

SECOND EDITION 1993

PREFACE

It is with very real pleasure that I introduce Book 2 of the Structured learning Guide of The Royal Scottish Pipe Band Association.

The growing international popularity of Book 1 in the series is positive proof of the acceptance of the clear concise teaching methods being used in the education programme now introduced.

Pipe band enthusiasts all over the world are due a debt of gratitude to the members of the team of diligent, talented personnel who have created and presented this comprehensive and imaginative learning aid. This debt will be amply repaid by the conscientious use of Books 1 and 2 and by the subsequent attainment of a higher standard of performance of Pipe Band Music.

E. Sturgeon

PRESIDENT

INTRODUCTION

The Music Board of the Royal Scottish Pipe Band Association is delighted to present Book 2 in the Structured Learning series which covers the revised curriculum of the Intermediate Certificate course.

We believe that this second publication provides a well balanced and coherent framework of learning material against which students can further develop their musical competence in piping and drumming.

The successful presentation format which was established in Book 1 has been continued and built upon to ensure continuity of the learning process. It also maintains the capability of the material for use in a distance learning mode where the student has limited or perhaps no access to formal instruction.

A key objective of the Music Board is to offer musical education of the highest quality and to support this by the provision of appropriate learning resource material which will be available to the membership of the Association and to the many Affiliated Associations throughout the World.

We see this latest publication as firm evidence of our commitment to achieving this goal.

Sincere thanks are due to the many individuals who contributed directly or indirectly to the development of this Book. In particular James Wark and John Kennedy whose original material provided the basis for subsequent Music Board development. We are also indebted to the following working group who researched and generated the final document :-

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DR. R. A. DEUCHAR
MUSIC BOARD CONVENER, 1991

TECHNIQUES OF STUDY

Whether in the formal class situation or working at home it is important that the student develops a responsible attitude to learning and study which suits their particular circumstances. Study is difficult and demanding work but it can also be very enjoyable and personally rewarding as your knowledge and practical ability develop.

A feature of this presentation is that students can progress through the theory or practical aspects of the work at a pace which is consistent with their particular level of ability in each area, thereby avoiding the frustration of being held back say in the practical side because their theoretical knowledge does not match their practical ability, or vice versa.

In order that full advantage may be taken of these features it is suggested that the following broad guide-lines be adopted in approach to effective study.

1. Plan in advance how you intend to progress through the theory part of the curriculum. I.e.; sequentially – Lesson 1 followed by Lesson 2 etc. or perhaps in some other arrangement to suit your level of knowledge.
2. Organise your study and practice to avoid the trap of wasting time. Ask yourself whether you are really learning or thinking – or are you merely frittering away your time?
3. Understanding is the key to learning and remembering. If you understand a principle, it is easy to remember it and apply it in developing your practical musicianship.
4. In memorising details of musical theory, put your books aside from time to time and test yourself. This will help you to identify the point which are most difficult to recall and allow you to give them special attention.
5. Make a note of the points on which you are not clear and discuss them with your instructor or with an experienced piper or drummer.
6. Do remember that to write neat and clear musical notation takes practice so make sure that you spend sufficient time on this important aspect of your studies.
7. An instructor may find it beneficial to ask the student to study certain theory lessons at home at their own pace and concentrate on practical instruction in the classroom situation. Where this is done it is important that the instructor tests the understanding of the student on these particular theory lessons at the next formal teaching session and clarify any points of doubt.
8. Both pipers and drummers should study musical theory together and only when it comes to practical instruction should they be treated separately.

Not all these suggestions are necessarily suitable for every student, each person must develop the technique of study and practice which suits them best. But it is important to consider from time to time whether your study methods are most effective for you.

The Music Board wishes you every success in your studies.

STRUCTURED LEARNING – THE INTERMEDIATE CERTIFICATE

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STRUCTURED LEARNING – THE INTERMEDIATE CERTIFICATE

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Tutor

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This index is a comprehensive listing of musical terms as found in the Lessons in Structured learning, Books 1, 2 and 3.

2.1.1

LESSON 1

Musical Instruments

A musical instrument is a device which can produce vibrations in the air. These vibrations are converted by the human brain into musical sound.

Musical instruments are grouped into four main classes, depending on their construction and means of operations.

1. Stringed Instruments

The strings are set in motion by scraping, bowing, plucking or hammering.

2. Wind Instruments

The air inside the instrument is set in motion by blowing into or across a tube, either directly or through a reed.

3. Percussion Instruments

These are instruments which may be sounded according to their design

e.g. Beaten, shaken, scraped or struck

4. Electrical Instruments

These date from about 1920. Electricity is the primary source of energy.

The instruments in the classes 1 to 3 also form groups called 'families'. These will be dealt with in later lessons.

All musical instruments, with few exceptions, have the following essential elements to successfully produce musical sounds.

A. An originator to cause vibrations.

(Energy produced by the musician or electrical means).

B. A vibrating body

(string, reed, column of air, metal tube, wooden or metal blocks etc.)

C. A method of producing musical sounds of different pitch

e.g.

a) Shortening/lengthening columns of air.

b) Shortening/lengthening strings.

D. A method of amplifying the sounds produced (resonator).

(A stretched string when plucked or scraped will not have a strong sound, however when attached to a hollow body, the sound will be amplified because the body, a resonator, will take up the string's vibrations and provide amplification.

e.g. violin body, drum shell, bagpipe chanter and drones.

LESSON 1 WORKSHEET

ORAL WORK

1. What is a musical instrument?
2. List the four main classifications into which musical instruments are grouped.
3. Describe the means of sounding the following classes of musical instruments.
 - a) Stringed instruments
 - b) Wind instruments
 - c) Percussion instruments
4. In what class of musical instruments would the following means of producing sound be grouped?
 - a) Scraping or hammering.
 - b) Air blow into or across a tube.
 - c) Shaken or scraped.
5. What is the name given to the following essential components of a musical instrument?
 - a) The source of vibrations.
 - b) Metal tube, reed, string or column of air.
6. In a musical instrument describe the two main means of producing sound of different pitch.
7. Explain the purpose of a resonator in a musical instrument and give four examples.

2.1.4

EXERCISES

To broaden ones knowledge and understanding of musical instruments and more particularly of the rich variety of sounds which they produce, it is important to listen to as wide a spectrum of music as possible. This can be done by tuning into music programmes on radio or TV, listening to records or tape recordings or ideally listening to live musical performances.

Whichever means you select it is important to structure your listening in such a way as to enable you to identify the various musical sounds being produced and relating them to particular musical instruments.

Listed below are a number of practical exercises which you can undertake to develop your ability in this area.

1. Listen to any recording of a full orchestra and identify when the main musical theme is being presented by :-
 - a) The stringed instrument section
 - b) The wind instrument section.
2. Using the same recording try and distinguish this passages of music where both stringed and wind instruments are combining to produce a total sound effect.
3. Listen to a recording of a brass band and try and distinguish the following :-
 - a) the high pitched instruments
 - b) the low pitched instruments.
 - c) Passages where percussion instruments are features.
4. Listen to a recording of a pipe band and try and distinguish the following :-
 - a) the relationship between chanter and drone sounds.
 - b) The range of percussion sounds evident
i.e. Bass, tenor and snare drums.

LESSON 2

Instrument classification – Stringed instruments

1. **BOWED (Scraped)**
2. **PLUCKED**
3. **HAMMERED**

BOWED instruments include:

Violin family, viol family etc.

PLUCKED instruments include:

Harp, clarsach, lyre, psaltery, harpsichord family, lute family, guitar, zither etc.

HAMMERED instruments include:

Dulcimer, clavichord, pianoforte, cimbalom etc.

The Violin Family

This includes the violin, viola, violoncello (cello), and double bass (bass).

These have a 7 octave compass and are fitted with 4 strings of different thickness which are stretched over a similar distance. With varied tensions each string can produce a different range of notes. (Higher notes on one string can overlap the lower notes on the next string).

The strings are held in place by the tail piece, then stretched over the bridge which rests against the body, or resonator, and then secured at the head by tuning pegs.

The strings may be bowed or plucked (occasionally hammered) and the vibrating strings can be pressed or stopped on the fingerboard. The pitch of the note produced depends on the length of the string between the finger and the bridge.

The strings are tuned by turning the tuning pegs which increase or decrease the tension. The effect of this is to raise or lower the pitch. The thicker strings usually produce lower pitch sounds.

2.2.2

The Viol Family

The viol family preceded the violins, then co-existed and are still in use.

The Lute Family

The lute family is similar to the violin family, however it differs in that :-

- a) The strings can vary in number
- b) The strings are plucked by the fingers.
- c) The body is pear shaped.
- d) The fingerboard has ridges (frets) against which the strings are pressed or stopped to produce notes of different pitch.
- e) There is no bridge.

The Guitar

The guitar is related to the lute family, but has a different body shape and has, usually, six strings. It is plucked by finger or a device called a 'plectrum'.

The guitar is often 'strummed'

i.e. Brushing across the strings quickly so that they sound together, is called strumming.

The Harp

The harp consists of a series of strings of different thickness, length and tension, stretched over an open frame. The strings are plucked and each string produces one note only.

Some harps are fitted with pedals. These increase its flexibility by raising and lowering the pitch of individual notes.

The Harpsichord

The harpsichord, in its three forms, the virginal, the spinet and the harpsichord, are derived from the psaltery.

It is a keyboard stringed instrument having a series of strings similar to a harp. The strings lie horizontally and are plucked by a plectrum which is fitted to a wooden device called a jack.

Any individual jack may be operated by depressing its key.

The volume of any note is unaltered regardless of the force used in striking the key.

2.2.3

The Dulcimer

The dulcimer is a shallow box with strings or wires stretched across it, similar to a psaltery. The strings are not plucked but struck by small wooden hammers held by the player.

The Pianoforte

The pianoforte is a keyboard instrument and consists of a series of wires of different thickness, length and tension, stretched over a sound board (resonator). The strings are struck by hammers operated by keys and each string produces on fundamental note.

Each string is 'damped' to prevent it vibrating when other strings are sounding.

The damper is released just before the hammer strikes. All dampers can be released when one of the two foot pedals fitted is depressed and this prolongs or sustains the sound.

The other pedal is the 'soft; pedal which reduces and slightly muffles the brilliant tone of this instrument.

The compass of the pianoforte is usually $7 \frac{1}{4}$ octaves.

2.2.4

LESSON 2 WORKSHEET

ORAL WORK

1. Stringed instruments fall into three areas of classification :-
 - a) Name the three areas of classification
 - b) Name at least three instruments which come under the classification of each group
2. How is sound produced from a violin?
3. Describe the main parts in the construction of the violin.
4. What is the compass range of the violin?
5. In what way does the lute family differ from the violin family?
6. To which family of instruments does the guitar belong?
7. In guitar playing what is meant by the term 'strumming'?
8. Describe the construction of a harp.
9. Describe how sound is produced from the harp.
10. Name THREE basic forms of harpsichord.
11. Describe the dulcimer
12. A) Describe the pianoforte, and how sound is produced from it.
B) What is the compass of this instrument.

LESSON 3

Instrument classification – Wind instruments

Wind instruments are grouped into :-

1. Tubes Only

2. Reed

3. Brass

Tube instruments include :-

The families of the recorder, flute, pan pipes and organs.

Reed instruments include :-

The families of the oboe, clarinet, saxophone, bombard, bagpipe, reed pipe organs.

Brass instruments include :-

The families of the bugle, trumpet, horn, tuba and trombone

The recorder, flute, oboe, clarinet families, along with the saxophone, are also called **woodwind** instruments. These may be made of wood, metal, or synthetic material.

All wind instruments operate on the “vibrating column of air” principle. This, when used in conjunction with variation in tube length, lip tension, air pressure and fingering technique can provide notes of different pitch. A system of finger holes and keys are used, the most common of which is the Boehm system on woodwind, and valves or pistons on brass instruments.

The flute and recorder families are related.

The recorder is end blown, whereas the flute is side blow across the hole.

The flute family includes :-

The concert flute, the piccolo (an octave higher), and the bass flute (4th lower). These are end stopped so that air is directed to the finger holes.

2.3.2

Pan pipes consist of end blown pipes or tubes of varying length.

The oboe family includes :-

The oboe, cor anglais (the English horn) bassoon, and double bassoon. All of these have a double bladed reed which is placed directly between the lips while the instrument is being played.

The clarinet family includes instruments of different physical size to provide ranges of pitch. All are fitted with a single bladed reed. When the instrument is sounded the reed vibrates between the lower lip and the mouthpiece.

The saxophone is similar in operation to the clarinet, and consists of a family of soprano, alto, tenor etc.

Brass instruments consist of brass or metal tubes with 'cup' or 'funnel' mouthpieces. The lips (embouchure) are placed against the mouthpiece and air is forced through them. The lips then vibrate like a double-reed. This in turn causes the air column inside the tube to vibrate.

Brass instruments were originally like the bugle, having no valves, and could produce only a limited number of notes. These instruments were called 'natural' instruments.

Later a system of valves was introduced. This gave the instrument greater flexibility in note production.

The French horn differs from other horns in that its note range may be altered by the position of the player's hand within the bell of the instrument.

The trombone is fitted with sliding tubes which, when moved, shortens or lengthens the column of air, and produces notes of varying pitch.

2.3.3

LESSON 3 WORKSHEET

ORAL WORK

1. There are three classes of wind instruments :-
 - a) State the three classes
 - b) For each class name three different instruments.
 - c) State the various types of material used in the construction of woodwind instruments.
2. Name some of the methods by which sounds of different pitch may be obtained from both wind and brass instruments.
3. Name 'three' different types of flute, which are encompassed under the heading of the Flute Family.
4. Explain the difference between the flute and the pan pipes.
5. The Oboe family includes the oboe, cor anglais, bassoon and double bassoon. Do these instruments have a single or double bladed reed?
6. Describe how sound is produced from brass instruments.
7. At any time did brass instruments not have valves.
8. Describe how the flexibility of brass instruments was increased.
9. Explain how the range of notes produced by the French horn can be altered.
10. Name a brass instrument without valves.
11. It is stated that the trombone is the oldest flexible brass instrument.
Describe how notes of varying pitch can be produced on this instrument.

2.4.1

LESSON 4

Musical Instrument – The Organ

The basic organ is a wind instrument consisting of sets of pipes made to sound by compressed air and controlled by keyboards.

There are various types, the main ones are as follows :-

- 1. Pipe**
- 2. Reed**
- 3. Electrical/electronic**

The organ sound was originally associated with church music but has increasingly become adapted to many other forms of music.

As a single instrument, the organ has the most comprehensive range of instrument sounds.

Other instruments within the organ family are the accordion (piano/button), the harmonic and the concertina.

With the advancement of electronics, sounds approximating these instrument voices may be produced.

2.4.2

LESSON 4 WORKSHEET

ORAL WORK

1. To which family of instruments does the organ belong?
2. Describe how sounds are produced from the organ.
3. Name 'three' different types of organ.
4. List any other instruments known to you that would fall into the category of the organ family.

LESSON 5

Musical Instruments– Percussion Family

Percussion instruments, in their simplest form, require little skill in their manufacture and operation. Almost anything which can produce audible vibrations can be classed as a percussion instrument, **e.g.** striking pieces of wood together, striking stretched animal skin by hand or by using implements. Hand clapping and foot stamping can be included in this category.

Instruments of this type range from the simple to the complex and can produce sounds of an extremely wide range. As a consequence, they are difficult to classify, however, they are grouped into :-

1. Instruments of definite pitch

2. Instruments of indefinite pitch

Instruments of definite pitch include: -

Timpani, or kettle drums, tubular bells, glockenspiel, xylophone and marimba.

Instruments of indefinite pitch include :-

Snare, or side-drum, tenor drum, bass drum, tabor, tambourine, triangle, cymbals, gong woodblock etc.

N.B It is possible to alter the pitch of such an instrument to suit the character of the music. It may therefore be concluded that certain instruments, generally classified as indefinite pitch instruments, are at one and the same time fixed in pitch.

Timpani, consists of a bowl with a membrane stretched over the open end. It can be tuned to precise pitch by turning screwed rods fitted to a tension ring positioned on top of the membrane. In more advanced type of timpani a foot pedal fitted in the base of the bowl can be used to readily alter the pitch. Orchestras normally include three to five different sizes to provide a wide range of pitch.

Tubular bells, consists of a series of metal tubes of similar diameter and graduated length. The tubes are suspended vertically and are played by striking with a small hammer.

A **Glockenspiel**, consists of a set of graduated flat steel bars laid horizontally in keyboard fashion. It is played by striking the centre of the bars with a small hammer or beater.

2.5.2

A **Xylophone** is similar to the glockenspiel but has wood bars instead of steel.

