

HOW TO PLAY
The
**IRISH
WILLEAN
PIPES**

by

Tadhg Crowley

Cork

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CHROMATIC SCALE AND F

1st CHROMATIC OCTAVE UILLEAN PIPE CHANTER

	First Finger	2nd Finger	1st Key	3rd Finger	4th Finger	2nd Key	5th Finger	3rd Key	6th Finger	4th Key	7th Finger
MUSICAL STAFF											
THUMB	●	●	●	●	●	●	●	●	●	●	●
LEFT HAND	●	●	●	●	●	●	●	●	●	●	●
RIGHT HAND	●	●	●	●	○	○	○	○	○	○	○
KNEE	○	●	●	●	●	●	●	●	●	●	●

O's mean Holes of CHANTER open.
 ●'s mean Holes closed.

SMALL DOTS ● REFER TO THE KEYS.

BLOW EASY HERE

HOW TO GET 2nd OCTAVE NOTES.

This is accomplished by momentarily stopping Chanter and opening the note required at the same time pressing a little harder on Bag and keeping up the pressure with Bellows if note is to be sustained. If high A or B is required it may be necessary to sound a high G grace note to get up to these notes.

INGERING OF CHANTER.

2ND CHROMATIC OCTAVE

R

7th Finger, Thumb, 1st Finger, 2nd Finger, 1st Key, 3rd Finger, 4th Finger, 2nd Key, 5th Finger, 3rd Key, 6th Finger, 4th Key, 7th Finger, 7th Finger, Thumb

OR

PRESS HARDER ON BAG FOR THESE NOTES

DIFFERENT LENGTHS AND PITCHES OF PIPES.

Pipes will be met with in various sizes, and Pitch varies according to the length of the Instrument. The various sizes of Chanters are:- $17\frac{1}{2}$ in., 17 in., $16\frac{1}{2}$ in., 16 in., $15\frac{1}{2}$ in., 15 in., $14\frac{1}{2}$ in., 14 in., $13\frac{3}{4}$ in. The shorter Pipes are more in favour as they have greater carrying power, and their music is considered more spirited.

CHROMATIC SCALE AND

1ST CHROMATIC OCTAVE UILLEAN PIPE CHAN

	First Finger	2nd Finger	1st Key	3rd Finger	4th Finger	2nd Key	5th Finger	3rd Key	6th Finger
THUMB	●	●	●	●	●	●	●	●	●
LEFT HAND	●	●	●	●	●	●	●	●	●
RIGHT HAND	●	●	●	●	○	○	○	○	○
KNEE	○	●	●	●	●	●	●	●	●

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FINGERING OF CHANTER.

2ND CHROMATIC OCTAVE

The diagram shows a musical staff with notes and accidentals for the 2nd chromatic octave. Below the staff is a grid of circles representing fingering options for each note. The columns are labeled as follows: 7th Finger (OR), Thumb, 1st Finger (OR), 2nd Finger, 1st Key, 3rd Finger (OR), 4th Finger, 2nd Key, 5th Finger, 3rd Key, 6th Finger, 4th Key, 7th Finger (OR), 7th Finger, and Thumb. The grid contains black and white circles indicating which finger or key should be used for each note.

PRESS HARDER ON BAG FOR THESE NOTES

DIFFERENT LENGTHS AND PITCHES OF PIPES.

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UILLEAN PIPE TUTOR.

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INSET: Chromatic Scale and Fingering of Chanter.

*Ken McLeod 14/1/75
Antrim.*

HOW TO PLAY *The* IRISH WILLEAN PIPES

Containing.

DIAGRAMS OF ALL THE PARTS WITH THEIR NAMES.
THE REGULATORS, HOW THEY ARE PLAYED AND TUNED.
THE DRONES AND THEIR TUNING.

HOW TO HOLD THE CHANTER, ITS SCALE AND FINGERING.
THE REEDS HOW TO FIT AND ADJUST THEM TO THE BEST ADVANTAGE.
COMPLETE SETS OF SCALES AND EXERCISES.

TOGETHER WITH A
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MERCHANTS QUAY,

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FOREWORD.

IN thanking our subscribers on behalf of Father Conafrey and myself, I must apologise for not being able to publish the work ourselves as, owing to the stunted support given by the general public (after several appeals) and the attitude of some of our leading Pipers, we had to forego our original intention.

We are glad Mr. Crowley has undertaken publication of the book and feel there is no more competent person for such an undertaking.

Hoping our efforts have been of some assistance in the preservation of this beautiful old instrument and again thanking our kind subscribers,

Is mise,

T. PLUNKETT, M.B.

LIST OF SUBSCRIBERS:

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THE IRISH UILLEAN (OR UNION) BAGPIPES.

It is generally conceded that this instrument is a development of the older Piob Mor, or Warpipes, which were in use in Ireland, in one form or other, as early as the fifth century.

