

PEDAGOGICAL APPLICATION OF FLUTE
STUDY TO TEACHERS' NEEDS

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ABSTRACT

PEDAGOGICAL APPLICATION OF FLUTE

STUDY TO TEACHERS' NEEDS

by Charles E. Osborne

The importance of a capable flute section to a band or orchestra is self-evident. As a concert-goer, performer, music educator and adjudicator, the writer has been made aware of and is concerned with the many problems indigenous to this group. The rôle of the flute has been a prominent one in the orchestra for many years. Today, the flute section of the band has been growing larger and the flute has been given an increasing importance and prominence in the contemporary literature. Bands of today are greatly superior to those of just a decade ago and the music that they perform is comparably more difficult and demanding of the flutist. Thus the modern concert band and orchestra require a well-trained flute section. It is the aim of the writer to provide a reference to and a solution of the many problems attendant to the proper playing of the flute.

The fundamental problems included in this study are listed as follows: The study of basic flute acoustics,

assistance in the selection and care of the instrument, correct tonal and technical concepts, breathing problems, embouchure study, proper fingerings, harmonics, a problem and its solution in the teaching of vibrato, remedial literature, solos, ensembles, recordings of flute music, and related areas are included.

The text of the dissertation is a compilation of the philosophies and techniques of many teachers documented by books, articles, unpublished manuscripts, periodicals, bulletins, pamphlets, interviews, and recordings, selected from the great amount of available material on the basis of utilizing the ideas and research of the recognized authorities in the field. The study of vibrato that is reported in this dissertation made use of the fluoroscope, consultations with members of the medical profession, and experiments connected with the apparent source of the flute vibrato. A different approach to the teaching of vibrato is a significant result of this particular phase of the dissertation.

The major findings of the study are the solutions, as well as can be determined from research, to the problems mentioned in the preceding paragraphs.

Charles E. Osborne

In summary, the aim of this dissertation is to provide the teacher with documented supplementary material that is organized into one complete source, and in its total concept, to be a means of improving the quality of flute instruction in the schools of our country.

PEDAGOGICAL APPLICATION OF FLUTE
STUDY TO TEACHERS' NEEDS

By
Charles E. Osborne

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PREFACE

This study of the flute has been made to assist the instrumental teacher. It contains concepts and technical approaches to flute playing and teaching that are not generally introduced in basic method books. The text is a compilation of the philosophies and techniques of many teachers documented by books, articles, periodicals, bulletins, pamphlets, interviews, unpublished manuscripts and recordings selected from the great amount of available material on the basis of utilizing the ideas and research of the recognized authorities in the field.

The element that often means the difference between the development of a good musical organization and one that is mediocre is the technical capacity of the instructor and the instrumental ability of the students. The director's responsibility is to find a means of analyzing, isolating and correcting any such deficiencies. It is hoped that herein the instrumental director may become acquainted with ideas that will fit into his own philosophy and pattern of flute teaching, and further, that it will stimulate independent thinking and subsequent critical evaluation of his present methods.

The writer acknowledges with appreciation his indebtedness to Dr. William R. Sur, Chairman of Music Education at Michigan State University and to Dr. Russell E. Friedewald, Associate Professor of Flute and Theory at Michigan State University, for their thoughtful criticisms and recommendations. The author also wishes to thank Miss Ada Berkey, Reference Librarian at Western Michigan University for her kindness and wise assistance.

Last, but not least, the author wishes to express his gratitude to his wife, Dorothy, without whose support and encouragement this would probably not have been written.

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DEFINITIONS OF TERMS USED

Definitions of terms used peculiar to the subject are given in the body of the text in conjunction with the individual aspects with which they may be associated.

Concert pitch is used, octaves being identified as follows: piano middle C (which is low C on the flute), equals C-4, third space C equals C-5. (See chapter VI)¹

The fingers are named thusly: thumb, first, second, third, fourth (little finger), and not as in "continental" piano fingering nomenclature.

The five grades of difficulty for the lists are:

Grade I--mainly for first year instrumentalists.

Grade II--for those definitely beyond the beginning stages.

Grade III--for those who have acquired some technique.

Grade IV--for advanced instrumentalists.

Grade V--mostly for college or professional players.

¹Since this dissertation is mainly aimed at band and orchestra directors, the system of naming notes in their respective octaves is the one used by The Instrumentalist magazine. This magazine is perhaps the most widely read of the professional organs and it is surmised by the writer that this system would be the one most comprehensible to the reader.

INTRODUCTION

The importance of a capable flute section to a good band or orchestra is self-evident. As a concert-goer, performer, music educator and adjudicator, the writer has been made aware of and is concerned with the many problems indigenous to this group. The necessity for a study of this nature has been in the author's mind for the past ten years.

The rôle of the flute has been a prominent one in the orchestra for many years. Today the flute section of the band has been growing larger and the flute has been given an increasing prominence in the contemporary repertoire. Bands of today are greatly superior to those of just a decade ago and the music that they perform is comparably more difficult and demanding of the flutist. Thus, the modern concert band and orchestra require a well-trained flute section.

The fundamental problems included in this study are: acoustics, assistance in the selection and care of the instrument, correct tonal and technical concepts, proper fingerings and procedures, vibrato, remedial literature and other related areas. To present possible solutions to these problems can contribute to a higher standard of performance by the flutists in bands and orchestras.

The aim of this thesis is to provide the teacher with supplementary material and be a means of improving the quality of instruction.

CHAPTER ONE

A SHORT HISTORY OF THE FLUTE

The flute is one of the oldest wind instruments known to man, and its development is an account of genius in the field of evolution. The fundamental principle of the flute was probably discovered thousands of years ago by some Neanderthal or Cro-Magnon man, when he noticed that the soft wind blowing across the top of a broken reed made a pleasant sound. Some of the better examples of early instruments that have come down to us today are the bone flutes found at Bornholm, Denmark dating from about 3000-2500 B.C.¹ Two thousand years ago the poet Lucretius embodied in verse the age-long tradition that the whistling of the wind over hollow reeds was gratifying to the ear.² These observations required intelligence of the highest type in primitive man and they take their place alongside this early person's awareness of numbers and time.³

¹Karl Geiringer, Musical Instruments, trans. by Bernard Miall (London: Allen and Unwin, 1945), p. 159.

²Francis Galpin, A Textbook of European Musical Instruments (London: Lowe and Brydone, 1937), p. 56.

³Curt Sachs, The History of Musical Instruments (New York: W. W. Norton and Co., 1940), p. 44.

No doubt that centuries passed before our remote ancestors rose to an intellectual stature which enabled them to comprehend that low notes came from long reeds and high notes came from short reeds. To combine these reeds of varying length like the pipes of a organ to make the well-known syrinx or pipes of Pan was a major innovation. The Egyptians played this ancient flute long before they wrote history. In their mythology the invention of the syrinx is credited to Osiris, the great god of the underworld. Thus do they prove the existence of the syrinx long before recorded history.⁴ Plato was acquainted with the pipes of Pan, and in his dialogue, The Republic, he has Socrates engage Glauco, a musician, in conversation concerning these primitive flutes. It is evident that Socrates does not think well of these early instruments, saying that they were bad for the morals of the people. He amplifies this statement by saying that no women can listen to the Lydian pipes and remain virtuous, concluding that they should be banned from his ideal state.⁵

⁴Nicholas Bessaraboff, Ancient European Musical Instruments (Boston: Harvard University Press, 1941), p. 44.

⁵Plato, The Republic, trans. by Francis M. Cornford (London: Oxford University Press, 1960), p. 85.

Hundreds of years after the syrinx was conceived, another great musical discovery came to light. Somehow, holes were burned or worn in the body of the syrinx, and as a result, the player found that he could get sounds of various pitches by covering or uncovering the holes.⁶ Although the syrinx survived for centuries, it was finally supplanted by this newer type of flute.

The flute with holes in its side is found among all primitive peoples of the world. Next to the drum, it is one of the most common musical instruments of which we know. It is made of every conceivable material capable of forming a tube through which holes can be pierced. Flutes have been made of cane, wood, pottery, stone, metal, leather, and bones. The Surinam Indians of Guiana, South Africa, had the gruesome custom of making flutes from the shinbones of their slain enemies. The shinbone, or tibia, (the Latin name for flute is tibia) of animals has always been a choice material for making flutes.⁷

Ancient peoples were fond of the flute. It played a prominent part in the lives of the Egyptians, Hebrews and

⁶Richard S. Rockstro, The Flute (London: Rudall Carte Co., 1928), p. 131.

⁷Rockstro, p. 134.

the latter developed flute playing to a great art, as they did other arts. Flute contests were held as a part of the athletic games, and there was a keen rivalry for the flute playing honors as well as for athletic prowess.⁸

The fourteenth century marked the departure of having flutes blown in two different manners. Some flutes were blown across the end and we know them today as flageolets, which were slightly different from the recorders, beak flutes and recorders, or English flutes. Other flutes were blown from the side and were called transverse, or German flutes. After the fourteenth century, the end-blown flute generally gave way in many parts of Europe to the side-blown flute, and today this is the type with which we are familiar. After 1700, the end-blown flute was forced from popularity in favor of the superior transverse, or German flute. Bach and Handel wrote for both types of flutes, but by the time of Haydn the flageolet was no longer generally found in the orchestra.⁹

⁸H. Macaulay Fitzgibbon, The Story of the Flute (London: Walter Scott Co., 1914), p. 10.

⁹Albert Riemenschneider, The Use of the Flutes in the Works of J. S. Bach (Washington D. C.: The Library of Congress, 1950), p. 10.

When the flute began to take its place in the first orchestras it was by no means the instrument it is today. It was a plain wooden tube, usually of yellow boxwood, sometimes cocuswood or grenadilla, pierced with finger holes only. Although the more expensive models were ornamented with rings of ivory at the joints and the edge of edges of the bell, their musical possibilities were no greater than the unadorned ones.¹⁰

With the awakening in instrumental music which was taking place in the sixteenth and seventeenth centuries came an interest in improving the musical resources of the instruments. Around 1677 came another invention in the history of the flute, the invention of a key.¹¹ Musicologists are not at all certain as to who invented the first key, but whoever did this rendered a service to musicians. (Apparently, the D# tone on the flute was the most difficult for the musician to play in tune and it was this key that was invented.) Players tried boring holes in the body of the flute to make the D# sound, but finally evolved the idea of using a hinge

¹⁰ Rockstro, p. 139.

¹¹ Adam Carse, Musical Wind Instruments (London: Macmillan and Co., 1939), p. 84.

as a fulcrum, a pad for covering the hole at one end and a spatule at the other, which was within easy reach of the little finger of the right hand. A spring was placed under the spatule end of the key which raised this portion in the air and depressed the other end, thereby keeping the hole covered.

Strange as it may seem, it required another half century for the invention of the second key. The supposed new perfection of the flute of this age kept anyone from thinking there could be any additional improvements. Now that the player could play D#-4 it was assumed that the millennium of the flute had arrived.

The greatest virtuoso of the day was Johann Joachin Quantz (1697-1733), who is famous as the instructor and flute maker for Frederick the Great of Prussia and later as court musician during all of Frederick's reign.¹² Imbued with the musical thought that enharmonic differences should be recognized, Quantz finally came to believe that there was a slight shortcoming in the flute which he had been taught to believe was perfection itself. He conceived the idea of a second key, a key which would correct the final error in this almost

¹²Rockstro, p.151.

"perfect instrument." Accustomed to playing sharps and flats with due recognition of their enharmonic differences, Quantz could not accept for Eb the note which was produced when the D#-4 key was depressed. Quantz was unable to rest until he had corrected this fault, so in 1726 he finally evolved another key for the playing of Eb. Quantz's conception of meantone tuning resulted in having the diatonic semi-tone D to Eb one fourth greater than the chromatic semi-tone D to D#.

Although the Eb key did not long survive, Quantz made another improvement which we find today on our modern flutes. This improvement is the moveable cork in the head-joint which was supposed to tune the octave D's, but is used in modern flutes as an aid in repairing dents in the head-joint. (Repairmen remove the cork and insert tools into the head joint which will remove all traces of dents in the tube-- see chapter III.)

Quantz's second invention, the sliding head-joint, was made in 1752. He describes it in his autobiography:

At this time I was able to invent the sliding headjoint of the flute, by means of which it is possible to change the pitch of the instrument by as much as a half step in either direction, without changing the middle-joint and without sacrificing the purity of tone or accuracy of intonation.¹³

¹³J. J. Quantz, "Herrn J. J. Quantzens Lebenslauf," Historisch-Kritische Beytrage, ed. by Marpurg, Vol. 1, p. 249.

More keys were added in the intervening years, but it remained for one person to transform the flute into one of the most perfect of all wind instruments. This person was Theobald Boehm (1794-1881). Before entering into the discussion of Boehm's contributions to the development of the flute, it is important to bring to light the controversy between Boehm and Captain William Gordon (1790-1858). The controversy arose out of the fact that both men, seeking independently, and apparently about the same time, to improve the old style flute, hit on a new key system using ring keys which were so designed that when one tone hole was closed by the player's finger, other holes along the body of the instrument would also be closed, or opened, simultaneously.¹⁴ The idea of the ring key was not in itself a new invention, but the application of it that both Gordon and Boehm made to the flute was an innovation. The Boehm-Gordon controversy would probably never have arisen but for the fact that the two men met one another while each was seeking to perfect his own invention, and this, of course, gave a basis for later accusations that one or the other had stolen the idea for subsequent improvements. Gordon, it would seem, had no special mechanical skills by

¹⁴Fitzgibbon, p. 49.

which he could translate his ideas into a practical reality. In fact, with Boehm's cooperation, Gordon engaged the services of one of Boehm's skilled flute makers to make certain improvements. Gordon himself acknowledges his debt to Boehm for the use of certain mechanisms. Gordon's earlier versions, as well as his later modifications, remained basically clumsy and impractical and they were never fully accepted by contemporary flutists. This lack of success is probably responsible for Gordon's subsequent illness and the aggravation of what was generally regarded as his mania over improving the flute. Gordon was eventually confined to an asylum, where he died.

In contrast to Gordon, Boehm was a highly skilled craftsman and well-schooled in the science of acoustics. The results of this skill were evident in the eminently practical application which he made of those ideas he shared with Gordon. Boehm's new system met with a far greater degree of acceptance for this reason. The ultimate success of Boehm's improvements on the flute rests in the fact that he perfected the instrument not only from a mechanical standpoint but acoustically as well. Where Gordon's invention met with virtually no acceptance, Boehm's subsequent improvements were successful. The fact that within a very few years after

Boehm's perfection of his instrument so many players were willing to change over to the new system would seem to establish the correctness of calling our modern flute the Boehm rather than the Gordon system.¹⁵

Having established Boehm as the most likely inventor of the modern flute, it is important to trace the development of Boehm's work in more detail. Boehm was unable to obtain flutes made according to his wishes, so in 1828 he set up his own factory and began the building of flutes as he felt they should be made. Boehm was a goldsmith by trade and his knowledge of this craft was of great use to him. He was dissatisfied with the intonation of the flute of his day and produced, after hours and days of tedious work, a flute with fourteen holes, all of the same size and spaced along the flute for more accurate intonation. Here was the most accurately built chromatic scale that had ever been constructed.¹⁶ He solved the seemingly unanswerable question of how eight fingers and a thumb could cover fourteen holes with the application of the ring key.

¹⁵Fitzgibbon, p. 167.

¹⁶Carse, p. 94.

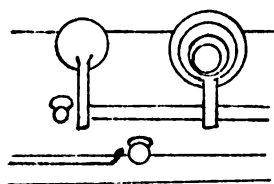


Figure 1
Diagram of Boehm's Ring Key

To an acoustically correct chromatic scale and ingenious application of the ring key, Boehm contributed still another feature, open keys. The first D $\sharp$ -4 key had been a closed key, that is, it was sprung closed with a spring and was opened by pressing down on the spatule end of the key. The open key works in a manner exactly opposite from that of the closed key. It is mounted so that it is poised above the hole and the pad covers the hole when the spatule is depressed by the finger. Boehm chose open keys because he saw that they could be manipulated faster and with greater ease than closed

keys, for in order to spring a closed key shut tight, enough so that the hole could not leak, a stiff spring must be used. To open the hole the finger must overcome the action of the stiff spring. The open key, on the other hand, requires a spring stiff enough only to keep it from dropping over the hole, and it takes little strength of the finger to overcome such a light spring and depress the key. Light action meant speed and ease of operation, and that was what Boehm was striving for from the outset.

In 1847 Boehm produced an even more radical flute. He had taken up the study of acoustics and had applied some of the laws of sound to the practical building of the flute. He had established as most efficient that tube which is thirty times as long as its diameter. He also found that the defective high and low notes could be made to sound better by making the flute cylindrical rather than conical. His new flute was therefore cylindrical rather than conical except for the head-joint, which was shaped like a parabola, or truncated cone.¹⁷

¹⁷ Webster defines the parabola as a curve formed by the intersection of a cone with a plane parallel to its side. Webster's Approved Dictionary (New York: World Pub. Co., 1955), p. 709.

Although our modern flutes are built with the open system, catalogs of the manufacturers of these instruments carry a phrase which is more or less confusing to the non-flutist. Flutes may be had with closed G# or open G#, but in the United States most flutes are closed G#. The famous French flutist Coche is responsible for this confusion because he objected to the open G# and subsequently reversed the action to a closed G#. This took place in 1838, and seems to be the standard action for the present day flutists. Technically speaking, history shows that a man named Dorus actually conceived the idea of reversing the action, but Coche made some insignificant changes and made it popular with the flutists.¹⁸

Few important changes have been made since Boehm finished his flute in 1847 with the exception of Briccicaldi's thumb Bb key in 1849. (This key aids in the facilitation of speed in keys of one flat or more by placing the thumb on a short lever directly beside the B natural key.)

Almost all of our flutes today are made of metal. At first there was much criticism of the metal flute on the

¹⁸Adrien Girard, Histoire et Richesses de La Flute (Paris: Grund, 1953), p. 16.

basis that it had an inferior tone quality. Boehm himself seemed a little doubtful on this subject but finally straddled the issue by saying much depended on the taste of the individual player.¹⁹ The English flute players of today still feel quite strongly on this subject as they prefer the wooden flute to the metal.^{20,21}

Besides being one of the most pleasant sounding voices of the orchestra and band, the flute is the most agile of the wind instruments, being surpassed only by the violin in its technical capabilities. This great ability and agility is due to the fact that the acoustics of the flute are almost perfectly worked out and also that the key mechanism is exceptionally close to the body of the flute, which makes it extremely light in action and lightning fast in response.

¹⁹Theobald Boehm, Die Flöte und das Flötenspiel in akustischer, technischer und artistischer Beziehung (Munich: J. Abel, 1871), p. 54.

²⁰Anthony Baines, Woodwind Instruments and their History (London: Faber and Faber Ltd., 1957), p. 55.

²¹Gerald Jackson, "A Talk for Flautists," Woodwind Book (London: Boosey and Hawkes, 1958), p. 48.

CHAPTER TWO

ACOUSTICS OF THE FLUTE

A basic knowledge of the acoustics of wind instruments is indispensable to a thorough understanding of fingering and tone production factors on these instruments. (This chapter will be specifically concerned with the acoustics of the flute.) The nature of air columns, harmonic series, overblowing of partials, shapes of tubes, and resonators are all important aspects of wind instrument acoustics.

The first concept necessary for the student of wind instruments to understand is that all wind instruments are constructed of tubes or pipes. In order to produce a tone on these instruments, the air within the tube, which is called the air column, must be set into vibration or motion by means of edge tones or vibrating bodies such as lips or reeds. The lowest tone produced when the air column is set into vibration by means of a vibrating body is called the first partial or fundamental tone. If a pipe such as a flute is blown with more force or with a different tongue setting, the next higher tone of the harmonic series is produced. This is known as the second partial and is one octave higher than the first partial. The principle of blowing faster air to produce the higher

partials is called overblowing. As the velocity of the air is increased, the pitch of the vibrating body becomes higher and new partial tones are produced.¹ These partial tones make up the harmonic series as shown in figure 2. This chart indicates the relation of intervals between the partials. The position of the fundamental (or first partial) may vary, but the relationship between the partials above the fundamental note (or first partial) is always constant.

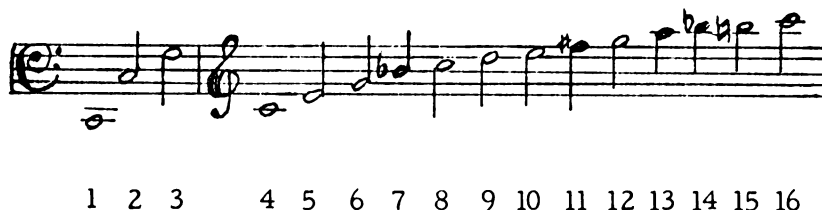


Figure 2
From Musical Acoustics by Charles Culver,
Copyright 1956, McGraw-Hill Book Company,
Inc. Used by permission.

¹Hall and Kent, The Language of Musical Acoustics
(Elkhart, Indiana: C. G. Conn Co., 1957), p. 5.

Without changing the length of the tube, players of such instruments as the trombone, trumpet, and flute, by means of breath pressure, lip, and tongue action alone, can produce eight or nine of the tones of a single harmonic series. (The discussion of the utilization of the harmonics of the flute as applied to performance and lip control will be taken up in chapter VI.) By changing the tube length, these players are able to vary the fundamental and thereby secure other partials of the harmonic series. Other instruments can produce more than eight or nine partials. In fact, numbers up through the eighteenth of the series are possible on a French Horn.²

The flute family constitutes the only group of instruments constructed of an open cylindrical tube.³ To vividly demonstrate the acoustical properties of an open and closed tube, a flute head-joint may be used. It will be noted that the open joint will overblow an interval of an octave, which is characteristic of an open pipe. When the open end of the head-joint is covered with the right hand an interval of a twelfth is overblown. This is characteristic of all closed

²Vernon Leidig, Contemporary Brass Technic (Hollywood: California: Highland Music Co., 1960), p. 6.

³Percy Buck, Acoustics for Musicians (London: Oxford University Press, 1938), p. 84.

tubes, when overblowing from the fundamental or first partial to the third partial. It can also be clearly demonstrated by playing on the head-joint that the fundamental of the closed pipe on the flute head-joint is approximately one octave lower than the open pipe fundamental. (It will be slightly out of tune due to "end correction." If the reader wishes to pursue this further, reference to Musical Acoustics by Charles Culver will explain more completely.)⁴ An open pipe or conical tube thirty two feet long will produce a tone of 17.6 vibrations per second while a closed pipe thirty two feet long will produce a tone of 8.8 vibrations per second at the same approximate room temperature.⁵

In order to produce a musical tone on a wind instrument, it is necessary for a vibrating medium to set the air column into "sympathetic vibration." This principle is known as resonation.⁶ In the case of the flute family, vibrations are set up by a column of air impinging on the sharp edge of the blow hole, which in turn, produces edge tones. This is

⁴Charles Culver, Musical Acoustics (New York: McGraw-Hill Co., 1956), p. 181.

⁵Vernon Leidig, Contemporary Woodwind Technic (Hollywood, California: Highland Music Co., 1960), p. 6.

⁶Hall and Kent, p. 12.

done much the same as a telephone wire humming in a breeze, when rapid moving air passes by the wire. It is believed that when air is blown against the sharp edge of the embouchure plate on the head-joint of the flute, whirls of air swing into the pipe causing air compression and rarefaction (the act of condensing and thinning out of the air) within the tube.⁷

When an air column is set into vibration, nodes and anti-nodes are produced. A node is the position within a tube where the air particles are most static, or the place where the least movement occurs. Anti-nodes are produced where displacement of air is most evident. When the fundamental is produced in an open or conical tube there will be one node produced in the air column. Compressions and rarefactions travel inward from the ends, meet, and are reflected at the central node. In the case of the closed pipe, this point of reflection can take place only at the closed end of the pipe. Therefore, only the odd numbered partials can be produced.

By analyzing the tones of the flute, one finds that it is characterized by an extremely low harmonic content.⁸

⁷Culver, p. 185.

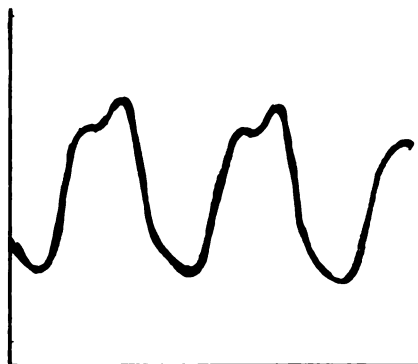
⁸Culver, p. 200.

Figure 3 shows representative waveforms of a high and a low note, and figure 4 depicts the corresponding spectra of these two tones. (See page 23.)

It will be observed that the tones in the upper register contain only a small percentage of a single upper partial, and when sounded softly, they frequently have no overtones present. In the middle register, there are traces of upper partials, but the fundamental predominates. In the lower register the tone is characterized by a somewhat greater harmonic content. If the lower register is sounded loudly, the tone color changes decidedly, the octave and the fourth harmonic predominating. There is no completely satisfactory answer to the question of why an open pipe instrument yields a tone having so low a harmonic content. However, certain aspects of the case may be examined with interesting results. In the string instruments one finds that, for the higher tones, there are few upper partials. Theory shows that, not only in the case of the strings, but for high frequencies in general, the higher harmonics have only a small amplitude; and this is particularly noticeable in the case of sonorous air bodies.⁹ In the situation of the flute, the nature of the tone-generating

⁹Culver, p. 200.

High



Low

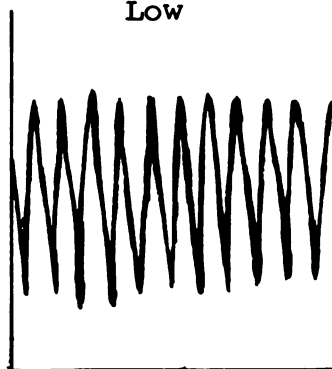


Figure 3. Waveforms of Two Flute Tones

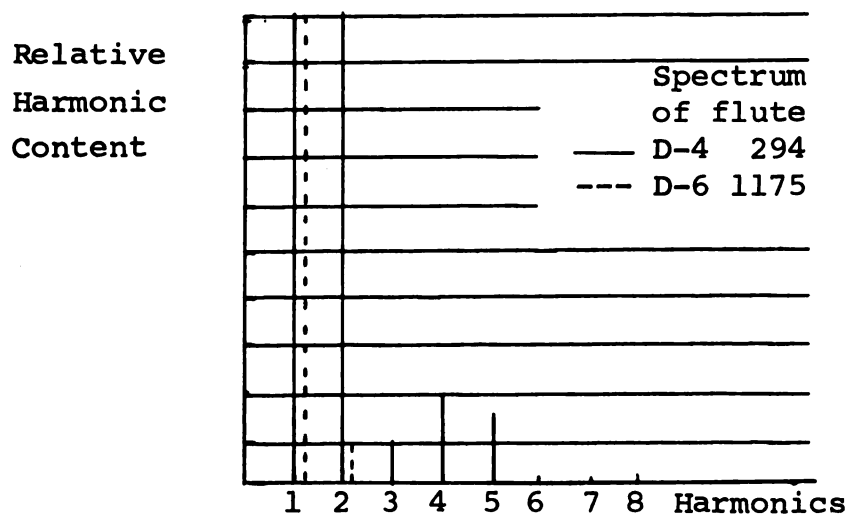


Figure 4. Spectrum of the Flute

From Musical Acoustics, by Charles Culver. Copyright, 1956.
McGraw-Hill Book Company, Inc. Used by permission.

process probably tends to make the higher upper partials inharmonic and hence only feebly emitted. The nature of the material of which the tube is made also appears to have an appreciable effect upon the harmonic content of flute tones. Dayton Miller, who has exhaustively examined the functioning of the flute, concludes that instruments made of platinum, silver and gold have a somewhat greater harmonic content than those made of wood.¹⁰ This would agree with Boehm's contention (as stated in the previous chapter) that there was not a great deal of difference between the materials used in the making of a flute. However, modern technics of scientific research and new machines for measuring have detected a slight difference in the harmonic content. Boehm felt, however, that the material really did not make a great deal of difference in the sound of the flute and that it should be left to the discretion of the player.¹¹ It would appear that the density of the material and its elasticity are both factors in the case. Edgard Varèse was so impressed with the rich sound of the platinum

¹⁰ Dayton C. Miller, "The Influence of the Material of Wind Instruments on the Quality of the Tone," reprint from Science, Vol. XXIX, (New York: 1909), p. 60.

¹¹ Theobald Boehm, The Flute and Flute Playing, second revised edition, trans. by Dayton C. Miller (New York: McGinnis and Marx, 1960), p. 38.

flute that he composed a work for that instrument entitled Density 21.5, which is the density of platinum. The work was dedicated to Georges Barrère in 1936. He owned one of the first platinum flutes in the United States. The work was written for and performed at the New York World's Fair. There are those who feel that a metal instrument yields a "liquid" tone, particularly suitable for solo work, while one made of wood (cocus, ebony) exhibits a rich mellow tone which is useful in orchestral work.¹² (The author has grave misgivings as to the universal acceptance of this idea.) The weakness of the upper partials makes the instrument particularly useful in connection with accompaniments for the soprano voice, as, for instance, in the flute obbligato in the Mad Scene from Donizetti's Lucia, in "Lo Hear the Gentle Lark," by Bishop and in the arias of the numerous cantatas of J. S. Bach.