The **Marimba** is similar to the xylophone except that the lighter wood blocks produce a more mellow sound. Each block is fitted above a suitably tuned resonator tube.

The **Tabor** is a very old style of drum. It is small and lightweight, and may be hung from the waist. It would have formed part of an ancient combination, that of 'pipe and tabor'. The pipe is blown, and fingered by one hand while the other kept 'time' with the tabor.

The **Tambourine** form exists today as it did in Roman times, consisting of a pierced hoop fitted with 'jingles' or metal discs. A membrane is stretched over one end of the hoop. The tambourine is either shaken or beaten or both.

A **triangle** is a round steel bar, shaped such that its three sides are of equal length with one corner open. When struck by a thin metal beater it produces a brilliant sound.

Cymbals consist of either pairs, or single, concave metal discs which are available in a wide range of sizes. When played, the cymbals are either clashed together, or brushed, or struck with different types of beaters.

The **Gong** is usually much larger and heavier than the cymbal. It is suspended in an open frame and struck with a beater.

The triangle, cymbal and gong are all affected by size and material density.

The quality of sound of any percussion instrument can be altered by using beaters of different materials and sizes.

Alternative percussion instruments will continue to be devised and new ways of playing old instruments will be found to produce different sounds.

2.5.3

CHAPTER 5 WORKSHEET

ORAL WORK

1. There are two groups of percussion instruments :-
 - a) State the two groups.
 - b) Name **six** different instruments from each group
2. Describe the construction of timpani and how the pitch may be altered.
3. Is it possible or impossible to alter the pitch of an instrument of indefinite pitch to suit the character of a certain piece of music?
4. Describe the basic design of tubular bells.
5. Describe a glockenspiel, and how the instrument is played.
6. What is the basic difference between a glockenspiel and a xylophone?
7. It is stated that the marimba is similar to the xylophone with two exceptions. Name the two exceptions.
8. Describe a 'tabor'
9. Describe the basic construction of a tambourine and how it is played.
10. Describe a triangle, and state how sound is produced.
11. Cymbals are concave metal discs which are available in a wide range of sizes.
State the methods by which sound is produced.
12. Describe a gong, and by what method the sound is produced.
13. In what way can the sound of any percussion instrument be altered?

LESSON 6***Time Signatures (Simple Time)***

Time is the means by which music is measured into units called BEATS, and BEATS (or PULSES), into groups called bars.

(Time must not be confused with **Tempo**)

A **TIME SIGNATURE** shows the number of **BEATS** and **BEATNOTES** in each bar and the value of the beatnotes in relations to the semibreve.

The **TIME SIGN** is placed on the staff at the beginning of the piece immediately after the **CLEF**.

The Time Signature is made up of two numbers, one written above the other, similar to an arithmetic fracture but without the division mark.

Viz. 2 3 6
 2 8 4

Each of the three kinds of Time and their Simple and Compound sub-divisions have their own Time Signatures.

Where the upper number is 2, 3, or 4, then the Time Sign indicates Simple Time.

i.e. The figure 2 indicates there are two beatnotes per bar and is called Simple Duple Time.

 The figure 3 indicates there are three beatnotes per bar and is called Simple Triple Time

 The figure 4 indicates there are four beatnotes per bar and is called Simple Quadruple Time.

In Simple Time the lower number indicates the value of the beatnote in relation to the Semibreve.

i.e. 2
 4 Indicates 2 Quarter Notes or Crotchet beatnotes per bar

 3
 8 Indicates 3 Eighth Notes or Quaver beatnotes per bar.

 4
 2 Indicates 4 Half Notes or Minim beatnotes per bar.

2.6.2

Frequently, Simple Quadruple Time is shown as the capital letter **C**. Triple Time was believed to be 'PERFECT TIME' because it was reminiscent of the Holy Trinity and was represented by a circle. Quadruple Time was held to be imperfect and was shown as an incomplete circle, hence 'C' and become known as Common Time.

Simple Duple Time $\frac{2}{2}$ is called 'Cut Common' or Alla Breve Time and is shown as a C with a single vertical line drawn through its centre.

Viz a Viz :-



LESSON 6 WORKSHEET

ORAL WORK

1. What information is conveyed by a Time Signature?
2. Give four examples of Time Signatures relating to Simple Time.
3. In the examples given in response to question 2 explain the following : -
 - a) What the upper number indicates and the 'kind of time'
 - b) What the lower number indicates.
4. Give the time sign for alla breve time.
5. What are the terms used to measure Time in :-
 - a) Units.
 - b) Group of 'Units'.
6. When 'C' is given as a time sign, what is understood?

N.B. Joint Simple Time and Compound Time Exercise Worksheets follows after lesson 7 on pages 2.7.2 and 2.7.3

2.7.1

LESSON 7

Time Signatures - Compound Time

Every Beatnote in Compound Time is a dotted note and can be divided into three equal parts.

Similar to Simple Time, a Compound Time Signature consists of two numbers, one written above the other.

The upper numbers in Simple Time are multiplied by three to give the corresponding number in Compound Time.

In **SIMPLE DUPLÉ TIME** the upper number 2, when multiplied by 3 becomes 6, which indicates Compound Duple Time.

In **SIMPLE TRIPLE TIME** the upper number 3, when multiplied by 3 becomes 9, which indicates Compound Triple Time.

In **SIMPLE QUADRUPLE TIME** the upper number 4, when multiplied by 3 becomes 12, which indicates Compound Quadruple Time.

Therefore the upper numbers in Compound Time are 6, 9, or 12.

In addition to stating the number of Beatnotes per bar, (that is when dividing by 3) the upper figure indicates the number of equal notes or pulses in each bar. The lower figure indicates their value in relation to the semibreve.

$\frac{6}{8}$ Indicates that there are 6 Eighth notes or Quavers in each bar. The 6 may be divided into 2 groups of 3 Quavers (6 divided by 3 gives 2 beatnotes to the bar) therefore 3 Quavers are equal to a Dotted Crotchet.

e.g. 

It can now be seen that the $\frac{6}{8}$ indicates 2 Dotted Crotchet beatnotes per bar.

e.g. 

2.7.3

LESSON 7 WORKSHEET

ORAL WORK

1. a) What is a Simple Beatnote?
 - b) What is a Compound Beatnote?
 - c) In what ways does a compound beatnote differ from a simple beatnote?
2. State the three kinds of time.
3. Give one example of a compound time signature for each 'kind of time'.
 - a) For each example explain what the upper number indicates
 - b) For each example explain what the lower number indicates.
 - c) How would you change the examples from Compound Time to Simple Time?
 - d) What would each example become in simple form?

LESSON 7 – WORKSHEET (INCORPORATES LESSON 6)

EXERCISES - WRITTEN WORK

1. Each group shown below is equal to either a Simple or Compound note. Copy each group as given, draw the equivalent single note and state whether Simple or Compound.

a)	b)	c)
d)	e)	f)
g)	h)	i)
j)	k)	l)
m)	n)	o)
p)	q)	r)

2. Give the time signature for each of the following bars :-

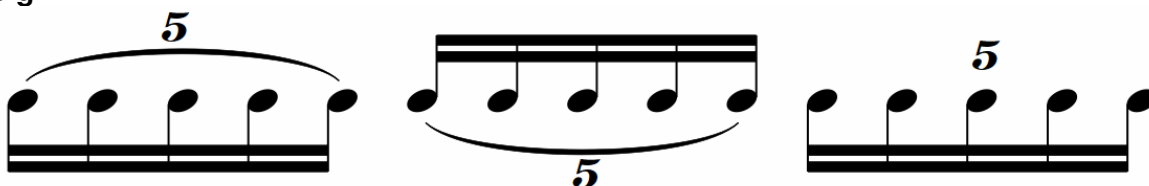
a)	b)	c)
d)	e)	f)
g)	h)	i)
j)	k)	l)

LESSON 8***Irregular Groups***

As previously defines, an **Irregular Group** is the division of a beatnote or portion of a beatnote into a greater or lesser number of parts than normal.

An **Irregular Group** is indicated by a number positioned above or below the affected notes and is usually, but not always contained within a curved line (similar to a slur). The number may be 2, 3, 4, 5, 6, 7 or 8 etc.

e.g.



The most commonly used examples of irregular groups are the Triplet and the Duplet.

In Simple Time, when the beatnote takes the form of an irregular group, it is usually identified by a 3 or a 6.

In Compound Time, when the beatnote takes the form of an irregular group, it is usually identified by a 2 or 4.

In particular circumstances, the beatnote in both Simple and Compound Time can be represented by a 5 or 7.

All beatnotes can be further sub-divided by using irregular groups within the regular grouping.

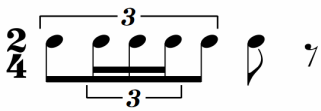


In addition to this, notes within the irregular group can be further sub-divided.



2.8.2

Even an irregular group within an irregular group.

e.g. 

Practice is required to learn how irregular groups are played.

Here is one simple method of aligning the mind to the correct monotone sound.



LESSON 8 WORKSHEET**ORAL WORK**

1. How would you define an Irregular Group?
2. What Irregular Group is in most common use in :-
 - a) Simple Time.
 - b) Compound Time.
3. Which number(s) would usually identify Irregular Groups in the following :-
 - a) Compound Time
 - b) Simple Time.
4. In certain circumstances which number can be represented in both simple and compound time?

EXERCISES

1. How is an irregular group indicated?
Give three examples.
2. Illustrate a bar of $\frac{4}{4}$ time incorporating an Irregular Group within an Irregular Group.
3. Write two bars of $\frac{2}{4}$ time which include two different examples of irregular groups.
4. Write two bars of $\frac{6}{8}$ time containing at least two irregular groups.

LESSON 9***Music and Speech – Nursery Rhymes***

Music and Speech have one major feature in common, and that is rhythm.

As children, an early contact with rhythmical language was learning simple poetry and rhymes.

Nursery Rhymes are easily understood because of their simple language, and how those words are expressed in a rhythmical fashion.

To show the musical equivalent of nursery rhymes, the following procedure should be adopted.

1. Write the words (showing syllables, if any).

‘The time has come,’ the Wal-rus said, ‘To talk of many things’

2. Show the position of the strong accent (decide if anacrusis)

‘The time has come,’ the Wal-rus said, ‘To talk of many things’

3. Insert bar lines (a double bar line at the beginning and the end of the piece).

The > > > >
 The time has come the wal - rus said to talk of ma - ny things
 | | | | } ||

4. Show the note heads under each syllable (consider the neat for rests).

The time has come the wal - rus said to talk of ma - ny things
 ● . > ● ● ● . > ● ● ● . > ● ● ● . > ● ● . > ● } ||

5. Group the notes into beats.

The time has come the wal - rus said to talk of ma - ny things
 ♪ | > ♪ ♪ | > ♪ ♪ | > ♪ ♪ | > ♪ ♪ | ♪ } ||

6. Calculate and show the time signature. Fine tune the rhythm

The time has come the wal - rus said to talk of ma - ny things
 2/4 ♪ | > ♪ ♪ | > ♪ ♪ | > ♪ ♪ | > ♪ ♪ | ♪ } ||

N.B.

Ensure that note groupings are in correct bar values.

It should be noted that a number of alternative solutions to the exercise may be acceptable, depending on the metre chosen.

Practice in exercises similar to the example shown will greatly assist in identifying various combinations of rhythmic patterns and of transferring these into musical notation. This in turn will prove beneficial when faced with the task of writing musical notation in relation to the actual rhythmic patterns produced.

LESSON 9 WORKSHEET

ORAL WORK

1. What do Speech and Music have in common?
2. What are the TWO main factors that make nursery rhymes easily understood?
3. Describe how you would set about the task of writing down the musical equivalent of the rhythmic content in a Nursery Rhyme.
4. How would you decide if the term 'Anacrusis' applied to the Rhyme?
5. Why would syllables in language be important when considering how to write their musical equivalent?

2.9.4

WRITTEN WORK

1. Using notes, musical rests and bar lines, write down your version of rhythmic content from the rhyme 'Simple Simon met a pie man going to the Fair'. Show the strong accents and the relevant Time Signature. State the Kind of Time.
2. The Nursery Rhyme 'Hickory Dickory Dock' could be written in Compound Duple or Compound Quadruple Time. Which of these would be more correct and state why.
3. Write down the correct version of (2) above.
4. If the rhyme Jack and Jill was considered to sound in $\frac{6}{8}$ Time and written in the following fashion :-



Jack and Jill when up the hill to fetch a pail of wa-ter

Write down how it would appear in $\frac{3}{8}$ time.

i.e. One bar of $\frac{6}{8}$ time shown in the time of two bars of $\frac{3}{8}$ time. No change in tempo but change in accent.

2.9.5

5. What well known nursery rhyme does the monotone notation shown below bring to mind?

What Time Signature should appear in front of the Double Bar Line?

What kind of Time is this?

Re-write it inserting the words beneath their relevant notes.

The image shows four lines of monotone notation for the nursery rhyme "Twinkle Twinkle Little Star". The notation consists of vertical stems with dots above them, representing notes. The first line has four notes, followed by a double bar line, then four more notes. The second line has five notes, followed by a double bar line, then five more notes. The third line has six notes, followed by a double bar line, then six more notes. The fourth line has seven notes, followed by a double bar line, then seven more notes. The notation is arranged in a way that suggests a simple melody.

6. Select any nursery rhyme you know.

Using staff notation write down the note values, rests etc.

Insert the Time Signature and mark the strong accents.

Write the words beneath the notes showing syllables.

LESSON 10***Asymmetric Time***

Asymmetric time occurs when the number of beats or pulses per bar is five or seven.

There are various types of Asymmetric time, two examples of which are :-

1. Quintuple Time (5)**2. Septuple Time (7)**

These are obtained by combining different kinds of time in any order.

e.g. Quintuple Time (5) can be Duple + Triple (2 + 3 = 5)

or Triple + Duple (3 + 2 = 5)

Septuple Time (7) can be Triple + Quadruple (3 + 4 = 7)

Or Quadruple + Triple (4 + 3 = 7)

In each combination the subsequent strong accents become medium.

e.g. Septuple Time (7) Triple Time + Quadruple Time

S W W + S W M W

would become **S W W M W M W**

OR Quadruple Time + Triple Time

S W M W + S W W

Would Become **S W M W M W W**

A simple quintuple time of $\frac{5}{4}$ means five crotchet beats to each bar. The composition of the piece will determine the pattern of the natural accents which can be :-

S W W M W

OR

S W M W W

(Simple Quintuple) corresponds to (Compound Quintuple)

(Simple Septuple) corresponds to (Compound Septuple)

$\frac{5}{4}$ (Simple Quintuple) corresponds to $\frac{15}{8}$ (compound Quintuple)

$\frac{7}{4}$ (Simple Septuple) corresponds to $\frac{21}{8}$ compound Quintuple)

LESSON 10 WORKSHEET**ORAL WORK**

1. If a bar of music contains five or seven beats or pulses, what term would you use to describe the 'time'?
2. How many beats are contained in a bar of :-
 - a) Septuple Time
 - b) Quintuple Time?
3. Which kinds of time form the sub-groups in :-
 - a) Quintuple Time?
 - b) Septuple Time
4. What fact is noticeable about the accents within a bar of Asymmetric Time?
5. If the Time Signature of a piece of music was stated to be in $\frac{15}{8}$ (compound Quintuple Time), what would be its simple corresponding Time?
6. Give an example of Simple Septuple Time.

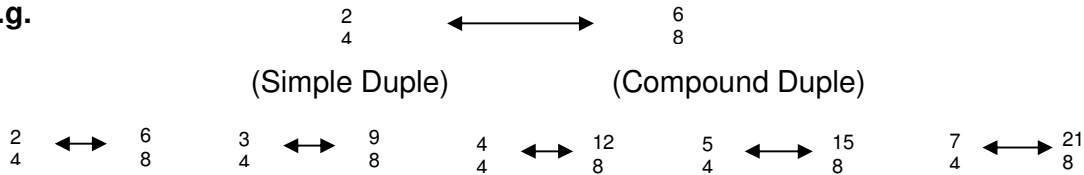
WRITTEN WORK

1. Using two quavers to sub-divide each beat, write two bars of Simple Quintuple Time and show the natural accents.
2. Write one bar of $\frac{21}{8}$ time. Use quavers only.
 - a) Show the pattern of natural accents to indicate Quadruple + Triple Time.
 - b) Above the bar of music write down (using words) the Kind of Time.
3. Write down four bars of music in any Asymmetric Time of your choosing.
 - a) Indicate the natural accents beneath each beat.
 - b) Write down all the variations you can think of.
 - c) Clap your hands when each strong accent occurs and observe the various intricate rhythmic patterns that occur.

LESSON 11***Corresponding Time***

Each Simple Time has its corresponding Compound Time and vice versa.

e.g.



