano Third Symphony
Roger Sessions	Chorale Prelude (No. 3) Second Piano Sonata
William Schuman	George Washington Bridge New England Triptch
John Cage	Amores
Alan Hovhaness	Sharagan and Fugue

Wallingford Riegger	Concerto for Piano and Woodwind Quintet
Gunther Schuller	Studies on Themes of Paul Klee
Jean Eichelberger Ivey	Pinball
Lejaren Hiller and Robert Baker	Computer Cantata

The writer attempted to present a cross section of works by various American composers in order to illustrate the following: (1) that the American composer, as well as the European composer, is making a valuable contribution to the music of the twentieth century; and (2) that through the analysis and descriptions of the selected compositions the students should be aware that twentieth century compositional techniques are highly eclectic and individualistic in character. Throughout the dissertation the writer attempted to illustrate this individualistic freedom with which the twentieth century composer is able to work. While this freedom of musical expression is highly individualistic, one cannot help but observe the ties this century has with the various other centuries. This is obvious in the terms which have emerged during this era (e.g., the Neo-Baroque, Neo-Classic, etc.).

Certainly, one can now be more optimistic that twentieth century art music will eventually become an intricate part of the school curriculum. This is due, in part, to the favorable publicity which resulted from a number of worthy projects. For example: (1) the *Contemporary Music Project* (C.M.P.); (2) the *Manhattanville Project;* (3) the *Commission on Teacher Education of the Music Educators National Conference* (Task Group III); and (4) the November, 1968, issue of the *Music Educators Journal.*[2] This entire issue was dedicated to electronic music and *musique concrete* and included reports of successful experimentation and implementation of this music within the secondary school classroom.

Admittable, this century and its musical direction are often difficult to predict but, nevertheless, today's composition does exist. It is a part of our heritage; consequently, it should be studied within our educational systems and not shelved as though it did not exist.

Footnotes

1. Aaron Copland, Our New Music (New York: McGraw-Hill Company, 1941), p. 19.

2. Harold C. Youngsberg, "Contemporary Music in the High School," Music Educators Journal, 49:51 + n1, September-October, 1962.

3. Ibid.

4. Lukas Foss, "Symphony Women's Associations, The Composer and the Music," Newsletter: American Symphony Orchestra League, 19:21, n4, August-October, 1968.

5. Charlene Paullin Archibeque, "Developing a Taste for Contemporary Music," Journal of Research in Music Education, 14:142-7, n2, Summer, 1966.

6. Robert Sherman and Robert Hill, "Aural and Visual Perception of Melody in Tonal and Atonal Musical Environments," Council of Research in Music Education, 14:1, Fall, 1968.

7. Samuel Adler, "The CMP Institutes and Curriculum Change (influence of the Contemporary Music Project)," Music Educators Journal, 55:36-8, n1, September, 1968.

8. Sherman and Hill, op. cit., p. 2.

9. Rose Marie Grentzer, "Preparation of the Music Educator to Use the Music of His Own Time," International-American Music Bulletin, 56:1-4, November, 1966.

10. H. F. Olson, H. Belar, and J. Timmons, "Electronic Music Synthesis," Journal and Acoustical Society of America, 32:311, n3, March, 1960.

11. Willi Apel, Harvard Dictionary of Music, Second Edition (Cambridge: The Belknap Press of Harvard University Press, 1969), p. 327.

12. Music Educators Journal, 55:1-177, n3, November, 1968.

MUSIC AND MEDIA

M. Orville Johnson
Independence Public Schools

In November of 1973, the Independence Public Schools in cooperation with the Young Matrons and the Community Association for the Arts, both of Independence, planned and presented an orchestra concert for students in grades four, five, and six, and students in the music classes of grades seven, eight, and nine. The program was financed with the aid of the Missouri Council on the Arts plus additional money from Federal Funds and a small fee from each student.

The design of the concert was to incorporate several media into the presentation of the music, hoping thereby, to present to the young students a more interesting and exciting listening activity.

Mrs. Helen Hollander, a member of the Kansas City Philharmonic Orchestra, has long been associated with "new" ideas for presenting music to young people. Her activity and participation in Young Audience programs has given her insights into how young people respond to music and this has aided her in developing new approaches to the art of listening. Mrs. Hollander wrote the original script for this concert presentation and, with the aid of Miss Aleta Runkle, Vocal Music Consultant for the schools of Independence, and M. O. Johnson, Supervisor of Music Education for the schools of Independence, the script was adjusted to fit the music more precisely.

