Northumbrian Pipers' Society

Reed Making
by George Wallace

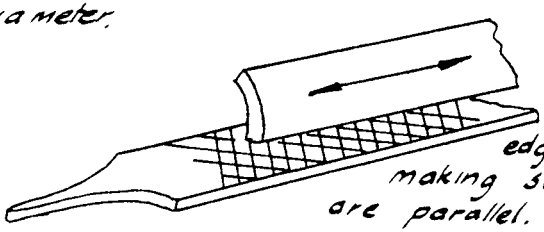
Reed Maintenance
by Colin Ross

Drone Reeds with Brass Body and Cane Tongues
by David Bailey

Reed Making.

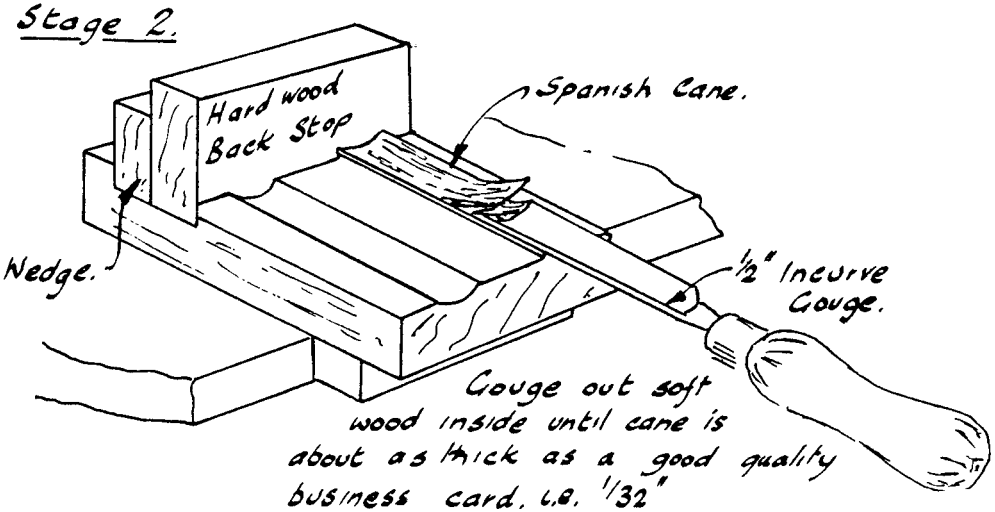
Spanish Cane 3½" long × 7/16" wide cut from cane 1" diameter.

Stage 1.



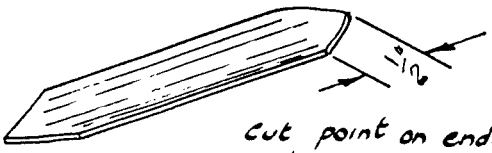
File cane edges to 7/16" making sure edges are parallel.

Stage 2.



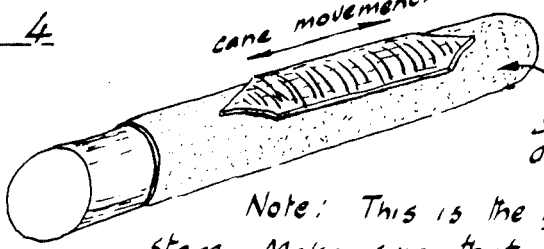
Gouge out soft wood inside until cane is about as thick as a good quality business card. i.e. 1/32"

Stage 3.



Cut point on ends.

Stage 4

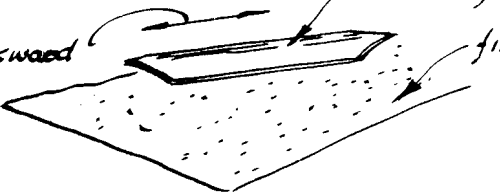


Fine emery paper glued onto 1" dia. dowel.

Note: This is the most important stage. Make sure that the inside of cane slip is perfectly smooth. It will be impossible to make a good reed if the inside of cane has a non uniform surface.