N.B. To convert Simple Time into Compound, the upper number is multiplied by 3 and the lower number by 2. To convert Compound Time the upper number is divided by 3, and the lower number by 2.

Having established the correct corresponding time signature the following will take place :-

CONVERTING SIMPLE TIME TO COMPOUND TIME

1. Simple beatnotes become dotted notes.
2. Regular groups will become irregular groups.
3. Irregular groups will become regular groups.
4. All unequal irregular groups e.g. quintuplets and septuplets remain irregular.
5. The anacrusis and the last note in the incomplete bar must be altered to the correct value (see Example 1 on page 2.11.3)

Four bars of Simple Time into Corresponding Time.....

..... becomes :-

2.11.2

CONVERTING COMPOUND TIME TO SIMPLE TIME

1. Compound beatnotes become dotted notes.
2. Regular groups will become irregular groups.
3. Irregular groups will become regular groups.
4. All unequal irregular groups **e.g.** quintuplets and septuplets remain irregular.
5. The anacrusis and the last note in the incomplete bar must be altered to the correct value (see Example 1 on page 2.11.4)

Four bars of Compound Time into Corresponding Time.....

Practical Examples

On the following pages, two examples of melodies are re-written in Corresponding Times.

To re-write a melody with an ANACRUSIS in its Corresponding Time, the changes as illustrated become necessary.

N.B

Compare the position of the anacrusis in relation to the opening repeat marks.

The revised version, although more complicated visually, has the same effect as the original but enables the change to Corresponding Time to proceed.

The quaver rest in the last bar of the last part is to accommodate the normal performance 'cut-off' or the anacrusis of a subsequent melody.

2.11.3

Example 1

Corriechoille – (Normal Anacrusis)

Musical notation for Corriechoille with Normal Anacrusis. The piece is in 2/4 time. It consists of four staves of music. The first staff begins with a repeat sign and a first ending bracket labeled '2.'. The second staff continues the melody. The third staff begins with a repeat sign and a first ending bracket labeled '1.'. The fourth staff concludes the piece with a repeat sign.

(Revised Anacrusis)

Musical notation for Corriechoille with Revised Anacrusis. The piece is in 2/4 time. It consists of four staves of music. The first staff begins with a repeat sign and a first ending bracket labeled '2.'. The second staff continues the melody and includes first ending brackets labeled '1.' and '2.'. The third staff begins with a repeat sign and a first ending bracket labeled '1.'. The fourth staff concludes the piece with a repeat sign and a first ending bracket labeled '2.'.

(Corresponding Time)

Musical notation for Corriechoille with Corresponding Time. The piece is in 6/8 time. It consists of four staves of music. The first staff begins with a repeat sign and a first ending bracket labeled '2.'. The second staff continues the melody and includes first ending brackets labeled '1.' and '2.'. The third staff begins with a repeat sign and a first ending bracket labeled '1.'. The fourth staff concludes the piece with a repeat sign and a first ending bracket labeled '2.'.

2.11.4

Example 2

The Hills of Caithness or The Steamboat – (Normal Anacrusis)

Musical notation for the first section, labeled "Normal Anacrusis". It consists of four staves of music in 6/8 time. The melody is written on a treble clef staff. The first staff begins with a repeat sign and a double bar line. The music features a mix of eighth and sixteenth notes, with some triplets. The second and third staves continue the melody, and the fourth staff ends with a double bar line and repeat dots.

(Revised Anacrusis)

Musical notation for the second section, labeled "Revised Anacrusis". It consists of four staves of music in 6/8 time. The melody is written on a treble clef staff. The first staff begins with a repeat sign and a double bar line. The music features a mix of eighth and sixteenth notes, with some triplets. The second and third staves continue the melody, and the fourth staff ends with a double bar line and repeat dots. There are first and second endings marked with "1." and "2." above the staff.

(Corresponding Time)

Musical notation for the third section, labeled "Corresponding Time". It consists of four staves of music in 2/4 time. The melody is written on a treble clef staff. The first staff begins with a repeat sign and a double bar line. The music features a mix of eighth and sixteenth notes, with many triplets indicated by a "3" below the notes. The second and third staves continue the melody, and the fourth staff ends with a double bar line and repeat dots. There are first and second endings marked with "1." and "2." above the staff.

LESSON 11 WORKSHEET

ORAL WORK

1. Describe how you would convert Compound Time into Simple Time.
2. Describe how you would convert Simple Time into Compound Time.
3. When asked to convert $\frac{12}{8}$ Compound quadruple Time into Simple Quadruple Time
 - a) What would be the new top figure?
 - b) What would be the new bottom figure?
4. When converting Simple Time into Compound time :-
 - a) What happens to the simple beatnotes?
 - b) What do the irregular groups become?
 - c) What happens to a Quintuplet?
 - d) What do regular groups become?
 - e) Would the anacrusis be affected?
5. When converting Compound Time into Simple Time :-
 - a) Is the top figure divided or multiplied?
 - b) Divided or multiplied by what number?
 - c) Is the bottom figure multiplied or divided?
 - d) Multiplied or divided by what number?

2.11.6

EXERCISES – WRITTEN WORK

1. To practice your writing skills, copy out the five musical exercises shown below.
2. Write them once again by this time in their **Corresponding Times**.

1.

2.

3.

4.

5.

6.

LESSON 12

Accents and Rhythm - Syncopation

When listening to music it will be noticed that there is a steady throb to which one could perhaps march or clap. This is called the **pulse** or **beat**. It will also be observed that some beats are stronger than others.

These pulses which are either strong, medium or weak, are called 'natural' accents because they occur in natural patterns. The natural patterns are made apparent to the listener by the recurring strong accent. It is the regular periodic recurrence of the strong accent which creates rhythm. Where a beat or pulse is emphasised or stressed beyond its natural strength, it is called a dynamic accent. Dynamic accents are shown in various ways.

In Pipe Band music, drummers can vary the dynamic aspects of rhythm by differing degrees of volume.

The bagpipe being a legato instrument, pipers can only emphasis the melody by using 'Agogic Stress' which is normally embellished by Grace notes. (Agogic Stress is the minute lingering of a note beyond its exact value, but not out of metre).

'**Syncopation**' is a common rhythmic device used to disturb the natural rhythmic flow, thereby creating excitement and colour to the piece.

The four most common methods of producing syncopation are as follows :-

1. Stressing a weak accent.



2. Putting rests in place of strong accents.

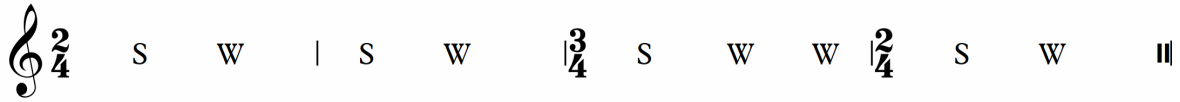


3. Tying a weak accent over a strong accent.



2.12.2

4. Changing the natural pattern by introducing a change of time signature.



Generally Pipe Band music is structured such that the time signature remains constant throughout the duration of a piece of music. However, changes of time signature may occasionally occur in other forms of music.

LESSON 12 WORKSHEET**ORAL WORK**

1. Select a simple $\frac{2}{4}$ march, **e.g.** The Barren Rocks of Aden.

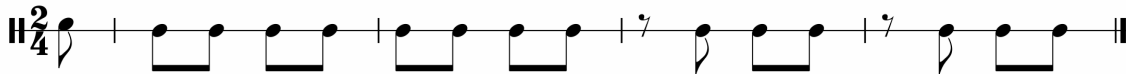
Assume that none of the notes are 'cut or dotted', and play the tune, giving each note the duration indicated by its revised value.

Now play the tune giving the dotted and cut notes their original value and note the difference with respect to the Accent and Rhythm.

Use of a tape recorder is recommended in carrying out this exercise.

2. **a)** State what is meant by the terms :-
- (i) Natural accents
 - (ii) Agogic Stress.
- b)**
- (i) Explain what is meant by 'dynamic accent'
 - (ii) How is 'dynamic accent' achieved?

3. **a)** Tap out the following 4-Bar monotone exercise and state the method being used to achieve syncopation.



- b)** Play, or have someone play for you, the following extract from a $\frac{2}{4}$ hornpipe.



State which method(s) have been used to achieve syncopation.

LESSON 13***Degrees of the Scale***

The degrees of the scale (pitch) are represented by the first seven letters of the alphabet.

i.e. **A; B; C; D; E; F; and G;** (repeated as required).

These notes are further described according to their position on the scale as follows :-

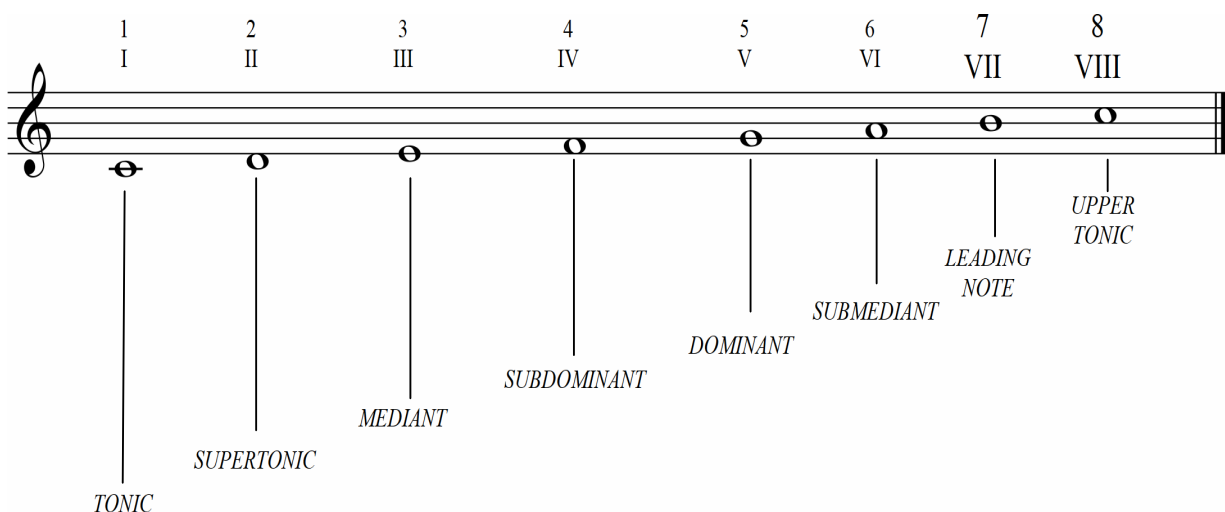
1. Numbers (1-8)
2. Order of importance.

The purpose of this further classification is to define the intervals of the scale and indicate the importance of each note in relation to the TONIC, the first note of the scale. Each degree of the scale is given a number from 1 (I) to 8 (VIII), and are often referred to be their number.

e.g.

The note which has the number 5 (V) is termed the 'fifth' (not always the fifth note), simply the 'fifth', and so on with the other number. The 'eighth; (VIII) is usually termed the OCTAVE.

The 'importance' names are derived from their role or position on the scale.



2.13.2

Degrees of the Scale (CONT'D)

The first (I) is termed the TONIC or KEYNOTE.

The eighth (VIII) is the OCTAVE, sometimes termed the UPPER TONIC, but must also be considered to be alternatively the eighth of one scale and the first of a new scale.

The fifth (V) is the DOMINANT and has an important (dominant) role in the scale.

The TONIC and DOMINANT are the two most important notes in defining the key. (Keys will be discussed in greater detail at a later stage.)

The fourth (IV), the SUB-DOMINANT, is the degree immediately below the DOMINANT.

The third (III), the MEDIANT, is mid-way between the TONIC and DOMINANT.

The sixth (VI), the SUB-MEDIANT, is mid-way between the SUB-DOMINANT and the OCTAVE.

The seventh (VII), is the LEADING NOTE because it leads to the OCTAVE.

The second (II) the SUPERTONIC, is the degree immediately above the TONIC.

The terms used in this lesson must be understood and memorised as they form an important part of future lessons on scales and intervals.

N.B. All of this lesson refers to the diatonic scale which will be covered at a later stage.

LESSON 13 WORKSHEET**ORAL WORK**

1. **a)** What is a scale?
b) From which Latin word does it get its name?
2. **a)** By what method are the degrees of a scale given their pitch names?
b) What other two methods are used to describe the degrees of the scale?
3. **a)** Why is the last degree of a scale called the octave?
b) What two names are given to the first note of the scale?
4. **a)** Which degree of the scale is called the dominant?
b) Why is it so called?
5. **a)** What is the degree immediately below the dominant?
b) What degree is midway between the tonic and the dominant?
6. **a)** Which degree is midway between the octave and the subdominant?
b) Which degree is immediately above the tonic?
7. Which degree is the 7th, and why is it so called?
8. On the chanter scale from A to A, give the pitch names of the following degrees;

a) Mediant	f) Supertonic
b) 6 th	g) 4 th
c) Subdominant	h) dominant
d) 3 rd	i) 8 th
e) Leading Note	

LESSON 14***Accidentals***

The pitch of any individual note may be raised or lowered by an interval of a semitone, or tone, using a sign or symbol termed an **accidental**.

A tone interval is equal to two semitone intervals.

There are five accidentals in normal use.

i.e.	Sharp	#	
	Double Sharp	##	or X
	Flat	b	
	Double Flat	bb	
	Natural	♮	

The **sharp** # raises the pitch by one semitone (augmented).

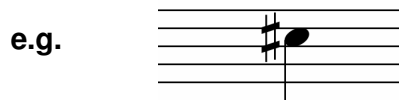
The **flat** b lowers the pitch by one semitone (diminished).

The **double sharp** ## raises the pitch by one tone.

The **double flat** bb lowers the pitch by one tone.

The **natural** ♮ **contradicts** the accidental in use, restoring the note to its original pitch.

The accidental is placed to the left of the note head, on the line or space occupied by that note.



When an affected note is written as a letter of the alphabet, the accidental is placed to the right.

e.g. C#

2.14.2

Accidentals (CONT'D)

When a note is affected by an accidental, it remains at that pitch for the remainder of the bar, unless contradicted by the natural sign. If the note is to remain affected, the accidental must be reintroduced within the bar and in each subsequent bar.

1.

B C# B C# E C# E A Bb E C Bb A

2. Sometimes the sign is repeated in brackets later in the bar as a reminder. If the note is to be sharp or flat in the next bar, the sign is used again.

DB D#B B D#D#C A D# A EbCEbDC EbC A Eb

3.

C# A C# E C A C B Bb E B A B

4.

C# A C C#A C#A Bb C B C Bb Bb

The above examples show the reintroduction of the accidental following the use of a natural sign.

5.

C# A Cx D C# C# A Bb Bb A Bb A Bb

C A Cx D C# C C C Dbb C D D C

LESSON 14 WORKSHEET

ORAL WORK

1. What is a semitone?
2. What does an accidental indicate
3. **a)** How many accidentals are in normal use?
b) What are their names?
4. What is meant when the pitch of a note is contradicted?
5. **a)** How are accidentals placed in staff notation?
b) How does this differ from when an affected note is written as a letter?
6. What is meant by
 - a)** Augmented?
 - b)** Diminished?
7. If an affected note recurs throughout a melody, what must be done to maintain its pitch?
8. Explain how each accidental affects the pitch of a note.

LESSON 15***Enharmonic Notes***

When two notes have different names but are the same pitch, they are said to be **enharmonic**.

If E and F are a semitone apart, and E is sharpened, (raised by a semitone) it then has the same pitch as F. E♯ is therefore, enharmonic with F.



If B and C are a semitone apart, and C is flattened, (lowered by a semitone) it then has the same pitch as B.

C♭ is therefore enharmonic with B.



If D and E are a tone apart, and E is double-flattened (lowered by a tone) then E♭♭ is enharmonic with D.

**Diagram showing the enharmonic notes on a keyboard**

2.15.2

LESSON 15 WORKSHEET

ORAL WORK

1. Explain the term 'enharmonic'.
2. If a note is played on the piano and referred to as E \square , what other name could enharmonically describe the same pitch of note.
3. What word would you use to describe jointly the two notes B and C \square ?

WRITTEN WORK

1. By using the keyboard below, name each note and all of its enharmonic equivalents.

For instance, the note F \square could be referred to not only as F \square but also as G \square or E \sharp .

If you have access to any keyboard instrument, now experiment by playing these enharmonic notes.

2. Name the note or notes that are enharmonically equivalent to :-

- | | | | |
|----|------------|----|----------------|
| a) | G \sharp | d) | D $\flat\flat$ |
| b) | C | e) | D \sharp |
| c) | B \flat | | |

LESSON 16

Transposition

Transposition means the changing of a melody by raising or lower its pitch.