It was determined that three orchestral selections were to be used with the visual media (slides); two selections would be used with the auditorium organ as a medium; and third, that the students themselves would be included in the singing of the last selection on the program.

The musical program consisted of: 1. "Little Fugue," J. S. Bach; 2. "Fetes" (Nocturne), Claude Debussy; 3. "Wedding Day at Trolhaugen," Edward Grieg; 4. "The Painted Desert," Ferde Grofe; 5. An excerpt from "An American in Paris," George Gershwin; 6. "Jamaican Rhumba," Arthur Benjamin; 7. An excerpt from "Also Sprach Zarathustra," Richard Strauss; and the melody, "It's a Small, Small World" (this last number sung by the students).

In the first selection, the organ played the fugue and emphasized the themes to the development section. The orchestra then played this same music and completed the fugue (Stokowski arrangement).

The auditorium, being almost round, was likened to the world and using the railing as the equator, the several countries of the world to be visited were placed on this imaginary map.

Using three screens and three projectors, and projecting different slides in each of the three projectors (in almost every instance), the

music of "Wedding Day at Trolhaugen" was presented. Slides were changed simultaneously in each of the three projectors every fifteen seconds. Changing three slides at one time every fifteen seconds demanded four slides in each projector every minute. The total number of slides would be determined by multiplying this figure by the number of minutes and seconds demanded for playing the music. The number of slides used in each of the three musical selections ranged from fifty-four to ninety-six.

Slides shown during the Grieg selection consisted of scenery, people, boats, buildings, and dancers (Midsummer Nights Festival).

The music of the "Painted Desert" was selected because of its unique musical structure and because of the beauty of the great southwest of the United States. Slides for this presentation included scenes of the desert, flowers, people, cacti, sunsets, rocks, hills, sand and a few animals. Pictures were changed every ten seconds because the music moves slowly and the mood of the music seems to demand a more rapid changing of the slides.

Paris, with its taxis, honking horns, and bustling crowds seem to go with "An American in Paris" and the slides for this musical number included people, street scenes, well known structures in Paris, taxis, and some art pictures.

Again, the narrator, players of the orchestra, and students were joined together with the sounds so often associated with Paris. Slides were changed on all three screens every fifteen seconds. The music for this selection is much too long for a school concert, but with the help of Mr. and Mrs. Hollander, and the conductor, James Paul, the "American in Paris" selection was reduced in length to about eight minutes. With slides this length, musical selection did not seem to be too long for a student concert.

The young people's concerts in Independence have been a concern of Miss Runkle, Mrs. Hollander and the author each time the orchestra has played for our students. Each concert in the past has tried to utilize "tricks" to hold the attention of the students and we have succeeded, if one can evaluate the attention given by students. Orchestra members, over the years, have commented that school students of the Independence schools have always been attentive and courteous. However, this venture with media gave us cause for concern because it was a new approach for our school concert, and the synchronizing of pictures and music was time consuming in its preparation.

The cost of the slides was minimal for our schools. The author had pictures of Norway and Paris in his personal collection and the use of slides from the libraries of the community and from personal friends provided us with enough material for alternate choices of slides.

The concert concluded with two musical selections again, designed to capture more than the ear. The opening fanfare of "Also Sprach Zarathustra," was played by the orchestra with the use of the pipe

organ (as scored). Again, the students were exposed to the sounds of both media and the action of the organ player (many could see the keyboard of the organ).

To conclude, the students were once again made aware that music is everywhere around the world and it truly is an international language. The theme song of, "It's a Small World," from the Disney production of the same name, was used as the theme song to end our journey. It had been a successful one.

The use of media with music demands organization and planning. Besides the acquiring of media materials, the person responsible for coordinating the music and the slides must spend time listening and arranging the slides to fit the music. It often takes more than one person to view the slides to come to a satisfactory conclusion concerning the appropriate pictures for the corresponding music.

In most instances, recorded music can be obtained of the same music that will be played by a performing group and trial runs are suggested if the program is to be coordinated properly. Operators of the several projectors were made aware of the total program and the necessity of the synchronization of music and slides. High school students, knowledgeable in the use of projectors, were used as assistants and were of great help in the setting-up of the equipment for the rehearsals and the actual concert.