For the mechanically and intellectually adept person, a chapter on the making of a flute is contained in the book Horns, Strings and Harmony.¹³ Chapter ten contains information on the making of the keys and also has the complete

¹²Culver, p. 201.

¹³Arthur Benade, Horns, Strings and Harmony (New York: Anchor Book Co., 1960), Chapter 10, p. 256.

schema for placement of the holes on the body of the flute,
based on Boehm's extremely accurate acoustical principles.

CHAPTER THREE

THE FLUTE

Selection and Care

The most effective teaching methods will not be rewarded if the student is hindered by faulty equipment. A student may, unknowingly, confuse the mechanical failings of an instrument with his own inability to learn, and drop out of the instrumental class. "It's good enough for a beginner," is a woefully false guide.

Consider the challenge the student accepts when he starts to learn a new instrument. While playing just one note he is expected to:

1. associate a note name with a finger pattern
2. maintain the value of the rhythmic pattern
3. interpret and apply a key signature and meter signature
4. control the tongue and lips to start and maintain the tone
5. consciously regulate the breathing
6. place his fingers on the right keys to produce the correct pitches.

It is the teacher's responsibility to the student to help him select an instrument and to check the instrument periodically. This chapter is dedicated to the selection and maintenance of the tool with which the student works--the instrument.

The school music director's assistance is often solicited by the parents in the selection of a flute for their child. Most frequently, the director must be guided by the only two yardsticks that he has, namely, the brand name or reputation and price.

The brand name can be a reliable help in selecting an instrument only if the director knows whether or not that particular manufacturer is producing and selling an adequate product. Price and reputation will help in determining which of these producers is selling the best instrument in most cases, although reputation might prove to be a more certain yardstick of quality. The greatest risk lies in buying a second-hand instrument, in which case the price would have no bearing at all. In the writer's opinion, the safest method of ascertaining the relative value or playability of any flute, new or used, is to consult the nearest professional flutist. (One must be certain, however, that he has no commercial connections.) He would be most anxious to help as he

is dedicated to his work and to the promulgation of the flute. Generally speaking, the price range of the professional model flute would be about \$470.00 and up. The student models would be about \$137.00 to \$350.00.¹

The prospective buyer will want to ask these questions when considering the purchase of a flute.

1. Are there any pads that are leaking in an instrument that is new?
2. Look at the key which lies between the first and second fingers of the left hand. Does it go down completely and cover properly? (This is the Bb key.)
3. Are the springs strong enough?
4. Does the flute have the necessary keys for the student's needs? (Closed G#, Bb to B trill, C to D trill.)
5. Is the finish adequate or does it need refinishing in regard to student's used flutes?
6. Is it a recognized brand name flute with an adequate and appropriate guarantee?²

There are four types of metal that have been satisfactorily used in the construction of a flute. They are: solid silver,

¹Music Instruments (Evanston, Illinois: The Instrumentalist Co., 1960), p. 100.

²Mary Louise Nigro Poor, The School Music Director's Guide to Flute Teaching (Dekalb, Illinois: Pri. Print., 1952), p. 16.

German or nickel silver, gold and platinum. A well-made wooden instrument free from cracks or warping, with silver keys, is also quite satisfactory. It is interesting to note that the flute is the only member of the woodwind family that has been successfully manufactured from a metal instead of wood and the metal flute is used almost exclusively in this country today. In England, however, it is still quite common for many flutists to use wooden flutes. Of the aforementioned metals, solid silver and plated metal are the only two that come within the financial means of most players. While the platinum instrument has perhaps more advantages for the professional flutist, tests on all four types of flutes have not proved any great difference of quality in tone produced.³ Therefore, this discussion shall exclude the gold and platinum flutes.

In discussing the less expensive materials used, one finds that silver plate is the most widely used. Some manufacturers have certain models with solid silver head-joints and silver plated bodies. The thesis is that the solid silver in the head-joint will create a better tone. (There is no scientific basis for this contention.) If the buyer is

³Boehm, p. 56.

going to pay for a solid silver head-joint, it would behoove him to pay a little more for an all-silver instrument which would be eminently more satisfactory in the final analysis. The solid silver flute is recommended, first, for the material used, and secondly, for the quality of workmanship that most generally goes into the manufacture of an instrument made of this metal, and thirdly, for the superior tonal possibilities on this type of flute. There is no question among professional flutists as to whether flutes made of solid silver are greatly superior to wooden and nickel-silver flutes in response, intonation, tonal capacity and overall workmanship.⁴ For a complete listing of all available flutes, consultation of the book Music Instruments for Band and Orchestra, will prove more enlightening to the non-flutist in the matter of selection, availability and price range.⁵

There are two basic models of flutes: the regular model and the French model. When buying either one, the following items should be included: regular model, solid silver

⁴Interview with Dr. Russell Friedewald, April 16, 1961. Interview with Mr. Nelson Hauenstein, June 4, 1960. (Both men are professional flutists and members of the Michigan State University and University of Michigan Faculties respectively.)

⁵Music Instruments for Band and Orchestra (Evanston, Illinois: pub. by the Instrumentalist Co., 1960), p. 57.

body, drop-forged keys, ribbed construction, white gold springs, offset G keys, Bb shake, drawn and rolled tone holes, covered key holes. The foregoing sentence is in reference to the more expensive flute, \$350.00 and up. When buying an inexpensive flute the following items should be included: regular model, German silver body, drawn tone holes, rolled tone holes, German silver keys, bronze springs, silver-plated finish and ribbed construction.

When purchasing the French model flute, the following should be included: hand-made, solid silver hand-drawn body, drop-forged keys of solid silver, white gold springs, five perforated keys, all keys in a straight line, Bb shake, and ribbed construction. For the inexpensive French model flute the only appreciable difference is in the absence of the hand-made construction and the solid silver body and keys. Most professional flutists have a preference for the French model flute.⁶ This preference is based on the following reasons:

1. The French model flute has five open-hole keys in a straight line and it is impossible for a student to effect a poor hand position when he has to correctly cover the holes or not produce the required tones.

⁶Interviews with Dr. Friedewald and Mr. Hauenstein.

2. The French model technique of playing demands that the fingers be curved, which is, again, a means of enforcing proper hand position.
3. The upper tones (third octave) are easier to produce with the French model as the air is able to come directly up and out instead of coming out under the covered key pads.
4. The student is able to change the pitch of the tones by sliding his fingers off the perforated keys to sharpen the pitch of notes when necessary.
5. The French model flute is available in inexpensive and expensive versions and it would be of great advantage to any student to commence his study on this type of instrument. The price range for this flute is from about \$220.00 to \$470.00.

In any discussion of relative merits of flutes, the subject of necessary keys must be brought to the fore. A flute can be purchased today that enables the player to go down to B-3. Taylor states that he is in favor of using this foot joint for professional flutists, but not so for the high school student.⁷ His contention is that the student does not need the low B due to the limited demand from the repertoire

⁷Laurence Taylor, "Flute Facts," The Instrumentalist Magazine, April, 1955, Vol. IX, No. 8, p. 29.

and that the key is extra length. He also contends that the extra length and weight is detrimental to the students in that it is more apt to tire him than the regular C foot. (While Mr. Taylor's comments seem logical on the surface, they certainly are not true in the light of successful use of this type of foot-joint by many high-school students.)

Although there are other special keys for the flute, the added expense to the cost of the basic instrument does not appreciably affect its playing possibilities.

Most of the flutes manufactured today are equipped with end protector rings. These rings are little sleeves of metal that fit on the end of the head-joint and on the end of the middle section. This long continued practice emanates from the era of the wooden flute which was built with cork coverings on the ends of the body sections. In order to protect the cork, and to partially retain its lubrication, cleanliness and softness which would assure tight fitting joints, the end protectors came into existence. It has been most apparent that the cases used for the wooden flutes generally did not assure proper fitting nor did they keep dirt from the sections of the flute. While the flutes of Quantz needed this end-joint protection, there is no longer a need for this today as the cases of the flutes are now quite tight

and extremely well constructed, and in addition to this, they are attractive to the eye. The reasons stated certainly justify the use of end protectors in the earlier period of flute making, but not in the light of today's vast manufacturing improvements.⁸

Care of the Body on Silver Flutes

In relation to solid silver flutes, the William S. Haynes Co., has the following opinions on the matter:

It is a well-known fact that the purest silver tarnishes with use. Unfortunately, there is no known preventive for oxidation caused by contact with air or with smoke containing sulphur. Salt, acid and sulphur in the perspiration of those whose hands are constantly damp or moist; or sulphur in the condensed breath of the player will rapidly tarnish the solid silver instruments. A freshly polished silver spoon will become stained and tarnished by the sulphur in a soft boiled egg, yet it seems difficult for owners of Haynes Flutes to understand why their flutes inevitably tarnish with use, and even with exposure to atmospheric conditions. To help prevent tarnish, flutes should be wiped carefully with a damp cloth and polished with a dry one each time after using. This will keep the instrument reasonably bright and clean. Care must be taken to rub lightly across the keys. Hard continuous scrubbing wears the pads, causing them to split, for which condition there is no remedy other than an expensive overhauling job.⁹

⁸James Pellerite, "Flute Facts," The Instrumentalist Magazine, Vol. XIV, No. 2, p. 54.

⁹William S. Haynes, Flutes (Boston: W. S. Haynes Co., 1953), p. 17.

Assembling the Flute

In order that the non-flutist might have a systematic method of putting the flute together, the following is presented. Grasp the center joint in the left hand at the upper end of the flute, taking care that the heart of the hand covers the barrel joint, never the keys. The foot joint should be held firmly in the right hand below the keys. Be certain to hold the center and foot joints in a straight line when uniting them. Players sometimes try to join these parts while holding one at a slight angle to the other, with disastrous results. In applying the head-joint to the body, grasp the head-joint in the left hand below the embouchure plate, and the body of the instrument in the right hand above the keys and over the barrel joint. When inserting the head-joint into the barrel joint, hold both sections in a straight line to avoid forcing a juncture with one of the parts at a slight angle to the other. Join them with a slight twisting or rolling motion.¹⁰

¹⁰ Haynes, p. 17.

Chronic Repair Problems

A certain number of accidents to flutes will occur so frequently that the instrumental director will have to be prepared to make the necessary repairs himself. The troubles covered in this section are those which will be confronted most often and for which a minimum of time, material and tools will be needed.

A flute cannot work at its peak efficiency if it is not absolutely air-tight. Leaking tone holes are the cause for unclear sounding notes (excluding embouchure difficulties and hard blowing instruments). The better the cover of the pads, the better the flute will play.¹¹ An easy way of locating an air leak is to seal the end of the joint with a cork or the palm of the hand, cover the holes and blow in the other end of the section. Air will escape wherever the leak may be. The advantage of using a cork to seal the end is that the other hand is then free to see if pressing the already closed holes will stop the leakage. For this test to be effective, however, the air must be forced into the instrument and the holes must be covered only lightly as if in playing.

¹¹Erick Brand, Band Instrument Repairing Manual (Elkhart, Indiana: Pri. Print., 1946), p. 59.

Blowing into the section in this manner may simply indicate that a leak is present but will not locate the specific trouble. If the leak is not easily located, smoke may be blown into the instrument. A wisp of smoke indicates the leak. When using smoke one must be certain that all nicotine is wiped off pads and tone hole seats after the test as they will become sticky and cause the pads to stick. Another method, and perhaps the best way of locating leaks, is to use paper "feelers." These can be made by gluing narrow strips of tissue paper or cellophane to the end of match sticks.¹²

The "feeler" is inserted between the tone hole and the pad while the pad is in the open position. The key is very lightly depressed and the "feeler" is gently drawn out. By repeating this process all around the pad, differences in tension can be noted and the proper adjustments may be effected.

Reseating Pads

If the pad does not seat properly, a quick but temporary solution may be to wet the pad and recrease it by pressing down hard on the pad cup.¹³ Frequently, it is

¹²Brand, p. 62.

¹³Brand, p. 57.

possible to reseal a pad or adjust one that is not closing by heating the pad cup. The pad, of course, must still be in good condition.

If replacing pads, those of skin should be used on all flutes. By using the term "skin" one refers to the felt pad with two layers of goldbeaters skin placed over it. The best pads are hand-made and are expensive, yet these pads render the longest usefulness.¹⁴ A pad must be punctured with a small pin just under the rim of the cup so that it will not swell up when the air becomes warm. A pad of proper diameter and thickness should be selected. One either too thick or too thin will close on the edges of the tone hole first rather than covering the entire hole at the same time. The exact size for each tone hole may be obtained from the manufacturer of the instrument. It is wise to follow the manufacturer's instructions to the letter if the job is to be done in a proper manner. In replacing a pad all of the old cement, or shims, must be removed, whichever the case may be.¹⁵ Most of the pads on a flute do not utilize cement, but use a plate that holds the pad in place by means of a screw. After

¹⁴Haynes, p. 15.

¹⁵A shim is a thickness of paper used to raise or lower one side or all of the pad when it is in the cup.

removal of old material the repairman heats and then applies a few drops of cement or places a shim in the cup, whichever the case may be, and then proceeds to seat the pad in the cup. The pad is generally set in with a pad slick, the smooth rounded edge of a nail file, or a similar tool.¹⁶ It is recommended that, if possible, professionals do the pad work.¹⁷

Freeing Sticky Pads

Failure of keys to spring back into place after being released may be the result of "gummy" pads, weak springs or dirty mechanism. If the cause is a gummy or sticky pad, the pad surface may be effectively cleaned by a cloth dampened with alcohol, lighter fluid or carbon-tetrachloride. Talcum powder is sometimes used by being sprinkled on the pad, but this is not as satisfactory a solution as cleaning the pad. The talcum, combined with the moisture in the instrument, may form a "flour-paste."

A spring that is too weak to effect the return of a key to its released position may be restored to usefulness by carefully bending it in the opposite direction of the

¹⁶A pad slick is a flat strip of metal 1/32 of an inch in thickness and several inches long.

¹⁷Brand, section on seating of pads, will give step by step system of pad seating. pp. 49-52.

desired pull. A small instrument screw driver with a push-pull slot or even a crochet needle is convenient for the job. If dirty mechanism is the cause of the trouble, usually all that is necessary is that the controlling rod be pulled part-way from the tube, wiped clean with a lintless cloth, receive a small amount of clean key oil and be replaced.

Much frustration, and oftentimes, despair, may be avoided if a small wooden block in which holes are drilled is kept to receive screws as they are removed from the flute. The holes may be arranged in any convenient, but systematic manner.

Bending Keys

Often the necessary bending can be effected with the strength of the fingers alone. If any great amount of force is necessary, or, if the area being adjusted is rather inaccessible, the key should be removed before any bending is attempted. One should be certain that the bending will occur only where it needs to bend. If the outer edge of a ring is to be bent down, a small block of wood placed under the ring key, between the circle of the ring key and the rod, may help confine the job to a smaller area. Extreme care must be

emphasized at this delicate point in the process. To bend a key carelessly may twist a post or bend a rod, constituting a serious problem. Whenever pliers are to be used, they should be covered with cloth, cardboard or some other material that will protect the key from becoming marred or dented.¹⁸

Corking Keys

When bumper corks must be replaced, the proper thickness of the cork must be noted before starting the work. First, the surface of the key or rod must be thoroughly cleaned--the cork may fall off if the surface is not clean enough. Secondly, the part of the key to receive the cork is heated just enough to allow the adhesive (stick shellac is easiest to control) to melt. After the cement or shellac is on the key, the cork, a rectangular piece of the proper thickness and sufficiently large to cover the area, is pressed on the key.¹⁹ Considerable time may be saved if the key is pressed against a damp cloth or paper pad to cool. When the shellac is set, the cork may be trimmed with a very sharp knife or razor blade, the edge of the key being used as a cutting guide. After the cutting, the cork is sanded with 00 sandpaper.

¹⁸Brand, p. 18.

¹⁹Brand, p. 26.

Inspecting the Instrument

All instruments should be checked periodically. The following items, which are a compilation of ideas garnered from experts in the field of instrument care, should receive attention in the examination of the flute.²⁰

I. Cleanliness

- A. Headjoint, this must be cleaned regularly.
- B. An excess of dirt around the mechanisms or grease on the rods probably indicates that the instruments should be dismantled and thoroughly cleaned by an instrument repairman.

II. Dents

- A. All evidence of dents should be carefully worked out by only professionals in the repair field.

III. Joints

- A. Check for loose fitting in headjoint and also C foot. If necessary, have repairman expand the joints to make a tight fit. If the foot or headjoint is too loose, the part can fall off and cause the owner of the instrument considerable expense for repair.

²⁰Brand, p. 117.

- IV. Leaks in either segment of the flute.
 - A. All pads must cover completely
- V. Pads
 - A. Not hard or torn
 - B. Securely held in pad cup
- VI. Springs
 - A. Must be in proper place
 - B. Must have sufficient tension
- VII. Keys
 - A. Not bent or dirty
- VIII. Screws and rods
 - A. Free and properly oiled, screws not having threads stripped.
- IX. Cleaning the flute
 - A. Using the proper materials such as a damp cloth, for solid silver and silver-plated flutes, no silver polish.
 - B. Proper everyday cleaning of the bore
- X. Proper measurement of cork piece in headjoint
 - A. Using cleaning stick with correct mark in place (17-1/2 millimeters from end of stick.

- B. Mark on stick should come in middle of embouchure plate hole when inserted into head-joint.

CHAPTER FOUR

THE BREATHING PROCESS:

SUPPORTING AND CONTROLLING THE TONE

Pure, full-bodied resonant tone, intonation and precise articulation, those facets of flute playing that represent the difference between a musical performance and an unmusical one, are ultimately founded in the support and control of the breath. The most mature embouchure is negated to uselessness without adequate breath support for the production of the tone. The breath is the tone, the embouchure regulates the quality.

In order to preserve the stability of the embouchure, as well as the linear qualities of the music, the breath must be taken with the lips slightly parted. The flute should not be removed from the lips nor should the embouchure plate be turned inward as the breath is taken, as this necessitates the re-formation of the embouchure. If one is in too great a rush to form the embouchure it is quite possible and even highly probable that he is prone to miss an attack or to play with an insecure sound. Breathing is a natural phenomenon, but unfortunately, the inexperienced and poorly instructed student invariably sets out to alter this normal

procedure when he begins the study of a wind instrument. The following section will discuss the manner and function of breathing so that the non-flutist will more fully understand this process.

The Breathing Process

In order to more fully understand the breathing processes, knowledge of the specific duties and functions of the muscles of respiration is needed.

There are two sets of respiratory muscles, one for inspiration and another for expiration, twenty-two separate muscles in all. The principal muscles of inspiration are the diaphragm and the intercostal muscles that function in the elevation of the ribs. The intercostal muscles are all that need "conscious education," the others will act with them voluntarily and automatically. The chief muscles of expiration are the four sets of abdominal muscles and the intercostal muscles that depress the ribs.

The diaphragm is not a muscle of expiration, but rather is like an inverted bowl.¹ It forms the floor of the thorax (chest) and the roof of the abdomen. It is attached

¹Dr. Thomas Fillebrow, Resonance in Singing and Speaking (Boston: Oliver Ditson Co., 1911), p. 25.

by a strong tendon to the spinal column behind it, and to the walls of the thorax at its lowest point, which is immediately below the ribs. In front, its attachment is to the cartilage at the pit of the stomach. It also connects with the transverse abdominal muscle. The diaphragm being convex, in inspiration the contraction of its fibres flattens it downward and thereby depresses the organs in the abdomen, thus increasing the depth of the thorax. Expiration depends entirely on other muscles and this will be dealt with later on in the discussion.

The abdominal muscles relax during inspiration and the diaphragm relaxes during expiration, thus rendering the forces nearly equal, though strength is in favor of the expiratory muscles. This is exactly what is needed; for the breath, while playing the flute, must go out under much greater pressure than is necessary for inhalation. Expiration must be under controlled pressure.²

The discussion of the lungs involves little, but it must be noted that they are spongy bodies which have no overt activity of their own beyond a slight amount of elasticity. They are controlled by the muscles of respiration.

²Fillebrow, p. 25.

The process of inspiration is accomplished thusly: the intercostal muscles raise the ribs, the diaphragm is drawn down by contraction, thus adding to the enlargement of the chest by increasing its depth; the abdominal muscles relax and allow the stomach, liver, and other organs in the abdomen to move downward in order to make room for the depressed diaphragm; this in turn causes a vacuum in the chest; and finally, the lungs expand to fill this vacuum and the air rushes in to fill the expanding lungs.

In the process of expiration, the intercostal muscles, and a part of the abdominal muscles, depress the ribs and lessen the chest cavity anteriorly and laterally. The abdominal muscles compress the abdomen and force the relaxed diaphragm upward, thus lessening the depth of the thorax. This pressure forces the air from the lungs and prepares them for another inspiration.

If the aforementioned breathing resources are being fully utilized, there should be a feeling of expansion around the lower ribs and especially in front, just above the belt line. Students sometimes breathe as if the lungs were hung up-side-down, that is, larger at the top than they are at the bottom--in reality, the direct opposite is true. The action

that should take place is that the muscles spread the rib cage, drop the diaphragm, and fill that space with the expanded lungs.³

To help the student consciously experience the proper manner of breathing, the instructor may suggest that they place their doubled fist over the diaphragm and feel the expansion with the subsequent inhalation. The deep breath may be thought of as breathing from the stomach, as this is a more tangible concept for the student to grasp. The effect of a sudden gasp, not unlike a startled or frightened exclamation, will be felt on the diaphragm. As a means of illustrating this concept of breathing, the student may sit on the floor with his feet flat on the floor, knees close together, his chin in the palms of his hands and his elbows on his knees as far outward as they can reach. The student should suddenly gasp. While in this doubled up position the only place that he can breathe is from the bottom of the lungs.⁴

³Edwin Putnik, Flute Pedagogy and Performance (Chicago, Ill.: Estes Music, 1955), p. 24.

⁴J. Pepe, On Obtaining A Good Tone (New York: pri. print., 1948), p. 5.

Supporting and Controlling the Tone

Having obtained the knowledge of acquiring the breath, the next step is to control it. Students often do not use enough air pressure to produce an adequate sustained tone. Vincent Abato states that "One should have the feeling of blowing against a wall."⁵ This feeling of resistance or pressure is a combination of air deep in the lungs and the focus of that air by the tongue and the throat into the formation of the embouchure. It is insufficient and misleading to tell the student to blow "harder." Rather, tell him to blow "faster air." If the air is not focused and under pressure that is correctly placed, the tone will spread, become strident, and thus cause the pitch to sharpen.⁶

The tone is not controlled by the amount of air used but rather, how it is used. (The flutist must remember this concept, as there is no resistance whatsoever to his air-stream.) The effect of creating pressure in the air stream may be demonstrated by blowing against the palm of the hand while it is held a few inches away from the face. Then with the palm held against the lips one blows lightly, with the

⁵Vincent Abato, "How to Develop a Good Tone," School Musician, XXII, No. 1, Sept., 1956, p. 42. Abato is a teacher at Julliard School and is a professional musician in N.Y.C.

⁶Putnik, p. 19.

lips loose, using the same amount of air but subjecting it to being under pressure by forcing it through a small opening in the lips. The effect will be subsequently felt on the hand.⁷ The difference between the air stream when it is not under pressure and when it is, is like the difference in the pressure of water from a garden hose. One should think of it as once with the nozzle off and then with the nozzle on, forcing and focusing the water into a concentrated stream.

The tongue is the principal means of putting this pressure or resistance into the air column. It serves a dual purpose: the middle portion maintains a constant pressure on the air stream while the flexible blade portion concentrates and directs the air toward the embouchure opening. When the lungs are full, the tongue, resting against the top of the mouth in front, seals off the air stream. This creates a degree of back pressure so that when the tongue, acting as a damper, is moved, the air is projected from the lungs, steadily, but without forcing.⁸

⁷ Francis Lawson, The Human Voice (New York: Harper and Brothers, third edition, 1944), p. 15.

⁸ Napoleon Cerminara, First Principles of Tone Production, A pamphlet (Kenosha, Wis.: 1950), p. 4. Cerminara is a professional N. Y. C. musician and is on the faculty of Manhattan School of Music.

The air stream sets into vibration the eddies of air within the flute, which in turn produces the sound. A steady air stream is most necessary as dips and sags in the air stream will result in corresponding dips and sags in the tone. For this reason the intercostal muscles should be kept firm and should never be allowed to "cave in." A certain amount of air should be kept in reserve. One should never have the feeling of completely exhaling. The reason for this is that if one uses the last vestige of air within him the tone will effect the "push" that is associated with the young player as he desperately tries to "push" out the remainder of his air. This sudden loudness at the end of a phrase is considered poor musicianship and indicates that the student has not learned the proper use of his breath.

Influence of good breath support on the tone may be illustrated by comparing two playings of a note in the lower register of the flute (such as D-4). The first time the tone may be played without any special preparation or support; then one should play a high note like G#-6, using the support so necessary to make this tone sound. Following this, one should play the low note again using the same pressure and support from the expirational muscles as was needed for the high note.

The player will note the immediate improvement in the quality of the low tone.⁹

The student may work on the development of breath support by practicing exercises with slurs, especially from the low register to the high. He may follow this by starting a tone at the forte level of dynamics and subsequently making a diminuendo on a sustained note until the tone fades away into nothing. The student will try to keep the pitch up as the tendency is to let the tone go flat as the volume is diminished.¹⁰ It takes more breath and a firmer embouchure to maintain a soft tone with an adequate tonal quality. This long tone exercise will assist the student in learning to draw his tone out into a controlled pianissimo without the spreading or flattening of his sound. It would behoove the student to make use of the Strobococonn as he could see if his pitch is going flat at the end of the tone. The development of controlled breath support is the key to all other aspects of flute playing. If breath support, the combination of full

⁹Putnik, p. 20.

¹⁰Frederick Wilkins, The Flutist's Guide (Elkhart, Indiana: D. and J. Artley and Co., 1957), p. 34.

lungs and a concentrated air stream is neglected, the consequences will be sagging pitch at the conclusion of a tone, undesirable tone quality, indistinct articulation and inadequate breath supply for proper phrasing.

CHAPTER FIVE

THE FORMATION OF THE EMBOUCHURE:

ITS ATTENDANT PROBLEMS AND SOLUTIONS

The search for a good tone must be an incessant quest and in this connection the flutist may well dwell upon an assertion once made by Marcel Moyse to an opera musician. "Whenever I played Carmen at the Opera Comique, I continued the quest for a good tone all the way--even to the final F#-4 at the end of act four."¹ When one considers that Carmen is three and a half hours long and that the final F#-4 is in a tutti chord, fortissimo, and that the flute player cannot be heard except by himself, this seems like a fruitless chase. However, if one of the most highly respected flutists in the world is so concerned with tone quality, even after he has reached the heights of his profession, it would seem only proper that the young flutist should redouble his efforts in the unending search for good sound. As stated in the previous chapter, the breath is the tone, the embouchure is the regulator of the tone quality. This should be uppermost in the student's mind at all times. This chapter will deal with

¹James Hosmer, "Getting a Clear Picture of Embouchure," Flute Forum (Elkhart, Indiana: The Armstrong Co., Spring, 1961), p. 5.

formation of the embouchure and some of its common errors and their remedial actions.

In order to understand the formation of the embouchure, it is necessary to discuss the function of the lips. The lips have to form the air supply into a small jet which will not spread out unnecessarily before striking the outer edge of the embouchure plate (or blow hole) towards which it has to be directed. The lips will also alter, along with the proper breath support, the rapidity of this air stream at will. To form an embouchure, the student should close his lips gently and then extend them a little towards the corners as one does when half smiling. It is suggested that the student use only the head-joint in his initial efforts to produce a sound, as this eliminates the confusion attendant in trying to hold and finger the instrument at the beginning stage.² Taking the head-joint of the flute the student should place the edge of the embouchure plate against the lower lip, covering $\frac{1}{3}$ to $\frac{1}{4}$ of the hole.³ When blowing towards the opposite edge a small opening may be made by the air stream in the middle portion of the lips by gently exhaling and thus produce a sound. The student should not be discouraged if a sound is

²Rockstro, p. 420.

³Putnik, p. 15.

not immediately produced as sometimes more experimentation is necessary in the moving about of the embouchure plate. The student should practice giving the air stream a definite release (not attack) by pronouncing a syllable beginning with the letter "d" such as in "du." After producing a tone that should sound Ab-4 on the piano, the student is ready to undertake the playing of the flute with the flute assembled. If the student is sharp on the Ab-4, he has too stiff an embouchure formation. If the student is flat on the Ab-4, his embouchure is too loose. Moreover, too much air blown into the flute will cause sharpness, and too little will result in flatness. These factors must be taken into consideration in the beginning stage. In producing the first tones, with the flute assembled, the student should strive to play notes such as B-4 or A-4 as these will cause the least difficulty at the outset. The head-joint is turned inwardly toward the player and also, the foot-joint should be turned toward the player.

After having outlined the general procedure of producing a tone, a more detailed discussion can now be undertaken. The student will bring the lips together by making the distance between the upper and lower teeth as small as possible. No muscular action such as would produce any compression or pressing together of the lips is required at this point. The

student will benefit by keeping the lips thus gently closed. He will then stretch them across the teeth, as when half smiling, so as to give them a moderate tension and a sensation of moderate eversion. There should be no turning inwards of the lips. While maintaining this formation of the lips, he should try to depress them at the corners, thus giving them a firmness on each side of the embouchure. This firmness should be made to extend to the interior of the lips so that it may be felt against the teeth. While keeping the head up, the student should blow across the center of the embouchure plate so that the air stream forces the lips open in the middle. In order that the air stream may strike the outer edge of the embouchure plate at the angle best suited to set the air in the flute into vibration, the embouchure plate should be turned in slightly so that its outer edge is raised a little above the level of the inner edge. The proper amount of this turning in must be found by experiment as every student has a different size lip and different length and pitch of the angle of the teeth. The author feels that this inward turning of the embouchure plate is most important and would like to quote the following authorities in the matter.