When singing or whistling a tune, any difficulty experienced in reaching the high or low notes may be remedied by beginning again at a more suitable pitch. This is called transposition.

Transposition requires a thorough knowledge of the Great Staff.

N.B.

Transposition and Transcription are words that are frequently misused. It is often said that a piece of music has been 'transposed' for the bagpipe. This is an example of the incorrect usage of the word transposition. The music was **transcribed**.

When a melody has been composed for a particular voice and is re-written for a different 'voice', this is the process of 'transcription'. Transposition may be involved when a tune is transcribed. However, other changes may have to be made.

e.g.

Alterations may be required to accommodate the technique and rhythmic restrictions which are inherent in the 'genre' of the new voice.

Transposition is **one key to another**.

Transcribe is **one instrument to another**.

LESSON 16 WORKSHEET**ORAL WORK**

1. Define the term 'transposition'.
2. Give an example of basic transposition that can be practiced and understood.
3. It is said that transposition requires a thorough knowledge of what?
4. **a)** Give an example of misuse of the word 'transposition'.
- b)** In your example state the correct terminology that should be used.
5. **a)** When a melody is written for one voice and then re-written for another, state the process used.
- b)** What other process may require to be involved?
6. Describe two other processes that may require to be used during transposition.

WRITTEN WORK

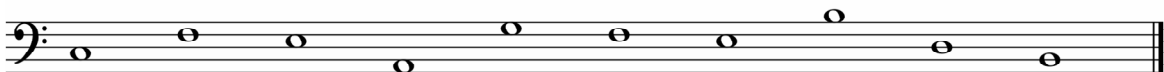
1. Transpose the following notes downward from the treble clef to the bass clef.



2. Transpose the following notes upward from the alto clef to the G clef.



3. Transpose the following notes upward from the bass clef to the C clef.



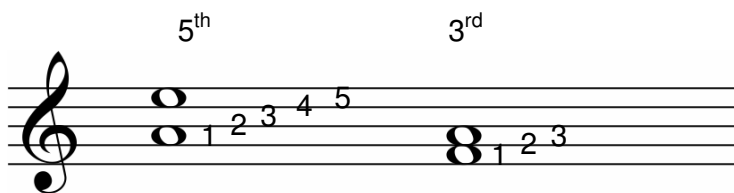
LESSON 17***Intervals***

An interval in music means the difference in pitch between two notes.

The interval between any two notes may be calculated by counting the number of degrees or steps between them.

N.B. The first note is counted as one.

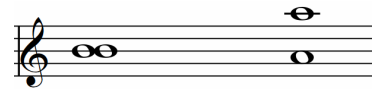
e.g.



Interval Calculation

Unison

Unison is the term used to describe the sound of two or more notes of the same pitch or an octave apart.



Unison

In pipe band drumming, the term 'unison' is also used to describe the specific portions where all the snare drummers combine with the leading drummer to highlight certain aspects of the rhythm. In this context another musical term 'tutti' would be more appropriate but the term unison is well established in pipe band terminology.

Semi-tone

The smallest interval used in music typical of western culture is the semitone.

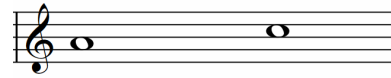
2.17.2

Tone

A tone is an interval equivalent to two semi-tones.

Melodic Interval

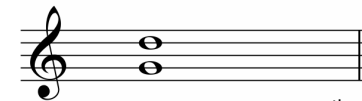
A melodic interval occurs when two notes which are at least one interval apart are played in succession.



Melodic Interval (3rd)

Harmonic Interval

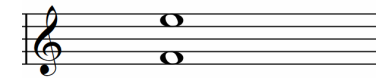
A harmonic interval occurs when two notes which are at least one interval apart are played simultaneously. A harmonic interval is also known as a 'chord'.



Harmonic Interval (5th)

Chord

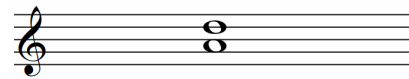
A chord may be concordant (pleasing to the ear) or discordant (unpleasant).



Chord (7th)

Simple Interval

A simple interval is the term used to describe any interval contained within an octave – 1 to 8 (I to VIII) inclusive.



Simple Interval (4th)

All of the above are examples of Simple Intervals.

Compound Interval

A compound interval is the term used to describe any interval greater than the range of the octave – 1 to 9 etc. (I to IX etc.).



Compound Interval (9th)
Also Called a Compound 2nd

The term Compound 2nd refers to the second note of the following octave.

LESSON 17 WORKSHEET**ORAL WORK**

1. What is an interval?
2. Explain 'Harmonic Interval'.
3. Explain 'Melodic Interval'.
4. Explain the process of calculating Intervals.
5. What do you understand by the term Unison?
6. Explain 'Simple Interval'.
7. Explain 'Compound Interval'.
8. Explain the terms concordant and discordant.

WRITTEN WORK

Transpose the following melodies as indicated.

1. Up a 4th.



2. Down a 3rd.



3. Up a 6th.



LESSON 18**Harmony**

Harmony is the combination of two or more musical sounds of different pitch.

The earliest form of harmony was called 'Organum', said to date from around the 11th Century. Organum consisted of melody accompanied in parallel intervals of fourths or fifths.

When two or more notes are sounded simultaneously they form a 'chord'. The fundamental note of that chord is called the 'root'.

Chords *Organum*

The most common form of chord consists of three notes, a fundamental note or root with a third and a fifth. A chord of this nature is called a **triad (Common chord)**.

The position of the notes of the triad, or any other chord, may be changed. This is called **inversion**.

Inversion usually occurs upward by an octave. However, a chord may also be inverted downward.

When the **root** of a triad is inverted (raised by an octave), the chord is said to be in its **first inversion**.

Having completed the first inversion, and the third of the triad is then inverted (raised by an octave), the chord is said to be in its **Second Inversion**.

Triad

Root Position *First Inversion* *Second Inversion*

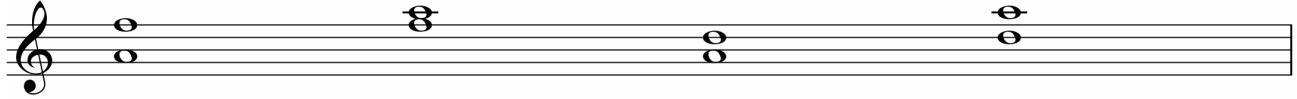
Root position has changed

3rd has changed position

2.18.2

A chord of two notes, for example 1 to 6 (I to VI) is called a **sixth**. However, when inverted, the chord becomes an **inverted third**. (Note that both numbers add to nine).

Inversions



A 6th becomes an inverted 3rd

A 4th becomes an inverted 5th.

An alternative method of sounding a chord is to play each note in rapid succession, rather than simultaneously. When the sounds are sustained, the chord produced is called '**arpeggio**'.

Arpeggio



Written

Played

Or

The harmony provided by the bagpipe drones is called **pedal harmony**.

Harmony is the simultaneous combinations of two or more sounds progressing **vertically** contrasting with **Melody** which is an orderly succession of simple different sounds progressing **horizontally** achieving a distinct musical shape.

In bagpipe music, the term 'seconds' is used when referring to harmony. This should not be confused with the harmonic intervals actually used.

Different kinds of harmony will be discussed at a future stage.

LESSON 18 WORKSHEET

ORAL WORK

1. Define harmony.
2. What is understood by the term 'Chord'?
3. What is a Triad?
4. What is the name given to the fundamental note of a chord?
5. **a)** Describe the most common form of chord.
b) What is the name given to this type of chord.
6. **a)** What is meant by inversion?
b) What is the musical term which describes the sustained sounds produced from a chord?
7. **a)** If a chord is in its First Inversion, what does this signify?
b) What changes take place when the chord is in its Second Inversion?
8. Describe the term Arpeggio.

2.18.4

WRITTEN WORK

1. Name the inversions of the following intervals **e.g.** 3rd = Inv. 6th.

- | | | |
|--------------------|--------------------|--------------------|
| a) 5 th | b) 2 nd | c) 1 st |
| d) 7 th | e) 4 th | f) 6 th |

2. State whether the following intervals are simple or compound, and give their numerical value.



e.g. 1 Simple – Octave or 8th.

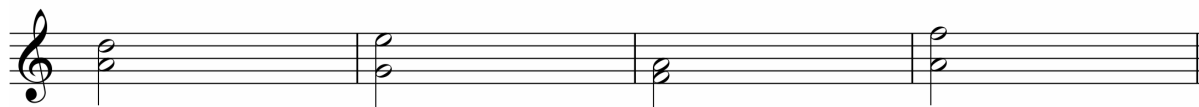
3. Name the original position of the following inversions :-

e.g. Inv. 3rd = 6th

- | | | |
|-------------------------|-------------------------|-------------------------|
| a) Inv. 4 th | b) Inv. 6 th | c) Inv. 2 nd |
| d) Inv. 8 th | e) Inv. 5 th | f) Inv. 7 th |

4. Show the Triad in its three positions and name them :-

5. Invert the following Intervals and name them :-



STRUCTURED LEARNING – THE INTERMEDIATE CERTIFICATE

THE GREAT HIGHLAND BAGPIPE

Lesson 19

Embellishments and Exercises

To embellish is to adorn, enrich or add grace, hence the term Gracenotes, or gracings in music.

In order that they fulfil their true function of enhancing melodic theme notes as opposed to being imposed upon the notes (to the detriment of the rhythmic flow), the exercises which follow illustrate the importance of skilful execution.

Careful and diligent practice of the exercises should help improve individual technique.

It is essential that the student has a clear understanding of the movements required to execute the embellishment in order that the performance be clean and precise.

Although single Gracenotes such as G, D and E may be regarded as the simplest form of embellishment in piping, when applied, they add strength to the notes affected giving a more pronounced sound.

Doublings, whilst being a light flourish, broaden the sound of the note being played.

Exercise No. 1 – Melody with no Embellishments



Exercise No. 2 – With Single Gracenotes



2.19.2

Exercise No. 3 – With Doubling Adornments

Musical notation for Exercise No. 3, consisting of two staves of music in 6/8 time. The first staff contains four measures of music, and the second staff contains four measures, ending with a double bar line and repeat dots.

Exercise No. 4 – Triple Movement (Single Gracenotes) G, D and E

Musical notation for Exercise No. 4, consisting of one staff of music in 6/8 time. The staff contains four measures of music, each featuring a triple movement of single gracenotes over a bass line, ending with a double bar line and repeat dots.

Exercise No. 5 – With Single Gracenote and Strikes

Musical notation for Exercise No. 5, consisting of two staves of music in 12/8 time. The first staff contains four measures of music, and the second staff contains four measures, ending with a double bar line and repeat dots.

Exercise No. 6 – Hand Changing in March Rhythm

6.1

Musical notation for Exercise No. 6, consisting of two staves of music in 2/4 time. The first staff contains four measures of music, and the second staff contains four measures, ending with a double bar line and repeat dots.

2.19.3

6.2

Musical notation for exercise 6.2, consisting of two staves of music in 6/8 time. The first staff contains four measures of eighth-note patterns with grace notes. The second staff contains four measures, including a measure with a slur over two eighth notes and a final measure with a repeat sign.

Exercise No. 7 – Triple Movement (Single Gracings)

7.1

Musical notation for exercise 7.1, consisting of two staves of music in 6/8 time. The first staff contains four measures of eighth-note patterns with grace notes. The second staff contains four measures, including a measure with a slur over two eighth notes and a final measure with a repeat sign.

7.2

Musical notation for exercise 7.2, consisting of one staff of music in 6/8 time. It contains four measures of eighth-note patterns with grace notes, ending with a repeat sign.

Exercise No. 8 – The Round Movement

This embellishment is used in Strathespey Rhythm. Note that B and C are cut, and the Secondary Pulse is Dotted.

Musical notation for exercise 8, consisting of one staff of music in common time. It contains four measures of eighth-note patterns with grace notes, ending with a repeat sign.

2.19.4

Exercise No. 9 – The Second Round Movement

This embellishment is common in reels and jigs, but does appear in other types of tunes. It is like a Tachum followed by an E Gracenote. Pay special attention to the Note Values.



Grip Basis

This exercise is performed by sounding the long note, which is the first one in each group of three; then closing the chanter, thus sounding Low G; this is followed immediately with a D Gracenote then rising quickly to the next long note, continuing the process until the exercise is completed. When playing the movement from D it is quite in order to play a B Gracenote instead of a D as shown.



The 2 Low G's and D Gracenote movement when close is written thus.



Grips (or Leumluath)

A grip, to be played correctly, must clearly bring out the two Low G's even when played fast. The movement is made by locking the chanter, which means that Low G is sounded, then making a D Gracenote on Low G, thus making two Low G's then rising rapidly to the required note. The notes preceding and following the grip proper are made in the normal manner. When playing this movement from D it is quite in order to substitute a B Gracenote.

Open

Closed



2.19.5

Exercise No.10 – Gracenotes followed by Grip



Gracings on D



This type of gracing is in the nature of a very light touch of gentle significance.



The Doubling in this form from the top hand is still of a light flowery nature but a shade fuller than 'A'.



The adornment adds a little more depth or weight, the Doubling seeming to bounce from the Low G when played fast. This is more commonly known as the 'light throw on D'.



This bold embellishment produced a very grandiose effect. It is a grip movement through C to D – the two Low G's give added depth. This is commonly known as the 'heavy throw on D'.

Gracings on B

The Bubbly Note or HI-BI-BA.



A rather deep quick flourish but very effective. The depth comes from the three Low G's which are separated by D and C Gracenotes.

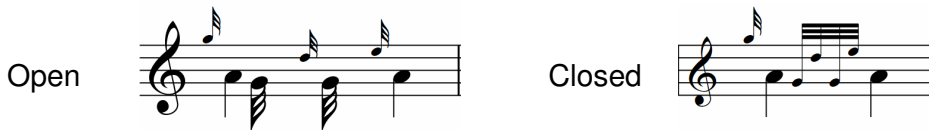
Choice of embellishment ranges from flowery and light to bold and deep. This gives the performer great opportunity to display musical artistry.

2.19.6

Taorluath

This movement incorporates the grip and is performed by making the grip portion as in the preceding exercises and then coming to Low A with an E Gracenote. It is of the utmost importance to bring out the two Low G's.

When playing the movement from D it is quite in order to substitute a B for the D Gracenote.



Exercise No. 11 – The Taorluath



Tuneful phrases incorporating Grips and Taorluath Movement

Exercise No. 12



Note when playing a Taorluath from D a B Gracenote is often used in place of the conventional D Gracenote. A similar movement where this happens is as follows and occurs in many tunes.



Exercise No. 13 – Grips and Taorluath Gracings

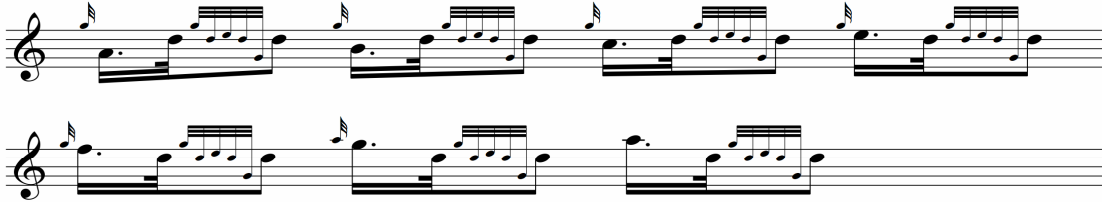


2.19.7

Exercise No. 14 – The Closed “Echo beat” Gracenote

This is very widely used in Hornpipes, and is basically a D doubling followed by a strike played on notes B, C and D.

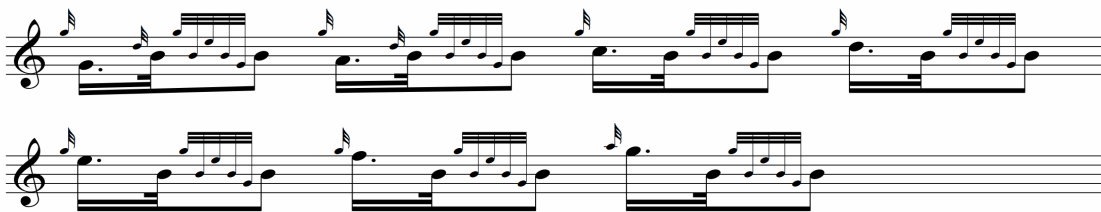
14.1 – On D



14.2 – on C

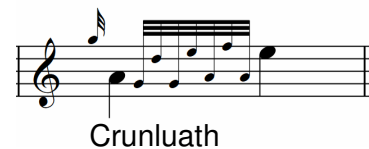


14.3 – On D



Exercise No. 15 – The Crunluath

Is a Piobaireachd movement which always ends on the note E. It is simply a Taorluath with an F Gracenote added. (The Crunluath on D must always be played with B Gracenote instead of D Gracenote.)