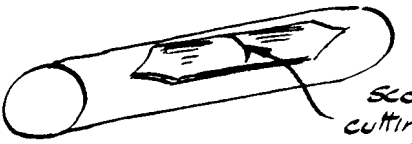
C. Wallace.

Stage 5.

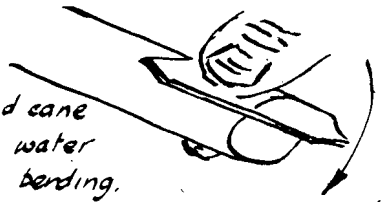


move cane backwards and forwards twice with light pressure applied.

Stage 6.



Score back of reed cutting just thro' the outer fibres, support on 1" dia dowel rod.

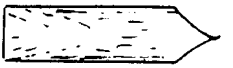


For hard cane soak in water prior to bending.

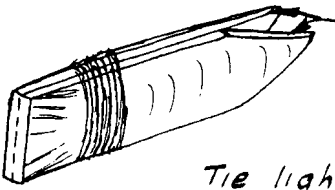
Place cane at the end of the dowel as shown with the cut inline with the end of dowel. Grip firmly between finger and thumb and bend reed over end of dowel.

Stage 7.

Check sides after bending.

this.  not this. 

Stage 8.



Tie lightly with fine twine to keep faces square until cane is glued onto metal ferrule.

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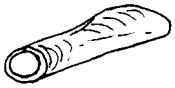
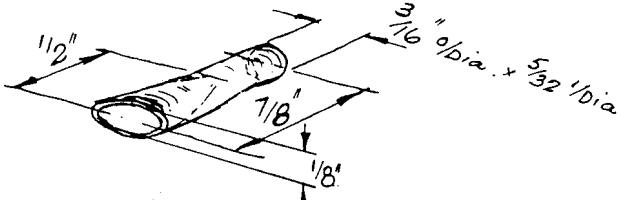
Stage 9.

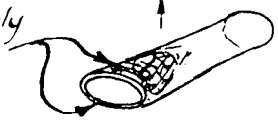
Form ferrule from brass tubing





Stage 10.

Heat ferrule and apply shellac to both sides.

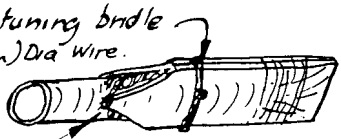


Stage 11.

Fit cane slip to ferrule with shellac still soft

Stage 12

Fit copper tuning bridle 3/64" (1.2mm) Dia wire.



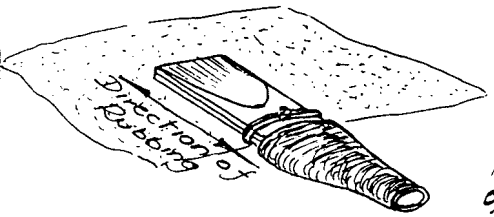
remove surplus shellac

Stage 13.

Bind with wax end or cotton twine then varnish.

Stage 14.

Scraping / Rubbing down:



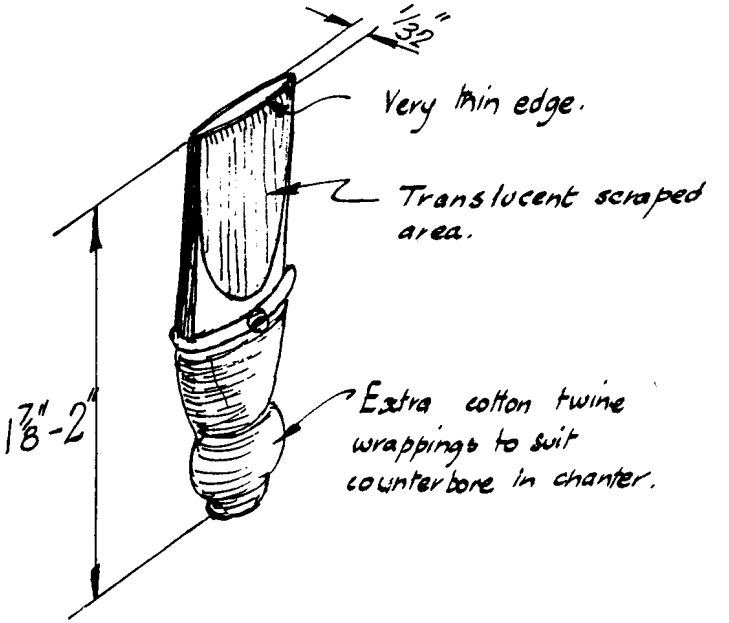
Start rubbing on medium emery paper until harder outer coating of cane is removed, finish rubbing on fine emery paper. Try to avoid rubbing the very end of the reed thereby keeping the end closed. When reed is approximately half its original thickness cut about 1/16" off the end of the reed. If sides of cane are thin enough the reed should now sound when sucked.