Quantz:

In order to hold the flute without affectation, it will be necessary to join its parts together in such a manner that the head-joint must be adjusted so that the mouth-hole shall be turned inwards, towards the mouth and out of the line of the finger holes, to an extent equal to the diameter of the hole.⁴

Berbiguier:

As mentioned previously, the mouth-hole should be turned in considerably.⁵

Drouet:

The mouth-hole should be turned more inwards than the finger holes.⁶

Nicholson:

I concur with the ideas of Quantz in the matter of the head-joint turning inwards.⁷

The rapidity of the air stream is regulated by altering the amount of opening in the middle of the lips. The smaller this opening becomes, the more rapidly the air stream moves. Provided that the amount of air is consistent, a note of higher pitch will be forthcoming. The amount of opening is lessened by pressing the lips together. When the compression

⁴Rockstro, p. 422.

⁵Rockstro, p. 422.

⁶Rockstro, p. 423.

⁷Rockstro, p. 423.

is sufficient, a tone one octave higher will be emitted without any change of fingering. (Based on the harmonic series--see Chapter II.) When attempting this, the student should note that he need not blow any harder to obtain the higher note and the lips remain turned outward or everted. This can be accomplished provided that proper breath support is maintained. Again, instruct the student to think of blowing "fast air."

As the length of the vibrating column of air in the flute is increased, notes of lower pitch may be produced in either of the first two registers. This lengthening of the tube is achieved by depressing the keys in order of succession. Each successive note will require very slight modification of the lip formation. With patience on the part of the student and also his willingness to experiment with the embouchure plate placement, he should be able to form an acceptable sound after careful and painstaking scrutiny of the forementioned plan of action.

Embouchure Problems and Their Remedial Actions

One of the most frequently encountered problems in playing the flute is the faulty embouchure formation. Most often this may be due to the physical formation of the lips, which is greatly divergent from the norm, the lack of muscular control in forming and utilizing an effective embouchure, and finally, in the use of the jaw. Just as all other physical characteristics will vary from person to person, so, also will lip structures vary in shape and size. Although it is generally accepted as fact that persons with thinly formed lips will be well suited for the flute, there is, in reality, no ideal in this regard. If a student really has the desire and determination to play the flute, he may do so regardless of the lip size in most any case. The important factors, however, are the amount of the embouchure hole that is covered by the lower lip, and the shape and size of the air stream. In the majority of cases, correct placement of the embouchure plate will be accomplished by placing its near edge on the edge of the lower lip, that is, the line that is formed by the lower edge of the red, fleshy portion of the lip. If the student's lower lip is unusually thick, the edge of the embouchure hole should be moved up slightly on the lip so as

to cover less of the hole. In the event that the student's lip is unusually thin, he must cover more of the embouchure hole by moving the flute down below the edge of the lower lip. It must be realized, however, that a relatively small fraction of an inch is a large change in so delicate an adjustment. In making adjustments of this nature, it is well to remember that a corresponding and a compensating change in the angle of the flute will frequently also be necessary. The flute may be turned in or out slightly until the correct angle is re-established.⁸

The relative thickness of the upper and lower lips may affect the direction of the air stream and may cause difficulty in producing a sound. An upper lip that is unusually thick or fleshy in relation to the lower lip, will often cause the student to blow down too directly in the embouchure hole. This will subsequently cause flat, dull tonal response. This may often be corrected by changing the relative tension of the lips. The corners of the mouth are drawn back, or even downward, to make the upper lip firmer while allowing the lower lip to remain relatively fleshy and relaxed. If this proves insufficient, further adjustment is necessary by bringing the

⁸F. B. Chapman, Flute Technic, 2nd edition (London: Oxford University Press, 1951), p. 6.

lower jaw forward, consequently bringing the lower lip forward also.

When the upper lip is so thin in relation to the lower one that the student normally blows across the embouchure hole at too slight an angle, correction is to be found in changing the relative tension of the lips by bringing the corners of the mouth up slightly and drawing the jaw backward.

Since the upper lip must cover the upper front teeth, it will sometimes prove necessary for the student to consciously pull this upper lip down over the teeth. This is in reference to cases where the lip normally allows the upper teeth to protrude.

In addition to these previously mentioned considerations, the shape of the student's lips may cause undue difficulty in forming a satisfactory embouchure. In some instances, thicker portions on either the upper or lower lip will produce apertures resembling the following:



Figure 5
Diagram of Lip Formations

In each case, a solution is to be found in moving the lower lip to the right or left as is needed, and approximating the desired aperture formation.

In some extreme cases, the thickness of the lip in the center may produce a split embouchure such as the "cupid's bow:"



Figure 6
Diagram of a "cupid's bow"

The only satisfactory solution to this situation is to teach the student to close one of these apertures by pressing the lips together on one side or the other, and thereby learning to play on the side that remains open. Two of the foremost students of Charles Nicholson, the celebrated English flutist formed the aperture at the side of the mouth. Both were known for the power and brilliance of their tones. As an aid in assisting the teacher, it should be pointed out that this solution is workable only for the person who has a great

desire to make this change. Unless the person has a large measure of perseverance and patience it might be better for him to change to another instrument where the physical problem no longer has any bearing. This difficulty would not present a problem in the reed instruments.

The technique of teaching any of these embouchure changes depends upon constant watchfulness and coaching on the part of the instructor. The student, in turn, is encouraged to practice before a mirror, until the new embouchure formation can be established through touch alone. The use of long tone studies in developing the embouchure must be emphasized, along with slow scale practice, after the basic embouchure is reasonably formed.⁹

Problems arising from an unusual jaw formation are generally less difficult to overcome than those resulting from the size or shape of the lips. In instances where the jaw is naturally too far back in relation to the upper lip, the student may compensate for this by bringing the lower lip out or the corners of the mouth up. If the jaw still allows sufficient movement, it may be brought forward. The situation in

⁹E. C. Moore, The Flute Book (Kenosha, Wis.: Leblanc Co., 1958), p. 2.

which the student's jaw is too far forward demands the reverse of the above procedure.¹⁰ The student who has difficulty in controlling his jaw movement will be aided by practicing an exaggerated movement of the jaw before a mirror without the flute. Later, of course, this same motion is to be applied to the instrument and developed through the study of long tones and slow octave practice. In all of these problems involving the embouchure or the jaw, the instructor is advised to use the quality of the sound as his guide, for this will be the most reliable clue to the student's difficulty and/or progress.¹¹

If the tone is unusually thin, the student is probably covering too much of the embouchure hole. This may be the result of faulty lip placement, turning the flute in too far, the shape of the lips, or the position of the jaw. Correction is found in moving the edge of the embouchure hole up on the lip, and/or bringing the jaw forward, plus re-adjustment of the angle of the flute.

¹⁰Rockstro, p. 431.

¹¹A list of recordings made by highly regarded flutists will be presented in Appendix III. In these recordings, the student will be able to hear the best in beauty and control of tone, providing, of course, that the reproducing equipment is adequate to the needs of good sound reproduction.

When the tone is too shallow, the student is generally covering too little of the embouchure hole. This may be corrected by covering more of the hole with the lower lip, turning the flute in slightly, or pulling the jaw backward, or a combination of these. The essential problem here is in not blowing down into the embouchure hole sufficiently, or in not covering enough of the hole. This problem can often be solved by the observation and guidance of the instructor. The student and instructor must keep in mind that the degree to which the flute is turned in or out, depends primarily on the amount of embouchure hole covered by the student's lip and the direction of the air stream normally produced. When correcting any basic embouchure problems it is well to experiment with the student in determining the correct degree that the flute should be turned in or out. This may easily be audible, for the tone will disappear entirely at both extremes, and somewhere in the middle of this process, the best sound possible for the student should be immediately apparent.

A windy tone may be the result of any one of several problems, but in most cases it is due to too much of the air column striking the sides of the embouchure plate. When this windy sound is accompanied by a very shallow or empty

quality of sound, it is caused by blowing across the embouchure plate at too slight an angle, or by too large an aperture in the lips. More frequently, however, windy sound of tone is caused by air striking the sides of the embouchure plate. This may be the result of an unusually shaped lip aperture or the result of an incorrect centering of the air column. Normally the aperture in the lips can be seen by the instructor and centered with no great difficulty. Occasionally, however, the air stream will not be directed forward in focus, but toward one side or the other. In order to ascertain the direction of the air stream, hold a small piece of light weight paper vertically with an edge directly in front of the student's lips as he sustains a tone on the flute. By moving the paper from side to side and observing the vibrations produced, the instructor will be able to see where the air column is directed.¹² With this visual aid he is able to center the embouchure opening accordingly. This again is a definite problem for the music teacher. He must be astute enough to ascertain the student's desire. If the remedial work looms too large for the student's desire, it will be left to the instructor's judgment which course of action should be

¹²Putnik, p. 43.

followed; to change to a new type of instrument or to try to overcome the difficulties of the flute.

In the event that the windy sound in a beginner's tone is not immediately cleared up through the above mentioned suggestions, it is recommended that further attempts specifically in this direction be postponed until the student's embouchure is more fully developed. In most instances, the balance of windy sound will gradually clear up through the student's continued efforts at producing and controlling a satisfactory tone.¹³

The student who has had difficulty in controlling the first two octaves of the flute's range, in which the sound continually drops down to the fundamental octave, or the student who plays "double stop" octaves when attempting to play the upper of the two, is advised to bring the lower jaw forward along with the lower lip to cover more of the hole in the embouchure plate, and to increase his breath support when playing in the second octave. This problem of the second octave can be solved by the study of slow octave slurs, and slow ascending scales. The student experiencing difficulty

¹³Byron Hester, "Toward a Fuller Artistry," Flute Forum, Spring, 1961, p. 13.

in controlling either of the extreme octaves is advised to work on slow scales studies, as, here again, the problem principally is insufficient use of the jaw and breath support.

In the opinion of the writer, the book Of the Sonorousness by Marcel Moyse provides a lucid explanation and suitable material by which any serious student would be able to improve his tone.¹⁴ The pursuit of a good tone is an unending search and it is the responsibility of the music educator to imbibe his students with the will and desire to always continue to seek out the best in tone.

¹⁴Marcel Moyse, On the Sonorousness (Paris: Leduc, 1934).

CHAPTER SIX

FINGERING AIDS: HARMONICS,
BASIC FINGERINGS, PIANISSIMO
FINGERINGS AND TRILL CHARTS

Occasionally, the flutist finds a particular passage difficult to execute when using the regularly accepted fingering technique and soon discovers that no amount of practice improves the situation. Some players make use of a few so-called "trick fingerings" in order to make these passages playable and more articulate. These are techniques seldom found in the method books used in most teaching situations today. For the most part, they are handed down from teacher to student, and seldom find their way into print. A few are suggested here in the hope that they will prove useful.

Most performers will experience an "off" day from time to time. Even the most highly skilled player has experienced a sense of insecurity when asked to play a strong attack on a very low note. This situation is almost always approached with a certain amount of caution. However, a low C-4 or D-4 will speak with added authority if the player assists the attack by lifting the third finger of the left hand and bringing it down with a quick snap on the G key at

the same time the tongue and breath execute their functions. The sudden action of the key helps set the air in the tube into motion immediately, creating an instantaneous and strong attack.¹

A legato passage involving the movement from high A-6 down to E-6 invariably develops frustration for the player, for the E-6 simply wants to remain up on the A-6. If the little finger of the right hand is removed from the D# key for an instant while moving down to the E-6 and replaced almost immediately, the note will lock into place without any equivocation.²

Something to bear in mind in connection with trill fingerings, particularly certain trills, which of necessity result in false notes, is the establishment of proper pitch. The student should always try to use the correct fingerings for the first two notes of a trill, then break into the simplified trill pattern. The listener hears the first two notes of a trill, and any slight distortion that may follow is unnoticed. This procedure is a must if the trills are begun from the upper note.

¹Personal interview with Dr. Russell Friedewald, Michigan State University, 1960.

²Dr. Friedewald interview, 1960.

The three fingers of the right hand may be left down when moving from D-5 to C#-5 immediately below and back again if the passage is rather fast. Also, when going from F# to G# to F# in either of the two bottom octaves if the player will merely leave the F# key down and move the G# key, clean and precise movement will result. This technic also works well when going from F to F# back to F in either of the bottom two octaves. The student here will leave the third finger of the right hand down and move the first finger of the right hand.³ Players using the French model flute with the five perforated keys are able to close certain keys while leaving the perforations open, producing harmonic sounds which are incapable on the closed-hole regular model flute. The French model players can also half-hole, causing a note to go higher in pitch in order to play in tune with an uncompromising colleague. This is accomplished by merely shifting the finger off the open hole until the desired pitch is attained.⁴

Another aid to the flutist is the raising of the pitch of the E-5, which is traditionally a flat note. If

³Interview with Mr. James Pellerite at University of Michigan summer workshop, 1951.

⁴Pellerite, 1951.

the player will add the second trill key to the regular E-5 fingering, the pitch will come up. This technique also is used as an aid in playing the high E-6. When a flutist has to sustain a note like the E-6 the addition of the second trill key here will greatly add to his peace of mind and assuredness. This will also help the flutist who wishes to slur up to this E-6. The student should remember that these fingerings do not take the place of practice but are intended to help out when the player is having an "off" day or where the difficulties are so rampant that there is no other way to accomplish the desired fingering.⁵

Although most professional flutists are in accord considering the choice of fingering for the low and middle register Bb (Bb-4 and Bb-5), there seems to be a difference of opinion among school instrumental teachers.⁶ This writer believes this confusion exists because most of the modern method books fail to give an adequate explanation of the available choices. Too many teachers advocate use of the Bb thumb lever for all keys involving a Bb, regardless of tempo. Most

⁵Friedewald, 1960.

⁶Pellerite, 1951.

professionals recommend use of the Bb thumb lever only in passages that are quite rapid and only then for the sake of clean articulation. It is very difficult to play a chromatic passage when the thumb is placed on the Bb lever. The original Boehm flute system of 1832, and the modification of 1847, had no Bb thumb lever.⁷ This attachment was applied to the Boehm system flute by Briccicaldi in 1849.⁸ Boehm later devised his own Bb but it never became popular. The thumb arrangement now accepted as a basic feature of the flute is actually Briccicaldi's. The Bb fingering remains, as it was originally, the first finger of each hand plus the long key for left hand thumb which by itself, is the B natural key in conjunction with the first finger of the left hand. A rapid change from Bb to B natural is possible with this fingering, and eliminates the awkward rolling of the thumb often encountered when the wrong choice is made. Still another way to play Bb involves the use of the trill key just above the first finger of the right hand. This is a key that seems to have been forgotten on the flute as far as use is concerned.

⁷ Boehm, p. 62.

⁸ Chapter I, History of the Flute.

The author has used it many times and is even inclined to use it as an alternate with the original Bb fingering promulgated by Boehm.

Another help in fingering for the flutist with a flat sounding A-5 is for the student to depress the G# key while playing the A-5.⁹ This will raise the pitch.

Harmonics

Harmonics on flute are possible to play due to the basic construction of the instrument. Since the flute is built on the principle of acting as an open pipe, it will overblow the octave first, then the fifth and on up as discussed in the chapter on Flute Acoustics (see Chapter II). These harmonics may be used in four general ways: 1.) to aid flexibility, 2.) for use in soft "harmonic type" effects, 3.) for tremolos, and 4.) for rapid passages that otherwise would be impossible. When one wishes to use the harmonics to facilitate flexibility, he merely plays low C-4 and overblows in a gentle manner. If the player uses just the action of the lip and diaphragm and does not use the

⁹Interview with Mr. Daniel Kyser, Western Michigan University, 1961.

tongue he will greatly increase the sensitivity and flexibility of the lips. The flute is able to go up to Bb-6 in this harmonic series. Any of the notes in the first octave of the flute may be used for this same exercise.

The "effect" harmonics are those which give a dark or veiled quality to tones. They are generally limited to the third and fourth partials, those of higher frequency becoming more difficult to control.

The techniques employed in tremolos and fast passages are reserved for the advanced student and should not be a part of the beginner's study.¹⁰ While the use of harmonics for various tremolos is not extensive, some band and orchestral compositions demand facility in this area. A player fingers the tones a fifth lower and then overblows. This technic simplifies the playing of the rapid passages by cutting down the number of fingers involved in playing the passage--thus enabling the player to perform more cleanly and precisely.

¹⁰A general discussion of harmonics for use in playing tremolos may be found in Harmonic Fingerings for Flute by Arthur Brooke, published by Cundy-Bettoney (See Appendix I).

Basic Fingerings, Pianissimo Fingerings and Trill Charts

Although there are many fingering and trill charts available today, many of them have errors in editing and are quite difficult to read and to understand. The following charts are intended to be the most nearly complete and correct as can be made. Teachers and pupils have found them quite easy to read and to understand. There are, on occasion, several fingerings given for a note. The first fingering given is the preferred one, but the subsequent ones listed are also acceptable. The same holds true for the trill charts.

Basic Fingering Chart

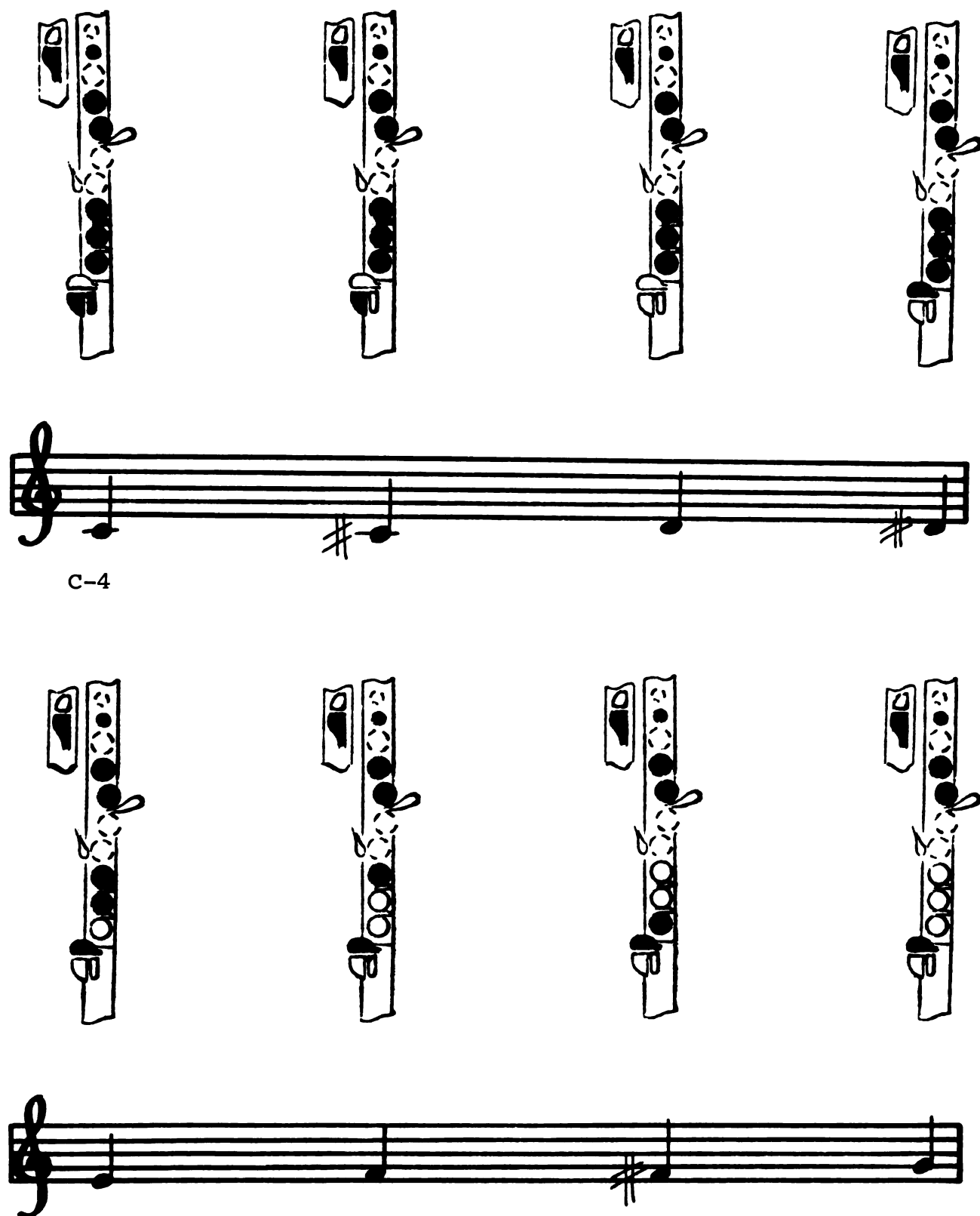
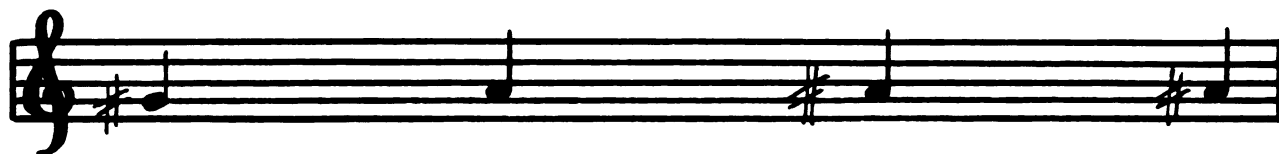
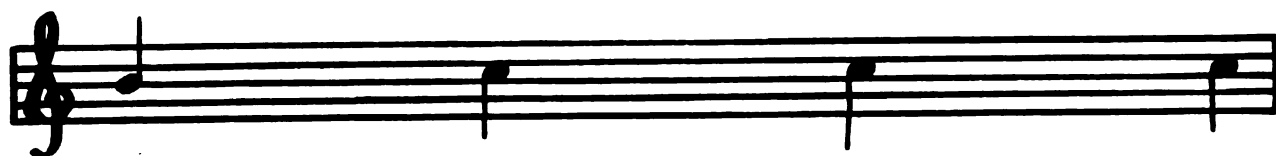


Figure 7



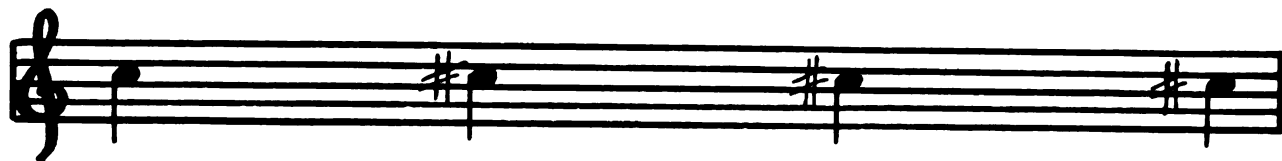
Alternate
chromatic A#



C-5

Flat

Flatter



Flattest

Flat

Flatter



Flattest

The image displays a musical exercise titled "Alternate Chromatic A#". It consists of two systems, each featuring a four-measure melodic line and a four-measure fingering diagram.

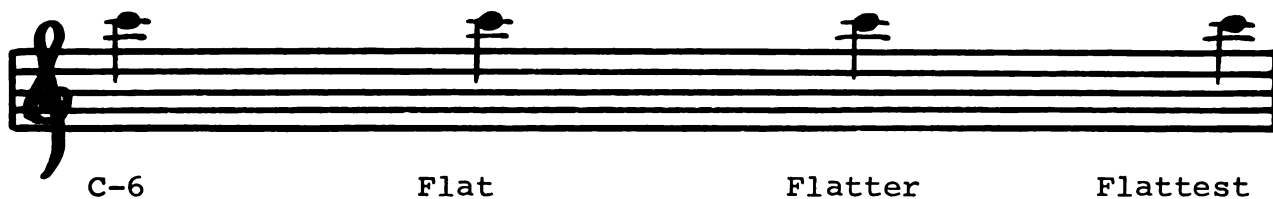
System 1 (Top):

- Melody:** A four-measure line in treble clef. The notes are A4 (quarter), B4 (quarter), C#5 (quarter), and D5 (quarter). The first and third measures have a sharp sign (#) above the staff.
- Fingering:** A four-measure diagram showing fingerings for each note. Measure 1: index (1), middle (2), ring (3), and thumb (4) on the A string. Measure 2: index (1), middle (2), ring (3), and thumb (4) on the B string. Measure 3: index (1), middle (2), ring (3), and thumb (4) on the C string. Measure 4: index (1), middle (2), ring (3), and thumb (4) on the D string.

System 2 (Bottom):

- Melody:** A four-measure line in treble clef. The notes are A4 (quarter), B4 (quarter), C#5 (quarter), and D5 (quarter). The first and third measures have a sharp sign (#) above the staff.
- Fingering:** A four-measure diagram showing fingerings for each note. Measure 1: index (1), middle (2), ring (3), and thumb (4) on the A string. Measure 2: index (1), middle (2), ring (3), and thumb (4) on the B string. Measure 3: index (1), middle (2), ring (3), and thumb (4) on the C string. Measure 4: index (1), middle (2), ring (3), and thumb (4) on the D string.

