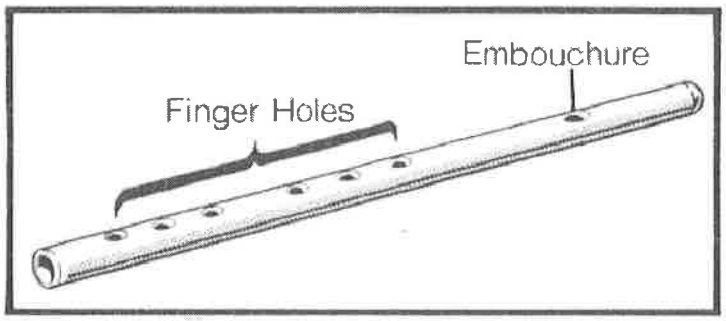
following two sections deal with the blown instruments. The drum is explained in Section 32.

SECTION 28. — HOW THE FLUTE WORKS

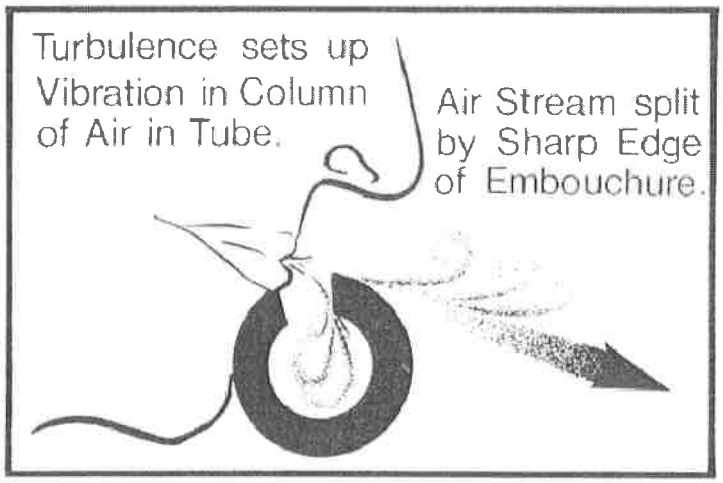
Producing Sound

0507. The flute is a tube of metal, wood or ebonite with six finger holes along one side and one larger mouth hole or embouchure in line with the six holes, but at one end of the tube. The end near the embouchure is sealed with a cork.



A Simple Flute

0508. The player blows a stream of air from his lips across the embouchure which strikes the sharp edge of the other side and is split, being partly directed into the tube causing turbulence and setting up vibration in the column of air inside the tube.



Setting up Vibration (Forming the Embouchure)

0509. The longer the column of air, the slower the vibrations and so the lower the sound. The shorter the column of air, the faster the vibrations and so the higher the sound (this may easily be proved by looking inside a piano. The low or bass notes have long, thick, slowly vibrating strings whilst the high notes have short, thin strings which vibrate rapidly). This difference between high and low sounds is called pitch.

CHAPTER 8

THE FLUTE

SECTION 37. — TYPES OF FLUTE

0801. The history of the flute is covered in Chapter 1, but there is still much to learn about the instrument and this chapter will assist in identifying the keys and other components of the flute, outline the methods of maintenance and general care of the instrument.

0802. Some confusion still remains regarding the pitching, and therefore naming, of flutes in a Corps of Drums. It is often stated that the B flat flute is wrongly named and should be called the A flat flute. While this alternative title is perfectly correct, the fact is that since different methods of setting the pitch of the flute are used it could be said that both names are correct. For example:

a. With all six finger holes covered the B flat flute sounds its D natural. When this note is compared to the piano it relates to B flat concert, hence the name of the flute.

b. If the C natural note is sounded on the same flute and is compared to the piano, it relates to A flat concert, hence the alternative name.

0803. Precisely the same applies to all the other flutes, the final list reading as follows:

a. *Pitching of Flutes – six finger holes covered.*
   (1) B flat flute – sounds D = B flat concert.
   (2) F natural flute – sounds D = F natural concert.
   (3) E flat piccolo – sounds D = E flat concert.

b. *Pitching of Flutes – C natural sounded.*
   (1) B flat flute – sounds C = A flat concert.
   (2) F natural flute – sounds C = E flat concert.
   (3) E flat piccolo – sounds C = D flat concert.

0804. The principal melody instrument in a Corps of Drums is the B flat (A flat) flute. The F natural (E flat) flutes will supply the lower harmonies, bass parts and often counter melody to the melody line. The E flat (D flat) piccolo assists with the melody but more importantly adds embellishments to the melody and also piccolo obbligato parts.

0805. The Corps of Drums, apart from percussion accompaniment, may include six or more B flat flutes, playing ideally in two or even three parts; one E flat piccolo and two to four F flutes adding first and second parts in the bass. Larger Corps may even have bass E flat or bass B flat flutes for further depth of sound.

0806. Flutes are made from either metal, wood or ebonite and on this will depend the quality of the finished product and the price. Generally speaking, flutes in Corps of Drums are made of wood or ebonite or even a mixture of the two.

SECTION 38. — COMPONENTS AND MAINTENANCE

The Button

0811. The button on the more expensive flutes is drilled through the centre and a screw head cut into it. One end of a threaded shaft is screwed into the button whilst the other end is attached to the cork that seals the end of the tube. By screwing or unscrewing the button the cork is moved up or down, thus flattening or sharpening the pitch for tuning purposes.

0812. Most flutes, however, have the button merely as an embellishment to finish off the appearance of the instrument. On the latest ebonite flute, there is even a short metal shaft let into the button to give the appearance of being a proper tuning button rather than just an ornament. The only maintenance required is either to lubricate the threads, if a proper tuning button is fitted, or to bind the button with waxed twine to ensure a firm fit to avoid loss.

The Cork

0813. The cork that seals the end of the flute tube should be a firm push fit. If too tight, the flute or cork may be damaged by having to use excessive force to move it when tuning (if a tuning slide is not fitted). If the cork is too loose the flute will be difficult to blow in the top register, due to leakage, and movement of the cork may alter the tuning. Corks should be checked periodically, especially if the instrument has not been in use for some time as they tend to dry out and shrink. Soaking in water will revitalise them fairly quickly.

The Head and Tuning Slide Joints

0814. The head joint is that part of the flute into which the player blows and where moisture collects. It will require wiping out after playing and the surface polished over with a soft cloth. Ebonite tends to stain badly and discolour with age. A wipe over after playing will prevent unsightly spittle stains. The embouchure should be cleaned out from time to time using a cotton bud, moistened with a little surgical or methylated spirit. The brass tube of the tuning slide is adequately maintained by the application of a little petroleum jelly. The tuning slide joint, which forms the lower part of the head joint, requires only wiping out after playing and polishing with a soft cloth. The brass tubes of the two parts of the tuning slide should on no account be treated with metal polish, as this will wear the tubes and spoil the seal. The tuning slide should be a smooth sliding fit. The tuning slide locates onto the first tenon joint at the top of the body joint. A good fit here is essential or leaking will occur making the flute difficult to play.

Tenon Joints

0815. Tenon joints, when properly prepared and made, last a long time before requiring attention. There are two ways of sealing tenons; older or more expensive flutes have their tenons lined with cork which, when in good condition, require only a little tallow smeared over them from time to time to aid fitting and maintain resilience and sealing. Relining cork

into the flute body upon which the spring bears. A small drop of oil on this pad will eliminate any problems in this area.