Conclusion

As a result of this experience, it was determined that any school system could present this kind of a music-media program. Given one screen, a projector, a quantity of appropriate slides, corresponding recordings of music, and a good record playing system, this interesting and exciting music-media program can enhance the usual sit-down-listen musical program.

This experiment in music-media concert was certainly not an experimental study, but teachers did note the reactions of students to the presentation. The author noted that the immediate audience response to the "Painted Desert" selection was more vigorous than to the two selections of "An American in Paris" or the "Wedding Day at Trolhaugen." The sights of the desert may have been meaningful to more students while the sights of Paris and Norway were interesting but not personal. Elementary school instrumental students were not all in agreement that the pictures added to the music except for "The Painted Desert." Other comments from elementary school students reported by vocal music teachers were: "Kept my attention," "We liked the slides with scenery," ""The Painted Desert' was beautiful," "Perhaps pictures for one musical selection would have been enough," "Three screens were too many," "Students liked the music played in this concert," "The music was a little too much alike," "Pictures did bother some students," "Liked 'The Painted Desert' pictures and music," "Best concert, ever."

The reader can note that not all who attended the concert were impressed in the same manner. Teachers were not impressed to the same degree, but visitors to the concert conveyed the feeling to us that the pictures and music constituted an unusual experience, completely satisfying.

Comments by John Haskins, the music critic of the Kansas City Star newspaper, were a part of a birthday salute to the Philharmonic orchestra and a review of what that group of musicians do for all kinds of audiences during their performance year.

By John Haskins, Music Editor

"... There are 53 concerts for children represented in that seasonal total of 132 public appearances as a performing ensemble. It is the least publicized (unhonored, unsung) and in many ways one of the most worthwhile activities of our resident orchestra, amounting to nearly one-half of the season's work. The statistic itself is impressive, but who among the adult auditors downtown of a Tuesday or Wednesday night at the Music Hall knows what a concert for elementary school children is like?

Set the scene. It is a raw windy day early in November. One stands at the rear entrance to the R.L.D.S. Auditorium in Independence just after 9:30 in the morning, puffing a cigarette and wishing there were another post-breakfast cup of coffee at hand. School busses arrive in quantity at the bottom of the parking lot. Children swarm toward the vast building like lemmings ocean bound. They are shepherded by teachers, who formed them up at the door for a last-minute word before entering ("Look, you guys, show those people you are sixth-graders and know how to behave, right?"). It takes a chap brought up in the parochial system with nuns running formations by the numbers to appreciate a line like that.

There were 4,700 children that morning, all drawn from the Independence school system. It took about a half-hour to get them into the building and settled into seats, and the program began precisely at 10 o'clock. The concert, jointly sponsored by the Independence Community Association for the Arts and the Young Matrons Association of Independence, brought to mind Alexis de Tocqueville's famous remark, that "Americans have a genius for organizing privately to accomplish a public good."

It was an extraordinarily well-behaved audience that greeted associate conductor James Paul when he stepped up to the podium. Aleta Runkle of Independence, working from a script prepared by Helen Hollander of the Philharmonic's first violin section, served as narrator for the hour-long concert. It began with the Bach "Little Fugue" in G Minor, played first on the Auditorium's 109-rank Aeolian-Skinner organ by Delores Bruch, then by the full orchestra in Leopold Stokowski's celebrated transcription.

The program moved to Claude Debussy's "Fetes," to an Edvard Grieg musical depiction of a rustic wedding in Norway, to a Ferde Grofe evocation of the Painted Desert from his "Grand Canyon Suite," to the Paris of the 1920s as realized in Gershwin's tonal essay, "An American in Paris," and finally, to the Jamaica of Arthur Benjamin as expressed in his dancy Jamaican Rhumba." Then there was a sing-along. The orchestra played the Disney World tune, "It's a Small, Small World," in an arrangement by Lawrence Hartshorn of the Philharmonic's woodwind section, and thousands of treble voices sang the simple words most persuasively.

Throughout the program colored slides were projected onto a pair of large screens to provide a visual focus suited to the music. It was a good concert, to be seen as well as heard, thoroughly entertaining and nicely paced. One left the hall humming that treacly Disney World tune (Hartshorn: "Those Disney composers seem to live on a diet of marshmallow").