Alternate
Chromatic A#

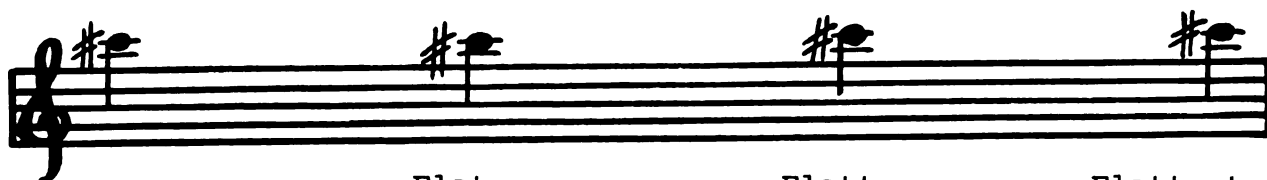


C-6

Flat

Flatter

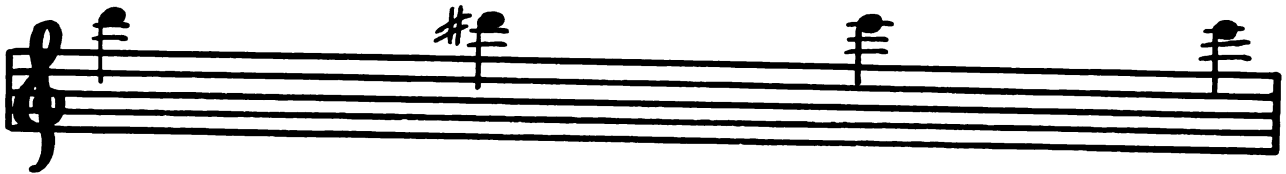
Flattest



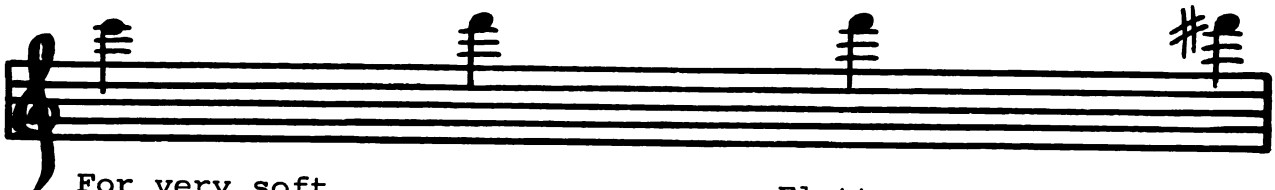
Flat

Flatter

Flattest

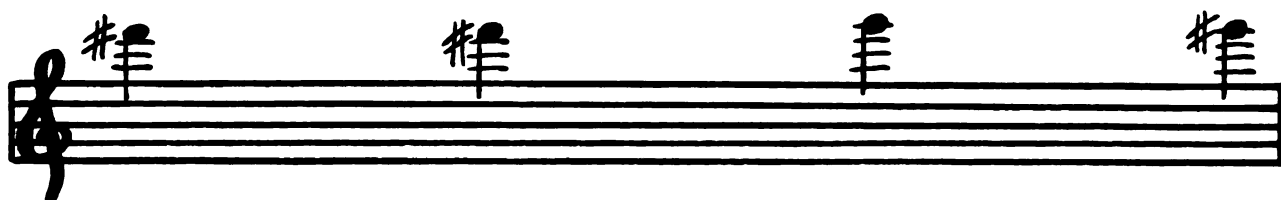


Flutter

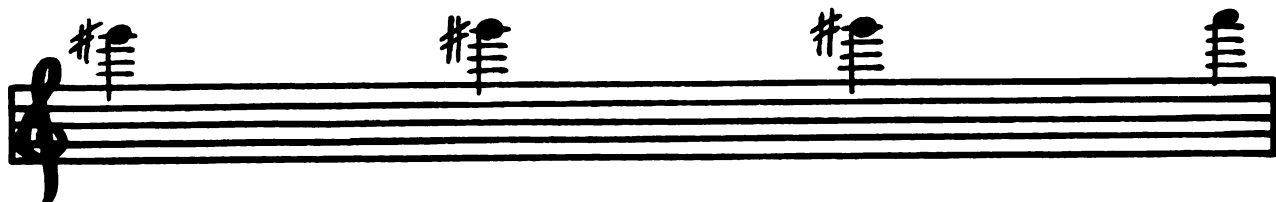


For very soft
effects

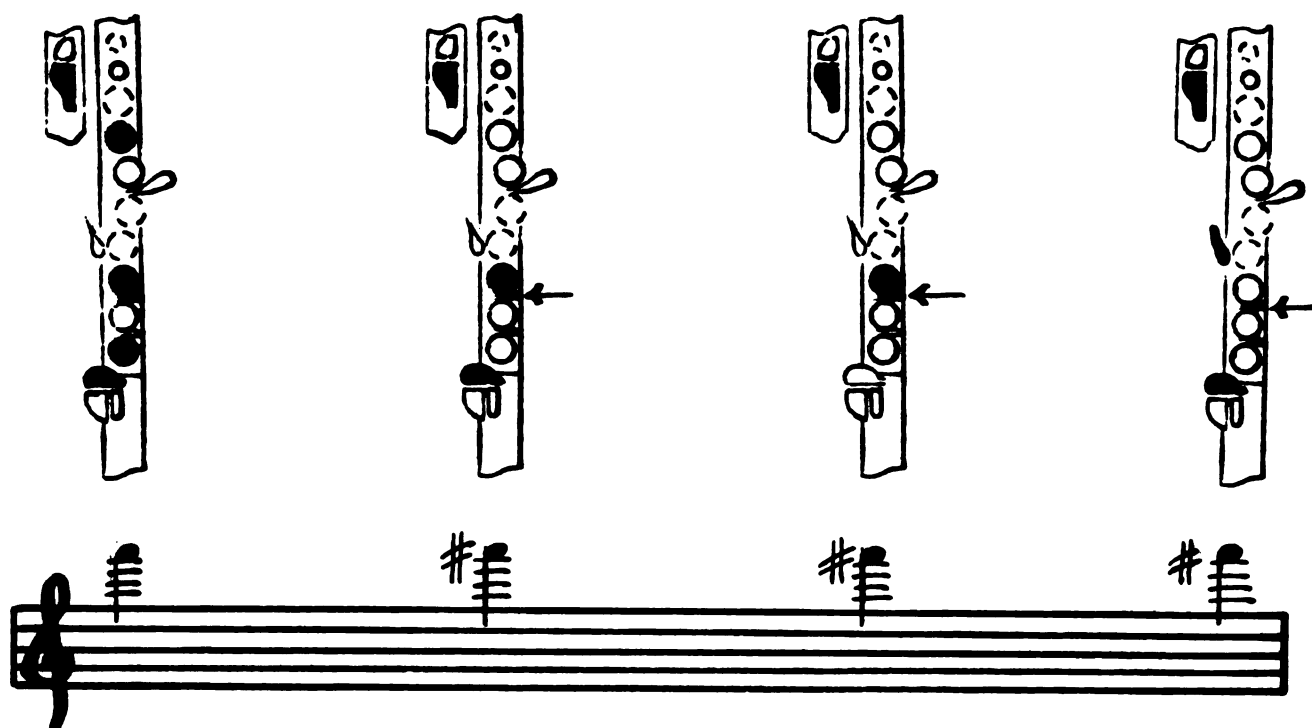
Flutter



For soft playing For soft playing



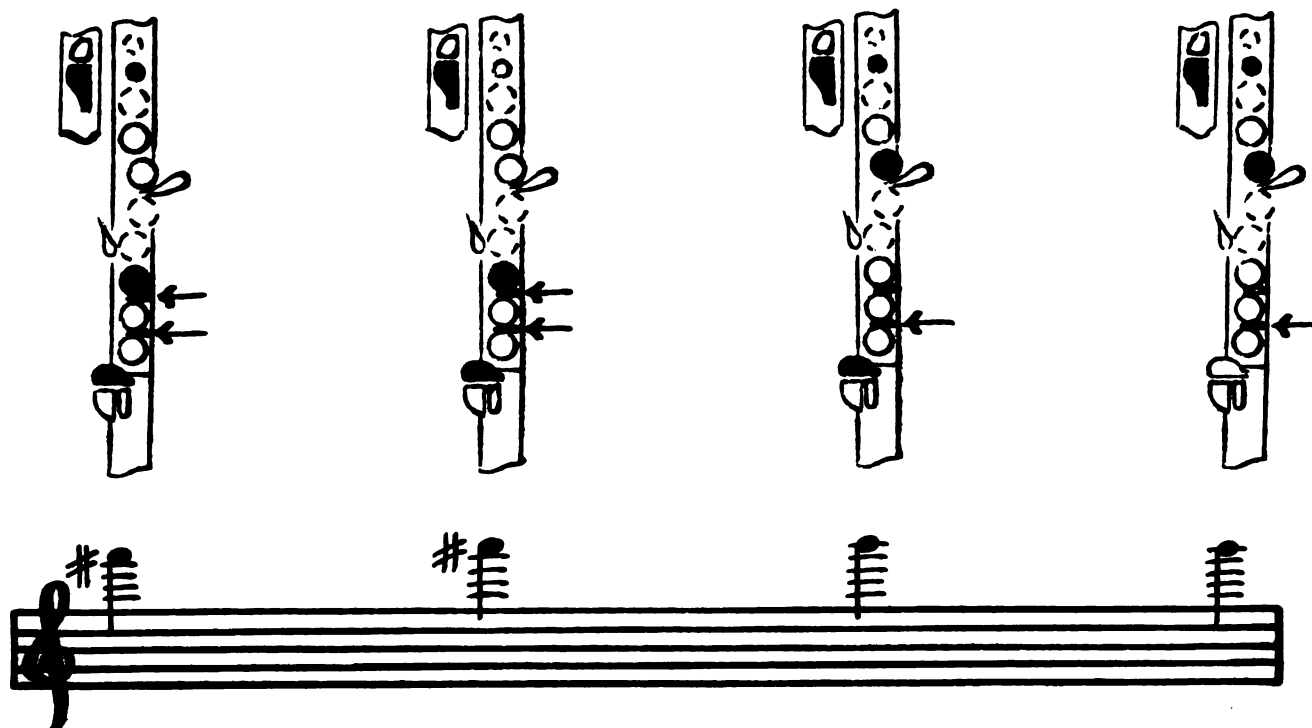
For soft playing For soft playing (sharp) For soft playing (sharper)



Flutter

Easier response

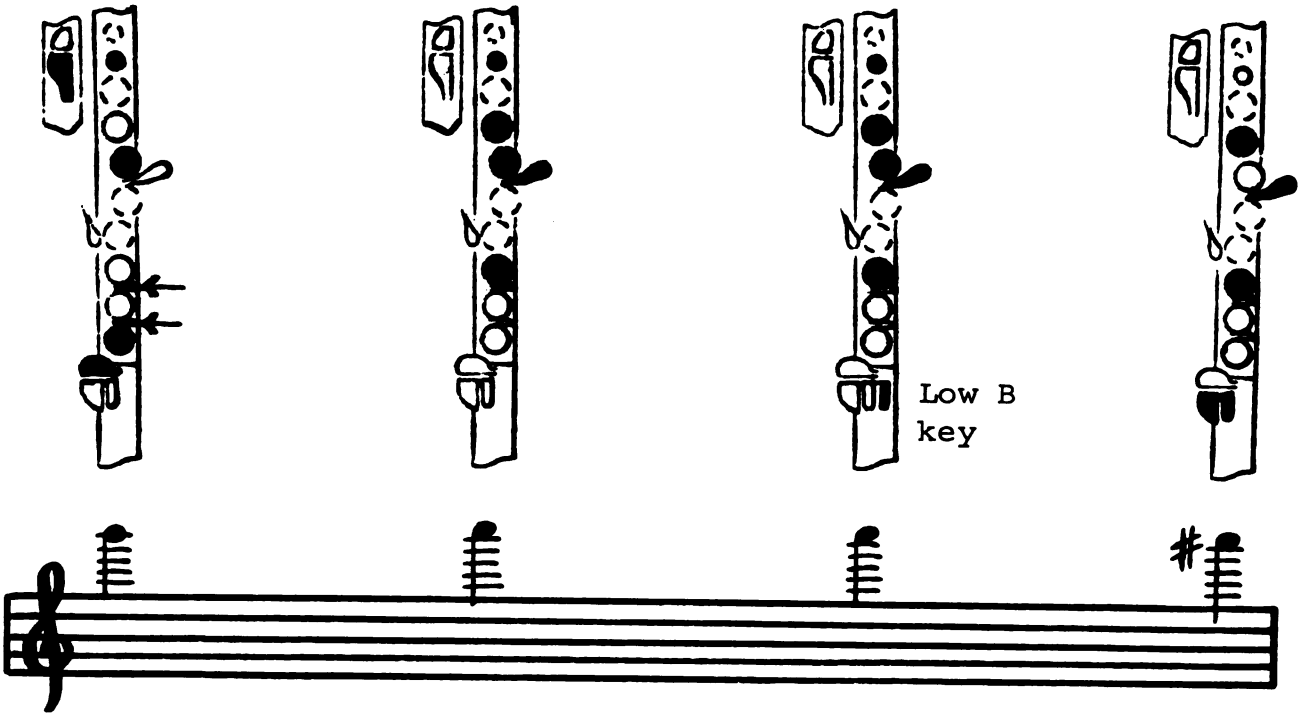
For soft
playing
(sharp)



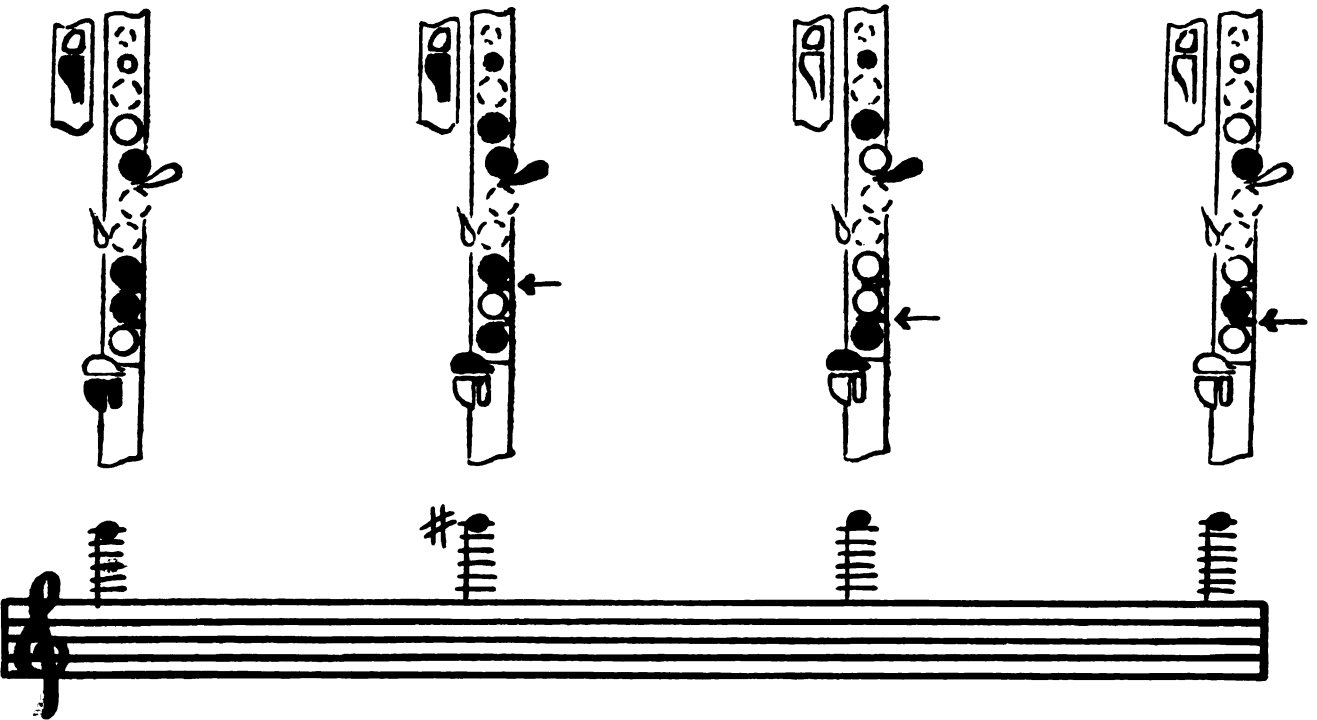
For soft playing
(very sharp)

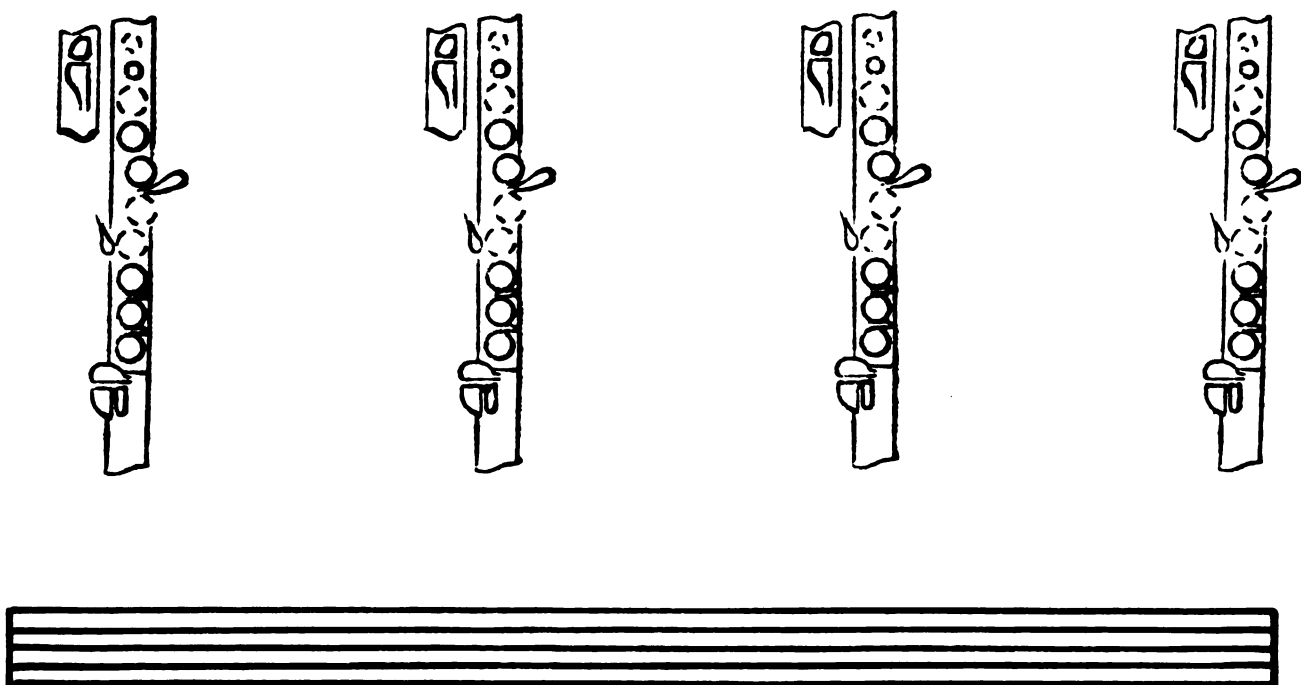
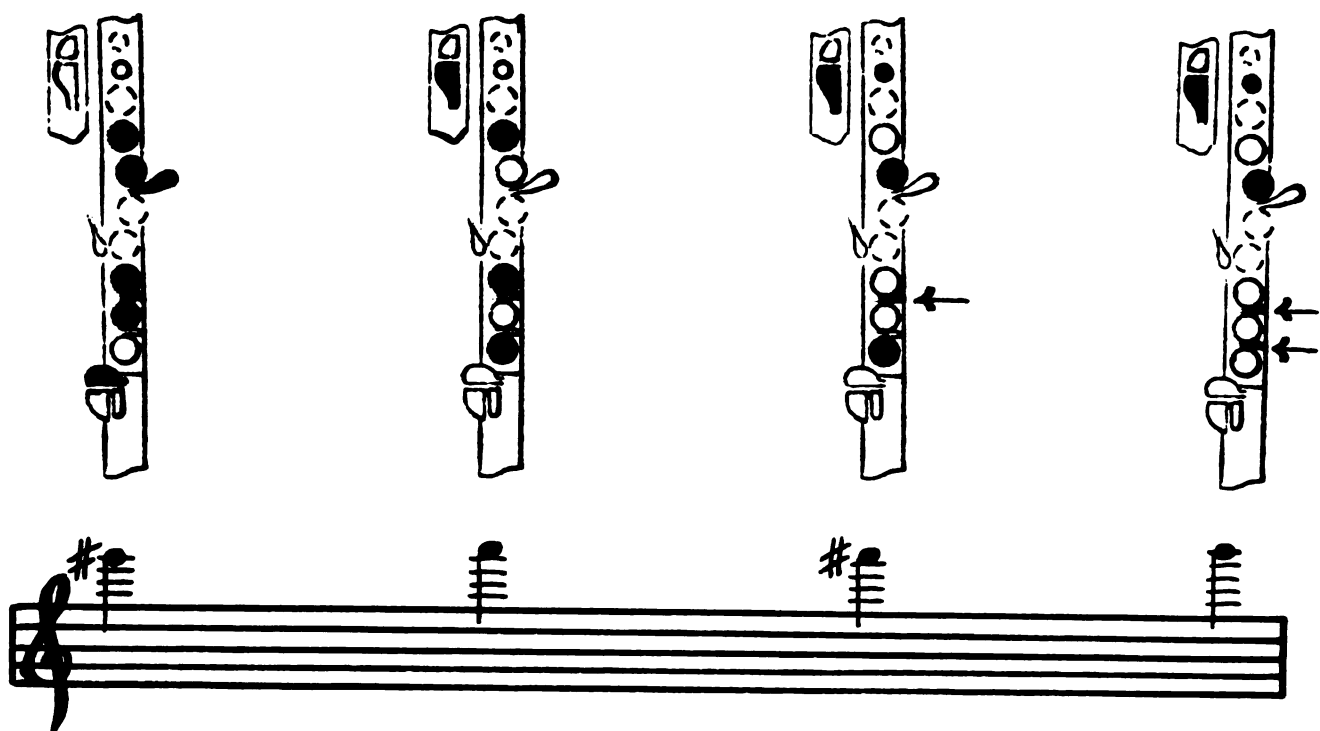
For soft playing

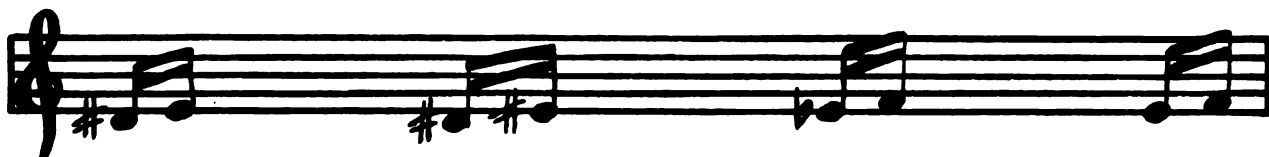
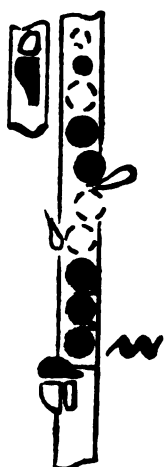
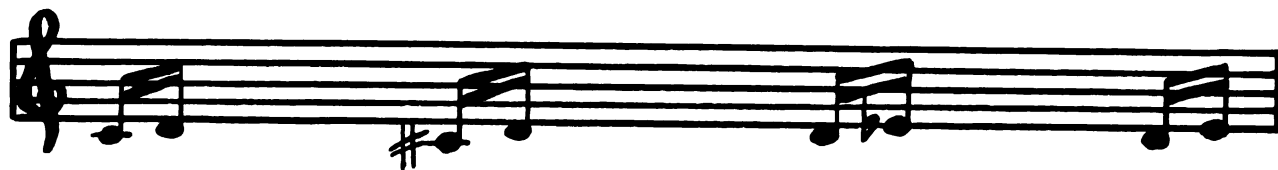
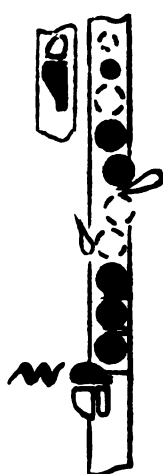
Easier
response

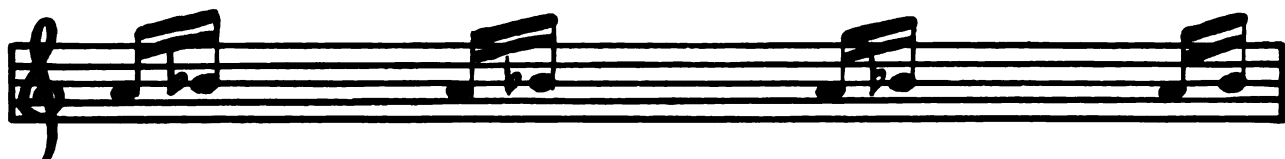
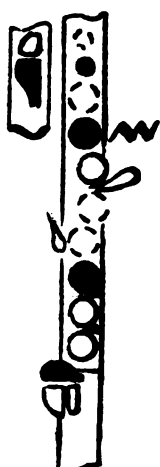
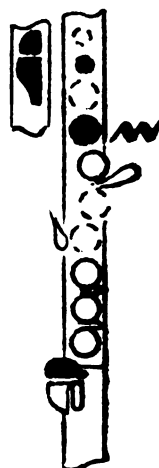
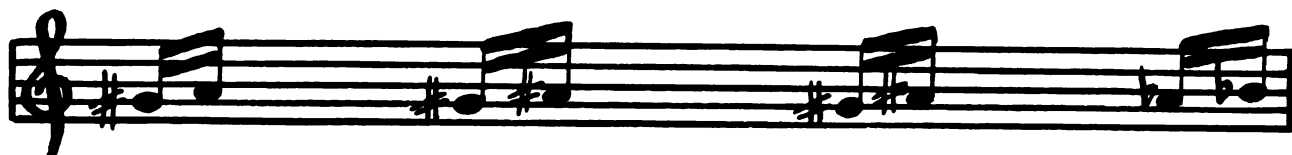
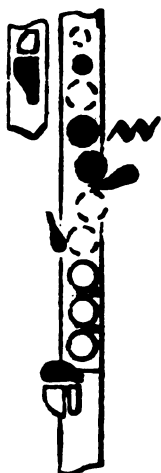
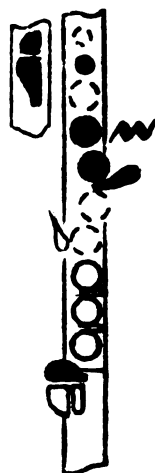


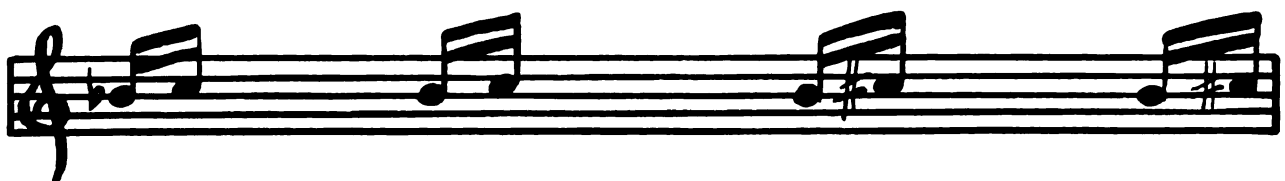
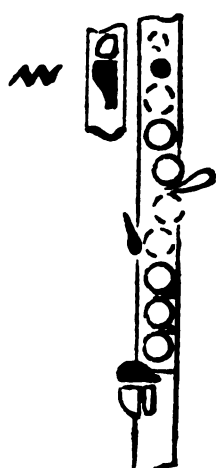
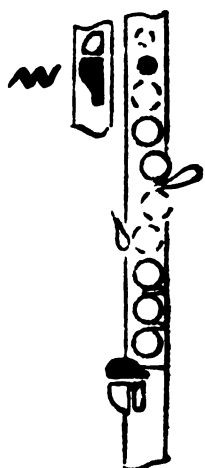
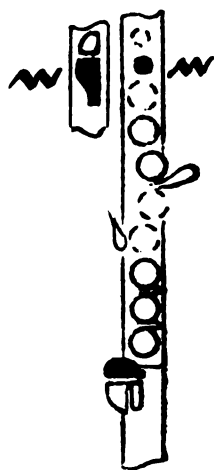
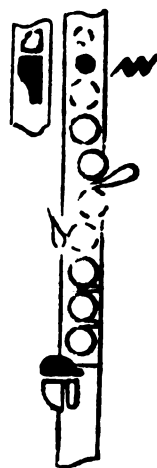
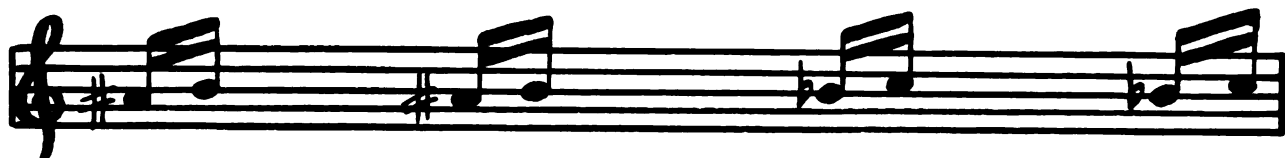
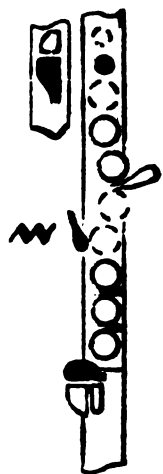
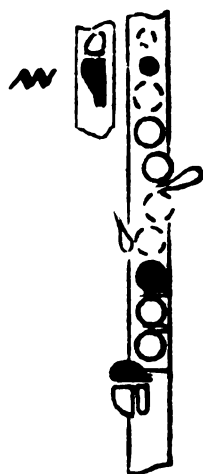
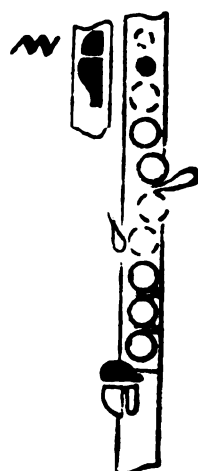
Easier response

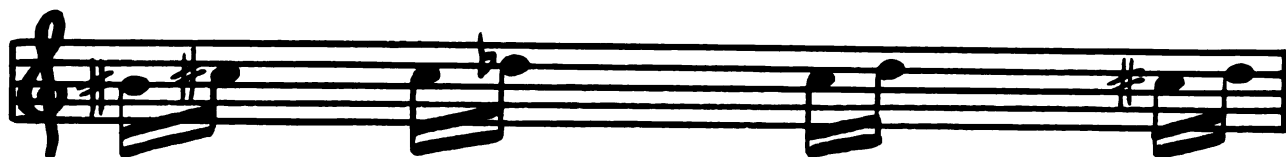
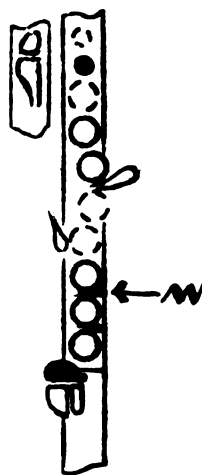
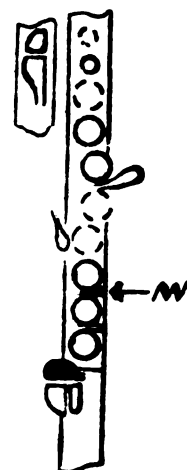




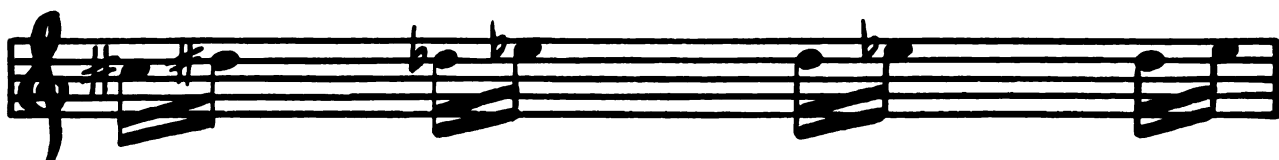
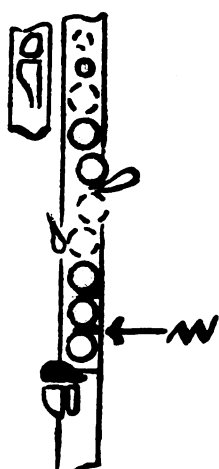
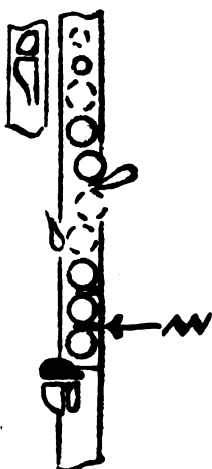