0819. Most return springs are rivetted to the keys, although on better quality flutes they are often held in place by a small set screw. Failure of these springs is rare providing correct and regular maintenance is carried out. Once they do break it is usual to have them replaced by a reputable instrument maker rather than try to 'bodge' the repair. Fitting replacement keys should be carried out by an expert since no two keys are identical and some filing and adjustment may be required.

0820. The final, but possibly the most important, part of the key assembly is the pad. This, as its name suggests, is a circular leather pad, filled with cotton wool and sometimes a compressed cardboard disc to maintain its shape. The pad seals the hole when the key is closed preventing the instrument from leaking and being difficult or impossible to play. It follows that if the instrument is to be efficient, then all six pads must close fully and seal off their respective holes. Quite often a flute that is difficult to sound in the lower register may have the problem cured by repadding the keys.

Tuning Flutes

0821. The tuning of flutes in many Corps of Drums is often neglected – with disastrous results. It is essential, to achieve a high quality of sound, to bring all instruments to a common pitch. The method outlined here is simple and effective and will greatly improve the music of flute sections.

0822. The first stage is to tune the principal F, B flat and Piccolo flute players' instruments to their relevant concert pitch. The use of a piano or a flute player from the band will be ideal to assist with this. To tune the flute, ensure that the tuning slide is fully home and adjust the tuning by moving the cork only. Once concert pitch has been achieved, measure the distance that the cork is from the centre of the embouchure using a piece of wooden dowelling; mark the dowelling in line with the centre of the embouchure.

0823. Using the marked wooden dowelling set up the other flutes with the same cork position (obviously each type of flute will need a separate measuring dowel). This action will bring all other flutes to more or less concert pitch. Any slight imperfections in pitch can now be adjusted by using the tuning slide as follows:

Condition	Discrepancy	Remedy
(a)	(b)	(c)
Most flutes in tune	One or two flat	Move tuning slides of majority 'out' to tune to the flattest.
Most flutes in tune	One or two sharp	Move tuning slides of one or two 'out' to flatten.
Some flutes in tune	Some sharp, some flat	Move tuning slides of sharp flutes and those in tune out to tune to flattest.

fit of replacement tenons, which occur from time to time, may be remedied by the application of beeswax or, thinned down, shellac as described under Treating Cracks (paragraph 0833).

0832. In very cold weather, ebonite flutes have an unfortunate tendency to shatter if they are dropped. Repair in these circumstances is virtually impossible and so great care should be taken, particularly when on the march but not playing.

Treating Cracks

0833. Cracks in the grain of wooden flutes occur fairly often, on occasions due to neglect, sometimes through faulty materials. Unless the crack is really serious it may be filled with beeswax. The wax should be gently warmed and worked into the crack to seal it. Similar treatment may be effected by the use of shellac, thinned down with a little methylated spirit and painted into the crack with a fine brush. Large cracks, however, require specialist treatment.

General

0834. The modern simple-system flute will give many years of service if properly maintained. Ebonite flutes, after a few years in service, tend to turn a greenish grey and become more brittle. The deep black lustre may be restored by the smallest application of a natural oil (even ladies' hand cream) which should be rubbed in by hand until the lustre returns and the surface of the flute is dry to the touch and leaves no finger marks. It has been said that a little black shoe polish will also bring a very rewarding gleam to the instrument. Wooden flutes usually respond well to a little polish, but it must be said that correct care and daily maintenance will obviate the need to resort to such cosmetic measures.

0835. The inside bore of the instrument can have its natural drainage of moisture improved by treating with 'neat's-foot oil', which is water repellant and can be purchased at any good sports or gun shop.

0836. To carry out routine maintenance effectively, it is necessary to use the correct tools and materials for the job. The following list gives an indication of the make up of a flute repair kit, which no Corps of Drums should be without.

a. A set of instrument makers screwdrivers – about five different sizes. (Draper D-23 is an example of this.)

b. Spare keys, springs, spring screws, pivot rods, etc. (These are supplied by Potters of Aldershot, or Rose Morris of London.)

c. Binding thread, beeswax, tallow. (Most instrument shops or Potters of Aldershot, or Rose Morris of London.)

d. *Corks*. Corks can be obtained locally but the correct item should be purchased from an instrument shop.

CHAPTER 12

PLAYING THE FLUTE

SECTION 46. — FLUTE TECHNIQUE

Introduction

1201. The major purpose of this chapter is to outline the basic technique for learning to play the flute. Essentially there is only one difficult part to the whole process; that of producing a smooth and full sound from the instrument. The method given here has proved itself in the past and it is true to say that, once this particular aspect has been successfully overcome, then almost everything else falls into place reasonably simply.

1202. No one, who intends learning to play the flute, should imagine that the whole thing will be mastered in a matter of weeks. Learning to play the instrument is fairly easy; mastering it takes a long time. That being said, this chapter has been written more from a practical viewpoint than a theoretical one since drummers need to play flutes and not just talk about them.

1203. In addition to the techniques outlined in this chapter, it is essential that the drummer studies thoroughly the rudiments of music contained in Chapter 10.

Producing a Sound

1204. In Chapter 5. — Understanding Sound, it was explained that a flute produces its sound by a vibrating column of air, and that the column of air is set in motion by the player blowing across the embouchure. This action is critical to the production of a good tone and time spent on this aspect of the technique, will repay dividends in later exercises.

Posture

1205. Before actually beginning to blow the flute, it is important to be comfortable and relaxed. Whether sitting or standing, the posture for the upper body and arms is the same. The player should be in an upright and comfortable position (not rigid) and should hold his shoulders back, without straining. His arms should be held with the elbows away from the body and he should not allow the upper arms to rest on the ribs.

Forming the Embouchure

1206. To form the embouchure correctly, the player should begin by practising using the head joint only. The lips should be drawn back against the teeth in a half smile, keeping the lips together. The head joint should now be positioned against the player's lips with the flute embouchure directly over the centre, with the open end to the right. The player should now roll the head joint away from the upper lip until the embouchure is positioned as shown in the illustration on page 5–2. The lower lip should cover about one quarter of the hole and the head joint should be parallel to the line of the lips and not inclined to the left or right. (Assistance from an instructor, though not essential, is desirable. If the player is unable to

Overblowing

1212. Overblowing is a technique whereby the player, by increasing the velocity or speed of the air stream at the embouchure, causes the instrument to vibrate a shorter column of air than it actually has.

1213. The velocity of the air stream is increased by pressure from the diaphragm. To overblow, the hole between the lips remains constant throughout the whole range of the flute except at the extreme registers when the embouchure should be slightly loose at the bottom and tighter at the top. The reason for this is to maintain an even sound throughout.

1214. The suggested exercise should be conducted by the player with the full flute and without any finger holes covered. He should practise the technique of overblowing the open note (C sharp) by slurring both up and down the octave, counting two beats on each note.