It is a salutary, perhaps even a therapeutic thing, for a jaded music critic to be exposed to a youth concert from time to time. There, in another world, he can be reassured that musical performance designed for a young audience need

not be presented in a patronizing way. The emphasis – as it should be – is on enjoyment, and who can say how much of it happily carries over into adulthood.

That Independence concert was a good example of what the Philharmonic is doing in its 41st season for the youngsters. . . ."

November 25, 1973, Kansas City Star Newspaper

Script

K. C. Philharmonic Orchestra-Independence Public Schools

Good morning. I like to think of this great round auditorium as a sort of world. That's the North Pole up there (point), and the balcony rail is the equator, and here's North America, South America, Europe, Africa, and all the rest — we can't see Asia very well because it's night time there. Now in our world one language is spoken, but everybody understands because the language is music. Let's listen to our world's voice, the great Auditorium Organ played by Mrs. Delores Bruch. 'Voices,' I should have said, for it will speak through many throats — which are actually pipes —, starting softly, as though just one lonely little instrument is singing, and then another will join, and another, and another, until we have a whole symphony of instruments. But notice how each instrument, when it enters, starts at the beginning of the song. It's like the beginning of a day, which is always happening somewhere in our world as it turns around the sun.

Bach Little Fugue – Exposition – Organ

If you had gone to school in Germany 300 years ago, your class might have visited a cathedral to hear the composer, Johann Sebastain Bach, playing this piece on the organ. There was no United States in Bach's time, nor did people in Germany know much about music in other parts of the world. But I like to think that Bach, in writing for what was then the world's mightiest instrument, imagined all the rich, colorful kinds of sounds made by instruments from all over the world, which were brought together after his time to form the great symphony orchestras of today. Let's listen to the K.C. Philharmonic, conducted by James Paul, performing Bach's work as he may have imagined it 300 years ago. It starts with a lovely little oboe . . .

Bach – Stowkowski

The music of Bach has become world music. World music is great music; it brings people together, just as we are all together here from different countries and continents — so we are pretending. We could truly say the world has grown smaller!

As our world turns, it's morning in one place, right over there (point), in a little village in Southern France, near the Mediterranean Ocean, not far from Africa. Already the sun is so hot you can almost

smell it, and so bright that the widewalk and streets on the town square seem to shimmer. Schools are closed and everybody is there, for it's a holiday, a day to celebrate by wearing your best clothes and having spending money for ice cream or anything else you might want to buy at little stalls around the square. Laughing, excited, sunblinded, you wander about with your friends, but suddenly — just at high noon — there is a great silence. Everyone is listening, scarcely breathing, and you shade your eyes to see far off in the shimmering distance. Soon you're breathing to a rhythm — you can't tell when it started, that sound of drums and marching feet. I'll let you wait to watch the parade for yourselves. Do notice, when the parade is over and the people have gone home, the quiet little breeze that comes to blow around the dusty, empty square. It blows the litter, and somebody's forgotten cap, and the glittering particles of dust which, in the setting sun, have become golden.

Fetes — DeBussy

We have just watched a parade in a little village on the Mediterranean. I'm sure you'll agree that, through music, our world grows smaller. Time too is quicker, for the sun — around which we keep turning — is about to rise again, this time in the North, in a wild, beautiful country called Norway. Once the land of the Vikings who first sailed around the world, Norway is still a land of ships and sea ports. Mountain rivers, called fjords, have cut deep gashes down through snowy rocks to wind and flow in misty freeways to the ocean.

Today we are celebrating a wedding. Already the band has assembled and fiddlers are tuning up. Notice how gay the music is, while people cook and clean and get out holiday clothes, or run out to market and, of course, down to the wharf to buy fresh fish. Later, at the quiet little church on the mountain, we will find the bride and groom alone together for a few minutes before the ceremony. After the feasting and dancing, they will say goodby to their beloved Norway and sail out into the sunset, like their Viking ancestors before them.

All this the music describes. Wistfully, for it is like Norway itself — a land so beautiful nobody ever really wants to leave!

Lights Out

WEDDING DAY — GRIEG

Does music ever stop? No. As our world turns, somewhere, always, people are making music. Even in lonely places.

(Ad lib 3-note chromatic theme of Painted Desert)

How does a lonely cowboy feel as he rides through a desert near the Grand Canyon of our great West? What does he see, and as he looks, what does he imagine? The music tells the story as our world turns, this time to a day in our own U. S., in a place so awesome, mysterious, and beautiful, it has been called 'The Painted Desert.' How many times our world has turned to form this desert, as old as the sea for it was once a sea itself! The mystery of eternity is shown in the music's rhythm of 3, and in its theme which, as we approach, seems to have been going on — like the 'Painted Desert' itself — and will go on, forever.