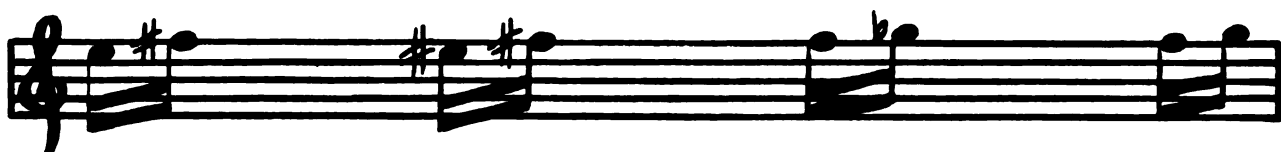
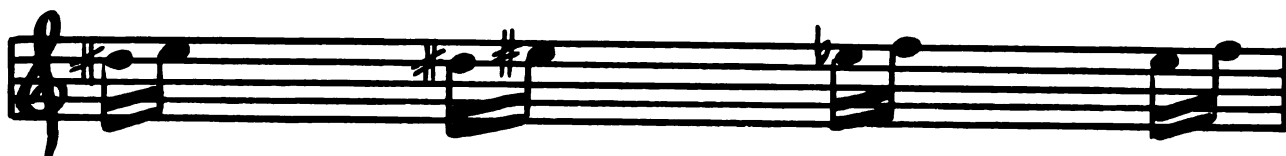
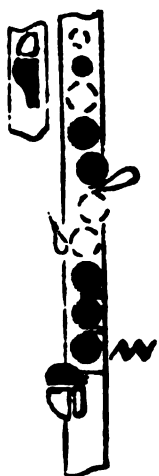


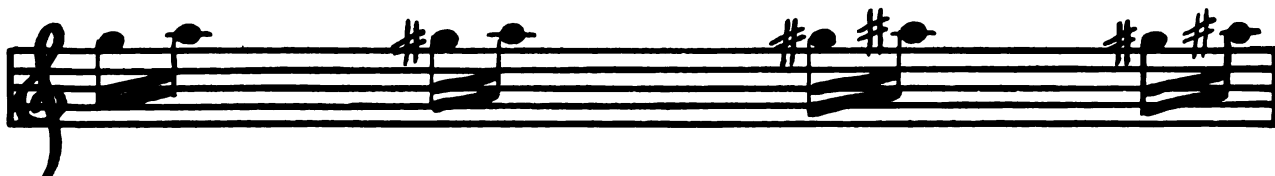
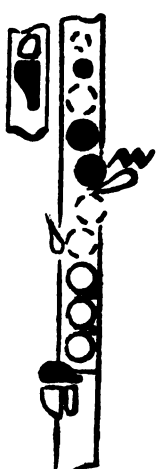
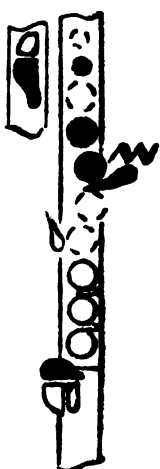
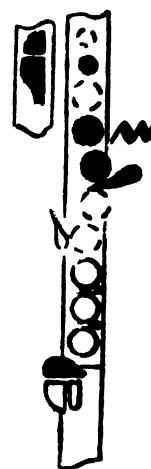
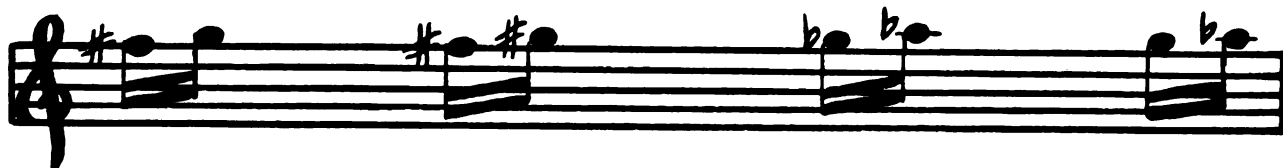
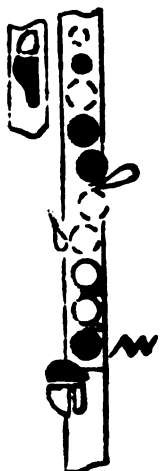
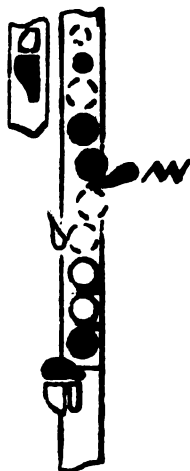


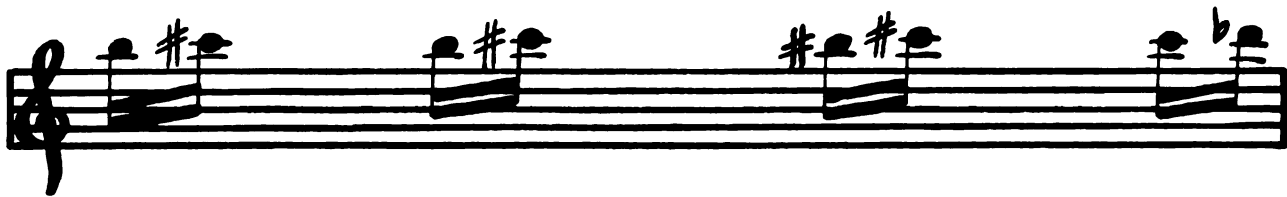
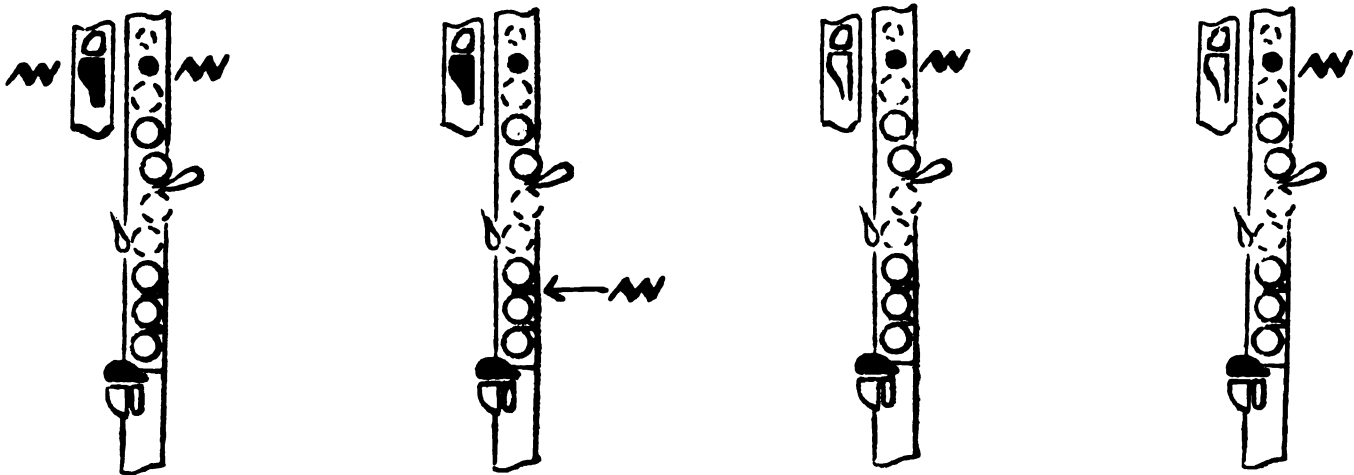
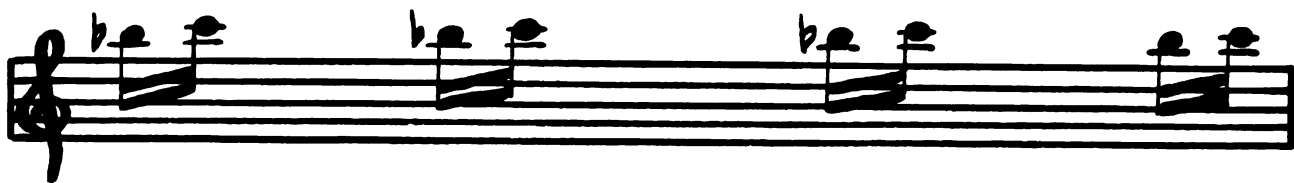
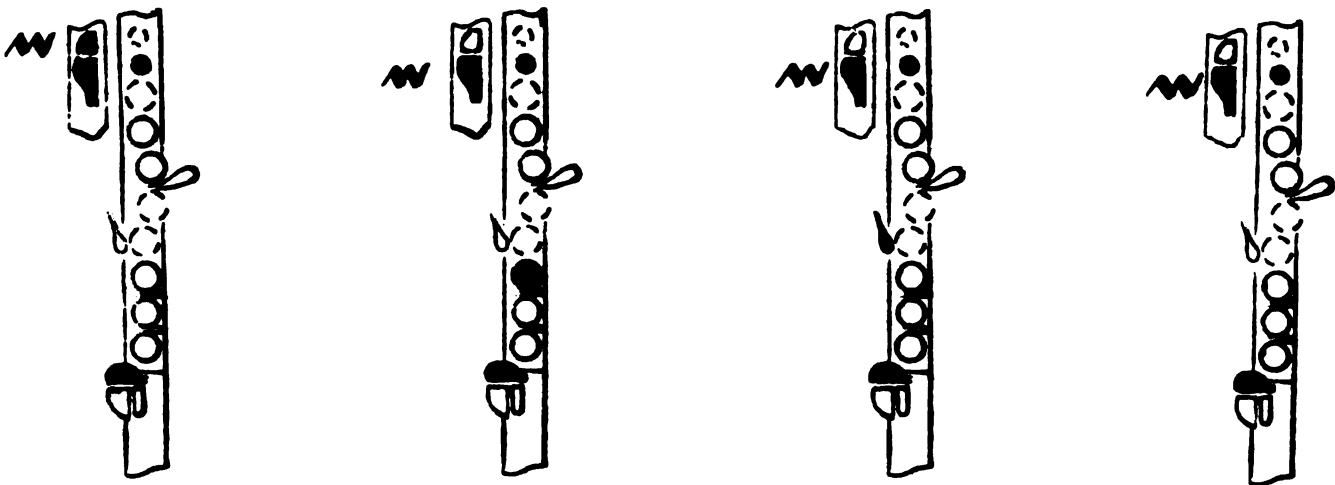


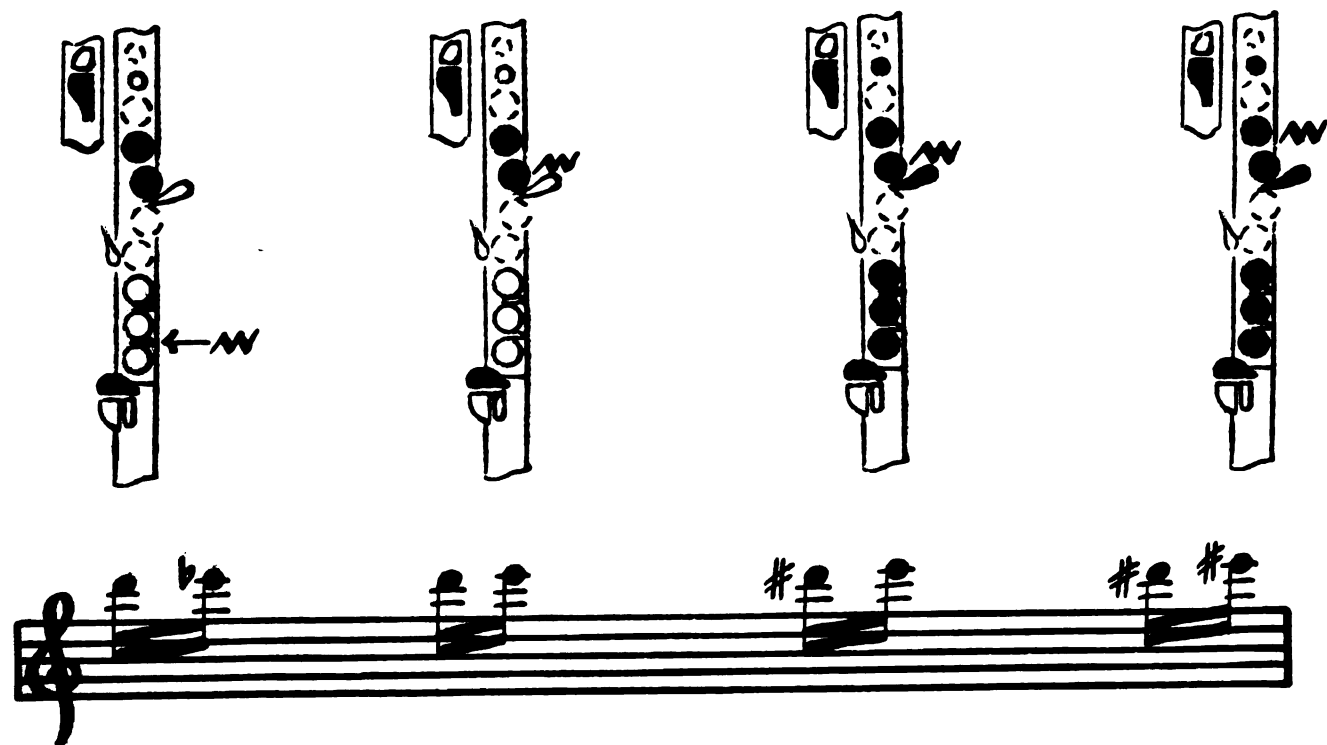
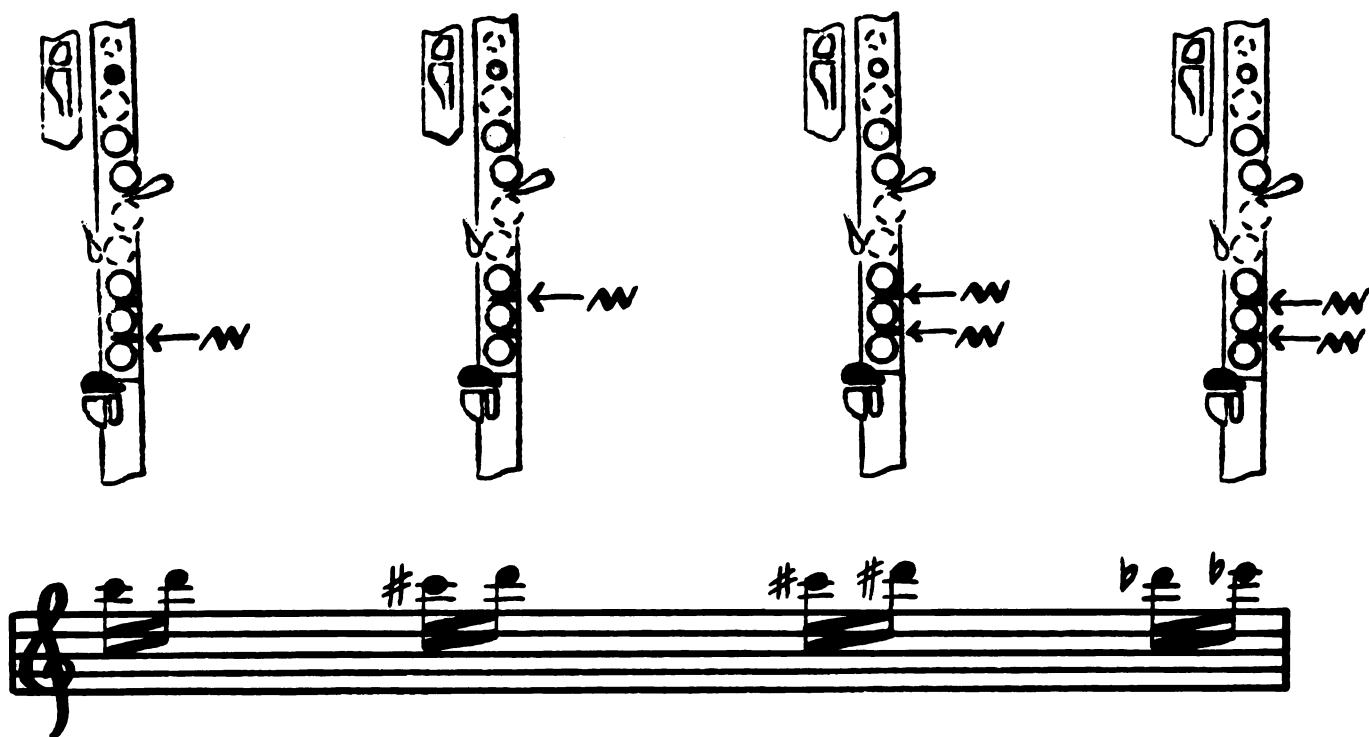
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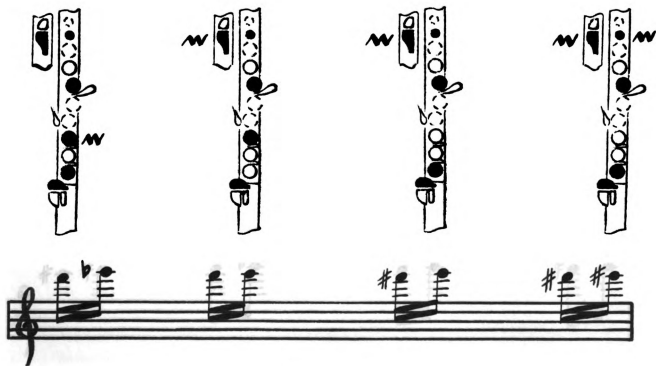
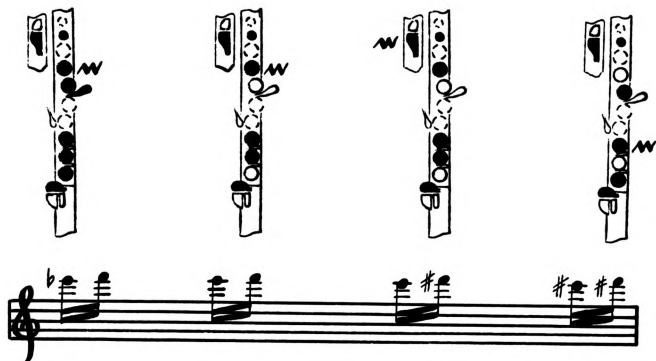


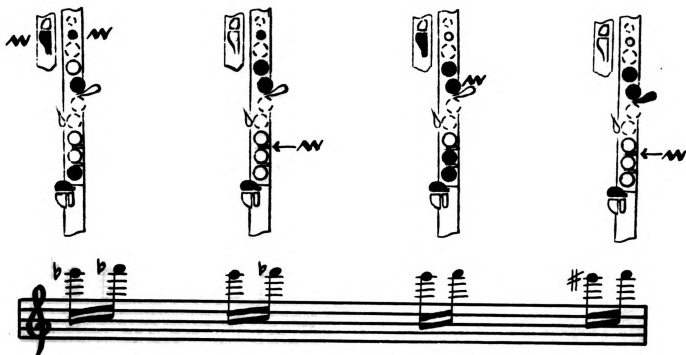




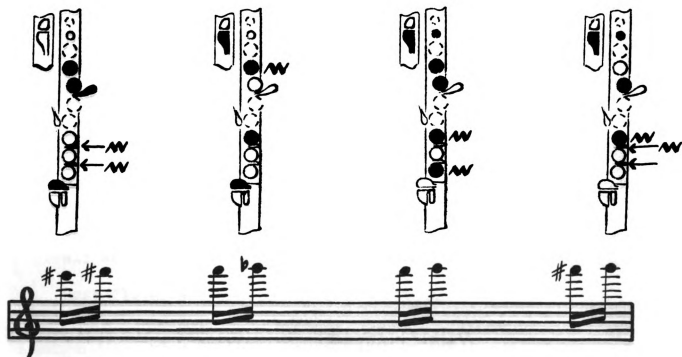








Start on A



CHAPTER SEVEN

TUNING AND INTONATION

A musical performance cannot be divorced from good intonation, the essence of which depends upon the player knowing what he wants and being able mentally to hear the pitch before the sound starts. It is well for the director, in tuning an ensemble, to remember that the great majority of individuals can hear correct pitch only in relation to interval--an isolated pitch is not an adequate tuning device.¹ Band and orchestra intonation will benefit greatly if, in the time dedicated to tuning, intervals, both melodic and harmonic are played in addition to unisons. This lessens ear fatigue that results from repeatedly sounding one note and denies credence to the erroneous idea that "my Bb is in tune, consequently, the entire compass of the instrument is in tune."

The prevalent practice of tuning to Bb only is not at all satisfactory for flutes, especially with young players. Most flutes are manufactured to be in tune at A-440 v.p.s. at

¹Carl Seashore, Psychology of Music (New York: McGraw and Hill Co., 1938), p. 74.

a room temperature of 68° to 72° .² Some student flutes are manufactured at a sharper pitch to compensate for the weak embouchure of the beginning player. These instruments will cause trouble in ensemble intonation and in the proper development of the flute section.

The tuning procedure for most flutes is to tune carefully to the Bb-4 and then to several other notes such as G-5, D-6 and Bb-5. The crux of the entire task is for the individual player to listen and favor the pitches in relation to the whole. If the player cannot determine whether pitches are sharp or flat he may develop the ability to recognize pitch color. Sharp pitch may be described as bright, harsh, shrill or strident; flat pitch may be described as dull, empty, thick or sluggish. This device is especially useful with the young player.

Reasons for and Correction of Poor Intonation

The following conditions may contribute to poor intonation:

²George Waln, "Careful Listening Means Better Intonation," The Instrumentalist Magazine, Vol. IX, No. 7, March, 1955, p. 53.

1. Faulty tuning of the instrument--

This is due to lack of proper tuning procedures in early training.

2. Poor embouchure and breath support--

The importance to good intonation, of proper fundamental embouchure and breath support training, cannot be over-emphasized. This must be accomplished as soon as is possible. If this is a remedial action, it must be one of the first undertaken in order to insure good intonation in the student's playing.

The noted wood-wind specialist, George Waln, states

It is fallacy to think that one will lower a sharp note by easing the breath support. One can favor down on a note with his embouchure only by exerting solid breath support. Experiment by playing B-5 softly and try lowering the pitch without the aid of solid breath support. I doubt that it can be done. The tonal vibrations will cease.³

3. The effect of temperature on intonation--

A cold instrument sounds flatter than a warm instrument. The reason being that temperature affects the velocity of sound; waves travel faster in warm air than in cold air. Many times one member of the group will warm up his instrument before tuning while another will not, thus causing intonation difficulties.

4. The natural tendencies of the instrument--

The flute, by its construction, tends to be flat at the bottom of the range and sharp at the top.⁴

³George Waln, "Are You Intonation Conscious?" Instrumentalist, Vol. X, No. 6, February, 1956, p. 34.

⁴Boehm, p. 15.

5. Pitch changes within the dynamic range--

These changes are especially acute for the young players without fully developed embouchures. When played loudly the flute tends to go sharp and when played softly, it tends to go flat.⁵ The remedial action for this is for the flutist to turn the embouchure plate inward when playing loudly so as to compensate for the sharp tendency, and to roll the embouchure plate away from his lip when playing softly--the proper amount of breath support must accompany these actions. As the ear is the final judge in doing this, one cannot tell the student exactly how far to turn the embouchure plate. Again, empirical judgments will come to bear and should provide the proper solution to the problem.

6. The influence of dissimilar instruments, head-joints--

The effect of different instruments and headjoints due to inconsistency among manufacturers causes concern and consternation among players in a flute section of a band or orchestra.

7. Poor fingering choice--

Alternate and tonal fingerings are available on the flute which greatly affect the pitch of notes. (See Chapter VI.) The final and only ultimate solution is for the student to learn to listen and favor the pitch with his embouchure or by means of alternate fingerings. Waln contends this also:

Most of the faulty intonation by a player, whether alone or in a group, comes from his lack of listening. He must hear the pitch

⁵Boehm, p. 16.

up or down. He can do this with the aid of the embouchure, fingerings and the breath.⁷

Having listed the reasons for poor intonation and their remedies, the next step is to study the flute in greater detail with the aid of scientific instruments in order to more fully understand the inherent difficulties of attempting to play in tune. Since the advent of the Strobococonn in recent years, a new era has begun with regard to the precise measuring and registering of the intonation of any instrument as compared to the equally tempered scale. It is time that music educators utilized more fully the notable advances of science in recent years toward the development and improvement of instruments and the training of future performers. The Strobococonn is an electronic device that measures the relative intonation of tones in a visual manner up to within one hundredth of a semitone of the frequency standard used. The apparatus is contained in two units; one containing windows for every chromatic tone within an octave where the inaccuracy of tones is registered by movement of light patterns in their respective windows, and the other having a control knob that can change the standard of the whole scale up or down by fifty

⁷George Waln, "Careful Listening Means Better Intonation," The Instrumentalist, IX, No. 7, March, 1955, p. 53.

cents by means of a controlled electrically driven tuning fork. The rate of vibration is determined through the control knob by means of a sliding inhibitor on the prongs of the fork. The relative rotation rate of the perforated discs in each window is determined mathematically by means of a geared mechanism. The intermittent light behind the windows which does or does not synchronize with the rotating discs is controlled by the pulsations of the sound entering the microphone. The seven rings on the disc pattern correspond to and register the same tone within each of seven octaves on the piano keyboard. The machine may thus be said to operate on a synchronous motor principle. The experimental research done with this machine by Dr. Donald W. Stauffer is of paramount importance to flute players. The charts that are quoted in this dissertation are the results of work with professional bandsmen and show the difficulties with which the musician must contend even at the professional level of performance.⁸ The flute has been described as one of the most perfect wind instruments existing today. Most of the credit for the present state of perfection of the instrument goes to the work of the well-known Theobald Boehm (see Chapter I). The superior tone qualities of Boehm's

⁸ Donald W. Stauffer, Intonation Deficiencies of Wind Instruments in Ensemble (Washington, D.C.: The Catholic University of America Press, 1954).

instrument were immediately recognized by flutists of the day, and acceptance of the new system was rapid because the technical demands of fingering were not too radically changed from the old methods.

G. W. Richardson sites as the chief improvement of Boehm the principle of the steady contraction of the bore towards the embouchure so that the diameter at the cork is one-tenth less than that at the open end.¹⁰ This makes use of the phenomenon of altering the pitch by widening the tube at points of nodes and antinodes mentioned previously in the chapter on acoustics of the flute. (See Chapter II.) The flute behaves acoustically like the open organ pipe, and therefore overblows the octave and every tone of the harmonic series.

Mechanical blowing of the flute has established the following principles in regard to the factors affecting tone production.¹¹ Pitch and intensity usually go hand in hand

¹⁰G. W. Richardson, The Acoustics of Orchestral Instruments and the Organ (London: Arnold, 1929).

¹¹A. W. Ahrens, "Characteristic Limitations of the Internal Tuning of Selected Wind Instruments," Journal of Experimental Education, Vol. XV, No. 4, June, 1947, pp. 269-89.

and vary directly with the air pressure exerted, but inversely with the size of the exit of the air stream and the distance of the exit to the edge of the hole. The angle of the air stream is the only factor that varies the intensity with only a slight change in pitch. The author is unacquainted with the details of the experiment from which these conclusions were drawn. It seems plausible since no mention was made of the factor, that the volume of the oral cavity of the player was not considered in the above experiments. According to the opinions of players, however, it is a significant factor in the tone production of the flute. It is felt that the changing resonance conditions of oral cavity variance affected by movement of the jaw, tongue and throat that are associated with the common art of whistling, are intimately tied up with production of the standing wave within the tube of the flute. Even though the hole is apparently open to the atmosphere, and part of the air stream is diverted across the outside edge of the tube, it is reasoned that there is a close phase relationship existing between the natural vibration frequency of the tube and the oral cavity of the performer. If this relationship is perfect, the result is a full resonance that gives forth the maximum in beauty and carrying power in the

tone. More experimental evidence is needed to understand more accurately the causal relationship of the flute tone.

In figure 8 the average intonation of the flutes tested is graphed and compared with the average clarinet intonation on identical pitches. It has been observed by others that the flute and clarinet vary in opposite directions in regard to intonation level in high and low registers.¹² This is clearly portrayed in figure 8, as well as the interesting picture of intonation divergence from top to bottom of from twenty-five to forty cents. This means that if the players actually played in ensemble with the same intonation that they used individually, the difference between the two would be almost one quarter of a tone.

In general, the first and second octaves are very flexible, but the greatest change of pitch can usually be accomplished on the flat side. It has been found, for example, that the lower notes, C-4, D-4 and E-4, were extremely difficult to bring up to pitch (440). The usual impression of the third register being sharp is borne out in the graph with the glaring exception indicated by a recession in the region of

¹²Robert Willaman, The Clarinet and Clarinet Playing (Salt Point, New York: Willaman, 1949), p. 46.