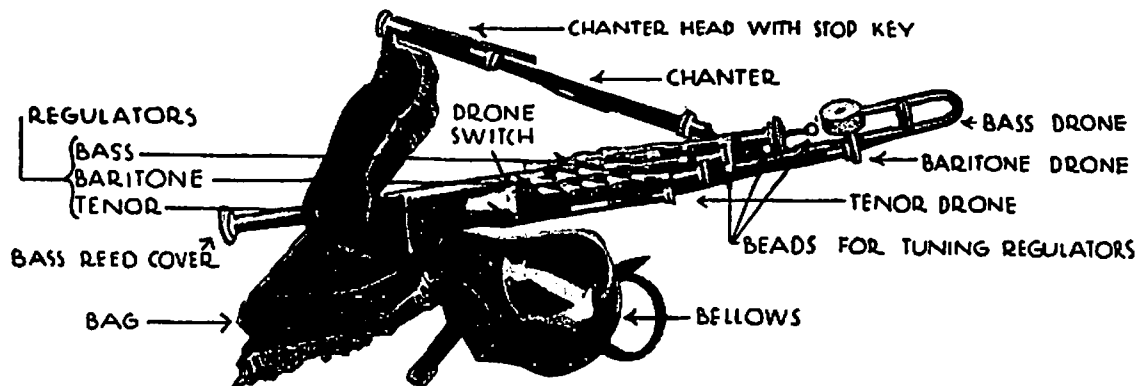
The late Dr. Gratton Flood in his work "The Bagpipe" gives the first mention of Uilleann Pipes as about the year 1584. But these Uilleann Pipes were still a form of the Piob Mor, or Warpipes, blown with a bellows, instead of from the mouth.

They should not be confused with the new instrument developed early in the 18th century. The first performer of whom we have any record was Lawrence Grogan of Johnstown Castle, Wexford, who became famous as a composer of pipe music in 1725. The origin of these pipes must be placed at least a few years previous.

The new pipe appears to have become immensely popular as we have a plentiful record of notable performers and composers from the latter date onwards. They are said to have been in high favour up to 1860 and the fact that there were twelve bagpipe makers doing business at that time is proof that the instrument was in good demand. Three tutors were published between the years 1800 and 1807 viz:- O'Farrell's, Fitzmaurice's, and Geogehan's. At christenings, weddings, dancing, and in fact all social functions these pipes were indispensable.

They were not considered beneath the dignity of such peers as Lord Rossmore and Lord Edward Fitzgerald and a host of wealthy gentlemen; bishops, priests and parsons, all of whom were devoted to the instrument. The decay of this instrument is inexplicable as it is in no way inferior to other reed instruments in proper hands and nowadays (1936) with the return to general favour of the national dances and the advent of Ceilidhe Bands to all the towns throughout the country, is it too much to expect that it would again return to its old status in the life of the Nation?

IRISH UILLEAN PIPES.



THE NOTES in music are named after the first seven letters of the Alphabet, viz:— A. B. C. D. E. F. G.




The five lines on which the notes are written are called the Stave.

LEDGER LINES are used when the notes of a melody go below the compass of the Stave, as will be noticed in the first A. B. C. notes above. The same applies when the notes go above Compass of Stave.

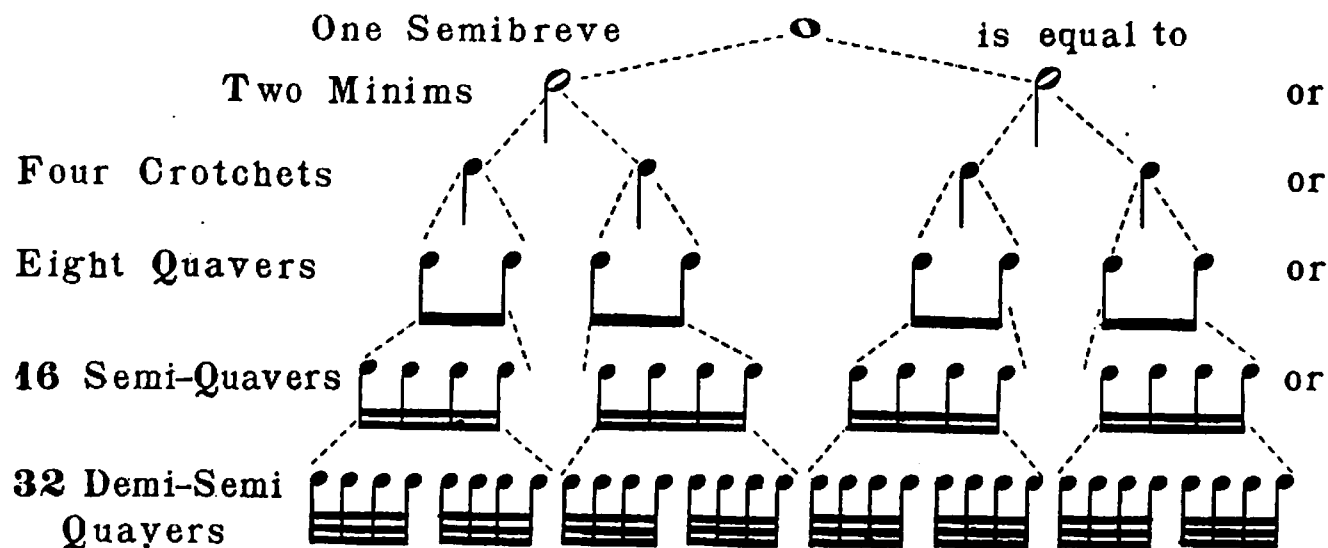
SCALES can be formed from any of the seven notes mentioned with the aid of suitable sharps or flats.