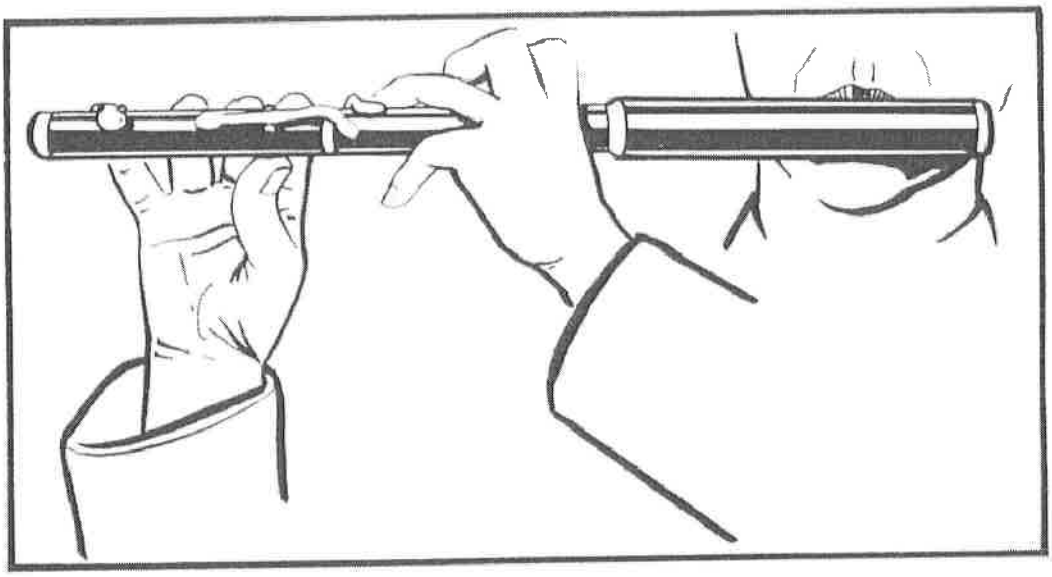
1215. This critically important exercise will teach the basic principle of overblowing, and should be fully understood by the player. (The help of a piano or another competent flute player is necessary.)

1216. The objectives of this exercise include basic ear training (aural) to blow the octaves 'in tune', breath control, counting time, strengthening the embouchure and improving tone.

Instructor's Notes

1217. It is vitally important that novice flute players are not bored rigid by what may appear to be a succession of pointless exercises. Each stage of learning to play should be explained fully and dwelling upon minor imperfections, which may improve in subsequent exercises, should be avoided. However, rushing from one exercise to the next before a technique is developed or fully understood may initially please the student but will heartily discourage him in later exercises when he finds that, because of imperfect groundwork, he is not making progress he has been led to expect of himself due to his rapid (apparent) success.

1218. Having stated that, it will be obvious to any instructor that his charges will be itching to gain ground and will be attempting to run before they can walk. Some may even be able to pick out a few notes of their favourite pop tune, even at this stage of learning. Whilst this may not fit in with everyone's views regarding 'proper' training, it remains true that if the player is showing interest in his instrument by playing it, however badly, that interest should be sustained. It will soon become obvious to him that by persuing his exercises diligently, his rendition of his favourite pop song will noticeably improve. Once he understands this, half the battle of motivation is won.



How to Position the Fingers

Fingering Charts

1225. The fingering charts included here use the following symbols:

a. ● indicates finger hole covered.

b. ○ indicates finger hole open.

c. When keys are to be pressed, the number of the key is included at the appropriate point between the finger holes.

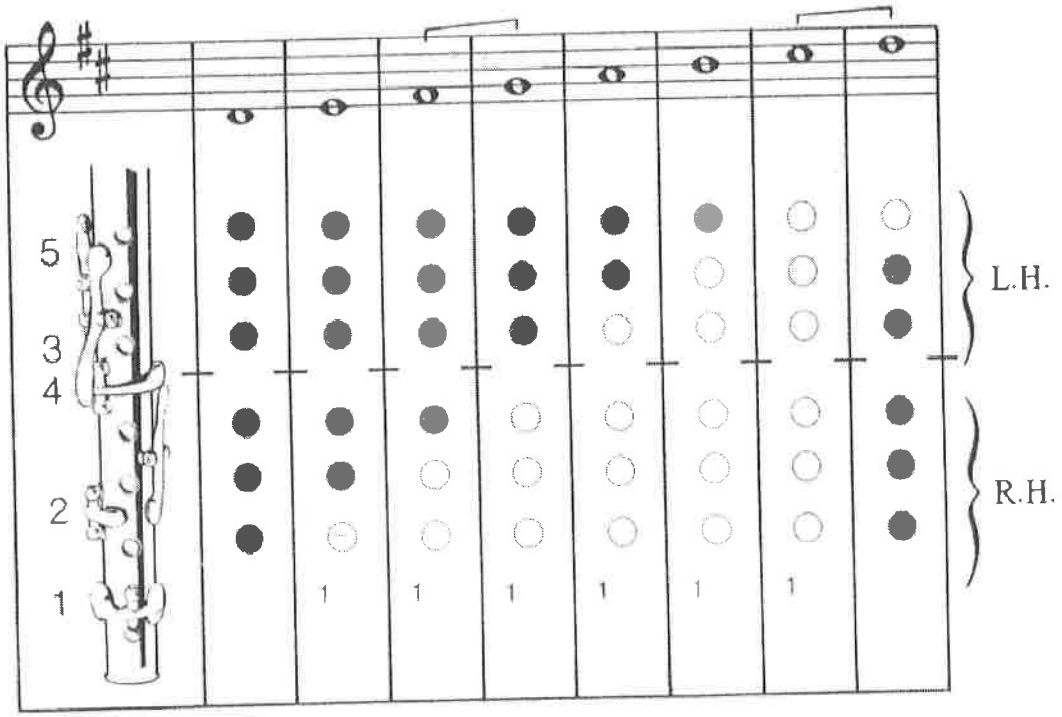
d. *Example.* The first note of the fingering chart for C major should be played with the first finger hole covered, the remainder uncovered and Nos. 1 and 3 keys pressed. The second note should be played with the first finger hole uncovered, all others covered and none of the keys pressed.

e. *Alternative Fingering.* The fingering illustrated in the following seven charts is the fingering considered most suitable for the notes of that scale when played consecutively as a scale. Where alternative fingering for some notes, which may be more suitable for use in certain phrases of music, exists, these are shown in the full chromatic scale on Pages 12–10 and 12–11.

between two sounds is a semi-tone and there are two semi-tones to a tone. In any major scale the semi-tones fall between the 3rd and 4th and 7th and 8th degrees of the scale – this never varies – the semi-tones are marked thus ⊓. All the other intervals are tones.

1227. A scale may be started on any note but in order to maintain the position of the semi-tones in the scale structure of, say, G major, a sharp has to be used. This raises the note affected by one semi-tone and is shown in the key signature directly after the clef. In this case the note made sharp is F(sharp), marked with an asterisk, and therefore – in G major all Fs are automatically played sharp.