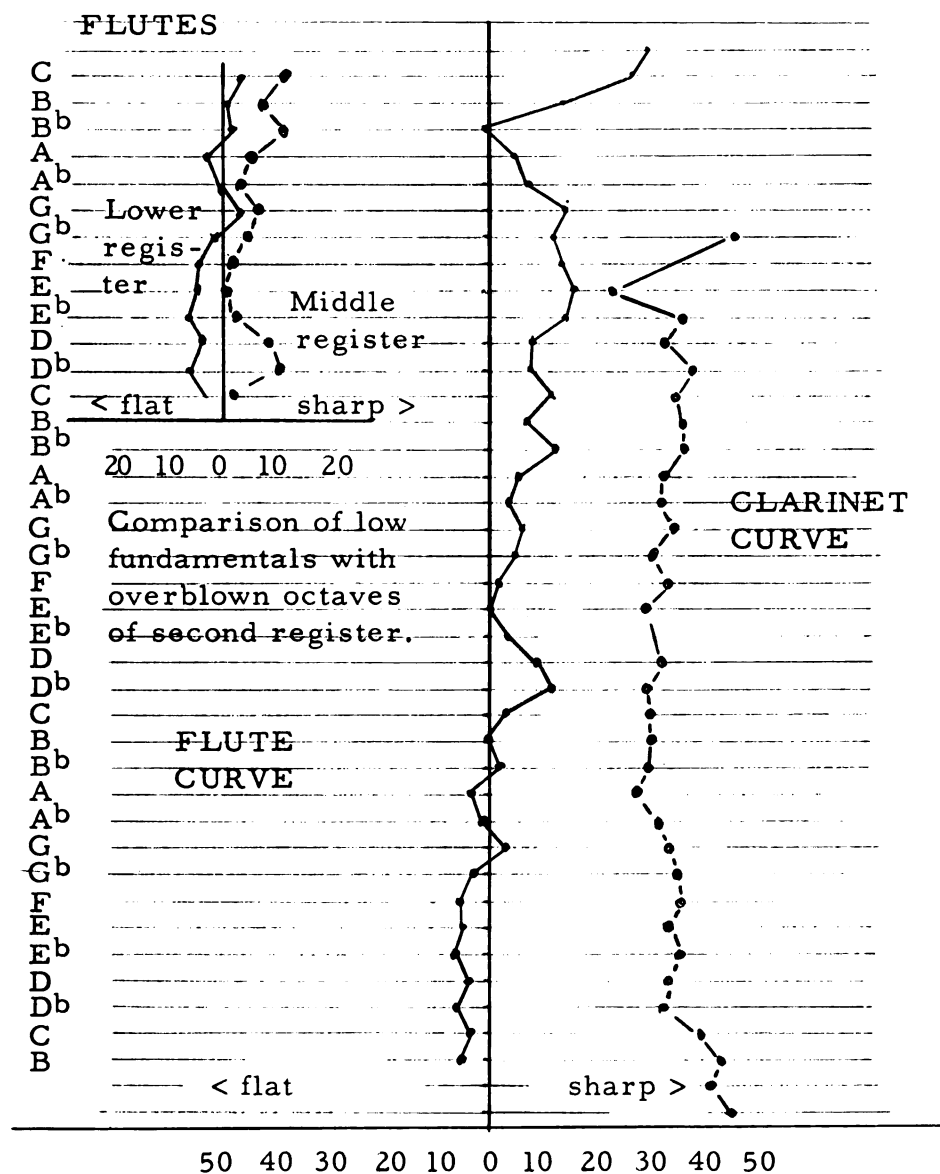


Figure 8

From *Intonation Deficiencies of Woodwind Instruments in Ensemble* by Donald Stauffer, Copyright, 1954. The Catholic University of America Press, used by permission.

Bb-6. An interesting comparison is drawn in the small graph in figure 8 of the relative intonation of the tones in the middle register with their parent fundamentals in the low octave. The second octave is shown to be sharp with the low octave and the tones have a tendency to deviate in the same direction. Figure 8 illustrates in musical notation the relative tendency of intonation of notes throughout the register of the flute. The relative curve from flat to sharp cannot be indicated too well in a chart of this nature, only the relativity of intonation of a tone in respect to its neighbors may be seen.

Another interesting and important comparison to be drawn between flute and clarinet is the direction of pitch change that accompanies a crescendo or increase in intensity.

The tone of the flute is apt to go sharper as is borne out by the study cited by Ahrens and experience of musicians.¹³ Best results in terms of intonation agreement between flute and clarinet would seem to be when both were playing as loudly as possible. Once the instructor is aware of these tendencies he is able to advise the student as to the likelihood of the placement of the pitches. Consequently, the student is able to know beforehand what notes to humor before having to play them.

¹³Ahrens, pp. 269-89.

In summary, it may be said that even though this chapter has delved into the tuning problems and intonation problems of the flute in detail, even to the use of scientific instruments, this entire chapter will be of no avail unless the student and instructor work together in improving the aural potential of the performer.

CHAPTER EIGHT

TONAL DEVELOPMENT

Since the development of tone is such a difficult and nebulous entity on which to satisfactorily express one's views, a summary of tonal development as expressed by some of the world's leading flute teachers and performers will be of value.

In conducting the basic research for this chapter, the works and writing of many flutists were investigated. The authors chosen as being most representative as teachers and players were Theobald Boehm,¹ Marcel Moyse,² George Barrère,³ Frederick Wilkins,⁴ R.S. Rockstro,⁵ and J. J. Quantz.⁶ After

¹Theobald Boehm, The Flute and Flute Playing (New York: McGinnis and Marx, reprint, 1960), p. 136.

²Marcel Moyse, Of the Sonorousness (Paris: Leduc, 1934), p. 10.

³George Barrère, "Flute Tone," Etude, June, 1936, p. 355.

⁴Frederick Wilkins, The Flutist's Guide (Elkhart, Indiana: Artley and Co., 1957), p. 23.

⁵R. S. Rockstro, p. 435.

⁶J. J. Quantz, Versuch einer Anweisung die Flöte Traversiere Zu spielen (Berlin: Voss, 1752), p. 90.

reading the advice given the flutists as to how to best effect a proper tonal development, the author compiled the ideas, which were basically all the same, into the section which follows.

The pure flute tone depends upon the direction in which the air stream is blown against the edge of the embouchure plate. Each octave requires a different direction of the air stream. When the correct one is found, not only will a good tone result, but the pitch will not be affected by the different volumes of air that will course through the flute. By overblowing, each tone can be made to break into partials of the harmonic series. If the overblowing is more than an octave, this indicates a tense embouchure and the student is advised to learn to relax the lips. It must be remembered that the flute overblows the octave and anything more than this is in the nature of a misplaced tone..

For players who lack a proper understanding of tone quality or lack tonal discrimination and are handicapped by faulty embouchure, the tone quality may be improved by the following exercises. Since a gradual transition of all things is best, by passing from the easy to the difficult, no one, in playing the flute, should begin with the higher and/or lower tones, which are difficult to produce. He

should begin in the middle register in which the tones B-4 and C-5 are located. The beginner should play these tones starting with a double piano dynamic and then should crescendo to a forte dynamic without raising the pitch. Once there, the student should bring the tone back to the double piano again without going flat. The next step is to play the C-5 again, and while the clear, pure tone is being sounded, push the B-4 key down rapidly and strive to retain the same quality of tone on the B-4 as was being produced on the C-5. Continuing in this manner, and with the least possible alteration of the embouchure, gradually, proceed to the lower tones and then practice from C-5 upwards to the higher register. Since each tone is always developed out of the proceeding tone, which is as good as it can be, all of the tones will remain as near pure as is possible considering the achievement level of the student.

As soon as one obtains a feeling of certainty in the embouchure formation, he should then practice all of the major and minor scales. Following this, he should practice playing the exercises in the book Of the Sonorousness by Moyse.⁷ The embouchure will thus become accustomed to the

⁷Moyse, p. 10.

playing of large and small intervals, and will soon be in a position to play the greatest skips with the proper embouchure formation, and consequently, with absolute certainty.

In summarizing the writings of the previously mentioned authors, the following conclusions describing a good tone and the fundamentals of tone production are presented.^{8, 9, 10, 11, 12, 13}

Description of a Good Tone

1. Must have "core" or center
2. Should have no "fuzz" on the outside edge of the tone
3. Must project well
4. Must have good pitch
5. Should have a good vibrato

⁸Boehm, p. 136.

⁹Moyse, p. 5.

¹⁰Wilkins, p. 23.

¹¹Rockstro, p. 435.

¹²Barrère, p. 355.

¹³Quantz, p. 90.

Fundamentals of Good Tone Production

1. Must use consistent breath support
2. Must have correct direction of air stream for octave desired
3. Should have correct speed of air stream for octave desired
4. Must have knowledge and use of proper pitch adjustment
5. Must understand correct use of vibrato
6. Must vary size of tone and intensity in accordance with the mood of the music
7. Should study professional tones (records-concerts)

The acquisition of a beautiful tone is an unending and greatly taxing job. The words of Theobald Boehm seem to sum up a proper and complete philosophy regarding the tonal development in a concise and pertinent manner.

The one who takes care, in practicing every note, will be, at the end, a good player.¹⁴

¹⁴Boehm, p. 137.

CHAPTER NINE

THE VIBRATO

History and Evolution

While it is generally accepted that the use of vibrato in wind-instrument playing is a sign of modernism, and that in line with progress, it is a new concept, documents exist that tend to prove that vibrato was used by wind players as early as the sixteenth century, and was a common practice throughout subsequent eras. One reference seems to have gone unnoticed so far, although it is one of the oldest and most significant in its implications. It takes one back into a period slightly earlier than the Baroque, preceding that of the culture of the solo voice and its reflection upon instrumental technics. It is found in one of the earliest books on musical instruments published, Martin Agricola's Musica Instrumentalis Deudsch,¹ which first appeared in 1528, and which was a reworking in German of its predecessor, Sebastian Virdung's Musica Getutscht of 1511. Agricola used Virdung's plates of various instruments but added his own text, which he changed and augmented in subsequent editions of 1530, 1542, and 1545.

¹Martin Agricola, Musica Instrumentalis Deudsch (Wittenburg: George Rhan, 1528), p. 209.

In the latter editions, discussing the Swiff Fife, a cylindrical six-holed instrument which is reproduced in four sizes, descant, alto, tenor, and bass, Agricola states:

When playing the fife bear well in mind
To blow it with a trembling wind
The way they mostly teach it in
The case of the Polish Violin
As trembling ornaments the song
Here too it never can be wrong.²

The continuation of this poem exhorts the German organ makers to install in their instruments a vibrato mechanism, a device known, but not frequently used at the time. The book also relates that "God did not give us knowledge of vibrato to keep it to ourselves, but to make it available to everybody."³

In one of the first flute methods published, Jacques Hottetérre le Romain's Principes de la Flute Traversiere,⁴ which appeared in 1707, a chapter is devoted to two ornaments, one designated as battement, the other as flattement. The former is a trill produced by covering only the edge of the hole below the note played, or by completely covering the tone-hole immediately below the note played. The flattement

² Josef Marx, "The Truth About Vibrato," Woodwind, Vol. IV, No. 3, November 1951, p. 6.

³ Marx, p. 8.

⁴ Hottetérre, Principes de la Flute Traversiere (Paris: Ballard, 1707), p. 29.

of the low D-4, then the lowest note on the flute, was produced by turning the flute backward and forward, thus lowering the pitch. Since these procedures produce a downward wave of only a few vibrations this ornament may be grouped with the vibrato. Hottet  re further informs us that the same method also applies to the recorder and the oboe.

On June 12, 1778, Mozart wrote in a letter:

The human voice trembles by itself, but such, and in a degree which is beautiful--that is the nature of the solo voice which one imitates, not only on wind instruments, but also on the string instruments, yes, even on the clavichord--but as soon as it passes the limit, it is against nature; it sounds just like an organ when someone pokes the bellows.⁵

Fortunately, knowledge of wind instrument vibrato in the past is not based entirely on theoretical speculation. These previously mentioned documents prove its existence, as well as that of vibrato in general, much earlier even than it generally is assumed. These references have covered a span of 250 years and should serve to convince the reader of the plausibility of these claims, though they certainly do not exhaust the subject. These examples only suffice in that

⁵Emily Anderson, The Letters of Mozart and His Family, Vol. II (London: MacMillan and Co., 1938), p. 817.

they open the door to more research, more information and more interpretation in the hope that substantial positive proof will be forthcoming which will give credence to the facts already stated.

The Successful Teaching of Vibrato

Many articles have been written about the problem of vibrato. This study has been made with the idea of reinforcing knowledge about the vibrato and with a desire to clarify some misconceptions about this ancient and vexing enigma. Webster defines vibrato as "an effect obtained by rapidly alternating the original tone with a slightly perceptible variation in pitch." Flute players have devised many means of obtaining this sound among which are the throat vibrato, the natural or chest vibrato and the diaphragm vibrato. This study is concerned only with the diaphragm vibrato.

The so-called diaphragm vibrato is not actually a diaphragmatically produced sound. It is a pulsation produced by the rib, or intercostal, muscles. This is a statement which conflicts with the opinions of many teachers, performers and writers. As a flutist, the writer has always been interested in the teaching and playing of vibrato. This interest has been fostered by many fine teachers and professional

flutists during years of study. This interest led to a conversation with an anesthesiologist who was an amateur flutist. In questioning the physician the writer found that, medically speaking, the diaphragm is basically an involuntary muscle and could not be trained, without the greatest difficulty, to produce the undulations necessary to the diaphragm vibrato. This was demonstrated when the physician, the writer, and three flute students traveled to a near-by university hospital and obtained the services of a fluoroscope. The fluoroscope is a machine for examining internal structures by viewing the shadows cast on a fluorescent screen by objects or parts through which x-rays are directed. The shadows vary with the intensity of the objects or parts. All of the flutists took turns playing in front of the screen and all took turns watching the process of vibrato. The sight that greeted the students and the writer was convincing. The diaphragm did not cause the vibrating sound that has so long been associated with it. The intercostal muscles, that is the rib muscles, did the work of pushing out a gently pulsating sound. While the flutists played, the diaphragm merely moved upward in a slow steady fashion, not unlike the bellows of past years. As an experiment, the writer has tried to imagine exactly

what muscle to move when trying to move the diaphragm. It is very difficult to attempt to manipulate a muscle that is so completely enclosed inside the body and with such involuntary characteristics. One cannot actually feel the muscle move. However, if a student were instructed to try and manipulate the rib muscles, it is much easier and quite possible to do just this, as the student is able to feel this band of muscles and can actually see it working at moving the rib cage. This manner of teaching is logical and is also quite fast in obtaining results. Since seeing this intercostal motion and talking to members of the medical profession, the writer makes certain to use the following method of beginning the vibrato. When first working with the student, have the person practice moving the rib muscles back and forth with greatly exaggerated movements. This motion must be done in a regular rhythm. The student must be quickly brought to the realization that this is the basis of teaching and learning the vibrato. This rib motion is also tied up with the motion of moving the abdomen in and out in strict rhythm. To do this motion the student executes rhythmic inhalation and exhalation of air. It must be emphasized that moving the abdomen is a basic tenet of this type of vibrato and must be accomplished to create a controlled sound. Once this feeling has been accomplished and

established the next step is to stop the exaggerated overt movement and get the pulsation of air scaled down accordingly until with relatively small muscle movement the inhalation and exhalation of air is even and smooth. Following this the student should put the flute to his lips and start the vibrato by saying with his breath, sans voice, "ha, ha."

By setting the metronome at sixty beats per minute and trying first to get one big pulsation per beat perfectly and evenly the student will be on his way to producing a sound that will have an excellent singing quality. After this is accomplished the student should strive for two pulsations per beat continuing until he reaches the optimum of six vibrations per beat on the metronome. After the evenness problem has been solved the student might wish to experiment with the speed of the vibrato. While the speed of six vibrations per beat is suggested, many flutists prefer a slower or faster sound and it should be delegated to the musical good sense of the performers which speed they choose. Needless to say, the vibrato speed should change sometimes to fit the prevailing mood and intensity of the work being performed. A vibrato that is able to go only at one speed is not as useful as that which can be changed to fit the need of the artist and of the music.

When the student can control his vibrato the next important step is to be able to go from one note to the other with no stopping of the tone and vibrato. To do this it is recommended that the student work on very simple melodies such as the slow movements from the Baroque flute sonatas of J. S. Bach and G. F. Handel.^{6,7} The practice of popular tunes that the flutist may play by ear is also helpful and recommended. This later method allows the younger student to be more aware of the aural dimension of music by concentrating solely on his tone and vibrato production without having to read music. The use of scales in the development of the vibrato leaves much to be desired. It is true that scale practice is an aid in securing a smooth vibrato through the step-by-step production of tones. In addition to this experience, the student needs practice in developing the smooth vibrato while playing large intervals. Experience of this sort may be secured by working on the tone book of M. Moyse.⁸ Of the

⁶J. S. Bach, Six Sonatas for Flute and Piano (San Antonio, Texas: Southern Music Co., 1939).

⁷G. F. Handel, Seven Sonatas for Flute and Piano (San Antonio, Texas: Southern Music Co., 1939).

⁸M. Moyse, Of the Sonorousness (Paris: Leduc, 1934), pp. 16-27.

Sonorousness. While it is tiring to work on the tone and vibrato exercises the rewards far outweigh the drudgery. The writer hopes that teachers will find the material presented useful in helping their students to understand and develop a smooth singing vibrato.⁹

⁹Charles Osborne, "An X-ray View of Flute Vibrato," The Bandwagon, Vol. 8, No. 3, (Fall, 1960), p. 5.

CHAPTER TEN

ARTICULATION: SINGLE, DOUBLE,
TRIPLE AND FLUTTER TONGUING

In the sixteenth century writers expounding on the art of flute playing were concerned with the correct methods of articulation. As flute teachers and performers today continue to cope with this problem, a detailed account of modern practice is included in this chapter. The basic attack, slurring, single, double and triple tonguing and flutter-tonguing will be discussed.

Starting a tone on the flute by merely blowing into the instrument, although possible, is a technique rarely employed in performance, and best never practiced by the beginning student. The tone is most frequently started by establishing the requisite air pressure in the mouth cavity and then releasing this air by means of the tongue. In essence, this is accomplished by moving the tongue so as to form an inaudible "da" (as in fär) sound, which is preferable to other syllables in that it emphasizes the use of the tip of the tongue while also encouraging a more open throat in the start of the tone. It will be noticed in this basic attack, that the tongue normally touches the gum just above and behind the

upper teeth. This is the correct position of the tongue in attack, and is, of course, the approach to be stressed with the beginning student.¹ In further development of this basic attack, the following generalities may serve as guides. (The student should bear in mind, however, that these generalities are intended primarily as a guide for the beginning student; variants of the single attack, as well as other types of articulation are discussed later in the chapter.)

1. The tip of the tongue is to be used in the studying of this basic attack; any variation will not produce as clean or acute a beginning of the tone.

2. The tongue should strike nearer to the edge of the upper incisors as one plays lower in range or louder in intensity, and strike higher up on the gum as one plays higher in range or in a softer dynamic. In starting the lowest tones, the tongue may even almost touch the lips of the performer, but care should be taken that the tongue is not allowed to protrude between the lips. If the tongue protrudes with each attack, it disturbs the embouchure in such a

¹Douglas Steensland, "A Flute Playing Outline," (Elgin, Illinois: 1949), unpublished manuscript presented at Music Educators National Conference, Chicago, Illinois, 1949.

manner that the attack often has a distinct sound of its own, the tone being unnecessarily delayed.

3. The tongue is used to start tones, not stop them. In starting and in repeating tones, the preparation of the tongue for starting one tone will of necessity cut off the previous tone. The double-acting "tut-tut" sound of the tongue, frequently used in misguided attempts at staccato, is limited in its application to music and is definitely not recommended for the beginning student. Let the student concentrate on starting the tone with a clean attack, and stopping it, when not immediately followed by another, by simply interrupting the air stream, keeping adequate breath support and slightly lifting the head at the end of the tone so that the pitch does not sag or go flat. The student should think of ending the tone as in the shape of an eggshell, a tapering off of the sound.

4. The student should strive for evenness of attack in relation to the tone that follows. Tones beginning with an accent or swelling from a soft attack are used for expressive reasons and are most often indicated by the composer. The basic attack, however, is at that point wherein the tone begins and continues at the same dynamic level.²

²Nelson Hauenstein, Technics of Teaching Flute (Ann Arbor, Michigan, University of Michigan, 1953), unpublished manuscript.

Mention should be made of that aspect of articulation known as slurring. When one notices a slur mark in his music he should understand that the tongue is not involved in this articulation except to start the tone. The beginning student will have to be continually reminded not to use his tongue in passages that are clearly marked as being slurred.

In studying many methods for the purpose of finding the best syllables to use in single tonguing, the results were confusing. In ten methods studied, both old and new, there were seven different manners of forming the "one and only syllable for best production of single tonguing." The methods studied were of French, English, German and American origin and since the famous writers of these books were successful in their field, the student does not know what to believe. In the books the syllables given were "too," "ter," "te," "doo," "da," "tee," "tek," and many other variations of the same. From consolidation of the ideas it seems that if the student is serious in learning to tongue, he should pay strict attention to two basic premises presented in the methods.

1. If the student wishes a strong, hard, explosive attack for special effect passages, he should use and experiment with a syllable that begins with a "t" sound.

2. If the student wishes a soft attack he should use a syllable that begins with a "d" sound. Of course, the student will have to use the correct amount of breath support and diaphragmatic pressure to go along with the chosen syllables.

The student will wish to know how to increase his speed in this matter of tonguing and the following recommendation is made in order to achieve this end. The use of a metronome is all important in this matter--simply set the metronome at a slow rate of speed, i.e., sixty beats a minute, and play four repeated sixteenth-notes to one beat using scale and arpeggiated patterns. When this is even, controlled and relaxed, speed up the metronome and consequently increase the playing speed along with it. As this process is a difficult and laborious one, an excellent motto for the young flutist is to "make haste slowly."

Double Tonguing

As regards doubling tonguing, the following concepts must be remembered. The syllable most often used is "doo" for the down-stroke and "goo" for the up-stroke. By applying the same technic as mentioned in the previous paragraph, the speed of the double tongue may be speeded up to the

desired mark. If the double tongue is uneven, the student is advised to switch the tonguing syllables around and start the tonguing on the "goo" until the sound is more even as to weight of sound in tonguing.

In playing music of German and French origin it is important to know the various meanings for the double tonguing indications in the music. In French the words for double tonguing are "double coup de langue"--in German the word is "doppelschlag."

For the student wishing to acquire suitable materials for development of double tonguing the "Staccato Etude" by Safranow, published by Cundy-Bettoney is an excellent source. (See Appendix I.)

Triple Tonguing

This dissertation will not delve deeply into the triple tonguing actions as it is falling into disuse among modern flutists. If the student is determined to learn this technique he may simply use the double tongue syllables and accent in the following manner, "doo goo doo goo doo goo doo goo doo." It will be apparent that the only difference between the double and triple tonguing is that the accent falls in a different place every other time.

Flutter Tonguing

Flutter tonguing is a device that seems to be gaining in favor with modern composers. Most authors attribute the flutter tongue in music to Richard Strauss, but Agricola made mention of it in his book on musical instruments in reference to very elaborate decorative playing.³ Modern composers such as Henry Brant in "Angels and Devils," Darius Milhaud in his Sonatine, S. Karg-Elert in his Suite, opus 135, and M. Ravel in La Valse, use the flutter tongue merely as an effect.

The flutter tongue is produced by rolling the tongue against the roof of the mouth in exactly the same way as one rolls an "r." Many flutists have difficulty in doing this and have to revert to making a guttural "r" sound in the throat to make the same effect. In flutter tonguing be certain to keep the embouchure relaxed and do not permit the sound to become too rough. Maintain the proper pitch, as the tendency is toward sharpness. Some of the terms that composers use to indicate the flutter tongue are:

"rrrrrrrrrr"

Flutter

³ Agricola, p. 186.

Flatterzunge (German)

Tremolo (French)

En roulant la langue (French)

Students of tonguing will have to spend many hours in patient practicing in order to achieve an even relaxed sound in tonguing. The student will have to rest frequently in order not to tire himself unduly as the practice of tonguing entails a large amount of muscular control and at first the muscles will tire very quickly. As the student gains control of these muscles and as these muscles gain strength, the length of practice time may be elongated.

CHAPTER ELEVEN

THE PICCOLO, ALTO AND Eb FLUTE

One of the primary shortcomings in the average flute player's consideration of the piccolo is his failure to recognize it as a separate instrument. All too often he thinks of it as a necessary but embarrassing "poor relation" of the flute.

The attitude that automatically assigns the piccolo the rôle of a secondary instrument--and it is found even among professional players--is certainly not conducive to the development of good piccolo players. This way of thinking then makes being assigned to piccolo in band or orchestra something of a demotion. The first recommendation is for the band or orchestra director to assign one of his best talents in the flute section to piccolo.¹ One must remember that while the piccolo player may play less frequently during an average concert than the first or second flute, he is almost certain to be heard in every passage where he does perform.

¹Edward Ellanger, "Teaching Flute," Woodwind, Vol. IV, No. 3, November, 1951, p. 6.

Good piccolo players are said to be few in number, yet this need not be so. Most good flute players would be able to play excellent piccolo if only they would purge themselves of the "inferior instrument" complex and study the instrument seriously.

No one should ever have the misfortune of being forced to play on an inferior instrument of any description--in the case of the piccolo, this axiom can hardly be over-emphasized. Only the best quality instruments obtainable should be used. The inferior piccolo is a notorious offender as regards intonation; and its thin, shrill sound lays a slim veneer on top of what might be a most pleasing orchestral or band tone.

Piccolos are still being manufactured in Db as well as in C, but it is recommended that only the C piccolo be considered for purchase. Orchestral music employs the C instrument, and even in band, where the Db piccolo was once used almost exclusively, the C piccolo is supplanting it more and more.

Some publishers of band music are today issuing separately printed alternate parts for C and Db piccolos. Many publishers, however, are already discontinuing the

publishing of the Db parts. This is good, because the C piccolo is, generally speaking, a superior instrument. The Db piccolo has never, in the opinion of many, seemed to have quite as good a tone quality as the C. The reason for the existence of the Db piccolo in the first place was due to the fact that for bands, the Db instrument put the player into a more advantageous key, i.e., if the band key was Ab, it would put the piccolo player into the key of G. This is no longer necessary as the players of today have greatly improved their skill and are not so hampered by key signatures. The C piccolo has a slightly longer tube, giving the manufacturer a little more with which to work. This is an important consideration in an instrument where the tone holes and fittings are already tightly compressed into such a short length of tube.²

The fact that there are three types of piccolo now available should be pointed out at this juncture in the discussion. These are, 1.) the cylinder type bore, 2.) the conical bore, both in wood and silver, and 3.) the wood piccolo, which is almost exclusively conical. All three of these are on the instrumental market today and the band or

²W. E. Haynes, Flutes (Boston: Haynes Co., 1953), p. 13.

orchestra director should be advised of what is best for the players.

The wood piccolo is not recommended for high school or college players.³ Because the wood piccolo does not have a raised aperture plate, it has an entirely different feel than the flute and this requires a different embouchure setting than either type of silver piccolo. It tends to be more tiring on the performer when a full evening of playing is required. In other words, its use demands a piccolo "specialist" who practices a great deal. It is a liability for football playing occasions, as it is prone to crack in severe cold. Not many wood piccolos are being made today, but they are still used by many professionals who feel that they give a more rounded, softer tone. There are also professionals who use the silver headjoint with the wood body. These men feel that the silver headjoint makes the instrument blow easier without sacrificing tonal quality.⁴

The silver piccolo, as stated above, is made in two different types of bore, conical and cylindrical. The conical bore is the only one most professionals recommend.⁵

³ Ellwanger, p. 7.

⁴ Haynes, p. 4.

⁵ Haynes, p. 13.

The most important difference between the two types of bore is in the tone quality; that of the conical bore is more full-bodied and more pleasing. In addition, it is more flute-like in character and more equally balanced throughout its compass. The tone quality of the cylindrical bore tends to be shrill and thin; its low register is particularly weak and hollow, and it is a notorious offender as regards intonation. Its one advantage is, admittedly, its easier blowing high octave. Weighed against the unrewarding quality of tone which the cylindrical bore instrument has to offer in all registers, this one advantage seems negligible. It is true that the conical bore piccolo requires somewhat more practice, but it is well worth the effort in terms of superior tone quality and intonation.

The manner in which one distinguishes between conical and cylindrical bore piccolos is simple. The cylindrical bore is exactly the same diameter throughout the entire length of the tube, whereas in the conical bore the tube becomes perceptibly smaller by the time it reaches the E and D keys (second and third fingers, right hand), before flaring out again slightly at the end past the D# key.

The Alto Flute

In 1854, Theobald Boehm made his first Altflöte in G.¹ It was a success as it satisfied the need for deeper, stronger and more sonorous flute tone. By enlarging the bore and extending the proportions of his then revolutionary new metal flute in C, he created an entirely new instrument, as different from the flute in C as the alto oboe was from the oboe.²

However, those who opposed Boehm's innovations discredited his alto flute, claiming that it was altogether valueless, generally heavy and inflexible in its tonal responses. Such unwarranted attacks, coupled with the long-recognized failure of the older larger flutes, succeeded in persuading many that the new alto flute was also a failure.

Some have thought that the alto flute, for example, ought to be like the flute in C in quality, merely extending the compass. Actually the two instruments have a different quality even when two tones of the same pitch are sounded. The differences have been described as similar to that between the true soprano and a true contralto. Boehm

¹Boehm, p. 119.

²Boehm, p. 120.

has mentioned that on occasion, his alto flute playing was mistaken for a French horn.³ To cite but two specific serious works, Stravinsky makes use of the alto flute in Le Sacre du Printemps, and Ravel uses it to great advantage in Daphnis et Chloe. Many other serious composers have used the G flute effectively in working for TV and motion pictures.

The Eb Flute

In recent years the Eb soprano flute has become more and more widely used in this country. Of course, the most logical place for this instrument is in the band. Many band scores call for an Eb clarinet and it is this instrument that the Eb flute is intended to replace. The Eb clarinet is a very difficult instrument on which to play in tune as well as to obtain a good and secure tone. It takes a real artist to coax from this instrument a tone with any degree of delicacy and refinement.

The Eb soprano flute, on the other hand, responds even more easily than the concert flute and permits great agility and subtlety on the part of the performer. The

³Boehm, p. 122

tone of the soprano flute is somewhat light and does lack some of the basic tonal qualities of the C flute.