SHARPS and FLATS (Accidentals) are half notes. For instance, midway between A. and B. notes above would be A. sharp or B. flat. When note is required to be played half tone sharp it is marked thus: \sharp . When note is required to be played half tone flat it is marked \flat .

The scale of the Uilleann Pipe Chanter starts from the D. under lower line of Stave (see illustration). When playing this scale on Chanter you will be playing two sharps: $F\sharp$ and $C\sharp$; this is the KEY SIGNATURE for the scale of D. When you revert to the scale of G. (starting with lower hand off Chanter) you will notice you will have to use the key at back for the fourth note. This is because there is only one sharp required in the scale of G. Thus the KEY SIGNATURE for the scale of G. is one sharp. D. and G. are the easiest and most suitable keys for the Uilleann Pipes and should be looked for when playing from Violin or Piano score. The KEY SIGNATURE will always be found on right side of the CLEF  which is placed at the beginning of every line of music.

THE DIFFERENT KINDS OF NOTES.

There are only six kinds of notes used in music; these can be easily memorised. They are the Semi-breve, Minim, Crotchet, Quaver, Semi-quaver and Demi-Semi-quaver.



It will be noted that each note is only half the value of the note over it.

DOTTED NOTES.

A dot placed after any note increases its value by half. For instance, a dotted minim P^\cdot is equal in time to a minim and crotchet. A dotted crotchet P^\cdot is equal to a crotchet and quaver. A dotted quaver P^\cdot is equal to a quaver and semi-quaver.

If the dot is placed over or under the note, *see* Staccato.

RESTS.

RESTS indicate when silence is required. Each note has its equivalent rest which is counted in the same way as its note in music. The following shows the various rests with their equivalent notes over them.



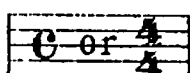
DOTTED RESTS.

A dot placed after a rest affects it in the same way as if it was a note, increasing its duration by one half.

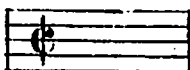
TIME.

Every piece of music has a time signature at the start which denotes the number of notes or their equivalent in each bar. The following shows the principal time signatures used in Irish music:

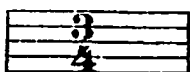
COMMON TIME.



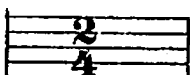
Four fourths of a semi-breve (four crotchets or their equivalent) in each bar. Four beats to the bar.



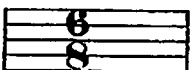
ALLA BREVE TIME also called Cut Common time or Reel time written the same as common time above with only two beats to the bar.



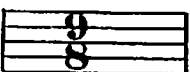
THREE FOUR Time. Three fourths of a semi-breve (3 crotchets) in each bar. Three beats to the bar.



TWO FOUR Time. Two fourths of a semi-breve (two crotchets or their equivalent) in each bar. Two beats to the bar.



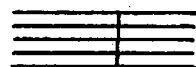
SIX EIGHT TIME (or Jig time). Six eighths of a semi-breve in each bar (6 quavers or their equivalent). Two beats to the bar.



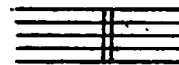
NINE EIGHT TIME (or Slip Jig Time). Nine eighths of a semi-breve in each bar (9 quavers or their equivalent). Three beats to the bar.

BARS.

Music is divided into Bars by lines drawn across the Stave.



A double Bar is placed at the finish of a part or piece of music.



If dots are placed at left of the double bar



it indicates that

the preceding part has to be repeated. If placed on the right



the following part has to be repeated.

TRIPLETS.

Triplets are marked by $\overbrace{3}$ being put over or under a group of 3 notes. This indicates that they are to be played in the time of two notes of the same value.

STACCATO.

Dots placed directly over or under the notes indicate that they must be played with a sharp accent. Each note being disconnected and distinct.

THE PAUSE.

A pause \circ placed over a note (or rest) means that such a note may be held much longer than its correct time.

Da Capo or *D.C.* means that the preceding piece is to be repeated from the beginning until the word "*FINE*" is reached.

ACCENT MARKS.

Accent marks $>$ placed over notes indicate that they are to be heavily accented.

BRACKETS.

Brackets are used for abbreviation purposes and indicate that the notes in brackets marked $\boxed{1st.}$ are to be played first time only, and notes in bracket marked $\boxed{2nd.}$ played in their stead on the repeat.

A SLUR thus \frown placed over or under a group of notes indicates they are to be played without a break.

HOW TO HOLD THE INSTRUMENT.



The Irish Uilleann Pipes are intended to be played in a sitting position (see illustration) using the right leg to support the Drones and Regulators and the right knee to stop end of Chanter when required. For the latter purpose a piece of soft leather should be tied on knee (if there is no valve on end of Chanter). This is called the "piper's apron". It is really essential as cloth will not effectively stop end of Chanter. The bag is placed under left elbow, not high under arm as you will have more control over it with the elbow.

The extending part of the Bass Regulator must be over the left arm.

THE BELLOWS.

The bellows should be tied or strapped firmly to the right side of body (preferably about top of hip). It should not be placed high under the arm — it will work more effectively lower down. The strap on outside of Bellows must be tied fairly taut around right arm above elbow. In connecting neck of Bellows to Blow-pipe of Pipes see that it is not twisted so as air will go freely to Bag. See that sleeve does not foul intake valve.