Painted Desert – Grofe

In all the world, could any city be gayer and busier than Paris! As our world turns, it's right over there (point) where the taxis are honking —

(Sound taxi horn several times)

— taxis carrying crowds of tourists to see famous buildings, arches, churches, fountains, parks, restaurants, cafes, theatres, night clubs, and, well, everything is famous in Paris! And everyone is stylish and gay.

(American in Paris – Gershwin; to fermata at 1st cut)

But there is one American tourist, a composer named George Gershwin, who is homesick! Wherever he goes he keeps hearing inside of him the music he loves — the blues, made popular by the playing of black musicians in his United States. Could anything be more American in Paris!

(To second cut)

Finally, tired of sight seeing, while sitting in a Paris street cafe, our American tries to cheer himself up by imaging he is on New York City streets listening to jazz.

(To third cut)

George Gershwin's music has become world music, for it is loved everywhere. But especially in Paris!

(Finish, American in Paris)

Lights on again

As our world turns once more, there is just enough time to visit a country near the equator, in a little group of islands known as the West Indies. One of them over there (point) is called Jamaica, a tropical land of sugar cane, coffee, coconuts, citrus fruits, bananas. And beautiful music! Perhaps as famous as American jazz are the Jamaican dances called 'rhumbas,' with their many kinds of rhythm instruments — instruments which would have defied the imagination of Johann Sebastian Bach! They have become a part of every symphony orchestra, and so a part of world music.

(Ad lib rhythm of Jamaican Rhumba)

As you listen to these instruments, you might see how many you can recognize. Notice especially — which instrument plays the very last note.

Jamaican Rhumba – Benjamen

Did you hear the last note?, let's hear it again. Yes, the tympani!

Today, with this great round auditorium as our world, we have been able almost to reach out and touch our neighbors in other countries — to be with them, and even to speak to them, through the mighty international language of world music.

(Opening to Zarathustra – Strauss)

But there is another international language, a terrible language, yet one everybody understands. That language is war! In every country out there (point), let's all stand and sing a song of the small, small world we have known today, which can be some day — if we all keep singing the beautiful language of world music — a world of peace!

It's a Small Small World

Abstract

THE STRUCTURAL METHOD OF TEACHING MUSIC LISTENING, GRADES K – 9

Sister Mary Tobias Hagan, Ed. D.
Washington University, 1972

The main objective of the dissertation is the organization of the content of music learning in Grades Kindergarten through Nine with a change of emphasis in the method of teaching. The structural, conceptual approach implies two things: (1) that the organization of the subject matter to be taught be based on the instrinsic structural dimensions of that subject; and (2) that learning experiences be planned so that the learner can conceptualize these intrinsic dimensions, their function and interaction.

The structural, cyclic theories of Jerome Bruner provide the organizational foundation of the subject matter of music for this work. The paper contains (1) a clear definition of the structural dimensions of music that is applicable to all music, whatever its origin; (2) a statement of what there is to learn about these dimensions and their interactions that can feasibly be taught from kindergarten through the ninth grade; (3) a spiraling order of the material to be taught from the easiest to the most difficult.

The bulk of the dissertation consists of lessons based on specific musical works, eighteen lessons for each grade level. The core activity of the lesson is listening, with other musical activities used in so far as they contribute to aural perception abilities.

The curriculum is designed for the average student, not only the one who shows special interest in music. Its long range objective is the ability in each student to make objective factual judgments about the music he hears.

Theories of Jean Piagret regarding child development underlie the choice of activity and method of student involvement with music at various age levels. Theories of David Ausubel regarding readiness, discovery, and practice underlie the selection of teaching method and the sequence and frequency of the encounters with specific material.

The actual music used in the lessons represents every historical era, a variety of musical media, and various ethnic sources.

Abstract

AN UNGRADED GUIDE TO THE ORGANIZATION OF THE ELEMENTARY GENERAL MUSIC CURRICULUM IN THE PUBLIC SCHOOLS

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Washington University, 1973

The primary objective of the paper is to construct an ungraded elementary general music spiral curriculum for the public schools. The philosophies of pragmatism and instrumentalism were studied in conjunction with aesthetic principles and their relationship to music education. From this examination evolved a personal philosophy which guided the development of this curriculum. In addition, the learning theories of Jean Piaget and Jerome S. Bruner, and the theories of instruction of Asahel D. Woodruff were examined because of their relevance to current thought and practice in music education.