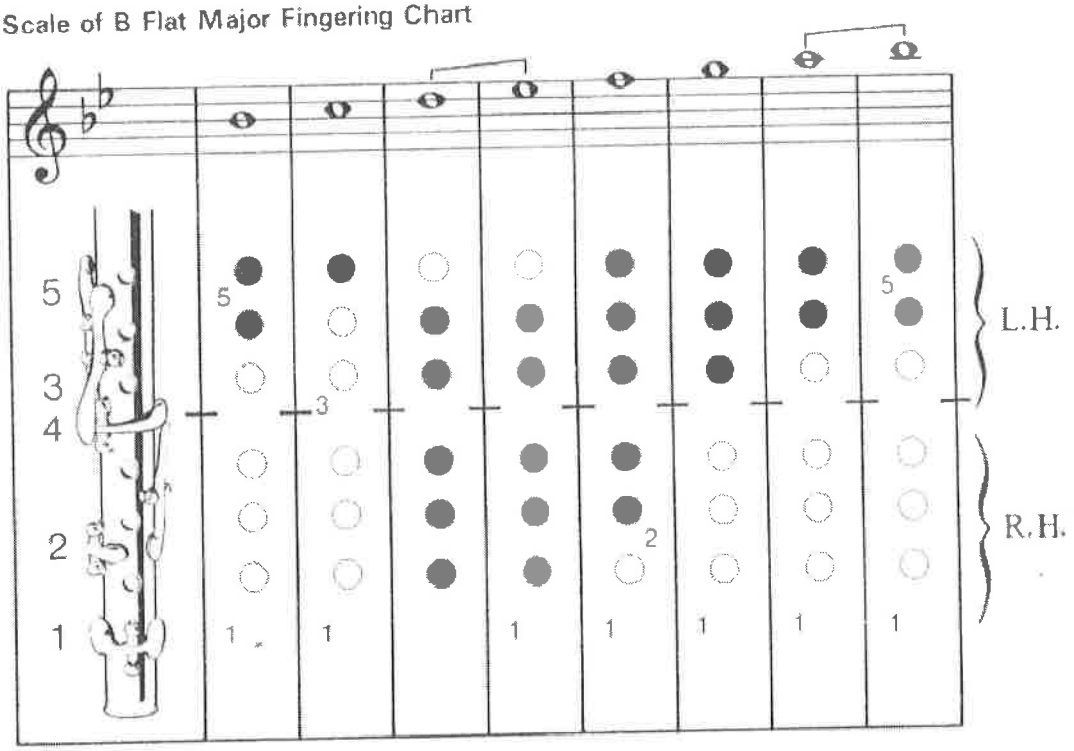
Scale of D Major Fingering Chart



1228. This scale has many notes that have been learned in previous scales. There are two sharps, namely F sharp and C sharp. These are indicated by sharp signs being written on the stave on the F line and in the C space. However, look carefully at the third note in from the left, an F! This one falls into a space on the stave but regardless, is still played as F sharp. Remember, all Fs and all Cs in D major are played sharp no matter where they are written on the stave.

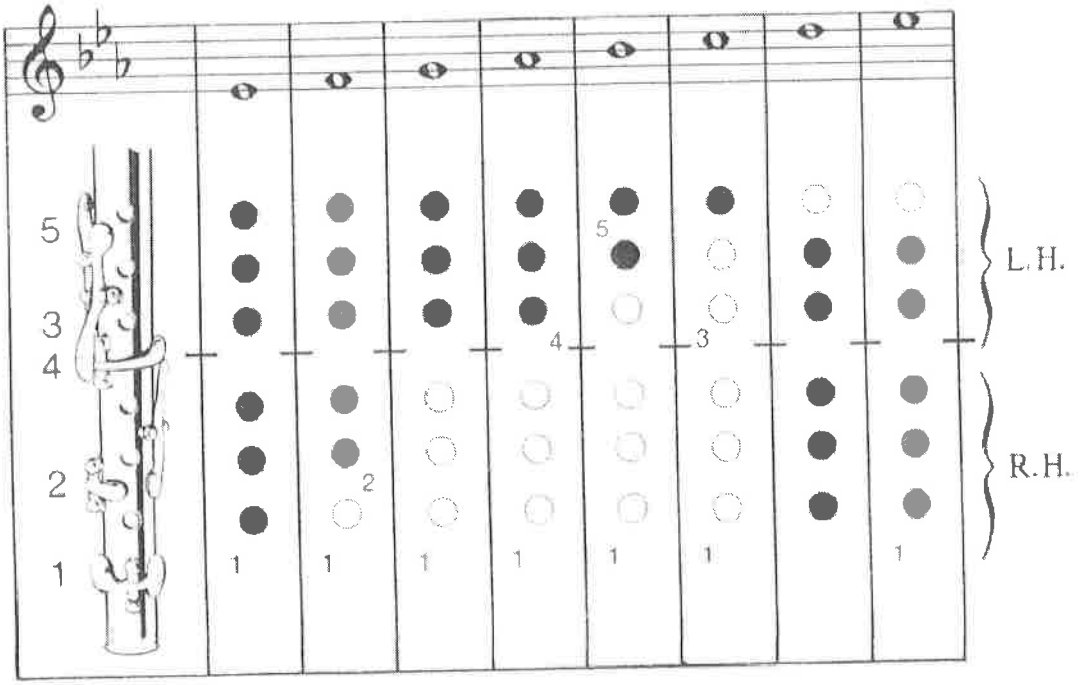
1229. There is one new fingering to be learned in this scale; that of G sharp indicated as before by a sharp sign written at the beginning of the stave. From the arrangement of the sharp signs, it can be seen that there is a specific pattern to which they should always conform. The written sharps (or flats) at the beginning of the stave are called a key signature and indicate to a player, at a glance, the key in which the music is written.