Many flute sections are growing entirely too large and the band director is casting about for a place for the abundance of flutists. By putting some of the players on the Eb instrument, he is able to spread the range of his flute section and to accommodate more players in the group. Thus this instrument has a definite place in the organizations of today and is available at very reasonable prices.

SUMMARY

In summary, it is the ultimate hope of the writer that this dissertation has met its established goals in that it provides a quick and authenticated reference for the instrumental teacher and the artist-flutist. Selecting the instrument and player, having copious amounts of selected and graded materials from which to choose, and methods of flute playing in all of its complicated, broad and comprehensive aspects have been the ultimate aim of this paper.

Since flute sections in bands and orchestras have grown so large in past years and the popularity of flute playing has increased on such a tremendous scale, this dissertation is intended to serve as an aid to those engaged in learning to play the flute. Performance featuring the flute is not only on the rise in bands, and orchestras, but is also becoming more prominent in the field of solo and ensemble festivals.

Modern composers have noted the upsurge and technical improvement in high school and university music groups and have upgraded the technical difficulties of their compositions so as to be able to challenge the capabilities of the performers. Since these new works demand

better musicianship and knowledge on the part of the flutist, the music director must also be better prepared to meet the challenge presented and meet the student's needs. The music educators and music directors cannot possibly spend all the time necessary to delve into all the aspects of any given instrument even though they might have an extreme interest in these areas.

This dissertation has not considered all of the aspects of the flute and cannot hope to do so as there are continuing changes and new problems arising all of the time. There are several problems, however, which have arisen during the course of this paper which should be brought out at this point. There is a need for further study of the repertoire that is musically satisfactory and sufficiently challenging in the area of music for the beginning flutist. This repertoire is barren in that most of the music is in the form of arrangements of other works, or is just simply unworthy in a musical sense. Much of this latter music had been written merely to sell to unsuspecting students or to directors not familiar with the repertoire. Another area that is in need of investigation lies in the vexing differences in tonal response of head-joints, no two head-joints

play alike. While it is encouraging to note that all of the leading flute manufacturers maintain laboratories for experimentation and quality control, more experiments are indicated to ascertain exactly what effect the shape of the oral cavity has upon the tone of the flute and what may be done about it. This is the field which, to this author's knowledge, has not been scientifically investigated.

Finally, if this dissertation is able to assist anyone in his quest in acquiring knowledge of the flute and its many ramifications, the dissertation will have fulfilled its purpose.

APPENDIX I

REMEDIAL LITERATURE

In many ways there is more than just a coincidental analogy between the doctor prescribing medicines for his patient and the flute teacher selecting remedial material that will aid the flutist with special problems. To select one etude book for all students to study is as illogical as prescribing one medicine to cure all of the known ills and diseases of man. It follows then that the flute teacher must be familiar with many books and know their proper usage in order to prescribe the study material that will most likely aid the needs of the student in overcoming his problems, be they technical or musical.

As no study of this nature has appeared in print for a number of years, it is appropriate to include it here.

There are many books that are published with remedial purposes in mind. The author has studied and rejected those which seem inconsequential and inadequate. The following list, which is not intended to be all-inclusive, is annotated with information about the books and includes comments on the proper usage of the material.

Bona, Pasquale . . . Complete Method for
Rhythmical Articulation . . Carl Fischer

The essence of this book is stated in the introduction and the following is a free translation from the Italian:

To impart to beginners and young pupils in general a correct and practical method which will teach the proper rhythmical proportionment of the single notes composing the beats of a musical theme, the recognition of their respective values, and the giving to each note, so to say, a special significance and individuality, as considered in its inter-relationships with the rest, is certainly a matter of signal and special importance in musical education. This text provides excellent material for a student who is experiencing difficulty in playing rhythms, reading articulations and understanding the complexities of patterns. (Seventy-two pages.)

Allard, Joseph . . . Progressive Jazz
Rhythms, 1947 . . . New Sounds in Music
 Co., or Selmer
 Instrument Co.

This is a two-volume series of the typical rhythms used in modern jazz music. As many of these rhythms appear in the more serious compositions written for the bands and orchestras of today, it is imperative that a student

familiarize himself with them. A study of this material will aid the student in sight reading in syncopation, modern phrasing, and technic. Both volumes are written in manuscript, which is again something that a young musician must learn to read if he is to have a complete training in music. Reading different types of manuscript is especially important for the musician who wishes to go into the professional field of commercial music. (Fifty pages.)

Brooke, Arthur . . . Harmonic Fingerings For
The Flute Cundy-Bettoney

The study of harmonics or overtones benefit the flutist in two distinct ways: 1.) It enables him to gain control of the notes in the high register, 2.) it furnishes easier fingerings which create better facility in the third octave. The book also aids the student in that it explains how one overcomes the difficulty in playing high fast tremolos, something which every flutist has to contend with, one time or another, in his playing. (Eight pages.)

Safranow, A. (arr.) . . . Staccato Etude on
the Theme "Perpetual
Motion by Paganini . . Cundy-Bettoney

This work is a study in double-tonguing. It consists of six full pages of running sixteenth-note patterns,

which encompass the complete range of the flute and demand a great dynamic variation from the player. If an instructor is seeking material for the development of the single tonguing action, this etude will also fulfill his needs. It is recommended that judicious and consistent use of a metronome be made as it will help the student measure his progress in attaining speed and rhythmic precision.

Moyse, Marcel . . . School of Articulation, 1934 . . . Leduc-Southern

All possible types of articulation are included in this book. Although this book is published by Leduc of Paris, it is more readily available through Southern Music Co., in this country. (Twenty-three pages.)

Barrère, Georges . . . The Flutist's Formulae, 1935 . . . G. Schirmer

Mr. Barrère lists this as a compendium of daily studies on six basic exercises. He recommends that all the exercises be played legato although any articulation is possible. Each exercise may be played through the "circle of fifths," thus giving the flutist a good foundation in all of the keys. This material is strongly recommended for flutists with co-ordination and technical problems. (Thirteen pages.)

Maquarre, André . . . Daily Exercises for
the FluteG. Schirmer

These exercises are similar to those contained in the Flutist's Formulae by Barrère (refer to comments above) as they provide additional material for the flutist with technical and co-ordination difficulties. (Thirty-seven pages.)

Wood, Daniel . . . Studies for Facilitating
the Execution of Upper Notes
on the Flute Cundy-Bettoney

This work is directed toward the student who is having trouble in playing in the high register due to the lack of finger co-ordination. Because high-register playing is most fatiguing, it is recommended that the student limit his practice of this material to not more than fifteen minutes in any given practice period. (Twenty pages.)

Endresen, R. M. . . . Supplementary Studies
for Flute, 1927 Rubank Co.

This book has several important features which are: exercises for stressing technical aspects of flute playing with cantabile passages for the development of tonal quality and phrasing; excellent exercises for review and reading; preparatory exercises for more advanced technique,

and finally, short passages that are good for the young player in that it is challenging and does not tire the student unduly. This book is recommended for the beginner with a phrasing problem. Tempi and keys are varied and quite easy. (Twenty-four pages.)

Demersseman, J. . . . Fifty Melodious
Studies, 1937 . . . Leduc or
Southern Music Co.

This book has been revised and annotated by Marcel Moyse and is recommended for the study of phrasing. The studies are more difficult than the previous book cited and should be reserved for the more advanced student. There is a diversity of keys and tempi that should sustain the interest of the more advanced player. (Sixteen pages.)

Moyse, Marcel . . . Of the Sonorousness,
1934 Leduc or
Southern Music Co.

Mr. Moyse gives careful instructions on how to acquire the tone and on how to practice in order to obtain that end. The book also is an extraordinarily good source of material for lip flexibility and for the practice of beginning and releasing tones. Most highly recommended. (Twenty-seven pages.)

Mazas Duets David Gornston

Eighteen duets in as many different styles of manuscript writing. Although these duets are written for other instruments, they may be played on flutes with an occasional transposition by flutists playing the bottom part. (Thirty-nine pages.)

Mann, Herbie Jazz Flute,
1960 Soundpost Inc., or
from Presto

Many young students are interested in playing jazz flute and this book will answer some of the questions pertaining to this style of playing. It must be understood that this book does not tell one how to play jazz flute, but rather, gives the neophyte many good ideas as to possible effects, type of instrument needed, tone, and interpretation. Four solos with piano accompaniment are included. (Twelve pages.)

Moore, E. C. The Flute Book,
1953, Leblanc Corp.

Besides being an outstanding text on playing, this book has a trouble chart in it that serves to pin-point difficulties and their remedial actions. The author should like to recommend this as good source material, especially

for the music director who is not a flutist, as it delves into many different aspects of playing the instrument.

In summary, the combination of adequate material, copious practice, and good teaching will aid the student in his search for the answer to flute playing problems.

APPENDIX II
SELECTED REPERTOIRE FOR ENSEMBLES USING
UNUSUAL OR LESSER KNOWN COMPOSITIONS

This listing of ensembles for woodwinds, strings and percussion attempts to investigate ensembles from a different point of view. It is a selected listing of music that either the author has played himself or has had students perform in public. This is a carefully prepared list of practical music that should interest ensemble performers and teachers.

It is hoped that the use of these materials will bring to concert and festival programs of ensemble literature a renewed vitality. Having had experience as an adjudicator, the writer has noticed that the ensemble groups at festivals tend to play the same materials year after year. Flute trios, clarinet quartets, woodwind quintets and the like are all needed, but there are possibilities for interesting variations. Most adjudicators would welcome the opportunity to listen to an unusual ensemble that displayed a little imagination on the part of the teachers and the performers.

In a number of the listings substitutions have been suggested. These substitutions are intended to aid the teacher who wishes to perform a certain ensemble but does not have the required instrumentation. All of these substitutions have been tested by the author both in the classroom and in performance. Roman numerals following the publisher refer to the grade level of the composition.¹

¹Charles Osborne, "Selected Repertoire for Ensembles Using Unusual or Lesser Known Compositions," The Instrumentalist Magazine, Vol. XIV, No. 9 (May, 1960), pp. 38-39.

Ensembles for Two Instruments

Hart, Weldon Interlude for Flute
and Bassoon Spratt, III

This is contemporary music that is not too difficult for the student with adequate technical command of his instrument. The work comes in score form so that two copies will be required. The bassoonist needs a facility in reading tenor clef, but the highest note does not exceed C5.

McKenzie, Jack . . . Pastoral for Flute
and Percussion Presto, IV

The meter of this work is quite complex, a mixture of 7/8, 5/8, and 6/8 being employed in the fast section. Once established, however, it falls into place in the performer's mind. The percussion part uses timpani or tuned tom-toms, cymbal, and gong. The flutist must have control of the entire range of the flute. This is a work that serves well as an excellent program number for advanced players.

Naumann, J. G. . . . Duet for Oboe and
Fagott McGinnis and
Marx III

This duet can be used for flute and bassoon or flute and cello, and is a pleasant sounding Baroque work with both andante and allegro movements. There is some use of tenor

clef; the bassoon part goes as high as B4, but this should not trouble an average high school player.

Telemann, G.P. . . . Drei Dutzend Klavier-
fantasien Bärenreiter, or
 Southern . . III

Although these pieces are for harpsichord, they make excellent material for flute and bassoon. The bassoon part will occasionally go into treble clef, but this can be read an octave lower. It contains seventy-five pages of duets with numerous slow movements for tone production improvement and many fast duets for developing technic.

Ensembles for Three Instruments

Arnold, Malcolm . . . Divertimento for Flute
Oboe and Clarinet . . . McGinnis and
 Marx . . . III

A number written in a light vein that would also make good program music. It can be played with two flutes and clarinet, or flute, violin and oboe. There are six movements.

Beethoven Serenade for Flute, Violin
and Viola Peters . . III

There are five sections in this work, and one or more of them would be quite suitable for festival presentation. The range of the instruments is limited to two octaves so that most young players would be able to conquer the technical problems. The musical difficulties of these pieces require a sensitive ensemble feeling, which must be carried out in order to make every note sound properly in the classical style.

Bizet, G. Three Pieces for Flute,
Clarinet and Piano Southern . .III

The three pieces are: Entr'acte from Carmen, Intermezzo Religioso from L'Arlesienne Suite Number Two, and Valse-Minuet from L'Arlesienne Suite Number I. These can be performed with flute, clarinet, or oboe and piano with optional parts for French Horn, alto oboe, and bassoon. All of the numbers are in the key of Eb; therefore they can be played as a suite or separately.

Bloch, Ernest Concertino for Flute,
Clarinet and Piano . . . G.Schirmer .. V

In this work the viola can take the part written for clarinet. The flute does a considerable amount of playing in the third octave, therefore needing a facile technique in this range. The viola or clarinet is difficult because of the wide leaps and skips written in the fugal section. There are some complexities of rhythm in alternating measures of 3/4, 4/4, and 2/4. The piano part is difficult because it is an orchestral reduction.

Haydn, F. J. Four Trios for Two Flutes
and Cello Southern . IV

Here is classic composition at its best. The work can be played by flute, oboe, and cello, or flute, clarinet and cello with bassoon or viola in place of the cello. This is such fresh and invigorating music that it will fit almost any performance occasion.

Holst, Gustav Terzetto for Flute, Oboe
and Viola McGinnis and
Marx . . . IV

This composition typifies the late style of writing by Holst. The ranges are moderate and the technique is not demanding. The flutist, however, must have command of the

low register in order to compete with the oboe which is confined to its lower range. The combination is strange but the resulting sound is full, pleasing, and well blended.

Milhaud, Darius Suite for Violin, Clarinet
and Piano McGinnis
and Marx,
. . . IV

Flute players like this work because the violin part fits their instrument quite well. Milhaud has composed a pleasant, unpretentious work. It is not difficult as far as range and rhythm are concerned, and the player will find everything in it from South American music to tongue-in-cheek western.

Mozart, W. A. Symphonie Concertante
for Violin, Viola and
Piano Peters . . IV

This work is also playable by the combination of flute, clarinet and piano. The violin part can be played on flute with a few changes to suit the range. On page three, letter H, the violin part should be changed from the low G's and Bb to an octave higher. The viola part must be transposed into the key of F for the clarinet. This is a major work lasting twenty minutes and is a valuable source of material for this instrumental combination. The piano part is an orchestral reduction.

Olsen, Sparre Suite for Flute, Oboe
and Clarinet McGinnis and
Marx . . III

The clarinet part is written in C, and a high school musician might have to write out his part to make it more comfortable. The suite is in five short movements and is modern in harmonic approach, but it does not make demands on the technics of the performers.

[illegible]

This is an advanced work both technically and musically. Players will have to spend a great deal of time checking to see that they are performing all of the accidentals correctly.

Ensembles for Four Instruments

Honegger, A. . . . Rhapsody for Two Flutes,
Clarinet and Piano . . . McGinnis and
Marx . . . V

The clarinet part is in A and can be transposed and played on a Bb instrument with the exception of one low Eb in the last movement which can be played an octave higher. The work is in three parts: Larghetto, Allegro (in 5/4 meter), and Larghetto. This is modern in flavor but not so

much that it would take a long time to appreciate the beauty of the work.

Mozart, W. A. Andante for Mechanical
Organ AMP . . III

A classical piece that is arranged for flute, oboe, viola and cello. It helps to fill a gap in the literature that is extremely sparse in works for woodwinds. The mechanical organ was a type of forerunner to our player piano popular in the days of Mozart.

Prokofiev, S Humorous Scherzo for
Four Bassoons Omega . . III

Here is an outstanding composition for the group fortunate enough to have the bassoons. The first and fourth parts demand good bassoonists, but the two middle parts can be performed easily by just average players. The first part is difficult because of the high tessitura and, of course, the bottom part makes use of low notes which are difficult to produce cleanly. There are running eight-note patterns much like an Alberti bass in the fourth part. This scherzo is a certain audience pleaser and never fails to become a conversation piece due to its wit and humour.

Ensembles for Five Instruments

Handel, G. F. Two Marches for
Five Winds Mercury . . III

This is an arrangement of two trumpets, two oboes and bassoon that also has a continuo part. Oboes may be replaced by flutes. The two marches make a good opening number for an ensemble program.

Mozart, W. A. Five Square Dances for
Flute and Strings . . . McGinnis and
 Marx . . III

Although the title of this work makes use of the word Square Dances, the German word in the original score is Contretänze, meaning a dance of a rustic or peasant nature. One of the interesting aspects of this work is the use of a toy drum or tom-tom in the third and fourth movements. These pieces must be classed as musical gems, a delight to hear, and to perform.

Ensembles for More Than Five Instruments

Anderson, Leroy Suite of Carols . . . Mills . . III

Anderson has scored this suite for piccolo, two flutes, two oboes, alto oboe, two bassoons, contra-bassoon, three Bb clarinets, alto clarinet and bass clarinet. An alto saxophone can play the alto oboe part, and a

contra-bass clarinet can play the contra-bassoon part. This is excellent music for the entire woodwind section of a band if the director wishes to double the parts. All of the carols are arranged interestingly, and suitable contrasts in tempo between movements are suggested. This is good material for a Christmas program or any program during the winter concert season.

Beethoven Rondino in Eb Mercury . . IV

This is originally scored for two horns, two oboes, two clarinets, and two bassoons, the horns being given the major load to carry. Some substitutions can be made in the oboe parts if necessary. A flute can replace the first oboe, or two clarinets can play the parts if no oboes are available. The bassoon parts can be taken by two bass clarinets or one bass clarinet and a contra-bass clarinet on the bottom part.

Haydn, F. J. Octet in F Major . . International . . IV

The original score calls for two oboes, two clarinets, two horns, and two bassoons. The writer has used four Bb clarinets, two alto clarinets, and two bass clarinets. Flutes may be used on the two top parts. This work is a valuable addition to the clarinet choir repertoire.

All transpositions fit the clarinets without being awkward. This is a major work in four movements in typical classical form.

Strauss, R. . . . Serenade in Eb . . . International . . IV

This is scored for two flutes, two oboes, two clarinets (Bb), four horns, two bassoons, and contra-bassoon. The composer wrote this when he was about eighteen years old, and his writing clearly shows how much he admired Mozart, an admiration he retained throughout his life (Mozart has written Serenades for this very same combination and this work is cast in the same mold). A contra-bass clarinet can be substituted for the contra-bassoon.

Temple and Shaw . . Duplicity and Audacity
from the Vanity Fair Suite . . Mills . . IV

The instrumentation for this ensemble is flute, oboe, four Bb clarinets, bass clarinet, alto saxophone, piano, bass and dance drums. The music is extremely engaging and intriguing, sounding like miniature overtures to a musical comedy. Either of the numbers would bring an ensemble program to an excellent conclusion.

Wilder, Alec . . . Neurotic Goldfish, Debutante's
Diary, She'll Be Seven in
May Presto . . III

The instrumentation is for flute, two Bb clarinets,
bassoon, alto oboe, oboe, piano, bass, and dance drums.
Wilder has written excellent material for people who want to
play written jazz. The alto oboe part can be taken, if
transposed, by alto saxophone.

APPENDIX III

A LIST OF FLUTE RECORDINGS

Various Composers . . . Award Artist Series AAS 706

William Kincaid, Flutist, Vol. I and II

Bach, C.P.E. Concerto in G Concert Hall
for Flute and Orchestra Ser. 1077

A. Nicolet, Flutist

Bach, C.P.E. Sonata No. 1 in D
Major for Flute and
Piano Westminster
407

Jean Pierre Rampel, Flutist

Bach, J.S. Brandenburg Concerto
No. 4 Columbia
M249

Marcel Moyse, Flutist, A. Busch,
Violinist, R. Serkin, Pianist

Bach, J.S. Brandenburg Concerto
No. 5 Columbia
M250

Marcel Moyse, Flutist

Bach, J.S. Brandenburg Concerto
No. 4 Columbia
ML4346

John Wummer, Flutist

- Bach, J.S. Seven Sonatas for Flute
and Harpsichord Vox
PL6160
Peter Cartage, Flutist,
M. Carbonnier, Harpsichordist
- Bach, J.S. Six Sonatas for Flute
and Harpsichord Decca
DX113
Julius Baker, Flutist
- Bach, J.S. Sonata in B Minor for
Flute and Harpsichord . . . Columbia
ML5264
Haydn Soc.
9073
Westminster XWN18352
Harold Sebastian, Flutist on Columbia
Viderd Birkelund, Flutist on Haydn Society
John Wummer, Flutist on Westminster
- Bach, J.S. Sonata in A Minor for
Flute alone Boston
408-409
Westminster
XWN18352
Phillip Kaplan, Flutist on Boston
John Wummer, Flutist on Westminster
- Couperin, Francois . . . Les Routs Reunis,
Concerto No. 6 in
B Flat Major Mercury
15007 A
Jean Pierre Rampal, Flutist
- Couperin, Francois . . . Famous Baroque Sonatas
for Flute and Harpsichord . . . Red
Label
LP 1649
W. E. Nusio, Flutist
- Various Composers . . . A Flute Recital Mercury
MG 10067
Jean Pierre Rampal, Flutist

Various Composers . . . The Flutist's Showcase Golden
Crest
GR 4020

Frederick Wilkins and
James Pellerite, Flutists

Frederick The Great . . Concerto in C Major
for Flute SPA 23

Kurt Schneider, Flutist

Foote, Arthur Night Piece for Flute
and Strings Decca
DL 4013

Julius Baker, Flutist

Griffes, Charles. . . . Poem for Flute and
Orchestra Decca
DL 4013

Julius Baker, Flutist

Gluck, Christoph . . . Concerto for Flute and
Orchestra Oceanic
CC 29

Jean Pierre Rampal, Flutist

Bach, W.F. Sonata in F Major for
Flute, Violin and
Piano Lyric
57

Elaine Schafer, Flutist,
Arthur Brink, Violin
A. Pinkham, Piano

Various Composers . . . Flute Duets Washington
419

Julius Baker,
Jean Pierre Rampal, Flutists

Bizet, Georges Carmen Fantasie Polphon
16026

Emil Prill, Flutist

Beethoven, L Sonata for Flute and
Piano SPA
28

W. A. Wanausek, Flutist

Boccherini, Luigi . . . Concerto for Flute
in D Major Concert Hall
Society
50

Paul Renzi, Flutist

Boccherini, Luigi . . . Concerto for Flute
in D Major Vox
PL9440

W. A. Wanausek, Flutist

Brant, Henry Angels and Devils
for Solo Flute and
Flute Orchestra Composers
Recordings
CRI 106

Frederick Wilkins, Flutist

Burton, Eldin Sonatina for Flute
and Piano Classic
1006

John Wummer, Flutist,
Eldin Burton, Pianist

Ciardi, C.A. Carnival Russe Odean
3275

Emit Prill, Flutist

Couperin, Francois . . . The Four Concerts
Royaux Lyric
54

Phillip Kaplan, Flutist,
Marcel Mayes, Pianist

Handel, G.F. Sonatas for Flute
and Harpsichord Decca
DX116

Julius Baker, Flutist,
Sylvia Marlowe, Harpsichordist

- Handel, G.F. Sonatas for Flute
and Harpsichord Westminster
XWN 2222
John Wummer, Flutist,
R.E. Valenti, Harpsichordist
- Handel, G.F. Sonatas No. I and V for
Flute and Harpsichord Westminster
XWN18583
John Wummer, Flutist,
R.E. Valenti, Harpsichordist
- Handel, G.F. Sonata No. II, IV, VII,
IX, XI for Flute and
Harpsichord Westminster
XWN18583
John Wummer, Flutist,
R.E. Valenti, Harpsichordist
- Handel, G.F. Sonata No. V for Flute
and Harpsichord Oxford
102
Julius Baker, Flutist
- Haydn, J. Concerto in D Major Epic
LC 3075
Marcel Redel, Flutist
- Hanson, Howard Serenade for Flute, Strings
and Harp Mercury
40003
Joseph Mariano, Flutist
- Haydn, J. Sonata in G Major for
Flute and Piano Concert Hall
Society
1082
René Leroy, Flutist
- Haydn, Michael Concerto in D Major
for Flute Unicorn
1007
W. A. Wanausek, Flutist

- Hindemith, Paul Sonata for Flute and
Piano Oxford
103
Julius Baker, Flutist
- Hindemith, Paul Sonata for Flute and
Piano Columbia
ML 4339
William Kincaid, Flutist
A. Solokoff, Pianist
- Hindemith, Paul Sonata for Flute and
Piano Mercury
10067
Jean Pierre Rampal, Flutist
- Ibert, J. Concerto for Flute Oxford
104
Julius Baker, Flutist
- Kennan, Kent Night Soliloquy Mercury
MG 40003
Joseph Mariano, Flutist
- LeClair, Jean Concerto for Flute
in C Major Vox
10150
W.A. Wanausek, Flutist
- Martinu, B. Sonata for Flute and
Piano EMS
2
René Leroy, Flutist,
G. Reeves, Pianist
- Mozart, W.A. Concerto in D Major for
Flute Concert Hall
1073
A. Nicolet, Flutist

- Mozart, W.A. Concerto in G Major for
Flute and OrchestraSee below
- John Wummer, Flutist Columbia
ML 4567
- Elaine Shaffer, Flutist EMI CAP
67135
- Herbert Barwaher, Flutist Epic
3033
- W.A. Wanausek, Flutist Vox
8130
- Mozart, W.A. Concerto in D Major for
Flute and Orchestra in
Album, Flute Contest Music . . Lanier,
H&A Selmer
- Charles Delaney, Flutist
- Nielsen, Carl Concerto for Flute
and Orchestra London
1124
- Hans Jespersen, Flutist
- Various Composers . . Music for the Flute LP Oxford
Or 102
- Julius Baker, Flutist
- Various Composers . . Music for the FluteLP Columbia
4339
- William Kincaid, Flutist
- Pergolesi, Giovanni . Concerto for Flute in
G Major Vox
9440
- W.A. Wanausek, Flutist
- Piston, Walter Sonata, Prokofiev
Sonata Claremont
1206
- Doriet Anthony, Flutist
- Quantz, J.J. Concerto in D Major No. 17
for Flute and Orchestra SPA
23
- W.A. Wanausek, Flutist

Quantz, J.J. Concerto in F Major for
 Flute and Orchestra Epic
 LC 3134

Herbert Barwaher, Flutist

Quantz, J.J. Sonata for Flute and
 Harpsichord Westminster
 XWN 18070

John Wummer, Flutist,
 F. Valenti, Harpsichordist

Quantz, J.J. Trio Sonata Oxford
 104

Julius Baker, Flutist

Rogers, Bernard Soliloquy for Flute and
 Strings Mercury
 50076

Joseph Mariano, Flutist

Schubert, Franz Variations for Flute and
 Piano Columbia
 4717

John Wummer, Flutist

Tartini, Giuseppe . . . Concerto in G Major for
 Flute and Orchestra Decca
 ARC 3109

A. Nicolet, Flutist

Telemann, G.P. Concerto in E Major for
 German Flute and Oboe
 d'amore Decca
 ARC 3109

A. Nicolet, Flutist

Telemann, G.P. Concerto in A Minor for
 Flute and Orchestra
 Urania
 8005
 and Epic
 LC 3075

W.A. Wanausek, Flutist

Telemann, G.P. Fantasies in d minor and
b minor for Flute Alone . . Westminster
402

Sam Baron, Flutist

Telemann, G.P. Sonata in c minor for Flute
and Harpsichord Westminster
407

Jean Pierre Rampal, Flutist

Telemann, G.P. Suite in a minor for Flute
and Orchestra Decca
8552

James Pappoutsakis, Flutist

Vivaldi Concertos I-VI for Flute
Op. 10 Epic
BC 1014

R.S. Tassinari, Flutist

Vivaldi, Antonio Pastoral for Flute and
Continuo, Op. 13,
No. 4 Allegro
3009

W.A. Wanausek, Flutist

Wilkins, Frederick . . . The Flutist's Guide . . . D&J Artley Co.
Frederick Wilkins, Flutist

Piccolo

Vivaldi, Antonio Concerto for Piccolo
in C Major Westminster
18834

Jean Pierre Rampal, Piccoloist

APPENDIX IV

A LIST OF ETUDES AND SOLOS

In compiling a list of this nature the author did not deem it advisable to make up a list of his personal favorites. Rather, he consulted many lists of well-known flute teachers, selecting significant works from their own personal repertoires. This source of flute etudes and solos represents material that is in current use. (This is also the same criteria that was used in selecting the duets, trios and quartets.)

Catalogue of Flute Music, Daniel Connor
Indiana University, Bloomington, Indiana
February 3, 1953, unpublished Master's thesis
in manuscript.

Flute Solos, Dr. Russell Friedewald,
Michigan State University, E. Lansing
1950, unpublished manuscript.

Selected Flute Materials, Nelson
Hauenstein, University of Michigan, Ann Arbor,
1949, unpublished manuscript.

A Catalogue of Music Literature for
the Flute, Frederick Wilkins, Elkhart
Indiana, 1957, published by the
Artley Flute Co.

Personal interviews with Mary Francis James,
University of Illinois, Urbana, Illinois and
James Pellerite, Philadelphia Symphony and
Indiana University, Bloomington, Indiana.

National Association of Schools of Music,
Solo Literature for Wind Instruments Bulletin
of the National Association of Schools of Music,
No. 31, January, 1951.