A complete description of the basic aims and goals of the music curriculum is given, relating the difficulties in writing and achieving behavioral objectives in music education, the function of those aims and goals, and the process involved in formulating the aims and goals of music education. In addition, the music activities to be developed in elementary general music education are described.

A complete elementary general music spiral curriculum is given, containing the following dimensions: Rhythm, Dynamics, Form, Pitch Organization, Timbre, Texture, and Simultaneity. Objectives, materials needed, teaching strategy, musical activities utilized are given. The curriculum is constructed in seven cycles with an ungraded approach to music learnings.

Finally, a description is given of the music personnel needed for the implementation of such a curriculum, including a director, supervisory staff, and teaching personnel, the role of each, and the qualification that each staff member should possess.

Finally, supervisory problems relating to the successful functioning of the elementary music curriculum are discussed in some detail.

Abstract

THE MISSOURI HARMONY, 1820–1858: THE REFINEMENT OF A SOUTHERN TUNEBOOK

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The tunebook and the singing school emerged as two of the most important developments in early-American music. Allen D. Carden's, *The Missouri Harmony*, was one of the outstanding shape-note collections from the first half of the nineteenth century and the first tunebook from Missouri. Carden traveled west in the year 1820 to establish a singing school in St. Louis, and subsequently compiled the tunebook for use in his own classes. At that time, however, St. Louis did not possess a font of type for setting shaped-notation and the actual printing took place in Cincinnati.

Between 1820 and 1858, there appeared nine editions and twenty-one issues of Carden's book. Editions were repeatedly designated as "Revised and Improved," "Latest Improved Edition," or "New Edition, Revised, Enlarged and Corrected." A note-by-note comparison of all editions was made to establish the authenticity of these repeated claims of editorial revision. It was found that the first eight editions were characterized by simply a resetting of type but contained no changes in the musical aspects of the tunes or their settings. The revisions were in the form of correcting printing and notational errors (e.g., incorrect shapes, inaccurate placement of a note on the staff, notes inadvertently placed in the press upside down, and so forth).

In 1835, a Supplement specifying "By An Amateur," was added to *The Missouri Harmony*. Effort was made to determine the identity of this "Amateur." Although insufficient existing records prevent positive identification, Timothy Flint has been advanced in this paper as a possible candidate. The Prefaces to Flint's tunebook and that of Carden contain identical statements and similar objectives. Flint had numerous occasions to become acquainted with both Carden and his tunebook, and was active in Cincinnati in 1834, just prior to the publishing of the 1835 edition of Carden's book. The Supplement contains "a Number of Admired Tunes of the Various Metres, and Several Choice Pieces, Selected from Some of the Most Approved Collections of Sacred Music." In contrast to the other sections of *The Missouri Harmony*, the voice parts are designated in each selection and the treble voice is assigned the tune.

The revising of the ninth edition in 1850, was undertaken by Charles Warren at the request of the publishers. Warren was a noted Professor of Music in Cincinnati at the time and described as a "scientific musician." While Warren retained the tunes and general

format of Carden's book (including the complete theoretical introduction), the settings were found to be quite different. *The Missouri Harmony*, a southern tunebook, had become "northernized" through the refinements made by Warren. Gone were the parallelisms, unprepared and unresolved dissonances, incomplete and ambiguous sonorities, retrogressive patterns, and lack of coincidence between strong textual and metric accents. The settings were polished and refined.

An examination of the changes taking place in the musical and academic life of the period revealed the necessity for Warren's revisions. His refinements clearly represented the efforts of a northern, "scientific musician" to retain the popularity of Carden's four-shape collection while confronted with the rising competition from seven-shape collections, the progressive improvements espoused by the academic musical practices (forged originally by Timothy and Lowell Mason), and the growing refinement of taste on the part of the public by the middle of the nineteenth century.