G. Wallace.

Stage 14 (continued).

Take care when rubbing reed keeping pressure central and checking the ends and sides very often, a magnifying glass is very useful at this stage. The tuning of the reed is achieved by cutting small amounts of the end of the reed with a very sharp knife and rubbing the very end of the reed on very fine emery obtaining a thin edge.

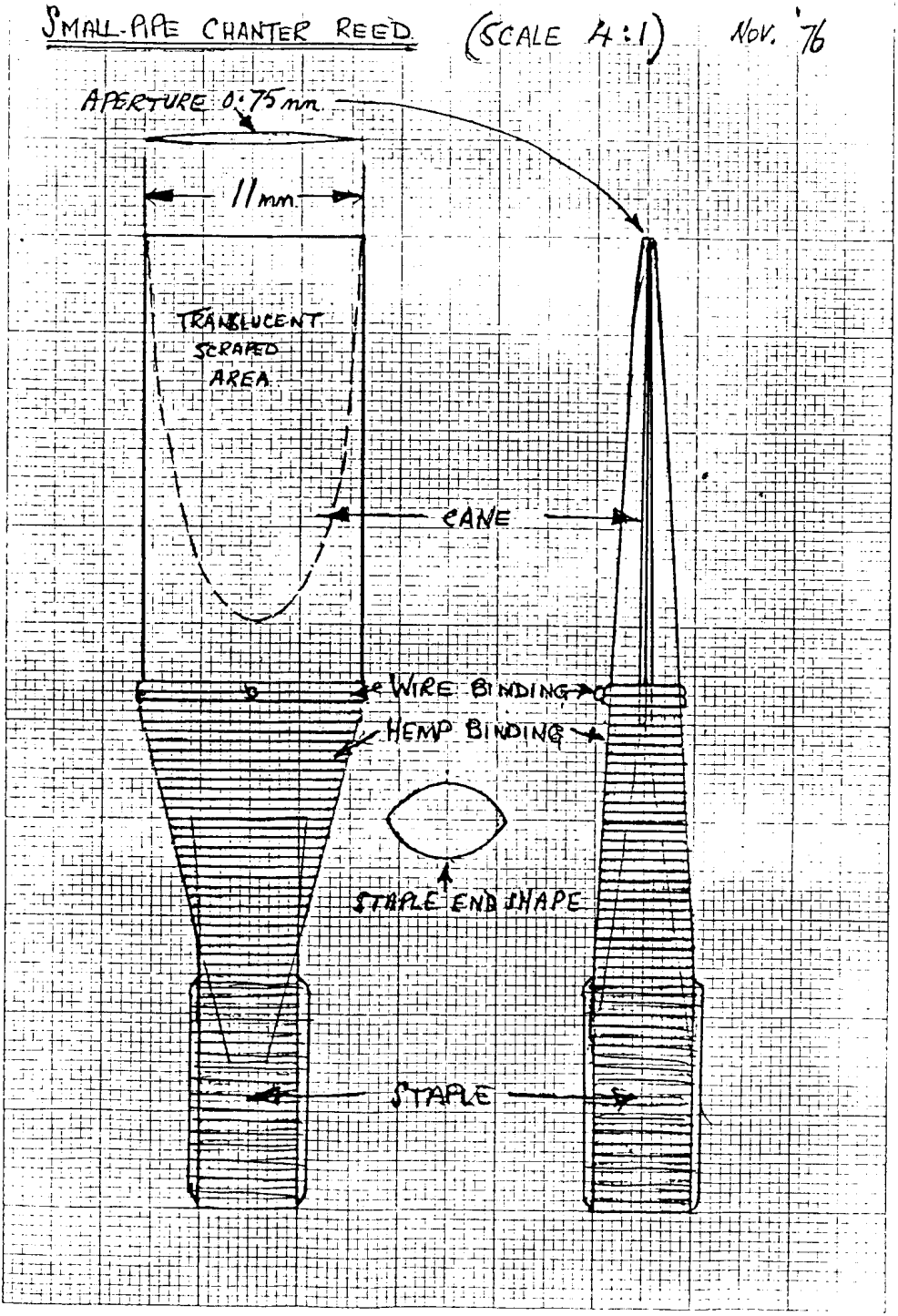
Finished Reed.