HOW TO HOLD THE CHANTER.

The flat parts of the fingers are used to cover the holes. The tips of the fingers should *not* be used.

The *INSIDE* of the thumb of left hand should cover hole at back of Chanter. This will enable you to manipulate the doublings and triplings on the thumb note better (as you can move thumb quicker up and down on back hole than you could lift it up and down). The thumb of right hand should be placed behind the second finger. This will give better control of lower hand. This thumb is used to manipulate the C. natural key at back of Chanter. The small finger of left hand is used to move the keys. F. natural, G. sharp, and B. flat, should they be on Chanter. Do not grip your Chanter hard. Use only enough pressure to stop and lift it effectively.

STARTING TO PLAY.

Proceed to fill Bag by working Bellows with right arm in and out from body — this will become automatic after practice. When Bag is full Chanter will begin to sound. In starting, always have thumb and first and second fingers of left hand covering their respective holes on Chanter, thus sounding A. No attempt should be made to use the Drones until you have mastered the holding of the Chanter and scales and exercises and can play a few tunes effectively. Drones may then be put going. Regulators should not be touched until you have become thoroughly proficient at playing Chanter.


They (regulators) are only of secondary importance and Regulator playing is not piping. You will require to conserve all your efforts for the proper mastering of the Chanter.

When bag is full left arm should act on it like a spring being blown out by the pressure from Bellows and following in Bag again as air recedes. A little practice is required at this until tone of Chanter is steady. When this is mastered simple scales may be practised.

TRADITIONAL PIPE SCALE.

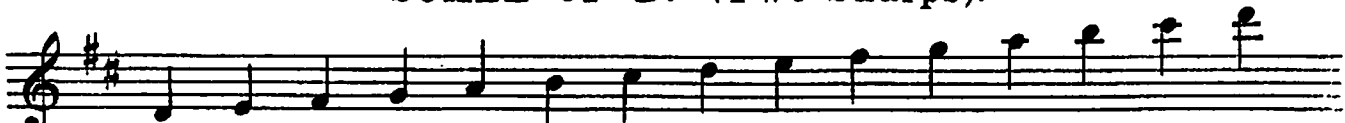
The following is the traditional Pipe scale. It is the scale peculiar to the Pipes and should be understood and practised by all serious Pipers as most of our finest tunes and most characteristically Irish melodies have been composed in this mode. It has what is called "the lowered seventh," or "missing leading note." It is called a gapped scale on this account.

TRADITIONAL SCALE.



THUMB HOLE	0	●	●	●	●	●	●	●
LEFT HAND	0	0	●	●	●	●	●	●
	●	●	0	●	●	●	●	●
RIGHT HAND	0	0	0	0	0	●	●	●
	0	0	0	0	0	0	●	●
	0	0	0	0	0	0	0	●
	0	0	0	0	●	0	0	●
KNEE HOLE	●	c	●	●	●	●	●	0

SCALE OF D. (Two Sharps).



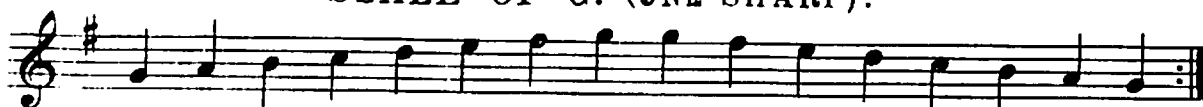
D. E. F#. G. A. B. C#. D. E. F#. G. A. B. C#. D.

1st Octave 2nd Octave *Blow stronger*

EXERCISE ON SCALE OF D.



SCALE OF G. (ONE SHARP).



G. A. B. C. D. E. F#. G. G. F#. E. D. C. B. A. G.

EXERCISES ON SCALE OF G.



GRACE NOTES (Acciaccatura).

Grace notes are an essential part of Uilleann Pipe music. They are used to divide a long note into several shorter notes. Also, they are used in the formation of Doublings, Triplings, etc., and give force or accent to notes over which they are placed. Their Time value is very little and is not counted in the melody.

EXAMPLE of C. grace note used for accent purposes.



To perform this grace note slightly lift the top finger of left hand as the melody note is being sounded.



A G. grace note is useful when going down to low D. from other higher notes. It is also used as a di



viding grace note in high and low octaves.

See examples.

A C. and G. grace note may be used alternatively in the making of two or four divisions.



Instead of using the G. grace note the division may be made by stopping the Chanter momentarily on the knee. No grace note is written when this is inferred. An A. grace note may also be used instead of either C. or G. grace notes.

The following is a list of other dividing grace notes. They are executed by a smart stroke of the finger on the melody note, thus sounding a grace note lower.



EXERCISE in the foregoing grace notes in 6/8 time 1st octave.



In the foregoing it will be noted the A. grace note comes into the second group in the second bar and D. grace note on first two notes of last bar. The last two grace notes are done by striking back hole on Chanter twice with thumb.