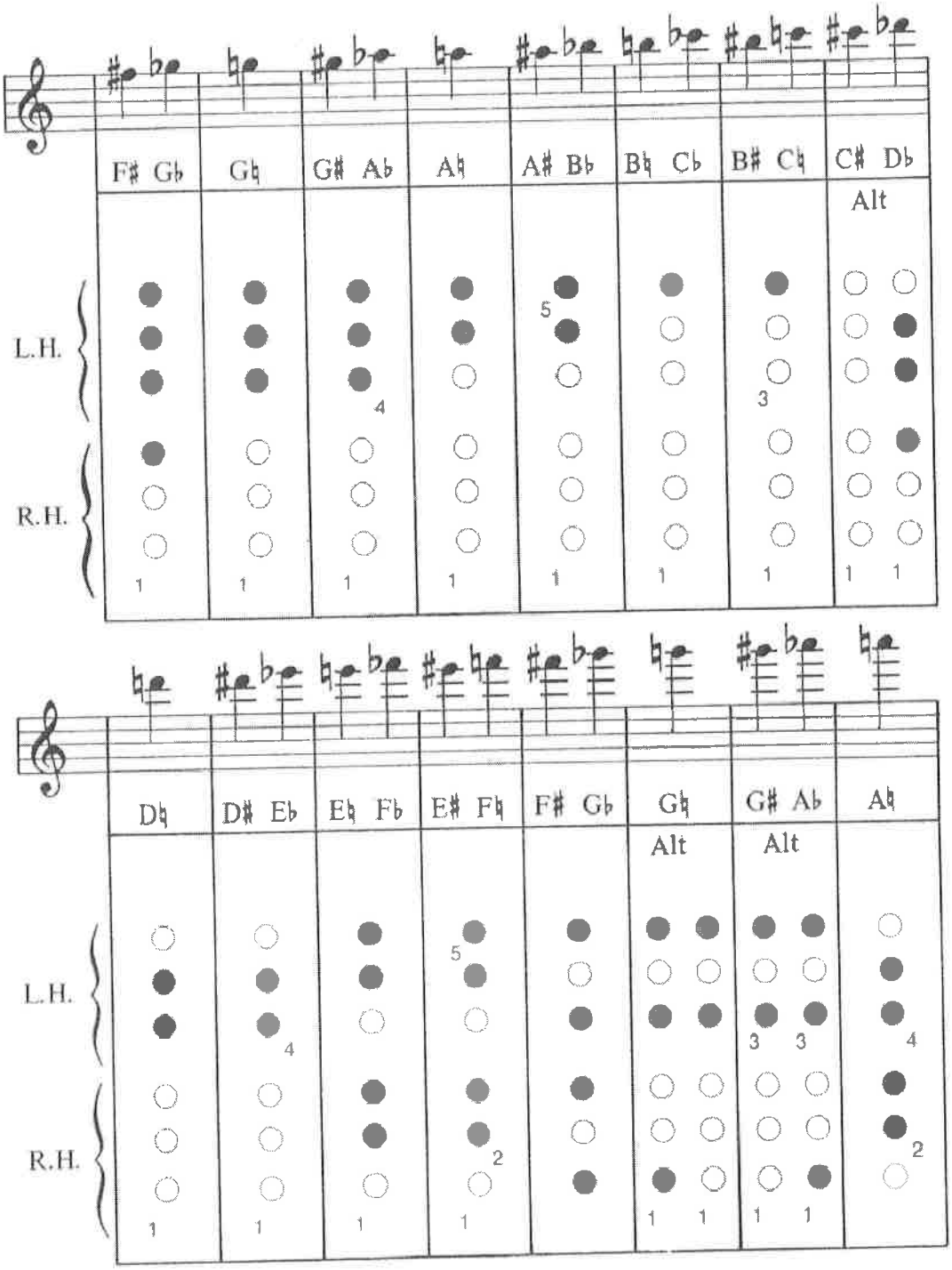
Scale of B Flat Major Fingering Chart



1231. This scale has two flats. The flat signs are written on the stave in a regular pattern which differs to that of the sharp key signatures.

Scale of E Flat Major Fingering Chart



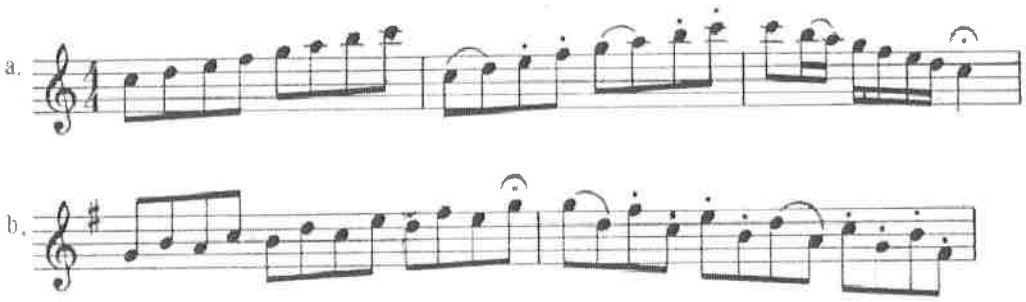


1233. There are in all, fifteen major keys, i.e., C major – 7 sharp and 7 flat keys. Only the natural scale, three sharp and three flat, have been illustrated using fingering charts. The novice should study the full chromatic range of the instrument, given here, in order to master the instrument fully.

Finger Exercises

1239. The purpose of finger exercises is primarily to educate the brain in its co-ordination with finger operation. No one, not even accomplished musicians, can play complex passages of music at sight; it requires some small measure of dedication and regular daily practice to co-ordinate finger and brain function to the point of competence. Secondly, finger exercises will serve to keep the finger joints supple.

1240. For the novice flute player it may be sufficient to practise the scales daily, first with the fingering charts, then with the scale written out, separately. It assists to practise differing 'articulation' on the scale exercises and the novice can even make up his own exercises as in the examples below:



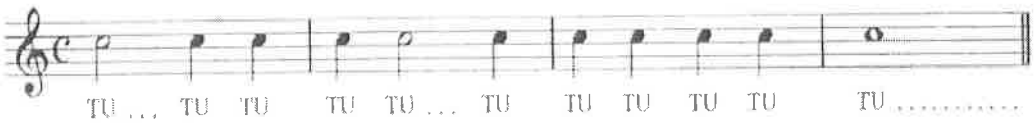
Tongueing Technique

1241. There is one final technique that has not been covered so far, that of tongueing. This is the technique whereby rapid staccato, passages or precise single notes may be played with speed and accuracy.

1242. All too often this important technique is either not taught or worse still, taught quite incorrectly. Often the method of teaching calls for the player to operate the tongue as if spitting a piece of tobacco off the tip. Nothing could be further from the correct method. The technique, when employed correctly, allows the player to carry out single, double, triple and even multiple tongueing.

1243. Simply the technique is effected by pronouncing the syllables "TU" and "KU". If done very slowly the player will note that on the "TU" sound, the tongue is positioned just behind the upper teeth against the palate, and withdrawn rapidly to produce the "TU" sound. It will also be noted that a puff of air is projected from the mouth. Likewise, when "KU" is pronounced, the tongue is positioned at the back of the mouth and is driven forward like a piston, resulting in another puff of air being expelled.

1244. For single tongueing, the player pronounces the "TU" syllable for each note to be played.



Some Suggested Books/Music.

1251. *Flute Music.*

A Tune a Day (Books 1 and 2) for Flute.	Almost all music shops.
Flute Tutor (Otto Langey).	Reasonably priced. Geared to the concert flute. Published by Boosey and Hawkes Music Publishers Ltd., 295 Regent Street, London W1R 8JH.
Fun Music for Flute (Arr Bert Brewis).	Almost any music shop. Many light popular tunes.
Thirty Studies (Platonov).	Boosey and Hawkes Ltd. For serious study having graduated exercises.
A Treasury of Flute Music (Louis Moyse).	Most music shops. Progressive pieces for beginners.
Lennon and McCartney for Flute (Edited by Leo Alfassy).	56 of the popular Beatles songs for solo flute. Available from Music Sales Limited, 78 Newman Street, London W1P 3LA.
Flute Tutor (Peter Schmitz).	Bärenreitter-Verlag of Kassel, Basle and London.
Solos for the Flute Player (Louis Moyse).	Almost any music shop.
Music for Flute (G F Handel) Sonatas I-IV and V-VIII.	All good music shops.

1252. *Military Music.*

Henry Potters March Book (Books 1, 2, 3).	Potters of Aldershot.