N.B When playing High G as a theme note, it is traditionally played in Piobaireachd with the F hole on the chanter covered by the middle finger of the top hand.



Tuneful Exercises**Exercise No. 16 – Strathespey Rhythm incorporating the Round Movement**
Irregular Groups**Exercise No. 17 – Strathespey Rhythm incorporating the Triplet**
Exercise No. 18 – Strathespey Rhythm incorporating the Duplet
Exercise No. 19 – Hornpipe rhythm exercise

2.19.9

Exercise No. 20 – Jig exercise to further develop G, D and E Variations.

Exercise No. 21 – The Open “echo beat”

This is very common in jigs, especially those tunes influenced by Irish Traditional Music. It has a similar rhythmical effect to that of the G, D and E movement. Care must be taken over the reading of Gracenotes as they alter according to the pitch of the pulse note, however, the arrangement is usually a High G Gracenote followed by a strike.

Jig Tempo

Exercise No. 22 – Strathespey incorporating the Bubbly Note or HI-BI-BA

Composed by Wm. Sinclair Snr.

THE PIPE BAND SNARE DRUM, TENOR AND BASS DRUMS

Lesson 20

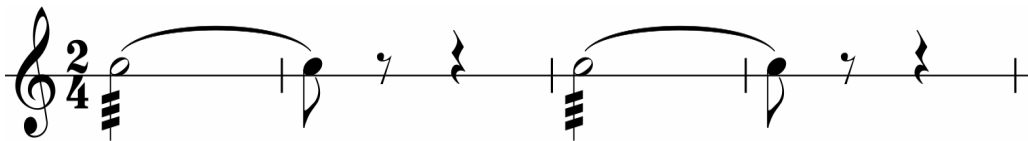
The following rudiments and exercises should only be attempted when complete proficiency has been attained in playing all of the contents of Book 1.

In order that good stick technique may be developed to assist the pupil in playing smoothly and fluently at all times, it is essential that rudiments and exercises are practiced in a manner that will help ensure this objective.

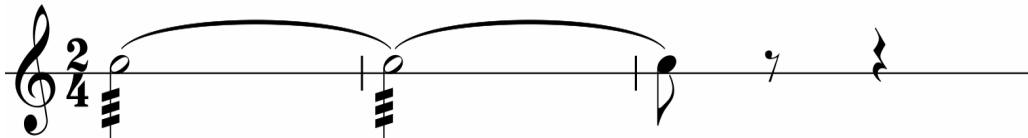
It will therefore assist matters greatly after successfully playing a particular rudiment or exercise, it is then practiced again, commencing with the opposite hand.

Exercise No. 1 – The Roll

The two three pace rolls or introduction.



The five pace roll or introduction.

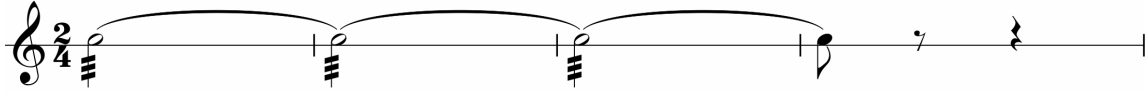


2.20.2

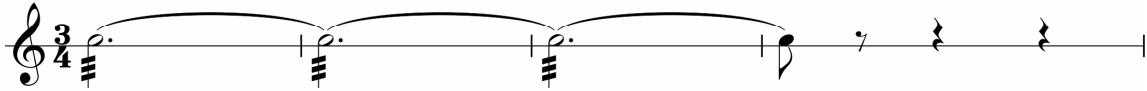
The Roll (Exercise No.1) CONT'D

The long roll written in various times.

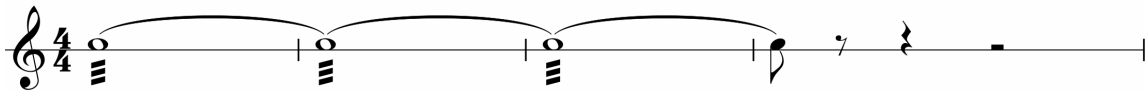
1.1



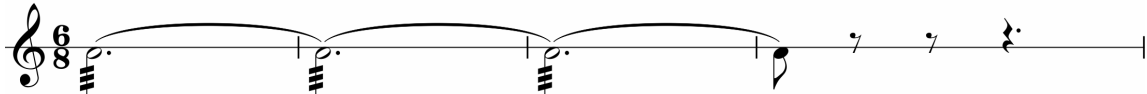
1.2



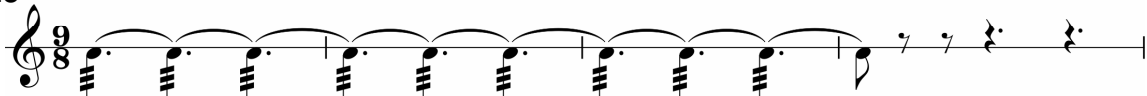
1.3



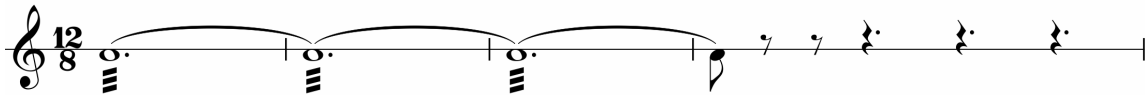
1.4



1.5

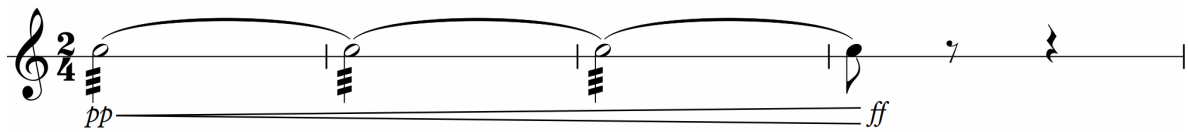


1.6



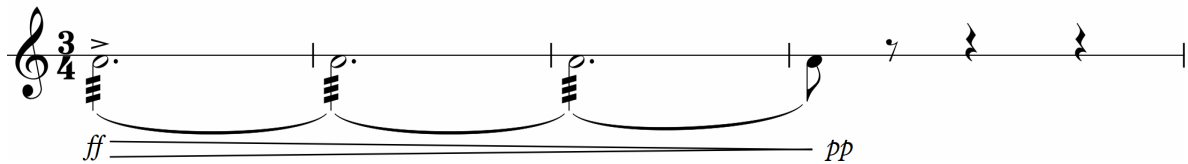
1.7

Crescendo Roll



1.8

Sforzando and Diminuendo Roll



2.20.3

Paradiddle Development (Exercise No. 2)

Introducing Accents, Flams and Drags on various notes.

The following exercises should be practiced slowly at first to ensure that the correct rhythmic pattern of each is obtained.

2.1 Accent on first note of Paradiddle



2.2 Flam on first note



2.3 Drag on first note



2.4 Accent on second note



2.5 Flam on second note



2.6 Drag on second note



2.7 Accent on third note



2.8 Flam on third note



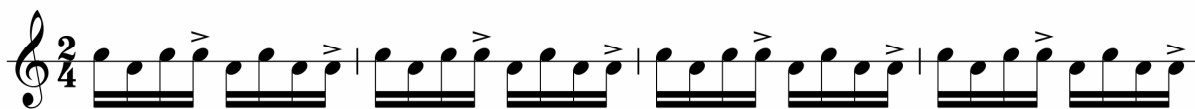
2.20.4

Paradiddle Development (CONT')

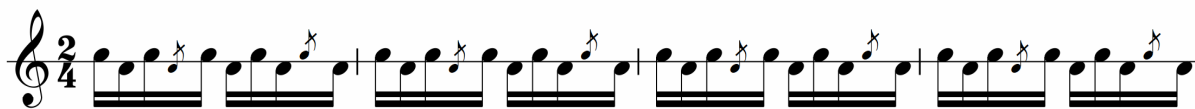
2.9 Drag on third note



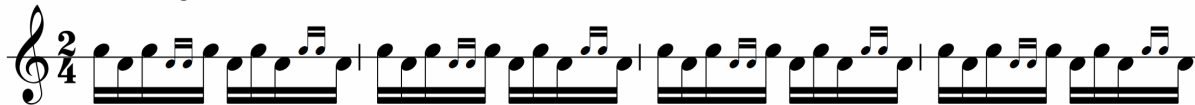
2.10 Accent on fourth note of Paradiddle



2.11 Flam on fourth note



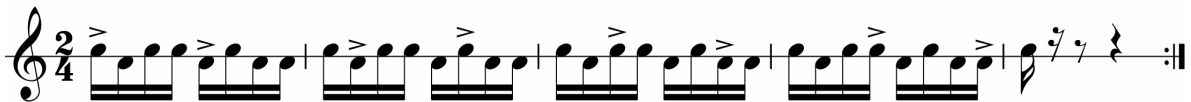
2.12 Drag on fourth note



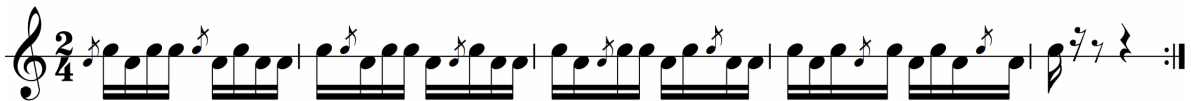
2.20.5

EXERCISES INCORPORATING ACCENTS, FLAMS AND DRAGS

2.13



2.14



2.15



2.16



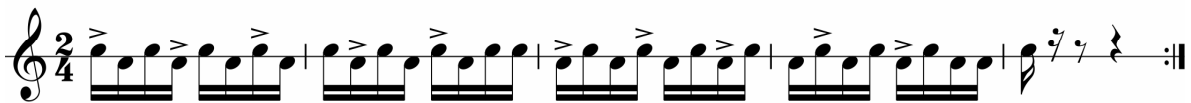
2.17



2.18



2.19



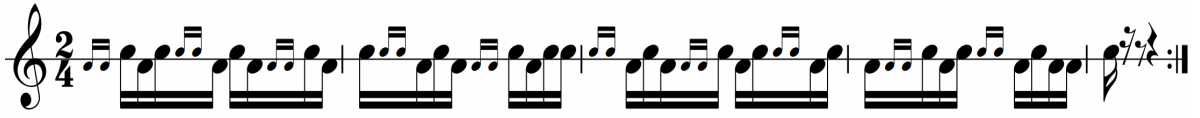
2.20



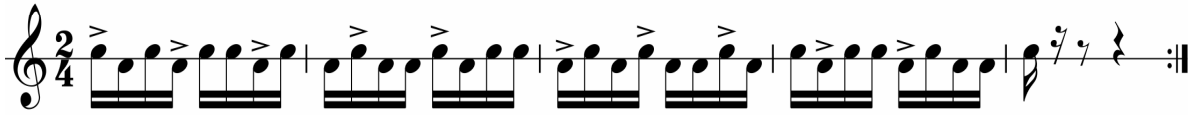
2.20.6

Exercises Incorporating Accents, Flams and Drags (CONT'D)

2.21



2.22



2.23



2.24



2.20.7

FLAM DEVELOPMENT (Exercise No. 3)

The following exercises should be practiced slowly at first to ensure correct sticking and execution of the Flam embellishment.

3.1 Flam Tap 

3.2 Tap Flam 

3.3 Double Flam 

Various exercises to improve flam execution

3.4 

3.5 

3.6 

3.7 

3.8 

Drag Development (Exercise No. 4)

The following exercises should be played slowly at first to ensure correct sticking and execution of the Drag embellishment.

4.1 Drag Tap



4.2 Tap Drag



4.3 Double Drag

**Various exercises to improve drag execution**

4.4



4.5



4.6



4.7



4.8



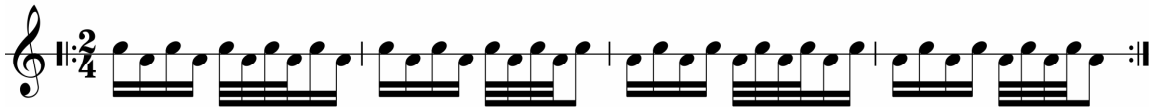
Single stroke development (Exercise No. 5)

The exercises below are a further development of the single stroke exercises in Book 1. These exercises should be practiced slowly at first to ensure correct sticking and execution.

5.1



5.2



5.3



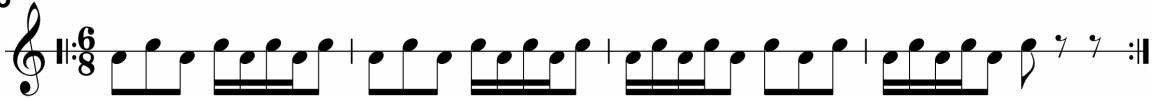
5.4



5.5



5.6



5.7



5.8



Five Stroke Semiquaver rolls (Exercise No. 6)

Five stroke semiquaver rolls are common in Pipe Band drumming. To execute the five stroke roll and maintain the value of the semiquaver, diligent practice is required.

Play slowly initially until good roll quality is achieved, then increase the tempo to around 75-80 beats per minute ensuring correct value of all notes.

The image displays ten musical exercises, numbered 1) through 10), each consisting of a single staff of music. Exercises 1) through 6) are in 2/4 time, while exercises 7) through 10) are in 6/8 time. Each exercise features a five-stroke semiquaver roll pattern. The notes are grouped by slurs and include dynamic markings such as mf and f . The exercises vary in their rhythmic patterns and note groupings, providing a comprehensive set of practice material for this drumming technique.

Four stroke Roll Development (Exercise No. 7)

The Four Stroke Roll, as shown below, makes clear the movements required for its development.

Three distinct sounds are heard when the movements are practiced slowly but as the tempo increases, only two sounds become apparent.

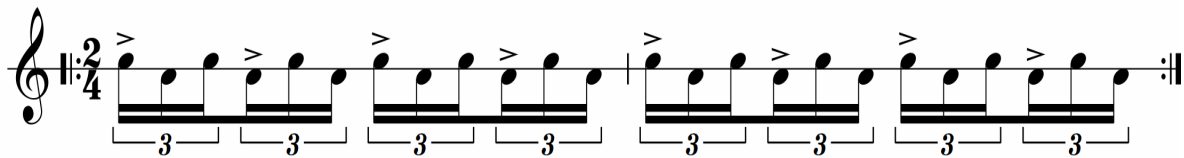
In the exercises below, the changing of hands and accents should be carefully noted.

SECTION A is the basic exercise.

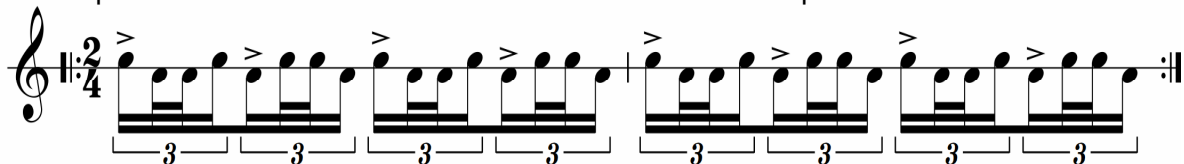
SECTION B is a commonly used variation on the same theme.

SECTION A

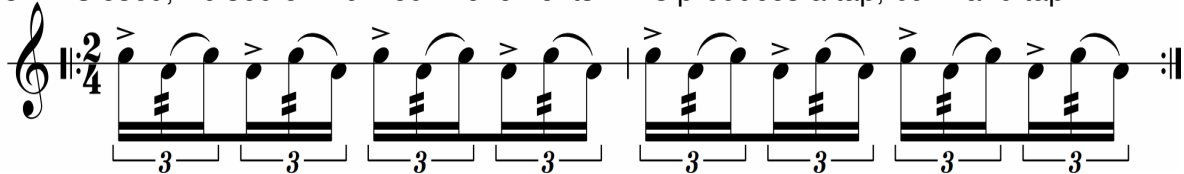
A1 Primary Strokes.... Accent on first note of triplet



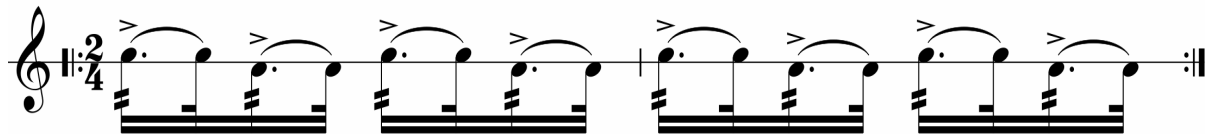
A2 Open movements Sub-division of second note of triplet.



A3 Closed, Pulsed or 'Buzzed' movements. This produces a tap, buzz and tap.



A4 Abbreviated as written.