If the reed leaks at the sides apply P.V.A adhesive (woodworking glue) to make airtight. If the wrapping is leaking after shaving down the reed apply more varnish or the P.V.A glue.

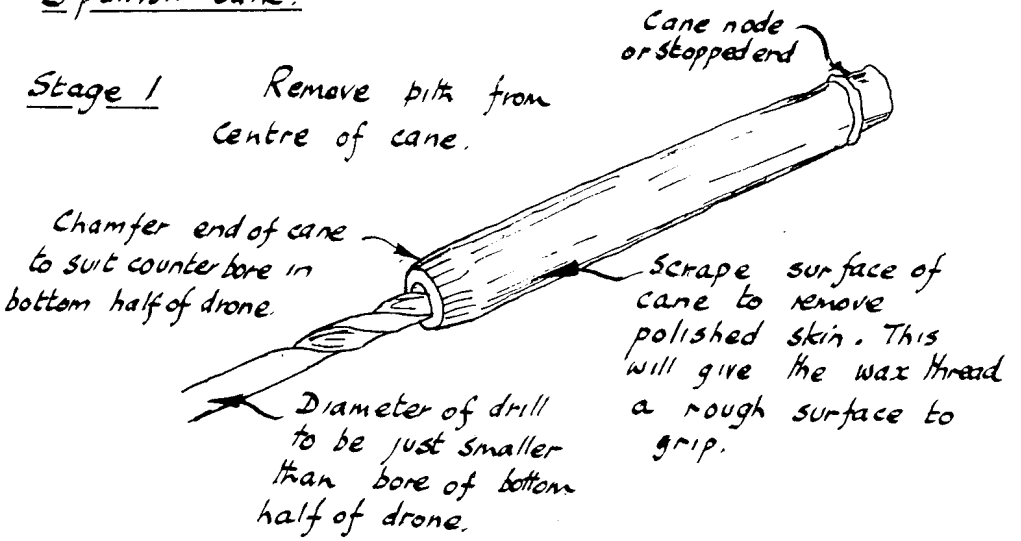
G. Wallace.

SMALL-PIPE CHANTER REED (SCALE 4:1) NOV. '76

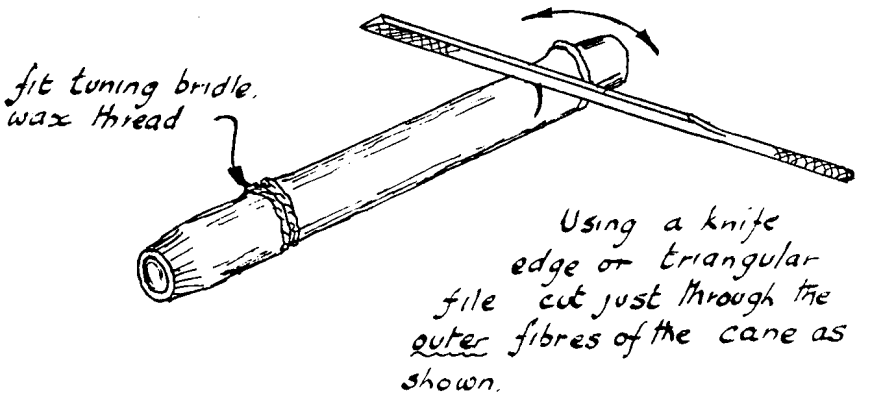


DRONE REED MAKING

Spanish Cane.