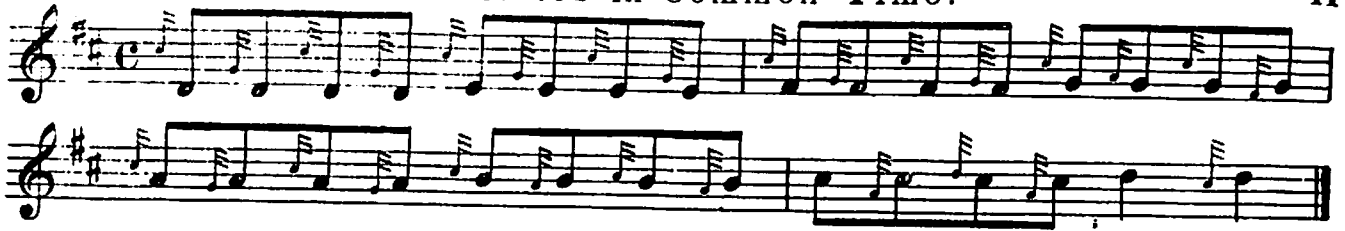
Exercise in the Grace Notes in Second Octave.



The above grace notes are similar to those in lower octave, the last ones being seldom used.

Repeat each group several times regularly until thoroughly mastered.

EXERCISE on the Grace Notes in Common Time.



EXERCISE in Grace Notes Common Time 2nd Octave.



The foregoing should be practised slowly at first playing each group of four notes several times.

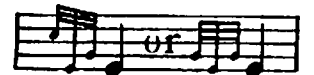
THE DOUBLINGS.

Doublings are little warbles-principally consisting of two or three grace notes-usually done with an accent note of the melody and the note over it. They add a certain brilliance to the playing but should not be overdone.

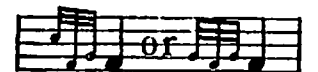
DOUBLINGS OF LOW D. Cut with C. and G. smartly for first example or with G. twice for 2nd at same time having all fingers on Chanter.



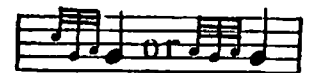
DOUBLING OF E. Executed in same manner as doubling of D. having lower two fingers off.



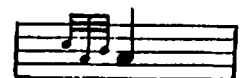
DOUBLING of F. Sharp. Executed in the same manner as D. and E. above. One note higher.



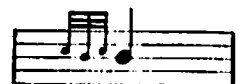
DOUBLING of G. Cut with C. and A. grace notes smartly or with two A. grace notes for second example.



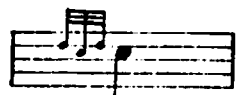
DOUBLING of A. Cut with C. on sounding A. follow smartly with a B. grace note.



DOUBLING of B. Cut smartly twice with the C. finger.



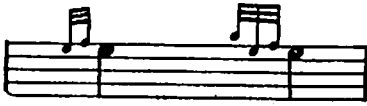
DOUBLING of C. Cut smartly with thumb twice.



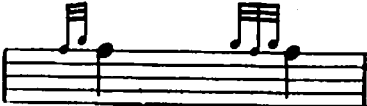
The initial grace note in each of above groups is useful for accent and division purposes but may be omitted.

THE DOUBLINGS ON 2nd OCTAVE.

The doublings on 2nd octave cannot be executed in the same way as on the 1st octave owing to the fact that the second octave notes are easily broken to low octave notes by the sounding of a note too high in the register.



DOUBLING OF HIGH E. Immediately on sounding the E. sound an F. grace note smartly after it.



DOUBLING F. SHARP. Immediately on sounding F. raise the finger slightly. A G. grace note may be added as shown in each of second doublings above.



DOUBLING HIGH G. Same as E. and F. an A. at the start will be found useful at times.



DOUBLING of HIGH A. Immediately on sounding the A. raise the finger to sound a B. grace note or two B. grace notes as in 2nd example.



DOUBLING HIGH B. Done in same manner as others but a tone higher.

Each of the foregoing movements should be taken slowly at first and practised diligently until thoroughly mastered before attempting to play them in a piece of music.

THE TRIPLINGS.

A Tripling consists of three notes of the melody and the grace notes necessary for its execution.

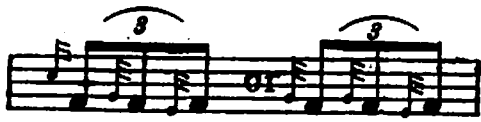
A study of the following examples will be found to facilitate greatly in horn-pipe and reel playing.



TRIPLINGS ON LOW D. Open the movement with a C. or G. grace note (which ever suits preceding notes of melody best), follow smartly with the other two grace notes given.



TRIPLING OF LOW E. Cut with a C. or G. grace note follow smartly with a G. and tap the finger on the E. hole for third division.



TRIPLING OF F. SHARP. Cut with C. lift the finger for a moment and strike Chanter with the finger below the note on which movement is being done.



TRIPLING LOW G. Cut with C., follow smartly with an A. grace note and strike top finger of lower hand on Chanter.



TRIPLING OF A. Cut with a C. grace note. Follow smartly with a B. grace note and strike the lower finger of top hand on its hole on Chanter.



TRIPLING OF B. Cut with a C. grace note twice smartly and tip the finger on the B. hole of Chanter.



TRIPLING OF C. Cut twice smartly with the thumb and strike the top finger on hole smartly.