Four Stroke Roll Development (Exercise No.7 CONT'D)**SECTION B**

B1 Primary Strokes.... Accent on first note of triplet.

B2 Open Movements Sub-division of second note of triplet.

B3 Closed, Pulsed or 'buzzed' movements. This produces a tap, buzz and tap.

B4 Abbreviated as written.

Exercise Beatings – Simple Duple Time (Exercise No. 8)

With the exercise beatings below, care should be taken to ensure correct sticking, embellishment execution and correct note values are played.

A)

Two staves of music in 2/4 time. The first staff begins with a treble clef, a key signature of one flat (B-flat), and a 2/4 time signature. It contains a first ending bracketed with a double bar line and repeat dots. The melody features eighth notes and quarter notes, with a '7' above the first measure. The second staff continues the melody with eighth notes, quarter notes, and a final quarter note with a '7' above it.

B)

Two staves of music in 2/4 time. The first staff begins with a treble clef, a key signature of one flat (B-flat), and a 2/4 time signature. It contains a first ending bracketed with a double bar line and repeat dots. The melody features eighth notes and quarter notes, with a '9' above the first measure. The second staff continues the melody with eighth notes, quarter notes, and a final quarter note with a '7' above it.

C)

Two staves of music in 2/4 time. The first staff begins with a treble clef, a key signature of one flat (B-flat), and a 2/4 time signature. It contains a first ending bracketed with a double bar line and repeat dots. The melody features eighth notes, quarter notes, and a quarter rest, with '7' above the first measure and '9' above the final measure. The second staff continues the melody with eighth notes, quarter notes, and a final quarter note with a '7' above it.

D)

Two staves of music in 2/4 time. The first staff begins with a treble clef, a key signature of one flat (B-flat), and a 2/4 time signature. It contains a first ending bracketed with a double bar line and repeat dots. The melody features eighth notes and quarter notes, with a '7' above the final measure. The second staff continues the melody with eighth notes, quarter notes, and a final quarter note with a '7' above it.

Exercise Beatings – Simple Triple Time (Exercise No. 10)

A)

B)

C)

D)

E)

F)

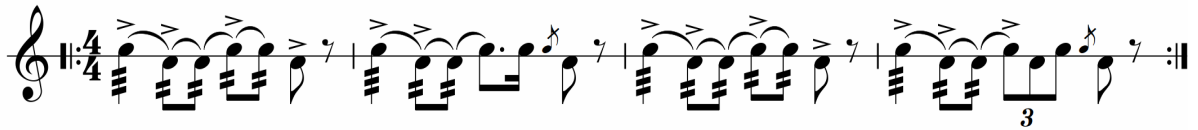
G)

H)

I)

Exercise Beatings – Simple Quadruple Time – Strathespey Rhythm (Exercise No. 11)

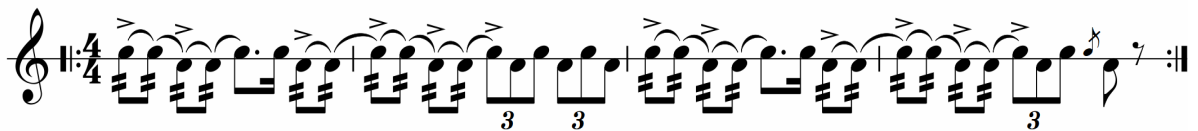
A)



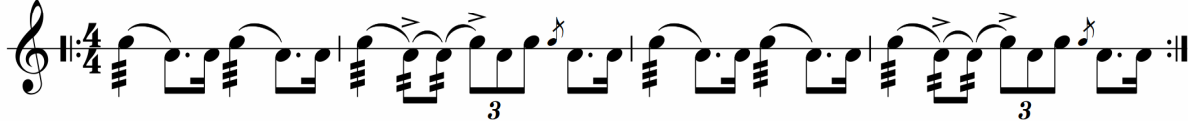
B)



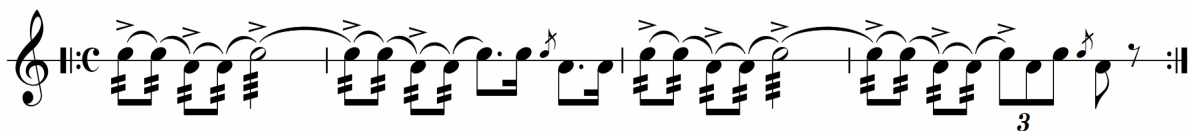
C)



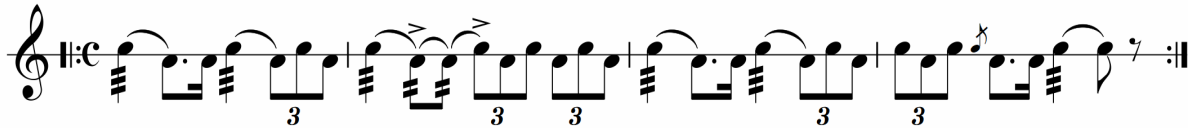
D)



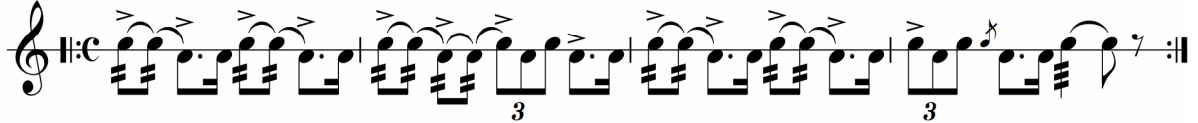
E)



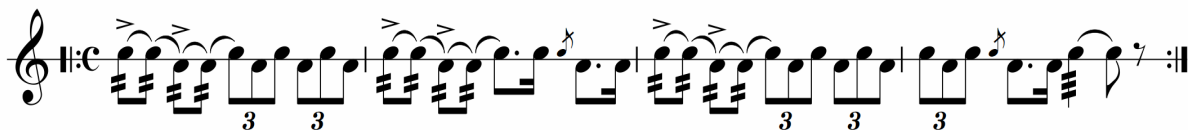
F)



G)

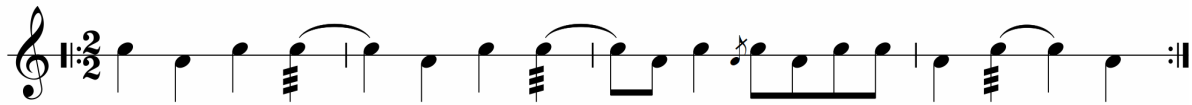


H)

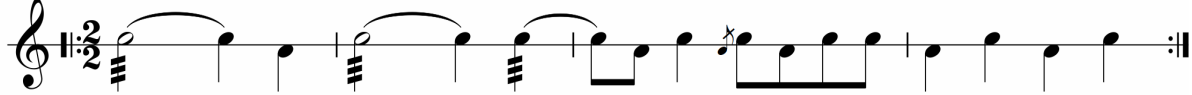


Exercise Beatings – Alla breve or cut common time – Reel rhythm (Exercise No. 12)

A)



B)



C)



D)



E)



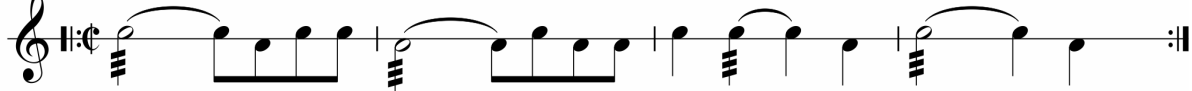
F)



G)



H)



Exercise Beatings for Bass and Tenor Drum Simple - Duple Time (Exercise No. 13)

A)



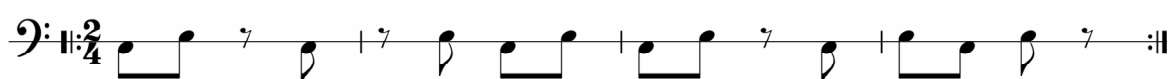
B)



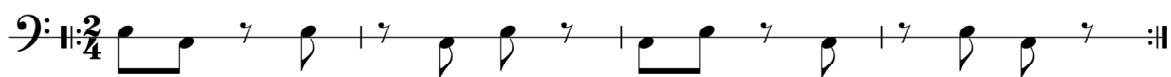
C)



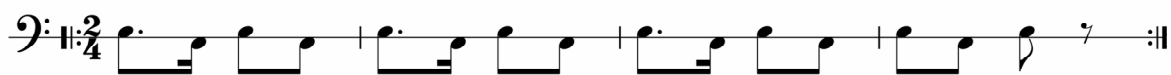
D)



E)



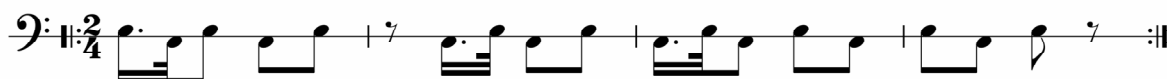
F)



G)



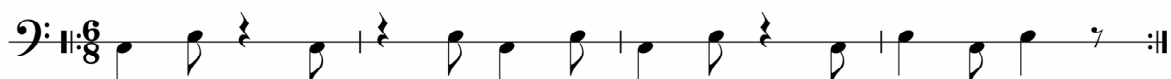
H)



I)



J)



K)



L)



Exercise Beatings for Bass and Tenor Drum Simple - Duple Time (Cont'd)

M)

N)

O)

P)

Q)

R)

T)

U)

V)

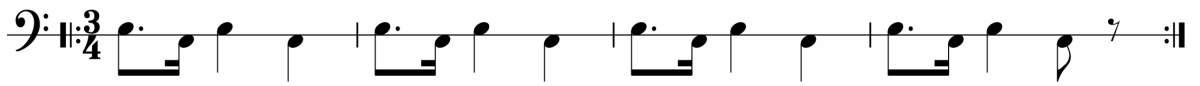
W)

X)

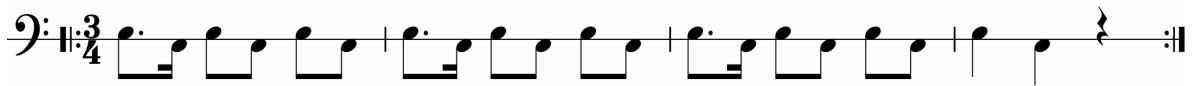
Y)

Exercise Beatings for Bass and Tenor Drum Simple - Triple Time (Exercise No. 14)

A)



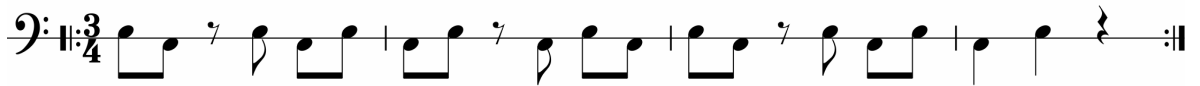
B)



C)



D)



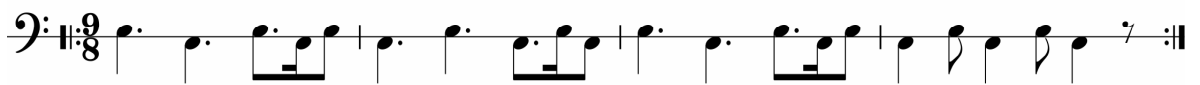
E)



F)



G)

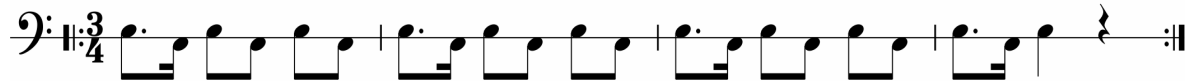


H)



Exercise Beatings for Bass and Tenor Drum Simple - Triple Time (Cont'd)

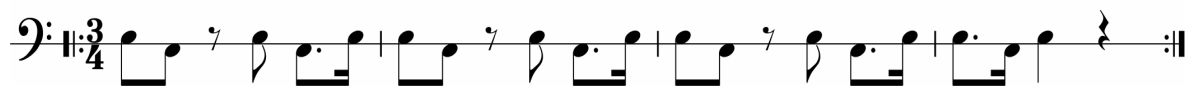
I)



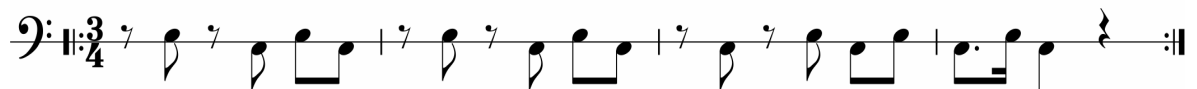
J)



K)



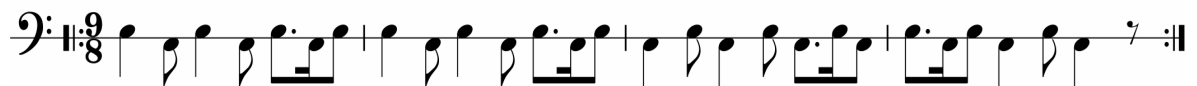
L)



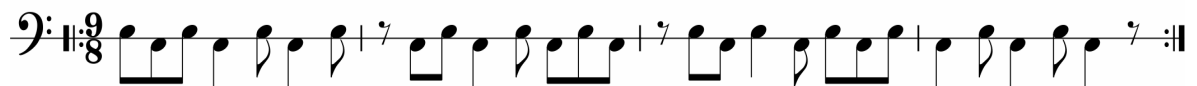
M)



N)



O)



P)

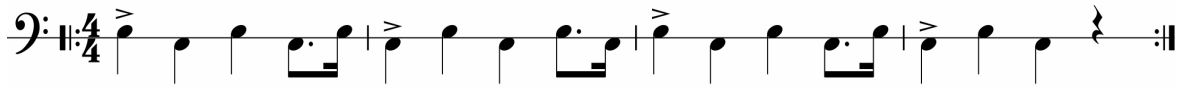


Exercise Beatings for Bass and Tenor Drum – Strathespey Rhythm (Exercise No. 15)

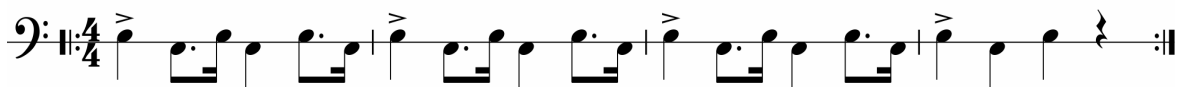
A)



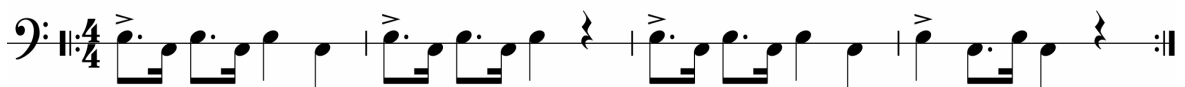
B)



C)

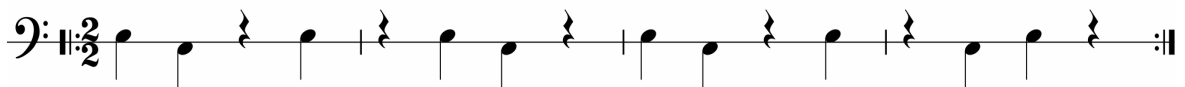


D)

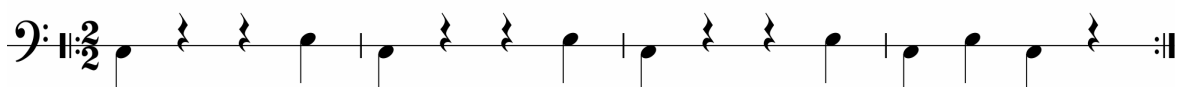


Exercise Beatings for Bass and Tenor Drum Simple – Reel Rhythm (Exercise No. 16)

A)



B)



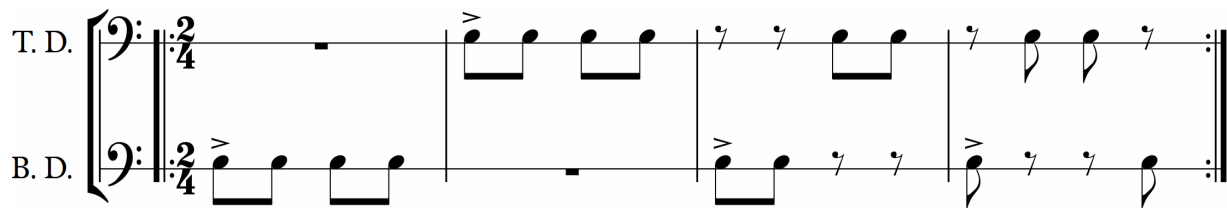
C)