Abstract

ELEVEN SELECTED WOODWIND CONCERTOS OF JOHANN MELCHIOR MOLTER

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The present dissertation is an exploration of eleven woodwind concertos of one of the neglected composers of the early eighteenth century, Johann Melchior Molter (ca. 1695-1765). The works examined comprise three flute concertos (HSS 314, 315, and 326), three oboe concertos (HSS 305, 312, and 313), one bassoon concerto (HS 341), and four clarinet concerts (HSS 302, 304, 334, and 337). Of these works, only the clarinet concertos are available in modern edition; the rest lie in manuscript in the *Badische Landesbibliothek* in Karlsruhe, West Germany. In order to present a useful, comprehensive study, the seven manuscript works were placed into a modern edition.

The dissertation is in two volumes: Volume I contains background material on Molter and an analysis of the instrumentation, form, rhythm, harmony, and melody in each of the eleven concertos; Volume II contains an edition of the seven flute, oboe, and bassoon concertos, prepared from microfilms obtained from the *Badische Landesbibliothek Karlsruhe*. It is the editor's intent that the edition preserve the composer's indications as closely as possible.

Molter's instrumental writing includes idiomatic solo parts, some of which require performers of a high artistic level. His scoring for ripieno strings, though less exacting, nonetheless challenges with

diatonic runs, rapid reiterations, and occasional melodic skips. Orchestral textures, primarily those which support the soloist, are often subtly varied with diverse instrumental combinations.

Each work analyzed possesses five staves of score — soloist, violin 1, violin 2, viola, and basso, and all follow the three-movement, fast-slow-fast plan of Torelli and Vivaldi. Molter prefers, in his opening allegros, five or more tuttis in the progressive Vivaldi style; his second movements allow maximum solo exposure, the tuttis often serving simply as prelude, postlude, and interlude; the finales normally abound in tuttis, may be binary or non-binary, and usually are more orchestral than soloistic. The simple regularity of the throbbing basso-continuo is the principal rhythimic characteristic, with more progressive rhythmic ideas expressed by streams of patterns (i.e., triplets, dotted values, Lombards, syncopation, *et al.)* and intensified through after-beats, anacruses, and phrasing irregularities.

The keys of the concertos are both idiomatic to the solo instruments and functional in their harmonic relationships. Molter favors the tonic-relative minor-tonic relationship between movements. Within each movement the series of key centers customarily reflects the pattern, tonic-dominant-mediant (or sub-mediant)-dominant-tonic. Unusual dissonance and modulatory interest are found in a few instances. Homophony rules the harmonic texture, with only rare samples of contrapuntal employment.

In melodic terms Molter shares with his peers the disposition toward firm, key-establishing themes in his opening movement tuttis. Typically, his finale themes are dance-like. He tends to offer contrasting themes in tutti and solo, a penchant which anticipates the Classical principle of thematic contrast. Lyricism is displayed in the slow movements, and the uncommon beauty of these adagios is most impressive.

The conclusion derived from this study is that Molter was an excellent composer, adventurous in his use of instruments, craftsmanlike in his application of existing compositional traits, and intensely expressive in his handling of slow movements. Woodwind instrumentalists have rarely been served as well by one composer, and to the limited repertory for that group of instruments, Molter's works may be commended with dignity.

Abstract

TWENTY-ONE AVANT-GARDE COMPOSITIONS FOR CLARINET PUBLISHED BETWEEN 1964 AND 1972: NOTATIONAL PRACTICES AND PERFORMANCE TECHNIQUES

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The three principal objectives of this study are as follows: first, to examine the notational practices used for the clarinet in twenty-one *avant-garde* compositions published between 1964 and 1972; second, to examine the performance techniques found in the clarinet parts of these compositions; third, to organize the resultant information as a compendium and guide to *avant-garde* clarinet music for advanced clarinet students, teachers, and performers.

The scope of this study is limited to pieces which fall into one of the six following classifications: (1) compositions for clarinet alone; (2) clarinet and piano; (3) clarinet and percussion; (4) clarinet and tape; (5) clarinet with ensemble (only four players); (6) compositions for unspecified instruments. Publishers, composers, professional clarinetists, and university clarinet instructors/performers were asked to recommend for this study compositions published between 1960 and 1972 which contained new notational practices or performance techniques, such as multiple sounds, key clicks, and special articulations. Additionally, a thorough examination was made of the clarinet music in the libraries of Northwestern University, the University of Chicago, and the University of Missouri-Kansas City.