TRIPLING OF MIDDLE D. Sound D. and strike the back hole twice smartly with thumb. The best way to accomplish this movement is to move thumb in an up and down fashion on hole, utilising the joints to aid in its rapid execution.



TRIPLING OF HIGH E. Cut with a High G. grace note twice smartly and strike the finger on the open note



TRIPLING OF F. SHARP. This is similar to E. but done a note higher.



TRIPLING OF HIGH G. Cut with an A. grace note twice smartly and tip the top finger of lower hand on its hole on Chanter.



TRIPLING OF HIGH A. Cut with a B. grace note twice and follow by a stroke of the finger on the open note.



TRIPLING OF HIGH B. Cut with a C. grace note twice and follow by a tip of the finger on the open note.

Triplings on High C. and D. may be executed on same system as above. The 1st grace note could be omitted in each of above examples, but are necessary if preceding note is the same as the notes of the Triplet.

Note the following example:

The image contains three staves of musical notation. Each staff begins with a treble clef and a key signature of one sharp (F#). The first staff shows a sequence of notes with triplets marked '3' above them. The second staff shows a similar sequence with triplets marked '3' above them. The third staff shows a sequence of notes with triplets marked '3' above them.

CRANNING, POPPING AND TIPPING.

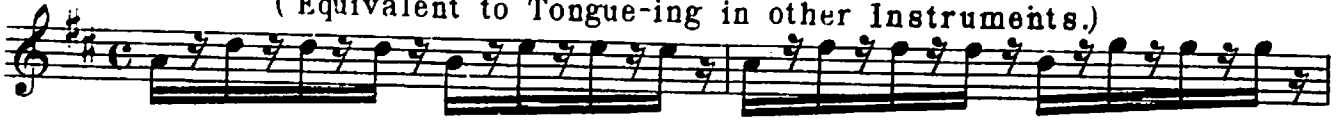
This is similar to Staccato playing except that each note may not require to be so sharply emphasised or accented. The Chanter is closed momentarily on the knee after each note thus eliminating the necessity for writing grace notes for dividing purposes.

Needless to mention fingering should be correct and according to scale. Otherwise tone will be lost and notes will not be true.

EXAMPLES OF DOUBLE TIPPING.



EXAMPLES OF TRIPLE TIPPING. (Equivalent to Tongue-ing in other Instruments.)



EXAMPLES OF GRANNING OR POPPING.



The Rests after each note above will not be found in the ordinary Violin or Piano score and the player must use his own judgment as to when notes are better Popped, Tipped or Grace notes used.

THE DRONES.

Three Drones are now recognised as a full set, but old sets have been met with having four and even five.

A Drone switch is used in all sets and Drones may be switched off at any time when not required.



Drones will harmonise only with music in keys of D. and G. major and should not be used for playing in other scales although they are sometimes effectively used with the scale of A. major.

TUNING DRONES.

TENOR. Blow up your Pipes sounding A. on Chanter and having top two fingers and thumb covering their respective holes. Stop Bass and Baritone Drones by placing top of finger on hole on top of each Drone for half a second.

Leave Tenor Drone going and tune same to the A. note on Chanter by moving outer part of the Drone inwards, or outwards, as required. You will notice that Drone will give little waves, or vibrations, in sounding to Chanter if out of time. You will require to move slide of your Drone in, or out, until these vibrations cease. THIS IS THE WHOLE SECRET OF GOOD PIPE TUNING, AS THESE LITTLE VIBRATIONS, OR WAVES, TELL YOU VERY PLAINLY WHEN YOUR PIPES ARE OUT OF TUNE AND WHAT PART IS SO AFFECTED.

BARITONE. Having tuned the Tenor Drone, proceed to tune the Baritone to the Tenor in the same manner (having Bass stopped as mentioned), judging by the vibrations as to when both are in tune. Chanter may be stopped while doing this by holding neck of the Bag or using Stop Key on Chanter Stock.

BASS. Having tuned Tenor and Baritone Drones, tune Bass in same manner to Tenor, or you may tune Bass before Baritone to Tenor, and then tune Baritone to Bass and Tenor having the three going. Try all three to Chanter, and should they not be satisfactory, repeat from start.

EXTRA DRONE. Some old Sets have an extra Drone which is slightly longer than the Tenor. This usually tunes to G. on Chanter.

SHOULD YOU HAVE TROUBLE IN TUNING, see paragraph on Drone Reeds.

Your Drones should be in tune with all the notes in scales of D. and G. on Chanter.

See that you are fingering Chanter properly and blowing steadily with equal pressure.

FITTING DRONE REEDS.

This is seldom needed as they very rarely require renewing and some are known to last even a life time. The fullest particulars possible should be given when ordering new Reeds, or old ones sent as samples.

HOW TO FLATTEN DRONE REEDS. Insert Reed well into socket and test with Chanter or other Drones. If it is too sharp and slide is seeking too far out of hemp part, (a) remove reed and wind some hemp over existing binding so as reed does not go so far into its socket. Test again and if still too sharp (b) place a little dab of shoemaker's wax on free end of tongue, or (c) scrape some of the cane off the tied end of the tongue, or (d) lift the tongue up so as to split it back a little farther.