FLUTE MATERIALS

ETUDES

<u>Composition</u>	<u>Composer</u>	<u>Publisher</u>	<u>Grade</u>
<u>Elementary Study Materials</u>			
Elementary Flute Method . . .	A.C. Peterson . . .	Rubank . . .	I
Method for Flute Book I . . .	Emil Eck	Belwin . . .	I
Flute Method Book I	C. Gekeler	Belwin . . .	I
<u>Intermediate Study Materials</u>			
Intermediate Flute Method . .	A.C. Peterson . . .	Rubank . . .	II
Advanced Flute Method, Vol. I and II	Hymie Voxman(ed.) .	Rubank . . .	II
Method for Flute Book II . .	Emil Eck	Belwin . . .	II
Flute Method, Book II and III	C. Gekeler	Belwin . . .	II
Eighteen Studies for Flute .	T. Berbiguier . . .	G. Schirmer.	III
Twenty-four Progressive Studies	J. Anderson, Op. 33	Southern .	III
Melodious Studies, Book I	Robert Cavally(ed.) . .	Southern .	III

Advanced Study Materials

Six Divertissements	Franz Kuhlau, Op. 68	Cundy- Bettoney . . .	IV
Selected Studies	Hymie Voxman . . .	Rubank . . .	IV
Melodious Studies, Book II and III	Robert Cavally, (ed.)	Southern . . .	V
Bach Studies	J.S. Bach	Southern . . .	V
Twenty-four Caprices	T. Boehm	Southern . . .	V
Twenty-four Melodious Studies	T. Boehm	C. Fischer . .	V

FLUTE SOLOS

FLUTE AND PIANO

Grade I

Gigue	Jean Leclair . . .	G. Schirmer
Arioso, Siciliano	J.S. Bach, G. Barrère . . .	G. Schirmer
Gavotte	C. Gluck, G. Barrère . . .	G. Schirmer
Fourteen Pieces	Charles Koechlin . .	Southern
Andantino, Nocturno	A. Lewallen	Belwin
Everybody's Favorite Flute Solos	Edited by Jay Arnold	Amsco (I-VI)
Forty Little Pieces for the Beginner Flutist . . .	Louis Moyse . . .	G. Schirmer
Le Cygne (The Swan)	C. St. Saëns . . .	G. Schirmer

Grade II

Bourrée	J.S. Bach	G. Schirmer
Praeludium	R. Bove	C. Fischer
Twenty Four Short Concert Pieces	Robert Cavally . . .	Southern
Siciliano	Francoeur, Kreisler	C. Fischer
Scherzino	R. Freed	C. Fischer
Rigaudon	Edvard Grieg, Gilbert	Presto

Echo	Paul Hindemith	Associated
Fourteen Pieces	Charles Koechlin	Southern
Fantasie, Valse Romantic . .	A. Lewallen	Belwin
Adagio	W.A. Mozart, Lentz	Belwin
Concert and Contest Collection	Edited	Rubank
Pastorale	Jaromir Weinberger	C. Fischer
Tambourin	A. Mondonville	G. Schirmer
Air	Jacques Aubert	G. Schirmer

Grade III

Sonatas in A, G Major and E Minor	G. Platti	Presto
Siciliano, from Eb Sonata .	J.S. Bach	G. Schirmer
Scherzino	J. Anderson	Belwin
Aria	Eugene Bozza	Southern
Twenty-four Short Concert Pieces	Robert Cavally	Southern
Syrinx, for Flute alone . .	Claude Debussy	Southern
Concert and Contest Collection	Edited	Rubank
Andante in C Major	W.A. Mozart	Cundy-Bettoney
The Little "Nigar"	Claude Debussy	Southern
18th and 19th Century Pieces	Paul Fleury, ed.	Southern

Variations on a Theme of Mozart	Reynaldo Hahn	International
Serenade	Georges Hüe	C. Fischer
The Little White Mule	J. Ibert	Southern
Menuet Antique	Maurice Ravel	Southern
The Prophet Bird	Robert Schumann, G. Barrère	G. Schirmer
Four Figures in Time	Burrill Phillips	Elkan-Vogel
Minuet, from the L'Arlesienne Suite	Georges Bizet	C. Fischer
Sonata Number Four	M. Blavet	Cundy-Bettoney
Sonata in F Major	B. Marcello	Oxford

Grade IV

Contemporary French Recital Pieces, Vol. I and II	Edited	International
Scherzo and Romance	Charles Widor	C. Fischer
D'un Matin de Printemps	N. Boulanger	Southern
Romance	Fritz Brun	Rubank
Madrigal and Romance	Philippe Gaubert	Southern
Danse de la Chevre for Flute alone	Arthur Honegger	Southern
Piece en form de Habanera	Maurice Ravel	Southern
Four Preludes	D. Shostakovitch	Southern
Airs de Ballet	C. St. Saëns	Southern

Sonatas I-VI (Grades III-IV)	G.F. Handel	Southern
Sonatas I-VI (Grades IV-VI)	J.S. Bach	Southern
Sonatine	Philippe Gaubert	Southern
Sonata in E Minor	D. Scarlatti	G. Schirmer
Sonata in G Minor	A. Vivaldi	McGinnis and Marx
Four Sonatas	G. P. Telemann	G. Schirmer
Sonatinas for the Young		
Flutist	Edited	G. Schirmer
Concerto in D Major	G. Pergolesi	International
Concerto in G Major	G. Pergolesi	International
Concerto in D Major	F.J. Haydn	Southern
Concerto in D Major	Luigi Boccherini	Southern

Grade V

Concertino	C. Chaminade	C. Fischer
Fantasie	Gabriel Fauré	Belwin
Cantabile and Presto	Georges Bizet	Southern
Andante and Scherzo	Louis Ganne	Cundy-Bettoney
Third Sonata	Philippe Gaubert	Southern
Nocturne and Allegro		
Scherzando	Philippe Gaubert	Southern
Concert Piece	G. Hoffmann	Rubank
Piece for Flute Alone	J. Ibert	Southern
Improvisation and Burlesque	Arthur Lora	Broadcast

Scotch Pastorale Cyril Scott Associated
 Concerto in G Major J.J. Quantz Cundy-Bettoney
 Serenade Howard Hanson C. Fischer
 Night Soliloquy Kent Kennan C. Fischer

Grade VI

Suite in B Minor J.S. Bach Cundy-Bettoney
 Poem Charles Griffes G. Schirmer
 Sonatina Camargo Guarnieri Cundy-Bettoney
 Sonata in G Major F.J. Haydn Boosey-Hawkes
 Fantasie Georges Hüe Southern
 Concerto in G Major W.A. Mozart Southern
 Concerto in D Major W.A. Mozart Southern
 Suite in A D. Scarlatti,
 Benjamin Boosey-Hawkes
 Suite in A Minor G.P. Telemann Southern

The writer has had requests from his students for music of a lighter vein that they can play for recreation or for special performances. After careful study of more than fifty compositions in this category, the following were selected as being most suitable.

LIGHT MUSIC FOR THE FLUTE

Flute Cocktail Harry Simeone . . . Shawnee Press III

This work is subtitled Scherzo and Blues, for two or three flutes and piano. Band and orchestra accompaniments are both available.

Calculation and Frolic,
from Three Short Pieces for
Flute Don Gillis Mills III

This is arranged for flute and piano only.

Piece en form de Habanera . Maurice Ravel Southern II

Published by Leduc of Paris but available through Southern Music in this country, this arrangement is for flute and piano.

In the Groove Robert McBride Mills III

This is published for flute and piano.

Tenderly E. Lawrence,
M. Cross Presto III

Tenderly is arranged by Stanley Applebaum for flute and piano.

The Little "Nigar". Claude Debussy Southern II

This is arranged for flute and piano.

Flute Sessions L. Gearhart Shawnee II
and III

A book for fun and education. It has pieces for 2, 3 and 4 flutes, one being for flute alone. The book contains rounds, canons, trios, duets and quartets all written in interesting styles. Some of the composers represented are J.S. Bach, Kuhlau, Mendelssohn, Brahms, Beethoven, Mozart and Palestrina.

APPENDIX V

A LIST OF FLUTE DUETS, TRIOS

AND QUARTETS

<u>Composition</u>	<u>Composer</u>	<u>Publisher</u>	<u>Grade</u>
Fifteen Two-Part Inventions	J.S. Bach	Cundy-Bettoney . .	IV
Canon from Sonata in F Minor.	W.F. Bach	C. Fischer. .	III
Divertimento	Mario Castelnuovo-Tedesco	Mercury	IV
Six Melodic Duets	G. Gariboldi.	Cundy-Bettoney . .	III
Sonate	G.F. Handel	Southern	II
Forty Progressive Duets, Vol. I	E. Koehler.	C. Fischer. . . .	II
Forty Progressive Duets, Vol. II	E. Koehler.	C. Fischer. . . .	III
Three Brilliant Duets, Op. 80	Franz Kuhlau.	International . .	III and IV
Three Flute Duets, Op. 81 and 102	Franz Kuhlau.	Cundy-Bettoney . .	IV
Three Duos Concertants, Op. 10	Franz Kuhlau.	Cundy-Bettoney . .	IV
Three Grand Duets, Op. 39	Franz Kuhlau.	Cundy-Bettoney . .	V

Three Duets	W.A. Mozart	Cundy-Bettoney	IV
The Flutist's Classic Duet Repertoire	Lawrence Taylor	Witmark	IV
Six Canonic Sonatas	G.P. Telemann	International	IV
Six Sonatas	G.P. Telemann	Mercury	IV
Four Sonatas	Valentine, David Glazer	C. Fischer	III
Sixteen Flute Duets	Giulio Briccialdi	Belwin	IV
Canonic Sonatine	Paul Hindemith	Schott and AMP	VI
Six Duets	J.J. Quantz	G. Schirmer	IV
Selected Duets, Vol. I	Hymie Voxman (arr.)	Rubank	III
Selected Duets, Vol. II	Hymie Voxman (arr.)	Rubank	IV
Flute Sessions	L. Gearhart	Shawnee Press and IV	III
Thirty Easy Duets	Louis Moyse	McGinnis and Marx	III
Inventions Based on American Tunes	Mark Nevin	Schroeder and Gunther	II
Masterworks Arranged for Two Flutes, Vol. I & II	(Telemann, Bach, Handel, Marcello, and Quantz)	Belwin and III	II

TRIOS

Miniature Suite No. 2	Albisi	Cundy-Bettoney. . .	V
Two Short Pieces	Georges Bizet. . .	Carl Fischer . .	V
Trio, Op. 87.	L. Beethoven . . .	Southern . .	IV
Allegro Giocoso	F.J. Haydn	Mills . .	III
Rondo Scherzando.	F.J. Haydn	Boosey-Hawkes. . .	II
Sonata in G Major	James Hook	Rubank . .	III
Three Grand Trios, Op. 86 . . .	Franz Kuhlau . . .	Southern . .	IV
Trios, Op. 24, 53, 59	Kaspar Kummer. . .	Cundy-Bettoney. .III and IV	
Sonata for Three Flutes	J.J. Quantz	McGinnis and Marx. .III	
Three Trios, Op. 93, No. 2. . .	A. Walckiers . . .	Southern . .	IV
Grand Trio Concertant, Op. 31	W. Gabrielsky. . .	Southern . .	IV
Theme and Variations, Op. 25	L. Beethoven . . .	Belwin . .	III
Classic Fantasy	George Waln	Kjos	II
Flute Sessions	L. Gearhart. . . .	Shawnee Press . .	III

QUARTETS

Minuet	J.S. Bach,		
	L. Taylor	Mills	II and III
Rondo Capriccioso.	David Bennett.	Southern.	V
Suite Italienne	Yvonne Desportes	Southern.	V
Gavotte	F.J. Gossec.	Belwin.	III
Elegie	Joseph Jongen.	Southern.	IV
Grand Quartet.	E. Kohler	Southern.	V
Quartet Op. 103	Franz Kuhlau	Southern.	IV and V
Quartet Op. 12	Anton Reicha	Cundy- Bettoney	V
Flute Quintet in D Minor with Piano	A. Turechek	Witmark	IV
Adagio and Scherzo	F.A. Wounters.	Rubank	III
Stabat Mater	G. Rossini	Ricordi	II
Flute Sessions	L. Gearhart.	Shawnee Press.	III

APPENDIX VI

ADDRESSES OF PUBLISHERS

- ACA . . American Composers Alliance,
250 West 57th Street, New York.
- ACP . . American Composers Press,
853 Seventh Avenue, New York.
- AL. . . Alphonse Leduc,
175 rue St.-Honore, Paris, France. (See EV or SO)
- Alf . . Alfred Music Co., Inc.,
145 W. 45th Street, New York 19.
- AMP . . Associated Music Publishers, Inc.,
1 W. 47th Street, New York 36.
- AMS . . AMSCO Music Publishing Co.,
1600 Broadway, New York 19.
- Bel . . Belwin, Inc.,
Rockville Center, Long Island, New York.
- BH. . . Boosey & Hawkes, Inc.,
P.O. Box 418, Lynbrook, Long Island, New York.
- BMI . . Broadcast Music, Inc.,
580 Fifth Avenue, New York.
- BN. . . Baxter-Northrup,
837 South Olive Street, Los Angeles, California
- Bro . . Broude Bros.,
56 West 45th Street, New York 19.
- CB. . . Cundy-Bettoney Co., Inc.,
Badlee and Madison Streets, Hyde Park, Boston 36, Mass-
achusetts.
- CF. . . Carl Fischer Inc.,
62 Cooper Square, New York 3, 306 S. Wabash Avenue,
Chicago, Illinois; 252 Tremont Street, Boston, Mass-
achusetts.
- CFP . . C. F. Peters Corp.,
373 Park Avenue South, New York 16.
- CP. . . The Composers Press, Inc.,
287 Broadway, New York.
- EM. . . Edition Musicus-New York, Inc.,
23 West 47th Street, New York 19.
- EV. . . Elkan-Vogel Co., Inc.,
1716 Sansom Street, Philadelphia 3, Pennsylvania.

Gor . . Gornston, David,
117 West 48th Street, New York.

GS. . . G. Schirmer, Inc.,
609 5th Avenue, New York 17.

GW. . . George Wahr Publishing Co.,
Ann Arbor, Michigan.

Int . . International Music Co.,
509 Fifth Avenue, New York 17.

Kjo . . Kjos Music,
525 Busse Highway, Park Ridge, Illinois.

Mar . . Edward B. Marks Music Corp.,
36 North 52nd Street, New York 19.

MB. . . M. Baron Co.,
8 West 45th Street, New York.

McG . . McGinnis-Marx,
408 2nd Avenue, New York 10.

Mil . . Mills Music, Inc.,
1619 Broadway, New York

MM. . . Mercury Music Corp.,
47 West 63rd Street, New York 23.

OD. . . Oliver Ditson Co.,
Bryn Mawr, Pennsylvania.

Ox. . . Oxford University Press,
417 Fifth Avenue, New York 16, New York.

Pre . . Presto Music Service,
P.O. Box 10704, Tampa 9, Florida.

Ric . . G. Ricordi & Co.,
16 West 61st Street, New York 23.

Ru. . . Rubank, Inc.,
5544 West Armstrong, Chicago 46, Illinois.

SB. . . Summy-Birchard Co.,
1834 Ridge Avenue, Evanston, Illinois.

SG. . . Schroeder and Gunther, Inc.,
6 East 45th Street, New York 17.

- Sha . . Shawnee Press,
Delaware Water Gap, Pennsylvania.
- So. . . Southern Music Co.,
1100 Broadway, San Antonio 6, Texas.
- Sp. . . Spratt Woodwind Shop,
77 West Broad Street, Stamford, Connecticut.
- Wit . . M. Witmark & Sons,
RCA Building, Rockefeller Center, New York 20.

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Miss Poor states that one should never move the head-joint of the flute, but one should adjust the tuning with just the embouchure and the raising and lowering of the head. This is a decidedly different manner of tuning the flute and it is open to argument among flutists. It would seem, on the basis of the great majority of available research, that Miss Poor is in the minority in this concept.

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Taylor, Laurence. "Flute Facts." The Instrumentalist, Vol. IX, No. 9, May, 1955, 41-42.

This article discusses the weakness of many summer camps. The students spend most of their time in big groups and never acquire the greatly needed small ensemble experience. Mr. Taylor suggests that the students purchase trios and quartets and take them along to camp and play them.

Taylor, Laurence. "Flute Facts." The Instrumentalist, Vol. X, No. 4, December, 1955, 27.

The article deals with the approach to the piccolo in that the embouchure has to be more tight. He also tells of the decline of the Db piccolo in band.

Taylor, Laurence. "Flute Facts." The Instrumentalist, Vol. X, No. 5, February, 1956, 37-38.

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This is a list of materials for the beginning flutist.

Taylor, Laurence. "Flute Facts." The Instrumentalist,
Vol. VII, No. 3, November-December, 1952, 53-55.

This article deals with the lower voiced flutes, their use now and the music available to them.

Taylor, Laurence. "Flute Facts." The Instrumentalist,
Vol. VIII, No. 8, April, 1954, 36.

A discussion on where the finest flutes are being made today, Europe or the U. S. Mr. Taylor suggests that the fourth part in a flute quartet be played on an alto flute. The article also suggests that using a wood piccolo with a silver headjoint is an excellent idea.

Taylor, Laurence. "Flute Facts." The Instrumentalist,
Vol. XIII, No. 7, March, 1959, 75.

In the Baroque era, the good notes had to be emphasized (because of the faulty instruments) and the bad notes or dull sounding notes glossed over. The 18th century trill was begun on the upper note--not on the printed note.

Taylor, Laurence. "Flute Facts." The Instrumentalist,
Vol. XIII, No. 8, April, 1959, 60.

In the Baroque style, the grace note is played on the beat, and not before. A grace note with a line through it is played before the beat. In Handel's day it was the responsibility of the performer to add all trills, dynamics, phrasing and embellishments because he knew the style and it was not necessary to write it in to the music.

Taylor, Laurence. "Flute Facts." The Instrumentalist,
Vol. X, No. 8, April, 1956, 74-75.

The alto flute is perfected and is ready for use by high school students. The price is still rather expensive, but if enough demand were to be created, the manufacturers would be able to lower the price.

Taylor, Laurence. "Flute Facts." The Instrumentalist,
Vol. X, No. 9, May, 1956, 37.

The flute music of Mozart is featured in this article. It delves into the chamber music and solos for orchestra in detail.

Taylor, Laurence. "Flute Facts." The Instrumentalist,
Vol. XIII, No. 10, May, 1959, 60.

This is an article on problems of playing the flute and their possible solutions.

Taylor, Laurence. "Flute Facts." The Instrumentalist,
Vol. XI, No. 2, October, 1956, 38.

This article deals with a list of flute and guitar music.

Taylor, Laurence. "Flute Facts." The Instrumentalist,
Vol. XI, No. 3, November, 1956, 35.

Vibrato is discussed; the pros and cons of when to begin using it, and how fast the vibrato should be included.

Taylor, Laurence. "Flute Facts." The Instrumentalist,
Vol. XI, No. 4, December, 1956, 76.

In this article the author gives a list of "popular" music for the flute. This is an area where the student wants to go many times but is actually hindered by the teacher's lack of information.

Taylor, Laurence. "Flute Facts." The Instrumentalist,
Vol. XI, No. 5, January, 1957, 53-54.

Mr. Taylor tells of old music and foreign copies of same.

Taylor, Laurence. "Flute Facts." The Instrumentalist,
Vol. XI, No. 7, March, 1957, 72.

There are many signs and symbols in old music to denote ornaments. He tells of editing the old music correctly.

Taylor, Laurence. "Flute Facts." The Instrumentalist,
Vol. XI, No. 8, April, 1957, 68.

Mr. Taylor gives different interpretations of the old music trills and grace notes.

Taylor, Laurence. "Flute Facts." The Instrumentalist,
Vol. XI, No. 9, May, 1957, 56.

Flute literature and flute duets suitable for festival use are included.

Taylor, Laurence. "Flute Facts." The Instrumentalist,
Vol. XI, No. 10, June, 1957, 52.

This article discusses music for strings and flute and unusual combinations for flute and other instruments.

Taylor, Laurence. "Flute Facts." The Instrumentalist,
Vol. XIII, No. 1, September, 1957, 102.

Much of our early Baroque flute literature was written for the recorder. Composers used to put on their music, "flauto" for the recorder, and "traverso" for the transverse flute.

Taylor, Laurence. "Flute Facts." The Instrumentalist,
Vol. XII, No. 2, October, 1957, 86.

There are five sizes of recorders but only four of them are in general use; the soprano, alto, tenor and bass. Much of the ensemble music can be used with "C" flutes and also with alto flute on some bottom parts. He lists some publishers of recorder music.

Taylor, Laurence. "Flute Facts." The Instrumentalist, Vol. XII, No. 3, November, 1957, 70.

This article deals with "written out" exercises for double tonguing with the use of "too, koo."

Taylor, Laurence. "Flute Facts." The Instrumentalist, Vol. XII, No. 4, December, 1957, 43.

In this article the author tells of many special keys which may be added or removed from the flute.

Taylor, Laurence. "Flute Facts." The Instrumentalist, Vol. XII, No. 5, January, 1958, 60.

Possibilities of special keys for flute and their approximate costs are included.

Taylor, Laurence. "Flute Facts." The Instrumentalist, Vol. XII, No. 6, February, 1958, 74.

A list of neglected flute solo material is included.

Taylor, Laurence. "Flute Facts." The Instrumentalist, Vol. XII, No. 8, April, 1958, 48.

The flute player in a woodwind quintet should have a tone of a large type. He should be a good listener in order to blend with the other instruments. The flutist also must have a flair for leadership.

Taylor, Laurence. "Flute Facts." The Instrumentalist, Vol. XII, No. 9, May, 1958, 37.

This article tells of the difficulty that the flute has in being heard in the quintet. It then deals with the remedy for the situation.

Taylor, Laurence. "Flute Facts." The Instrumentalist, Vol. XII, No. 11, August, 1958, 68.

In this article, Mr. Taylor gives a list of alto flute solos with piano accompaniment, or with orchestral accompaniment. He also lists chamber music using alto flute and orchestral music with alto flute.

Taylor, Laurence. "Flute Facts." The Instrumentalist,
Vol. XIII, No. 2, October, 1958, 86.

A list of quartets for flute and strings is included.

Taylor, Laurence. "Flute Facts." The Instrumentalist,
Vol. XIII, No. 3, November, 1958, 70.

The author gives a list of recommended flute books
pertaining to the flute's history, music for flute,
and biographies of well-known flutists.

Taylor, Laurence. "Flute Facts." The Instrumentalist,
Vol. XIII, No. 4, December, 1958, 64.

This is a continuation of lists of books for the
flute library.

Taylor, Laurence. "Flute Facts." The Instrumentalist,
Vol. XIII, No. 5, January, 1959, 81.

More books for the flutist are included.

Taylor, Laurence. "Flute Facts." The Instrumentalist,
Vol. XIII, No. 6, February, 1959, 74.

This is a discussion of how to play the music of
Handel and Bach in a correct manner.

Taylor, Laurence. "Flute Facts." The Instrumentalist,
Vol. IX, No. 1, September, 1954, 57.

Mr. Taylor has compiled a list of graduate thesis
titles and their authors.

Taylor, Laurence. "Flute Facts." The Instrumentalist,
Vol. IX, No. 1, October, 1954, 42-43.

In this article, lists of graduate dissertations
and magazine articles are featured.

Taylor, Laurence. "Flute Facts." The Instrumentalist,
Vol. IX, No. 3, November, 1954, 40-41.

This article discusses the "Miller Collection" of flutes in the Library of Congress. This collection contains all kinds of flutes and flute-like instruments.

Taylor, Laurence. "Flute Facts." The Instrumentalist,
Vol. IX, No. 4, December, 1954, 39.

This article gives a list of music for flute suitable for Christmas performance.

Taylor, Laurence. "Flute Facts." The Instrumentalist,
Vol. X, No. 5, January, 1955, 51-52.

This piece of writing deals with doubling on the flute, clarinet and saxophone.

Taylor, Laurence. "Flute Facts." The Instrumentalist,
Vol. IX, No. 6, February, 1955, 17.

This is a listing of solos for two or more flutes with band accompaniment. Also the list includes solos for flute and orchestra.

Taylor, Laurence. "Flute Facts." The Instrumentalist,
Vol. V, No. 3, November, 1950, 38.

This article tells of Theobald Boehm who originated the open G-sharp key, which is of course, the opposite to closed G that we use today. An open G-sharp flute can be inexpensively converted.

Taylor, Laurence. "Flute Facts." The Instrumentalist,
Vol. VI, No. 2, October, 1951, 45.

Wooden piccolos are not recommended for high school or college use because the instrument requires a tighter embouchure and is more tiring to the player, also, they have a tendency to crack. The silver piccolo with a conical bore is a more pleasing and full bodied sound while the cylindrical bore is a more shrill and thin sound.

Taylor, Laurence. "Flute Facts." The Instrumentalist, Vol. VI, No. 4, January-February, 1952, 48.

This article delves into the field of using recorder literature for the flute. Mr. Taylor discusses the problem of a piccolo player who is playing well in tune with himself, but is flat in pitch. The solution is to cut off a thirty-second of an inch of the head-joint.

Taylor, Laurence. "Flute Facts." The Instrumentalist, Vol. III, No. 2, November-December, 1948, 46.

Information about flutes, flutists and the literature for flute is included.

Taylor, Laurence. "Flute Facts." The Instrumentalist, Vol. III, No. 4, March-April, 1949, 24.

This article deals with the platinum flute in general and has some special discussion of the alto flute.

Taylor, Laurence. "Flute Facts." The Instrumentalist, Vol. III, No. 5, May-June, 1949, 34.

In this article, the author talks about various aspects of flute literature and where it may be obtained.

Taylor, Laurence. "Flute Facts." The Instrumentalist, Vol. IV, No. 1, September-October, 1949, 50.

This article has pictures of various flutes, delves into literature and players of the flute.

Taylor, Laurence. "Flute Facts." The Instrumentalist, Vol. IV, No. 3, January-February, 1950, 43.

In this article the author tells of new fingerings for high Bb, Ab and third space Db above the staff.

Taylor, Laurence. "Flute Facts; A Remarkable Amateur." The Instrumentalist, Vol. XV, No. 7, March, 1961, 64-65.

Taylor, Laurence. "Flute Facts; Playing With the Organ." The Instrumentalist, Part One, Vol. XIV, No. 3, November, 1959, 56-57.

Taylor, Laurence. "Flute Facts; Playing With the Organ." The Instrumentalist, Part Two, Vol. XIV, No. 4, December, 1959, 46-47.

Taylor, Laurence. "Flute Facts; Research for the Flute." The Instrumentalist, Vol. XIV, No. 5, January, 1960, 58-60.

Taylor, Laurence. "Flute Facts; How To Teach Phrasing." The Instrumentalist, Vol. XIV, No. 7, March, 1960, 76-78.

Taylor, Laurence. "Flute Facts; Flute Performances in New York." The Instrumentalist, Vol. XIV, No. 8, April, 1960, 52-53.

Taylor, Laurence. "Flute Facts; Early Mozart Sonatas." The Instrumentalist, Vol. XIV, No. 9, May, 1960, 48.

Taylor, Laurence. "Flute Facts; Random Thoughts." The Instrumentalist, Vol. XIV, No. 10, June, 1960, 62-63.

Taylor, Laurence. "Flute Facts; The Trio Sonata." The Instrumentalist, Vol. XV, No. 2, October, 1960, 46.

Taylor, Laurence. "Flute Facts; Who Was J. J. Quantz?" The Instrumentalist, Vol. XV, No. 3, November, 1960, 30.

Taylor, Laurence. "Flute Facts; High Register Fingerings." The Instrumentalist, Vol. XV, No. 4, December, 1960, 68.

Tipton, Albert. "Articulation on the Flute." Flute Forum, Vol. II, No. 1, 1960, 5.

Waln, George. "Are You Intonation Conscious?" The Instrumentalist, Vol. X, No. 6, February, 1956, 34.

Waln, George. "Careful Listening Means Better Intonation." The Instrumentalist, Vol. IX, No. 7, March, 1955, 53.

Waln, George. "Basic Pitch Consideration." The Instrumentalist, Vol. XIV, No. 6, February, 1960, 70.

Waln, George. "Long Playing Discs for Flute Teaching." The Instrumentalist, Vol. VIII, No. 3, November, 1953, 24-25.

This is good listing for the non-flute player.

Waln, George. "The First Flute Lesson." The Instrumentalist, Vol. XIII, No. 2, October, 1957, 79.

Waln, Ronald. "The Big Switch From ? to Bassoon." The Instrumentalist, Vol. XIII, No. 2, October, 1958,

Mr. Waln states that the transfer from flute to bassoon is not too difficult. The student has only to learn to drop his jaw back and down and to develop the lip and facial muscles. The Flutist's throat will remain open in the playing of the bassoon as it did in the flute.

Washburn, Clinton. "The Boehm Flute." Woodwind World, Vol. III, No. 9, September, 1960, 6.

Willoughby, Robert. "Flute Vibrato." The Instrumentalist, Vol. XI, No. 6, February, 1957, 34.

Willoughby, Robert. "Flute Tone and Intonation." The Instrumentalist, Vol. V., No. 2, October, 1950, 16.

Wummer, John. "The Importance of Articulation On the Flute." Woodwind World, Vol. III, June 1, 1959, 8.

Wummer, John. "The Mozart G Major Concerto." Woodwind World, Vol. II, October, 1958, 5.

Zlotnik, Henry. "Distortion and the Playing of Flute." Woodwind World, Vol. III, No. 4, December, 1950, 4-5.

Zlotnik, Henry. "Head-joints and Heartaches." Woodwind World, Vol. IV, No. 2, October, 1951, 5.

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