SECTION 49. — SUGGESTED DAILY PRACTICE FORMAT

1253. *Novice.*

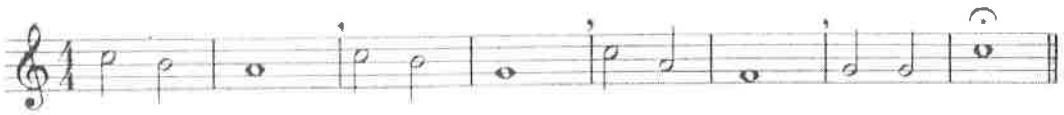
Exercise and Aims	Duration
a. Practise long note exercises. (1) Improves tone. (2) Improves breathing control.	10 mins
b. Practise octaves on long notes (different keys). (1) Improves tone. (2) Improves breathing control. (3) Gives limited aural training (blowing octaves in tune). (4) Exercises facial muscles.	5 mins
c. Rest.	3 mins
d. Practise scales (value of notation) (minims/crotchets). (1) Improves tone. (2) Gives aural training.	20 – 30 mins

Exercise and Aims	Duration
(3) Exercises diaphragm and lungs.	
b. Practise octaves on sharps or flats (up and down full range).	5 mins
(1) Assists note recognition.	
(2) Gives aural training.	
(3) Improves tone.	
(4) Exercises facial muscles.	
c. Rest.	5 mins
d. Practise scales, exercises, preludes, tongueing.	10 – 15 mins
(1) Assists note recognition.	
(2) Exercises brain/finger co-ordination.	
(3) Gives aural training.	
(4) Exercises facial muscles.	
(5) Improves reading of music.	
(6) Increases range of ability for future exercises.	
e. Rest.	5 mins
f. Practise short pieces – duets.	10 – 15 mins
(1) Improves reading of music.	
(2) Exercises brain/finger co-ordination.	
(3) Improves tone.	
(4) Gives aural training – particularly in duets.	
(5) Improves breath control – phrasing.	
(6) Encourages appreciation of music.	
g. Project – whole pieces – solos, etc. By taking a well known piece and working on it section by section until the whole can be played.	30 – 40 mins
Total time	1 hr 15 mins – 1 hr 35 mins

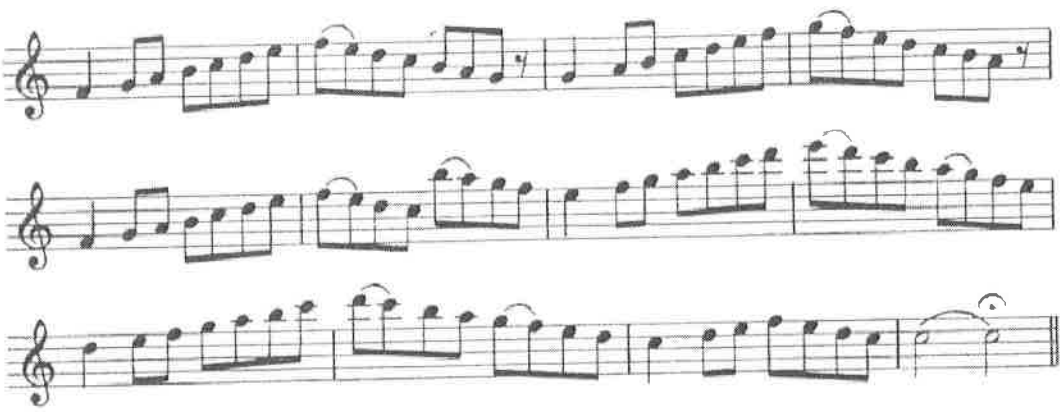
SECTION 50. — FLUTE EXERCISES

1256. *C Major.*

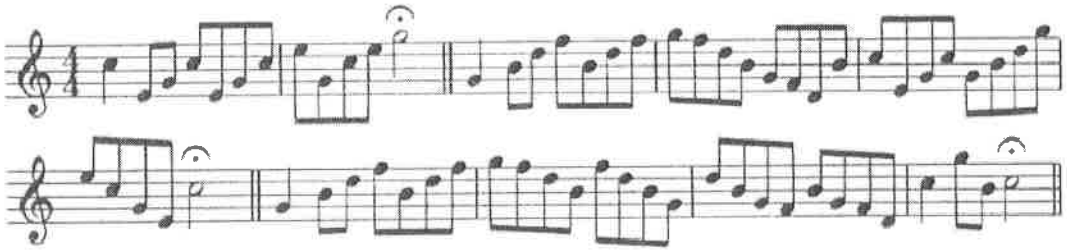
a. *Breathing and Tone Production.* Commas indicate where breaths should be taken.



b. *Breathing and Tone Production.* Commas in brackets indicate a breath may be taken if required.