HOW TO SHARPEN DRONE REEDS. If Drone Reed is tuning too flat and sliding part is in as far as it will go (a) remove some of the hemp binding on reed and insert it farther in its socket, or (b) remove some of the wax if same has been on tongue, or (c) cut a couple of notches on loose end of tongue in order to lighten it, or (d) shorten reed by removing hemp binding, cutting a little off with a keen blade. Taper off end of reed again with sharp knife and put on original wax binding.

Tuning Strings and Bridles are not used on Drone Reeds.

TUNING OF CHANTER.

Tune your Tenor Drone to the lowest note D. on Chanter. Then sound A. and middle D. (thumb note at back). If they are in tune with Tenor Drone, your Chanter is right.

Should Chanter sound out of tune to Drone, tune the latter (i.e. Drone) to high notes and note which way it moves. If you are obliged to tune it out to middle D. when it is in tune to Low D. your Chanter is too flat on top notes. Reed should, therefore, be pushed farther down into its socket, very gradually, until Drone tunes accurately on both high and low notes. If Drone requires to be tuned in towards Stock for Middle D. after being in tune to Low D. your Chanter is too sharp on top notes and Reed must be raised in Chanter. Remove Reed and wind in a little thread on end of Staple which fits into Chanter. This will raise Reed a little in its socket. Be careful not to put too much on—a little will make a great difference. Before attempting to interfere with Chanter in any way, make sure that you are fingering top notes correctly. If Low D. is too sharp a piece of rush will bring it in tune.

CHANTER REEDS.

Flat Chanter Reeds (if found to be flat for regulators) may be made sharper by cutting a little off top—about $\frac{1}{16}$ of an inch—with keen blade. If Reed is then too strong to blow, it may be closed by squeezing in bridle to bring blades of cane closer together. Cutting the corners off will often improve Reeds and make them easier to blow. Sharp Chanter Reeds may be made flat by raising up the bridle a little, or by removing some of the Cane surface by scraping the flat sides, taking care not to remove too much or Reed may be spoiled. Reeds failing on Middle D. may be remedied by cutting $\frac{1}{16}$ of an inch off top with razor.

THE REGULATORS.

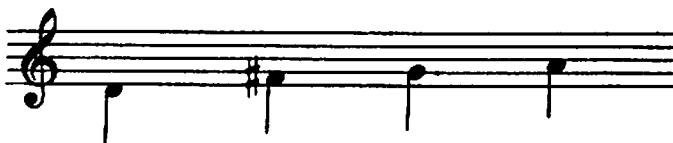
These are the keyed parts inserted in the large stock with the Drones and lie under the player's right wrist when playing and used as an accompaniment to the Chanter in keys of D. and G. Three Regulators—Bass, Baritone, and Tenor are termed a full set.

AN EXTRA REGULATOR may sometimes be met with deeper in tone than the Bass. This is called a Double Bass. It usually has the same notes as the Baritone, but an octave lower.

Originally, there were no Regulators, and in 1800 when O'Farrell's tutor was published only one was known. This was the Tenor:

TENOR. 

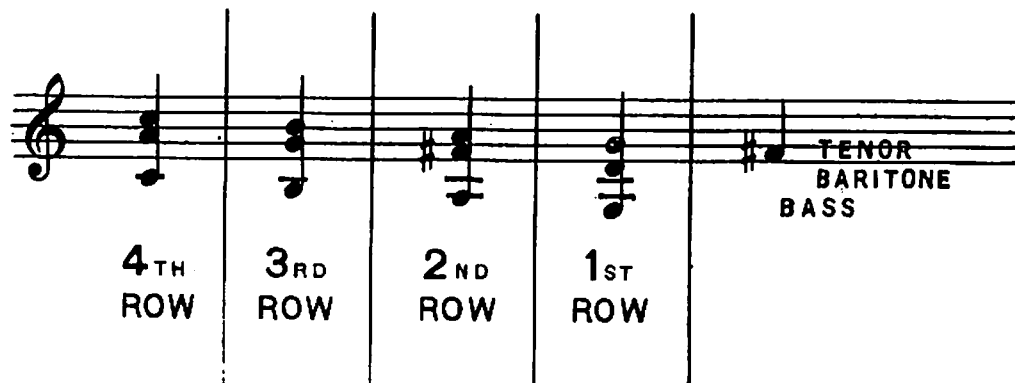
Later the Baritone was added:

BARITONE. 

Then came the Bass thus:

BASS. 