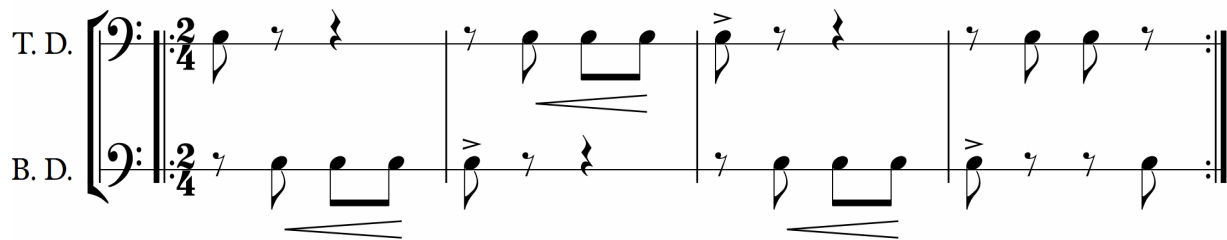


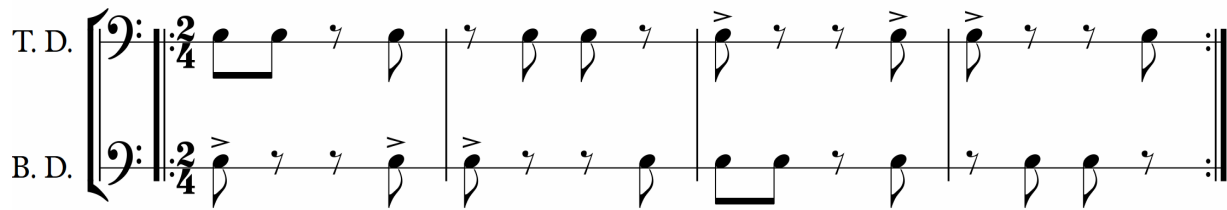
D)



Bass and Tenor Combined (Exercise No. 17)

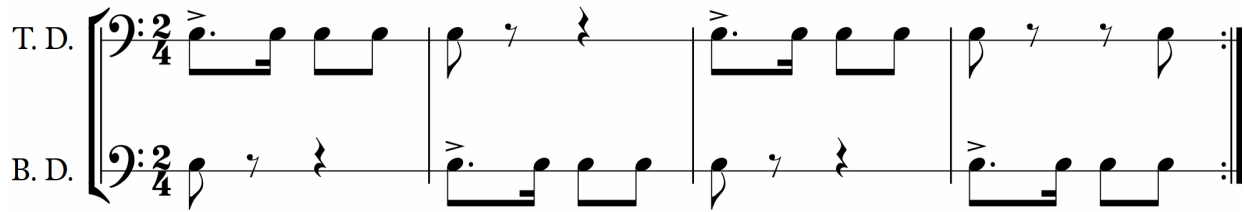
T. D. 

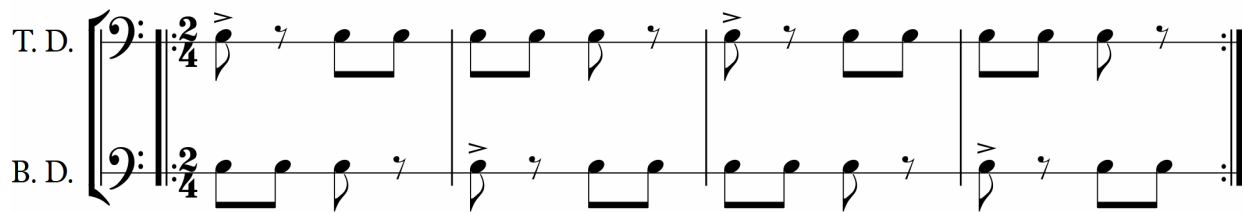
T. D. 

T. D. 

T. D. 

Bass and Tenor Combined (Exercise No. 17) (Cont'd)

T. D. 

T. D. 

T. D. 

T. D. 

2.20.25

Massed Band Beatings

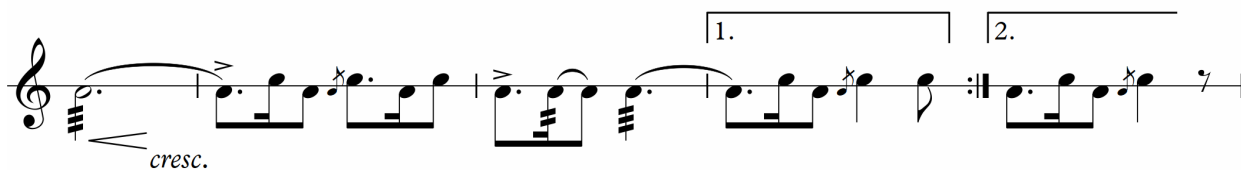
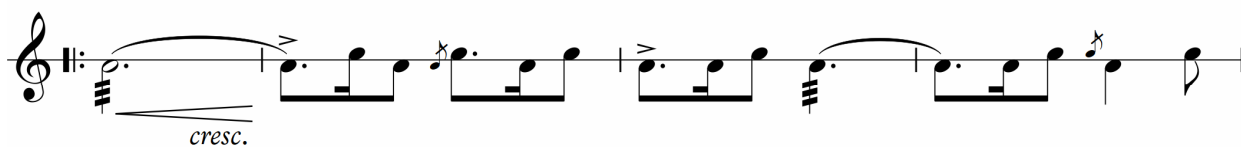
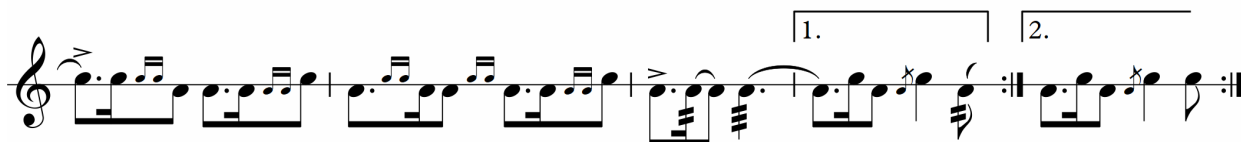
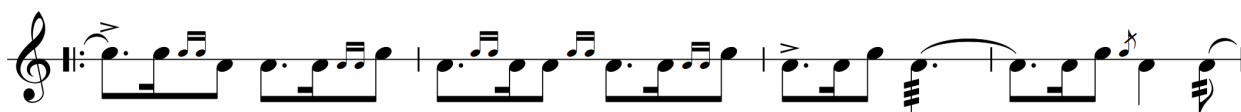
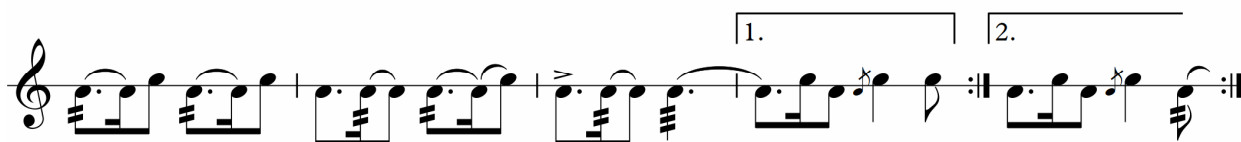
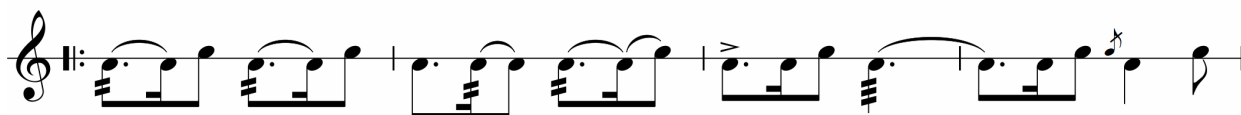
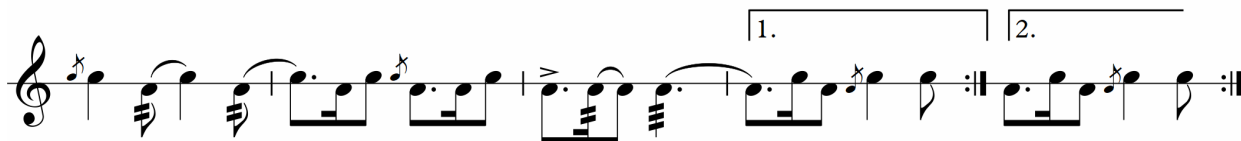
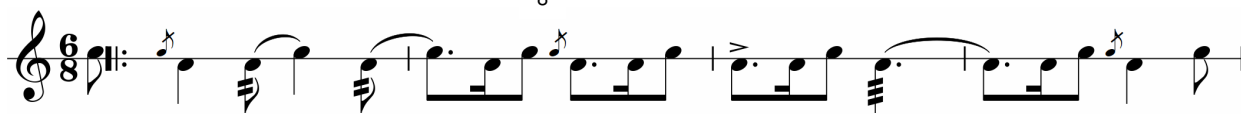
Generally speaking, most Leading Drummers in a Pipe Band compose their own drum scores, so inevitably when one or more bands get together for a massed band display there is often music hurried discussion between leading Drummers on 'what to play'. Worse still, some drum corps insist on playing their own special arrangement within a massed drum corps.

The combined efforts of massed drum corps are therefore often of a lesser standard than is necessary and this is one of the reasons why the following 'Massed Band Beatings' are included in this publication.

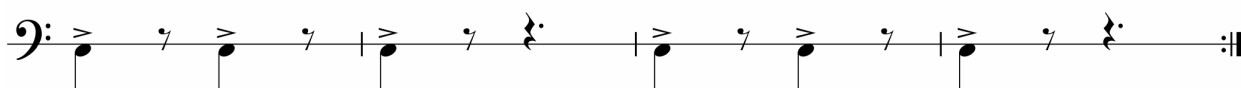
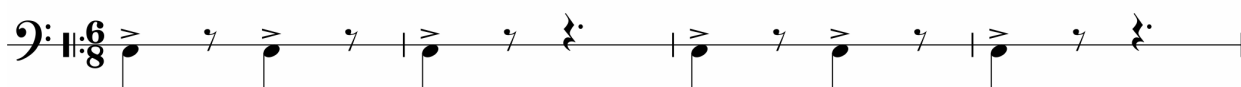
The Music Board would encourage all Bands to familiarise themselves with the following massed band scores.

2.20.26

MASSED BANDS BEATING NO.1 $\frac{6}{8}$ March



BASS & TENOR - Every Part



2.20.27

MASSED BANDS BEATING NO.2 $\frac{3}{4}$ March

BASS & TENOR - Every Part

Alternative Bass & Tenor Part

N.B The order of rotation in which the parts are played may be altered to suit particular tunes etc.

2.20.28

MASSED BANDS BEATING NO.3

Scotland the Brave

First staff of music for 'Scotland the Brave' in 4/4 time. It features a treble clef, a key signature of one sharp (F#), and a common time signature. The melody consists of eighth notes with accents, followed by a repeat sign with first and second endings. The first ending leads back to the beginning, and the second ending concludes with a quarter rest.

Second staff of music for 'Scotland the Brave' in 4/4 time. It features a treble clef, a key signature of one sharp (F#), and a common time signature. The melody consists of eighth notes with accents, followed by a quarter rest and a repeat sign.

BASS & TENOR - Every Part

Bass and tenor part for 'Scotland the Brave' in 4/4 time. It features a bass clef, a key signature of one sharp (F#), and a common time signature. The part consists of quarter notes with accents, followed by a quarter rest and a repeat sign.

MASSED BANDS BEATING NO.4 $\frac{2}{4}$ March

First staff of music for 'March' in 2/4 time. It features a treble clef, a key signature of one sharp (F#), and a 2/4 time signature. The melody consists of eighth notes with accents, followed by a quarter rest and a repeat sign.

Second staff of music for 'March' in 2/4 time. It features a treble clef, a key signature of one sharp (F#), and a 2/4 time signature. The melody consists of eighth notes with accents, followed by a quarter rest and a repeat sign with first and second endings. The first ending leads back to the beginning, and the second ending concludes with a quarter rest.

BASS & TENOR

Bass and tenor part for 'March' in 2/4 time (first line). It features a bass clef, a key signature of one sharp (F#), and a 2/4 time signature. The part consists of quarter notes with accents, followed by a quarter rest and a repeat sign.

Bass and tenor part for 'March' in 2/4 time (second line). It features a bass clef, a key signature of one sharp (F#), and a 2/4 time signature. The part consists of quarter notes with accents, followed by a quarter rest and a repeat sign.

2.20.29

MASSED BANDS BEATING NO.5 $\frac{2}{4}$ March

The musical score is written in 2/4 time and consists of eight staves. The first four staves are for the main melody, and the last four are for bass and tenor parts. The music features a variety of rhythmic patterns, including eighth and sixteenth notes, and includes first and second endings. Trills and triplets are also present.

BASS & TENOR - Every Part

The bass and tenor parts are written in 2/4 time. The first staff shows the bass line with a treble clef and a 2/4 time signature. The second staff shows the tenor line with a bass clef and a 2/4 time signature. Both parts consist of a simple rhythmic pattern of eighth and sixteenth notes.

N.B ff Drummers play Unison in centre two bars and two bar endings.

2.20.30

Monotone Exercises in Various Time Signatures (Exercise No.18)

1)

2)

3)

4)

5)

6)

LESSON 21

INSTRUMENT TUNING

The Bagpipe

When the bagpipe is correctly tuned, the drones provide a constant (pedal) harmony, and the individual notes of the chanter form a harmony of their own with the drones.

This apparently simple exercise is beset with many difficulties which take a considerable time and application of techniques to master.

Viz a viz :-

1. Lack of standard pitch.
2. The individual's ability to recognise differing pitches, and to maintain a consistent pressure.
3. The condition of the atmosphere (**i.e.** dry, humid, damp etc.).
4. Instrument quality.
5. Quality of reeds.

1. Standard Pitch

Unlike most other instruments, the bagpipe does not have a standard pitch, therefore pitch is usually a matter of individual taste.

Low A, the note to which the bagpipe is tuned varies in pitch between Concert A at 440Hz and B \flat at 466Hz.

The height or depth of pitch has a very important effect on the quality of sound produced by the chanter.

The higher pitch produces a thinner sound whilst a lower pitch results in a broader sound.

If the pitch of the chanter is too high or too low, the sound becomes imbalanced with individual notes going out of pitch. Additionally the chanter reed may not vibrate correctly resulting in 'skirling' (squealing) or 'chirping' (short squeals).

Although the lack of standard pitch is a much discussed topic in the piping fraternity it is difficult to argue that as long as the instrument is in tune and has a musical sound, the pitch can be no more than a personal preference.

2.21.2

2. Individual Ability

Every person has a different level of musical ability. Those with the greatest ability usually have less difficulty in understanding pitch in instrument tuning, therefore some will have more musically sounding instruments. Those lacking this natural ability will find tuning very difficult, but will learn to cope with this by seeking as much help as possible from other pipers who have this greater ability.

Having recognised pitch, another aspect of ability is learning to provide a steadfast constant pressure to the reeds. This will ease the task of tuning. This skill can only be achieved through patient practice in listening to the sound of the instrument for that constant level of pitch.

3. Atmospheric Conditions

Whether played indoors or out, the bagpipe is very sensitive to changing atmospheric conditions. The piper will learn, usually from experience, how the instrument may be affected.

Playing in warm or even hot conditions can result in the pitch 'climbing', with the result of a deterioration in tuning and quality in sound.

Cold or wet conditions may have the effect of a drop in pitch, and again, a loss of tuning and sound quality.

Understanding the effect of atmospheric changes should be considered in respect of performance. The duration of the performance further complicates this, and it takes fine judgement to get the best from the instrument.

2.21.3

4. Instrument Quality

Musical instruments have qualities, sometimes indefinable, which make them easier or more difficult to tune. Some older instruments are difficult to 'reed' due to their inbuilt pitch, usually flatter than recently manufactured instruments. This flatness in pitch also has an effect on the quality of sound, in most cases, sound clarity, which makes tuning difficult. This applies equally to chanter and drones.

5. Reed Quality

As instruments vary in quality, so also do reeds, however, an instrument of dependable good quality is essential in assessing the quality of reeds. A poor quality instrument is unlikely to reveal the true quality of any reed.

Reeds vary in quality, not only in manufacture, but also in the way they withstand stress of performance, and much experience in selecting reeds is the only way in which their suitability can be measured.

Corps Playing

The difficulties of tuning a bagpipe are further complicated by Corps Playing. In a pipe corps, the piper has to deal with all of the previously described problems, and then learn to blow in tune with the other pipers and play as one with them (unison).

The Pipe Major or leading piper has the daunting task of unifying the skills of the team, bearing in mind that all members of the team are individuals who vary in temperament, ability (musically and technically), instrument maintenance, and physical and mental strength. Any one aspect of these qualities, if not up to the required standard can have a detrimental effect on the tuned instruments.