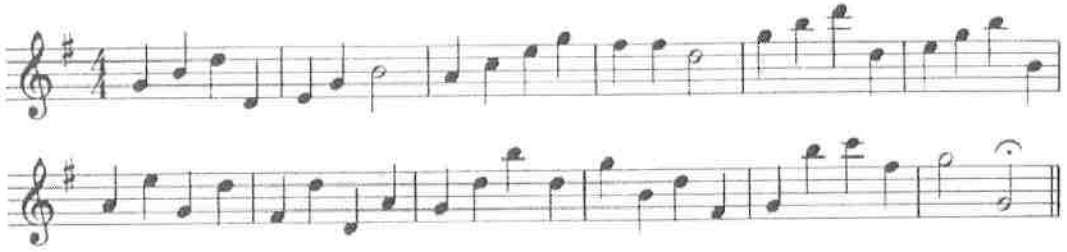


f. *Chords.*

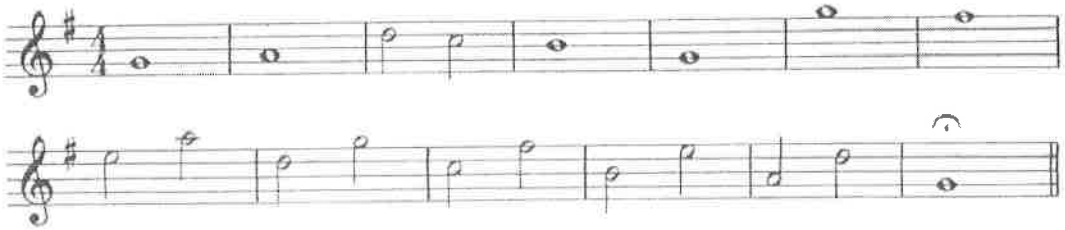


1257. ***G Major.***

a. *Finger, Embouchure and Tone.*

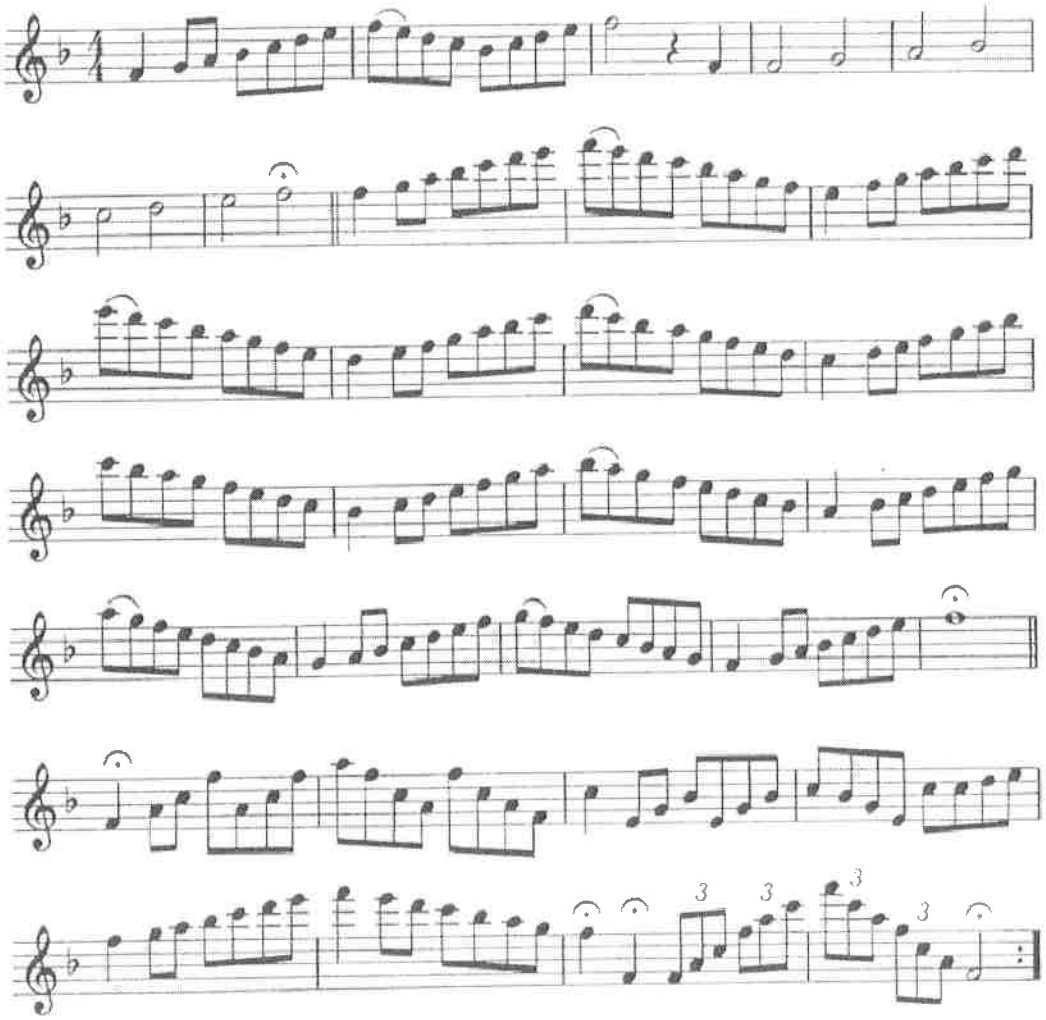


b. *Tone and Embouchure.*

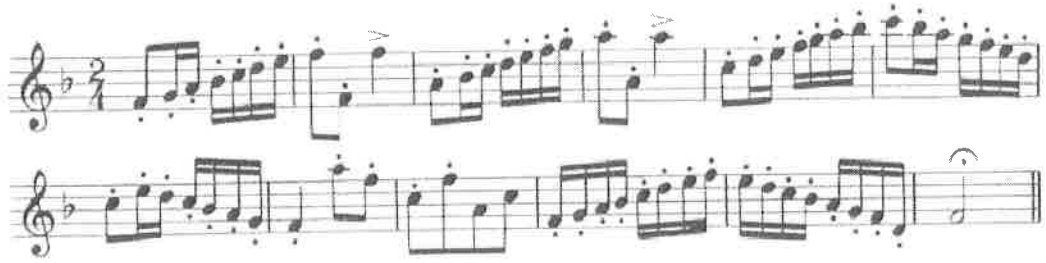


1258. *F Major.*

a. *Scale and Chords.*

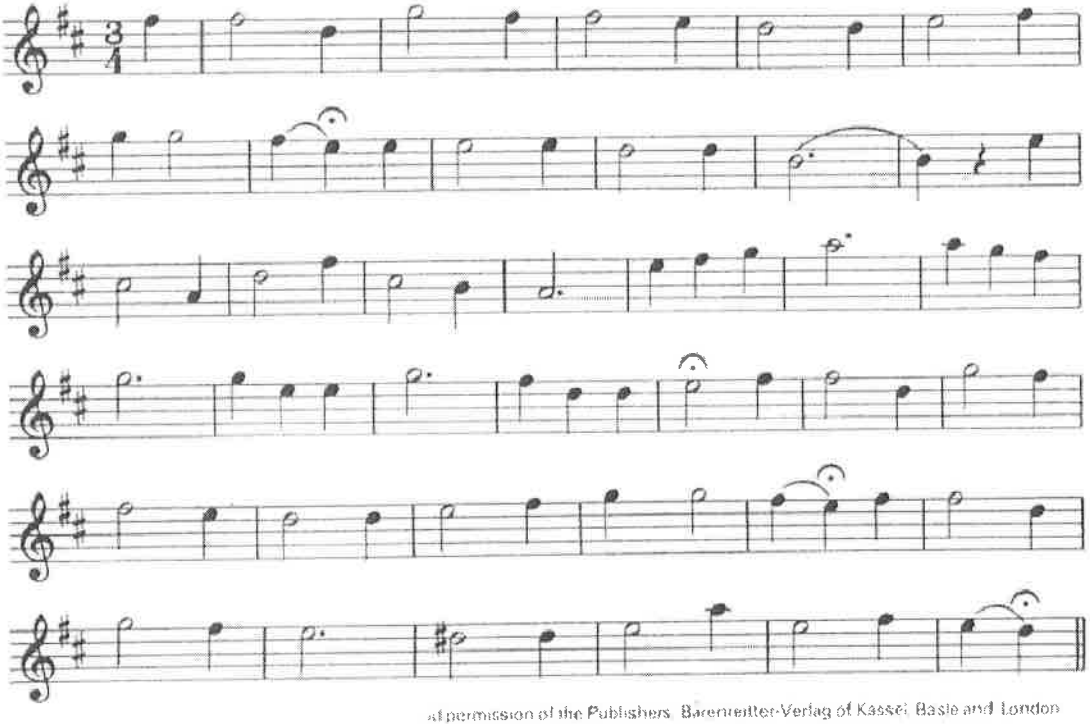


b. *Staccato.*