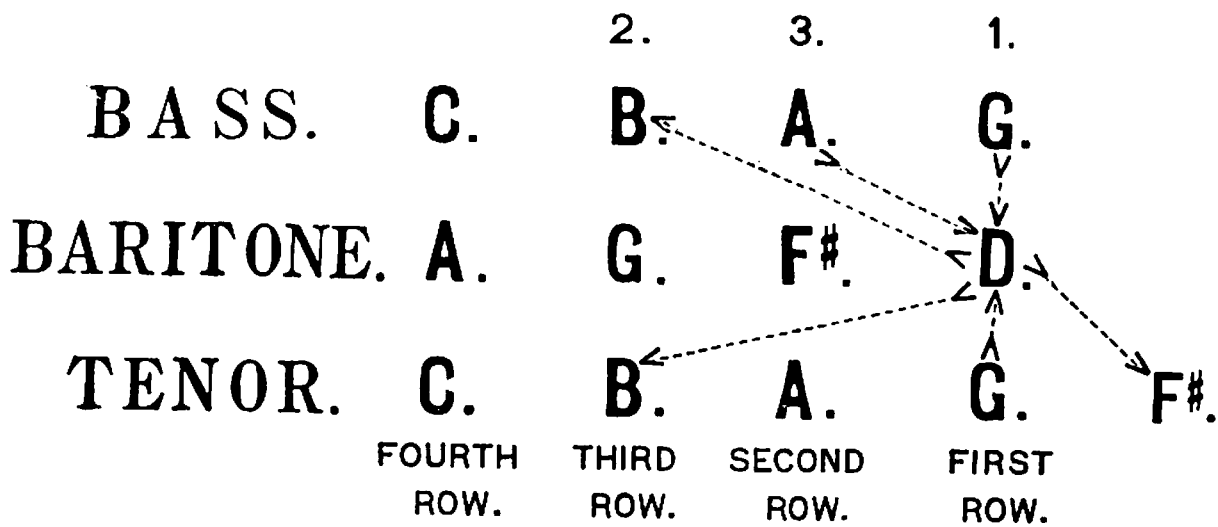
The keys of the three Regulators are arranged in rows to give harmony to the Chanter as follows:



4TH ROW
3RD ROW
2ND ROW
1ST ROW

TENOR
 BARITONE
 BASS

PLAN. OF REGULATOR KEYS.



Above letters are the names of the notes on Regulators.

The lines connecting the letters represent Free Hand Chords which may be used when lower hand is free and may be removed from Chanter. They are:-

Number 1- G. D. B. a form of the Chord of G. for use with G. B. and D. on Chanter.

Number 2- B. D. G. another form of Chord for use with B. or G.

Number 3- A. D. F. sharp, a form of Chord used for D. and A. on Chanter.

HOW REGULATORS ARE PLAYED.

When in playing position the right hand should be over the Regulators, about midway on the keys, so as only a slight movement up or down is necessary to strike the note required. The lower side of the hand may be used to strike the keys, but greater selectivity is obtained by using the "heel" of the hand (i.e. where wrist begins).

It is possible to "pick out" single note harmony in this way. It is well to practice both the side and "heel" of the hand using the side on Bass Regulator and "heel" on Baritone and Tenor Regulators alternatively. This will be found very effective.

The three Regulators may be pressed to sound with Chanter, but this is not advisable as they will be found to be too strong for Chanter and will drown the melody. Two at most should be used varying from Bass and Baritone at first to Baritone and Tenor later. The continued pulsing of two or three chords to a melody can become very monotonous. As much variety as possible should be practised, also, no matter how well you can use the Regulators, it is always advisable to let your audience hear the Chanter and Drones only at first, the Regulators will add new interest later and your audience will appreciate the scope of your instrument better.

REGULATORS-How they are Tuned.

The notes on the Bass Regulator are the same as the notes of the three fingers of the upper hand on Chanter, but an octave lower. The lowest note G. below the Stave can be tuned to the G. on Chanter.

The next note A. can be tuned to A. on Chanter.

The next note B. can be tuned to B. on Chanter.

The next note C. natural can be tuned to C. natural on Chanter.

Some Regulators have a C. sharp which can be tuned to C. sharp on Chanter.

To tune Regulator it is necessary to sound note on Chanter, then stop it and sound its note on Regulator with wrist, noting at the same time whether it sounds above or below Chanter note. If it sounds lower you can make Regulator sharper by any of the following methods:

(a) By removing Rushes, if same have been inserted inside in Regulator.

(b) By pushing Bass Reed farther down in its socket.

(c) By closing in or pushing down Bridle on Reed.

(d) By cutting a little off top of Reed.

IF REGULATOR SOUNDS SHARPER THAN CHANTER, you can make it flatter by (a) bringing it farther out in its socket, (b) by scraping flat part of cane head, or (c) by inserting a piece of Rush inside in bore and attaching same to Pin on Tuning Bead in end of Regulator. The Rush will flatten the notes with which it comes in contact. Therefore, if all the notes on a Regulator are too sharp, Rush should go up to top note. If only one or two notes at the end are sharp, Rush should only go as far as these. If top notes are too sharp and bottom notes in tune, Rush can be thinned down opposite notes in tune and allowed rather thick opposite notes which are too sharp. (d) The simplest way is to draw out keyed part from its middle joint, a little at a time until in tune. If your A. note is going false, (in Bass Regulator) Reed is too open and Bridle must be pushed down or closed in a little.

BARITONE REGULATOR. Consists of four notes viz:— D. below the stave, F. Sharp, G. and A. on stave. They correspond with the first, third, fourth and fifth notes on Chanter. Tuning is done on same system as for Bass, except that there is no middle joint.

TENOR REGULATOR. This consists of five notes viz:— F. Sharp, G. A. B., and C. same notes as on Bass, but an octave higher and the addition of the F. Sharp key (lower note).

These notes correspond with the notes on the three fingers of upper hand and top finger of lower hand on Chanter. The tuning is the same as for the Bass, except that the bridle has a greater effect on the bottom notes.