Instrument Tuning – General

'Setting up' is the term generally used in reference to tuning the instrument. Similarly, 'setting' (tuning) the drones to the chanter. When the instrument is first 'blown up', some time should be taken, by playing a few tunes. This allows the instrument to 'warm up' before making any adjustments to the chanter. This time may be shortened if the chanter reed is warmed between the thumb and fingers for a few minutes thus raising the temperature. With experience, the piper will know what pitch the 'pipe' should be. This can be indicated by the position to which the drones tune. From this knowledge, the time taken for the chanter pitch to rise, and how long the optimum pitch can be maintained, the piper can judge the effect of the atmosphere. From this judgement, the necessary action can be taken to compensate for the prevailing conditions. However, what to do, by how much, and when to do it can only result from experiment and experience.

2.21.4

Setting the Chanter Reed

The reed should be seated firmly into the chanter and tested for pitch. This test is best done by blowing the reed directly from the mouth which saves time and effort in putting the chanter in and out of the stock and blowing the full pipe. The desired pitch, will through time, be recognised by the piper. It should be remembered that a mouth blown reed is subjected to greater air pressure than the reed inside the stock. This often results in the reed sounding flatter in the bagpipe than it did when mouth blown.

Common faults in Chanter sound

Symptom	Possible Cause
Pitch too high	Reed too deep into reed seat; Reed dry; sound box closing
Pitch too low	Reed not deep enough in reed seat; Reed wet; Sound box opening; Reed cold
Individual notes sharp	Air column short
Individual notes flat	Air column long

2.21.5

Setting the Drone Reeds

Ensure that the drone reeds are firmly in place in the drone reed seat. The experienced piper will know the approximate pitch of the drone when mouth blown. When selecting replacement drone reeds, it is advisable that they be fitted one at a time. This ensures that the new reed can be measured against existing reeds for sound quality, balance, steadiness and pitch.

When a bagpipe is reeded for the first time, great patience is essential to ensure the most suitable reed for the instrument is selected. This is particularly applicable to drone reeds since they are more susceptible to change than the chanter reed.

Common faults in Drone Reeds

Symptom	Possible Causes
Reed stopping	Weak reed; Tongue not vibrating freely; Tongue restricted by bridle; Soft cane; old age; reed very wet.
Reed 'Double Toning'	Reed too strong for chanter reed; Taking too much air.
Reed 'squealing'	Bridle too tight; tongue too short
Bass drone 'roaring'	Top section of bass drone requiring adjustment; reed taking too much air; drone design and reed incompatible.
Drones tuning too low or too high	Pitch of reed does not suit pitch of drone; reed itself abnormally pitched; bridle in wrong position

2.21.6

Parts of Bagpipe Reeds

Chanter Reed

There are many different makes of chanter reed available on the market. When selecting a reed it is advisable to carry out some basic checks.

i.e. That the cane is not soft and that the tips of the blades are of equal thickness and of equal curvature.

Drone Reeds

The bass and tenor reeds differ in size. The bass is made from 10mm. cane and the tenor from 8mm. When selecting drone reeds, the following basic checks are suggested:- That the cane is not soft, the tongue or blade is clean cut and the sealing wax at the stopped end provides a good seal.

2.21.7

Bass, Tenor and Snare Drums

The Music Board of the R.S.P.B.A are indebted to the Pipe Band College of the Australian Federation of Pipe Band Associations and in particular to their Drumming Principal, Allan K. Chatto for allowing us to print the following extract from the comprehensive report on controlled tests regarding the tuning of bass, tenor and snare drums, carried out by Mr. G. Bassani and Mr D. Murphy.

Analysis of frequency of spectrum tests on pipe band bass, tenor and snare drums

Conducted by Greg Bassani (lecturer) and David Murphy (Deputy Head), School of Electronic Engineering Regency College of Technical and Further Education, South Australia, on 26th of January 1990.

Author: G. Bassani

Background

Pipe band drums, especially the snare drum, have become technically more advanced during recent years. Advancements have been made in all areas of drum construction; drum head materials have changed, the method of head tensioning has varied, shell materials may be timber-based or plastic, metalwork may be steel or high-tensile aluminium, and so on. During this time the author has been unable to obtain evidence of any serious scientific tests carried out on these instruments so as to demystify some of the current practises in drum design and tuning.

Questions which have been and are continuing to be asked about our drums are :-

Can the bass, tenor and snare drums be tuned to the pipes?

If so, exactly where do you set the pitch of the drums in relation to the bagpipes?

Is there a reliable electronic tuner on the market which will enable accurate bass and tenor drum tuning?

2.21.8

Should both bass drum heads be of equal tension?

Should both tenor drum heads be of equal tension?

Where is the pitch of the snare drum in relation to the pipes?

Is the size of bass and tenor drum sticks important in determining the overall sound? Why?

Is the striking position on the bass and tenor drum important in determining the overall sound? Why?

Of course, a number of other questions are also asked, but the above represent the questions which the pipe band drumming fraternity seem most concerned about. Many of the questions can be answered without recourse to laboratory tests and the truth of the answers demonstrated to most people's satisfaction.

However, being able to put some scientific basis to these explanations would further help to clarify the nature of the sound produced by the instruments, and put to rest many misconceptions that currently exist in the world of pipe band drumming.

Aims

To produce frequency spectra of bass, tenor and snare drums under a variety of conditions and to analyse this information in order to :-

- Verify the accuracy of the KORG DT-2 electronic tuner,
- Verify the tuning of the bass drum at 1 octave below the bass drone of the bagpipes,
- Verify the tuning of the tenor drum at the frequency of the bass drone,
- Verify that small-head bass sticks produce larger overtones than large-head bass sticks,
- Verify that playing bass or tenor drums off-centre produces larger overtones than playing on-centre,
- Verify that a bass drum with different head tensions will produce the same note irrespective of which head is struck
- Verify that a bass drum with different head tensions will give a different overtone pattern from each head even though the fundamental note will be the same.
- Verify that a tenor drum will produce the same fundamental note irrespective of which head is struck and the relative tension of the heads,

2.21.9

- Measure the frequency spectrum of the snare drum without snares on, to note its frequency in relation to the bagpipes,
- Measure the frequency spectrum of the snare drum with the bottom snare on only, to observe the change in spectrum relative to the no-snare test,
- Measure the frequency spectrum of the snare drum with both snares on, to verify the existence of a complex spectrum of indefinite pitch.

Equipment

Quality instruments were used and comprised the following :-

Premier 18" (46cm) Tenor Drum, wooden hoops, plastic heads, no damper.

Premier 28" (71cm) Bass Drum, wooden hoops, plastic heads 3" (76mm) felt strip dampers on each head, about 6" (152mm) in from the rim at the furthest point.

Premier HTS-200 Snare Drum, Remo Falams white batter head, Premier plastic bottom head.

'Chatto' large bass beaters, 'Chatto' tenor sticks, 'Connell' snare sticks.

Korg auto-chromatic Digital Tuner DT-2.

Electret microphone with a frequency range extending well beyond the frequencies of interest in this test, at both the high and low end of the range.

Hewlett-Packard FFT Spectrum Analyser and Inkjet printer.

2.21.10

Tests Conducted

The tests were coded for the sake of simplicity and these codes along with a brief test description are given below.

The microphone was placed at right angles to the drum head in all tests and the closest drum head to the microphone was maintained at 1 metre distance. All drum strikes were direct with no glancing strokes used. All results were achieved from the average of 10 successive strikes of approximately equal weight, with the microphone active for only a very short space of time in order to minimise room affects.

Test series Number 1 – BASS DRUM

For each test, the bass drum was set up using the KORG DT-2 electronic tuner so as to register A \square at one octave below the bass drone frequency. Typical Low A on the bagpipe chanter is a frequency of 446 Hertz (formerly known as 'cycles per second'), this would place the tenor drones at 233 Hertz, bass drone at about 116 Hertz and the bass drum at 58 Hertz.

- Test 1A** Bass drum, heads evenly tensioned, struck with large stick in the centre of the head furthest from the microphone
- Test 1B** Bass drum, heads evenly tensioned, struck with large stick approximately 76mm (3") in from the rim away from the damper, on the head furthest from the microphone.
- Test 1C** Bass drum, heads evenly tensioned, struck with small stick in the centre of the head furthest from the microphone.
- Test 1D** Bass drum, heads evenly tensioned, struck with small stick approximately 76mm (3") in from the rim away from the damper, on the head furthest from the microphone.
- Test 1E** Bass drum, heads differently tensioned by 180 degrees on each screw on one side of the drum compared to the other, struck with large stick in the centre of the head closest to the microphone, SLACK head struck.
- Test 1F** Bass drum, heads differently tensioned by 180 degrees on each screw on one side of the drum compared to the other, struck with large stick in the centre of the head closes to the microphone, TIGHT head struck.

2.21.11

Test series Number 2 – TENOR DRUM

In a similar manner to the bass drum, the tenor drum was tuned equal to the frequency of the bass drone of the bagpipes, namely 116 Hertz. The bottom head of the drum was set noticeably slacker than the top head so as to encourage vibration of the bottom head and hence projection of the sound off this head.

Test 2A Tenor drum, struck with small stick (standard wool-covered tenor stick) in the centre of the top head with the bottom head towards the microphone.

Test 2B Tenor drum, struck with small stick about 51mm (2") in from the rim of the top head with the bottom head towards the microphone.

Test 2C Tenor drum, struck with small stick in the centre of the bottom head with the top head towards the microphone.

Test series Number 3 – SNARE DRUM

The Korg tuner would not register the pitch of this drum, which the author suspects is due to the wide range of differing frequencies present and the inability of the tuner to discriminate between them.

The top head (REMO Falams) had been well played in and was 'acceptably' tight, while the bottom head (Premier plastic) was very tight and close to its breaking point.

Test 3A Snare drum, both snares off, struck in the centre of the top head, bottom head to the microphone

Test 3B Snare drum, both snares off, struck in the centre of the bottom head, bottom head to the microphone.

Test 3C Snare drum, both snares off, struck in the centre of the bottom head, top head to the microphone.

Test 3D Snare drum, bottom snare 'on', top snare 'off', struck in the centre of the top head, bottom head to the microphone.

2.21.12

Test 3E Snare drum, bottom snare and top snare 'on', struck in the centre of the top head, bottom head to the microphone.

Conclusions

1. The accuracy of the Korg DT-2 auto-chromatic tuner in setting the frequency of the bass and tenor drums has been verified.
2. The bass drum tuning range is in the octave below the bass drone of the pipes. In fact, tuning the bass drum to exactly one octave below the bass drone will produce perfect harmony with correctly set bagpipes.
3. The tenor drum tuning range is in the octave of the bass drone of the pipes (that is, the octave below the tenor drone). Tuning the tenor drum to the same frequency as the bass drone will produce perfect harmony with correctly set bagpipes.
4. Larger bass drum sticks suppress the overtones of the bass drum. These overtones are not harmonious with the fundamental bass drum note and are undesirable. The limit of the size of stick is determined by a compromise between the need to suppress the overtones and the need to have clarity of execution with the drumming performance. Ignoring this compromise may lead to a rich and harmonious bass drum 'rumble'.
5. Playing bass and tenor drums off-centre exaggerates the discordant overtones.
6. Bass drums with differently tensioned heads can only produce a fundamental note, no matter which head is struck. Overtone differences from each head will be perceived as a pitch difference but in reality it is the timbre or quality of sound that has altered, not the fundamental note. However, it is recommended that the heads be equally tensioned so that a consistency of sound is obtained.

2.21.13

7. The frequency of the tenor drum is determined by the tension of both heads. The author suggests setting the bottom head at a lesser tension to the top head. This will encourage movement of the bottom head, and hence, projection of the sound off this head.
8. The snare drum is an instrument of indefinite pitch and can not be tuned (in strict sense). This is due to the complex frequency spectrum produced which shows many significant frequency components present.
9. For a 'typically' set snare drum, changes in the bottom head tension will have more effect on the resulting pitch than changes in the top head tension. The author realises that there are other considerations to be made in the set-up of a snare drum. Since snare drummers are wanting a high pitch, the bottom head should be kept very tight (maximum tension) so that the risk of breaking a top head in the quest for this high pitch is minimised.

G. L. Bassani

May 1990

LESSON 21***The Introduction – How it has Evolved***

Prior to the 1930's, Bands commenced playing with either one five pace roll or two three pace rolls. During the rolls, the pipers had no discipline when 'striking-in' the pipes, as long as the pipers commenced the tune together, this was acceptable.

It was at the beginning of the 1930's that Shotts and Dykehead Caledonia Pipe Band perfected a controlled and uniform 'entry' or introduction for pipers. This was the single most important step towards the 'attack' of today. (The word attack is derived from the Italian musical expression "Attacca" used to describe musical sound at the instant it is produced).

The principle of this 'attack' required pipers to bring the drones in on the fifth beat following the words of command. The pipe chanter would not be sounded until the seventh beat.

All pipers sounded 'E' together. This 'E' was generally sounded with only the upper hand on the chanter, with the lower hand being placed on the chanter prior to the tune commencing. This concept spread throughout the 'Pipe Band' world and the technique became the standard introduction.

The next stage in the evolution of the 'attack' came during the late 1960's. This required both hands to be in a position on the pipe chanter, ready to produce a full sounding 'E'.

The component parts including the words of command currently used in Pipe Band introductions are shown below.

by the right quick march

Pipes

Drones

Snare Drums

Tenor Drums

Bass Drums

2.22.2

Following the initial commands of 'Get Ready' and 'Ready', bandsmen should remain quiet and ensure no instrument noises.

Total concentration is essential whilst awaiting the performance introductory 'words of command'.

These words of command should be given in a clear confident voice, and in such a manner as to indicate the tempo of the opening piece of music.

Immediately following the words of command, two three-pace introductory drum rolls are sounded on the snare drums, while the bass section drummers 'keep time' with single beats punctuated with appropriate flourishing. The snare drum rolls should commence and finish in unison. The texture of the roll movement should be smooth, well sustained and of uniform pulsation throughout. The pipers remain silent until the fifth beat of the introduction.

The tempo is established for the opening piece by the speed at which the introductory rolls are sounded. All Bandsmen should immediately sense the tempo, ensuring that it is maintained on commencing the melody.

On the fifth beat of the introduction, the drones are sounded, and on the seventh beat, the note 'E' is sounded on the chanters.

It is essential for the precision of the Introduction that all instruments are sounded in unison, as one grand instrument.

Pipes and drums should be well tuned in harmony and at the Introduction must be accurately intoned by the Bandsmen. This is particularly important as far as the bagpipe is concerned. Poorly maintained instruments can have disastrous results, such as 'Double-Toning' or 'Squealing' drone reeds. When the chanters are sounded, the note 'E' should be full sounding and clear, not forced or overblown.

Intonation must be maintained throughout the performance.

The Introductory Melody

The first strong pulse of the introductory melody should commence on the ninth beat of the Introduction.

All bandsmen must begin together, sustaining the tempo set by the drummers, giving attention to all aspects of the music.

LESSON 23

Piobaireachd – An Introduction

Piobaireachd, or pibroch as it is commonly written, means 'piping'. However, the word Piobaireachd has with the passage of time, come to be used to describe a certain type or class of music played on the Great Highland Bagpipe.

Bagpipe music is generally divided into two classes **i.e.** 'Ceol Mor' and 'Ceol Beag'.

Ceol More, meaning 'Great Music', is known as Piobaireachd, and is often referred to as the classical music of the bagpipe.

Ceol Beag means 'Little Music', sometimes called 'Light Music', and comprises of slow airs, quick marches, strathespeys, reels, hornpipes and jigs etc.

Ceol Mor is basically a theme and variations, and is said to date from about the 16th Century.

Each Piobaireachd begins with a slow opening theme called the 'Ground' or 'Urlar', from which the subsequent variations are developed.

There are a number of different styles of variation which are traditional to Piobaireachd. A typical format for such music may be as follows :-

The Urlar, followed by the 'Siubhal', Taorluath and Crunluath.

Each variation is sub-divided into two versions, the 'singling', (which is the first time the variation is played), and the 'doubling' (variation played for the second time), with subtle alterations to tempo and expression, and often content.

Acquiring the art of Piobaireachd playing, the mastering of its various forms, styles and technique, is such that many years of study are required.

The study, development, and instruction of Piobaireachd has been carried out from its earliest beginning by schools of piping run by historic families such as the MacCrimmon's and the MacKay's, and in modern times by The College of Piping, and The Army School of Piping among others.

Various collections of such music have been made, and two of the most commonly used at the 'Piobaireachd Society' collection and the 'Kilberry' collection.

The subject of Piobaireachd will be developed further in Book 3.