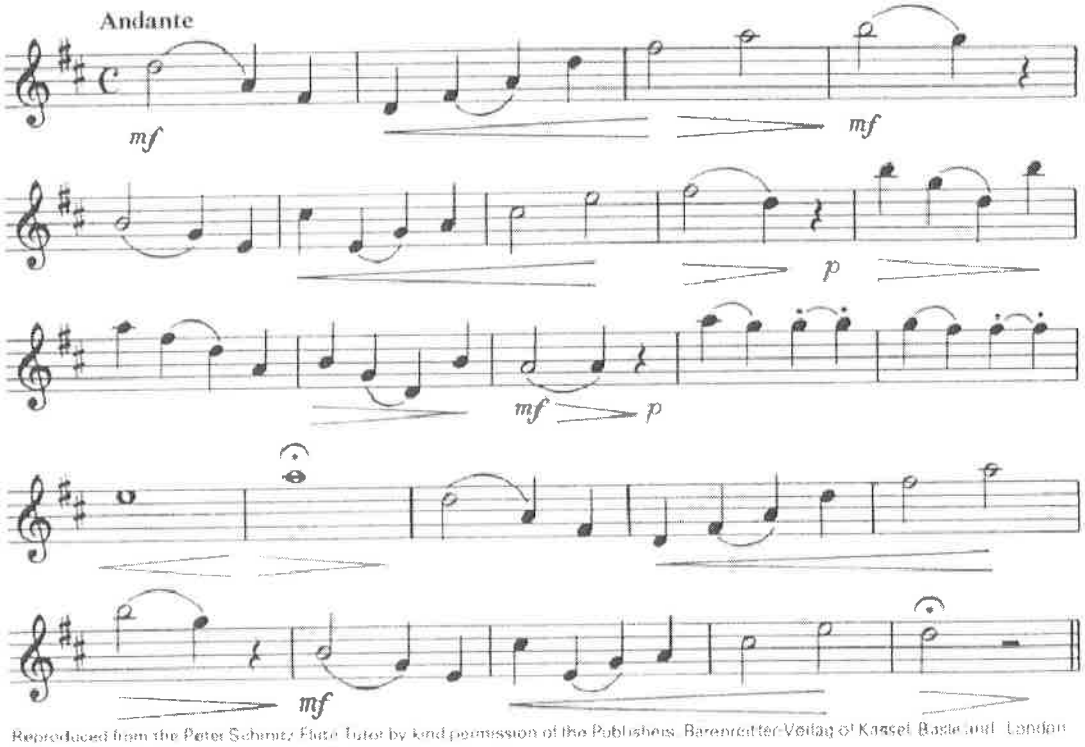


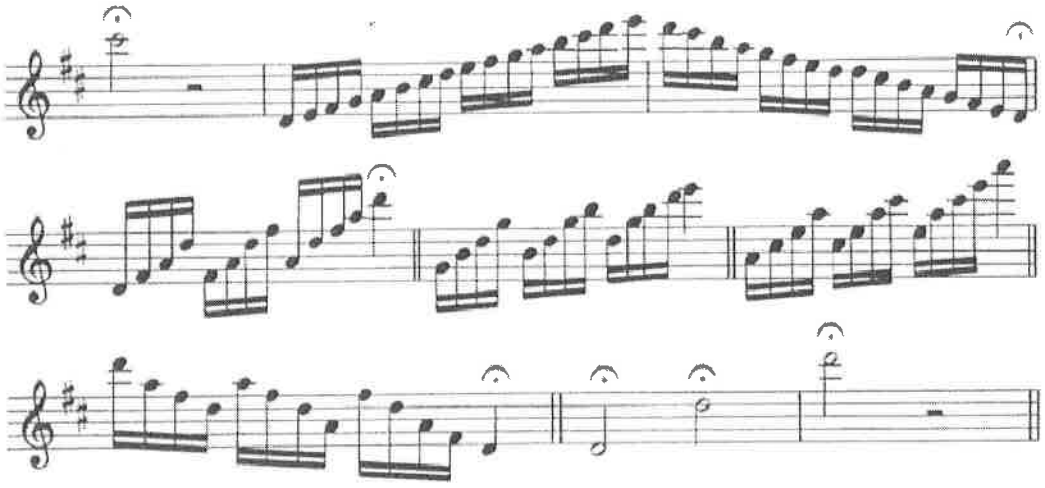
1259. *D Major.*

a. *Improvement of Tone.* Francois Devienne

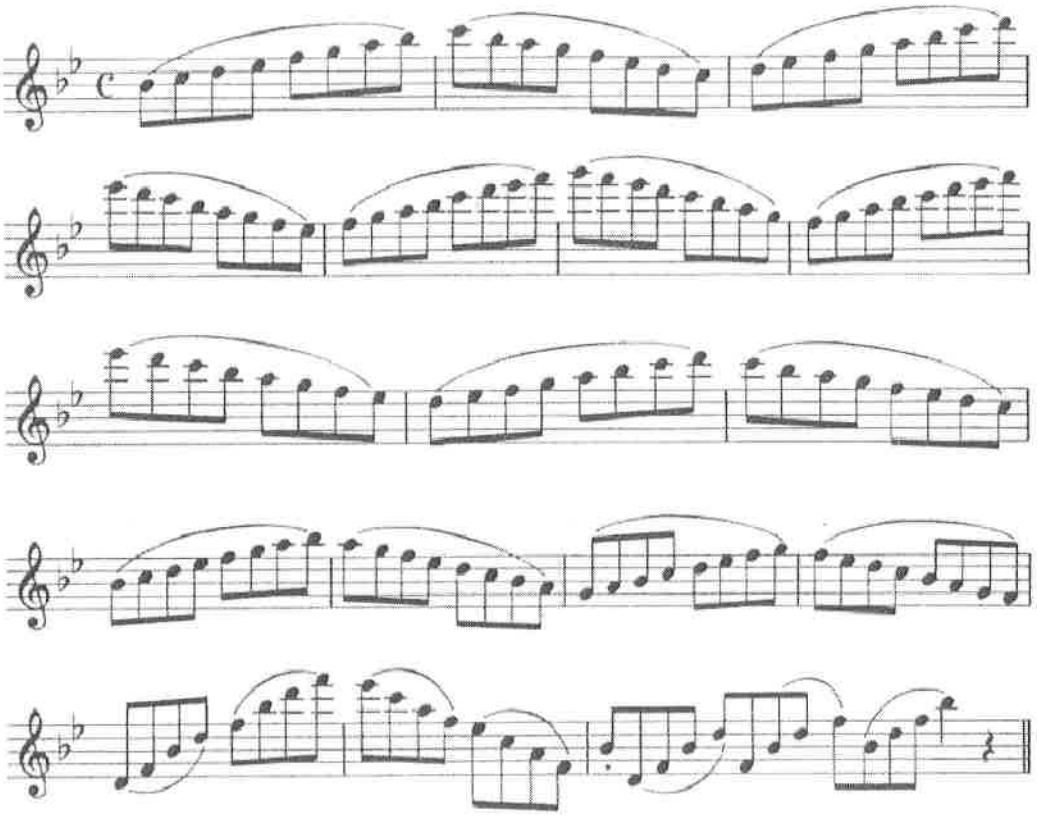


b. *Improvement of Tone and Expression (Crescendo/Diminuendo).*

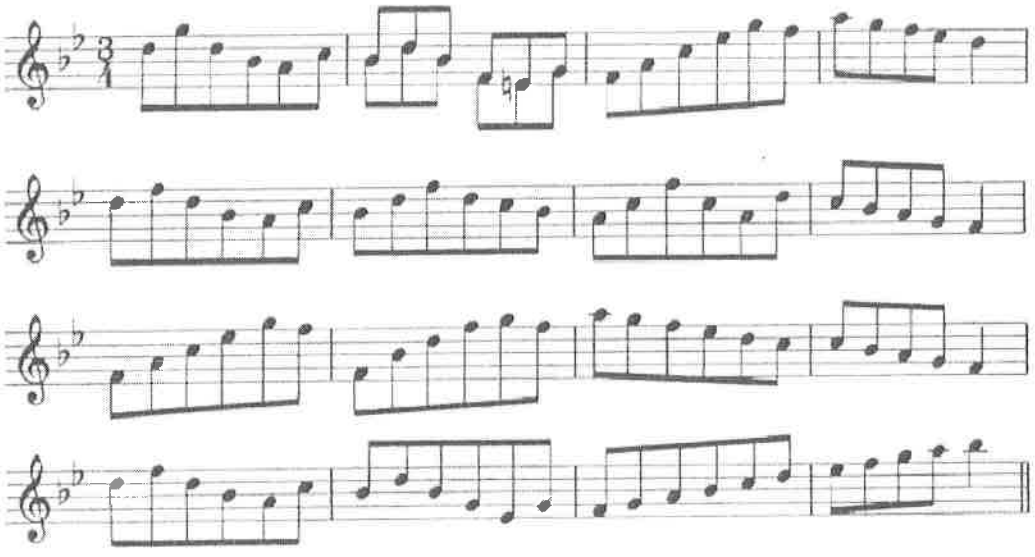




c. *Scale.*



d. *Scale.*



d. *Breath Control and Rhythm.*