The criteria resulted in the following twenty-one compositions: *B, a, b, b, it, t* by Donald Martino, *Concert Music for Solo Clarinet* by John Eaton, *Mosaik* by Hans U. Lehmann, *Revolutions* by Paul Zonn, *Strata* by Donald Martino, *Variants For Solo Clarinet* by William O. Smith, *Aria No. 1* by Elliott Schwartz, *Barnard I* by Barney Childs, *Current* by Larry Austin, *Diversions* by David Eddleman, *Essays In Sound* by Jeno Takacs, *Drawings: Set No. 3* by Sydney Hodkinson, *Essence Of Ampersand* by Raymond Weisling, *Sources III* by David Burge, *Entropic Islands* by Roberto Laneri, *Piece for Clarinet and Tape* by Edward Miller, *Doubles* by Don M. Wilson, *Echoi* by Lukas Foss, *Free Music* by Stanley Lunetta, *Graphic Mobile* by M. William Karlins, and *Towers* by David Cope.

In Chapter I, the twenty-one compositions are discussed in alphabetical order by title within the six aforementioned classifications. The compositions are identified by title, composer, publisher, and date of publication. The annotation of each composition includes the following: general appearance, range, *tempi*, dynamics, performance directions, duration, type of staff, pitch, rhythm, notational symbols, and a general summary.

In the discussion of pieces for clarinet and piano, clarinet and percussion, clarinet and tape, and clarinet with ensemble, the emphasis is primarily on the clarinet part. Information relative to the function of other parts is included only to show relationship to the clarinet part and/or to aid in the understanding of the overall background of a particular work.

Chapter II contains three different indices of all notational symbols found in the compositions selected for this study. The first index includes symbols employed to indicate performance techniques such as multiple sounds, key clicks, and special articulations. The second index includes symbols used to indicate various musical parameters, such as dynamics, *tempi*, and pitch. The third index contains combined performance techniques, such as air sounds with key clicks, flutter-tongue with trills or *tremolos*, and multiple sounds with *glissandi*.

The nature of this study dictated the use of numerous musical excerpts and notational symbols. All musical excerpts and most notational symbols have been photocopied to aid in the presentation of this paper.

Abstract

SOME PROBLEMS OF OPERA PRODUCTION IN THE SMALL COLLEGE AND SELECTED APPROPRIATE REPERTOIRE

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Purpose. — The purpose of this paper is to (1) discover and identify some of the problems faced by those who produce opera in small colleges and (2) to examine and present a variety of operatic literature suitable for use in this kind of situation, including the production requirements.

Procedure. — It was anticipated that in the small college situation there would be difficulties in following the accepted patterns of operatic production due to possible limitations in almost every area: singers, orchestra, theatrical facilities, production staff, and finances.

Two questionnaires were sent to the operatic directors of representative small colleges in an effort to obtain an indication of the problems actually encountered. The first inquired about problems the respondents encountered in five areas: singers, orchestra, theatrical facilities, production staff, and finances. The second requested information regarding specific operas produced by the respondents and some of the production details, how each opera was accompanied, if it was staged, and if there were cuts made in the score.

Using the results of the questionnaire responses as a guide, selected

examples of small-scale operas and opera scenes were examined. These works required a small number of singers of advanced ability, small orchestral resources, and limited theatrical resources. Thus, because they minimize or eliminate many of the production problems faced by small college opera producers, the chosen examples represent the best type of literature for the small college opera producer to utilize.

Result. — The following conclusions were reached: (1) A majority of the small college opera producers responding to the questionnaires do have problems in each of the five areas covered: singers, orchestra, theatrical facilities, production staff, and finances. (2) By careful selection of the repertoire used in his program, the small college opera producer can either alleviate or avoid these problem areas and thus maintain a viable program of opera in his situation.

Abstract

A STUDY OF PAUL HINDEMITH'S USE OF THE TROMBONE AS SEEN IN SELECTED CHAMBER COMPOSITIONS

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The purpose of the dissertation is to analyze and compare the scoring techniques used in the trombone parts in Paul Hindemith's chamber works. The ten compositions in the study include all the chamber works in which the trombone was scored and were analyzed in terms of the following criteria: pitch range and *tessitura*, dynamic range, melodic interval frequency and pattern frequency, types of articulation, trombone solos, trombone as the bass voice of the ensemble, special techniques employed, and the B^{b} tenor versus B^{b}-F tenor trombone. The conclusions found in the analysis of the above criteria are summarized in the final chapter of the study.