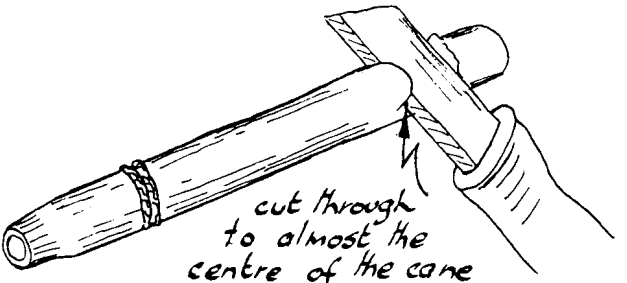


Stage 2



C Wallace
1978

Stage 3

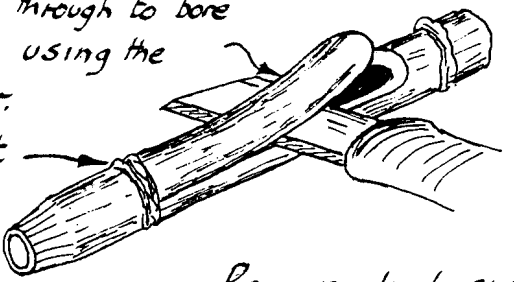


cut through to almost the centre of the cane with a very sharp knife.

The outer fibres have been removed to stop the cane cracking.

After cutting through to bore lift the tongue using the blade as a lever.

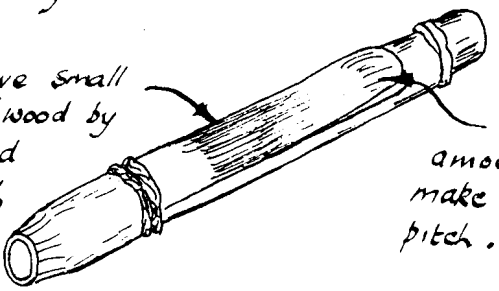
Continue the cut up to the tuning bridle.



Remove knife and flick the tongue two or three times to lifting the tongue. The reed should now sound when sucked.

Stage 4 Tuning.

Remove small amounts of wood by scraping if reed pitch is too high (Do not remove too much).



Remove small amounts of wood to make reed higher in pitch.

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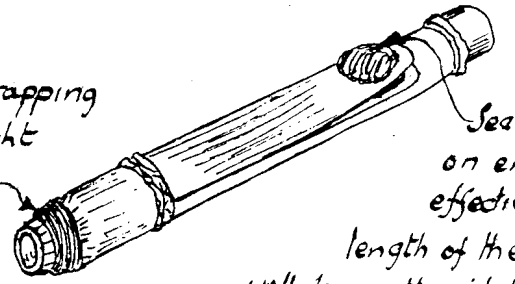
1978.

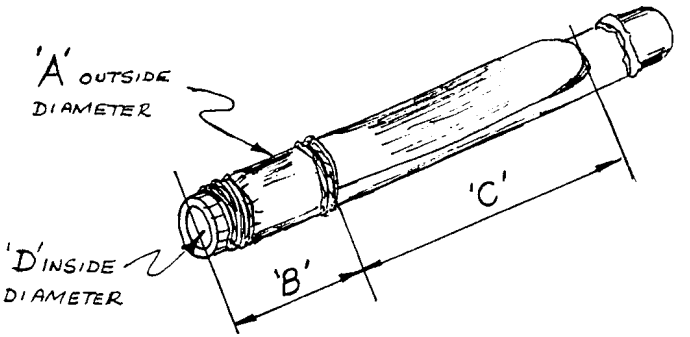
Stage 4 continued.



Wax thread wrapping to give air tight seal when fitted to drone

Sealing wax deposited on end of tongue will effectively increase the length of the tongue and hence will lower the pitch of the reed.

A small amount of wax deposited on the tongue of a fluctuating pitch reed can often stabilise the pitch.

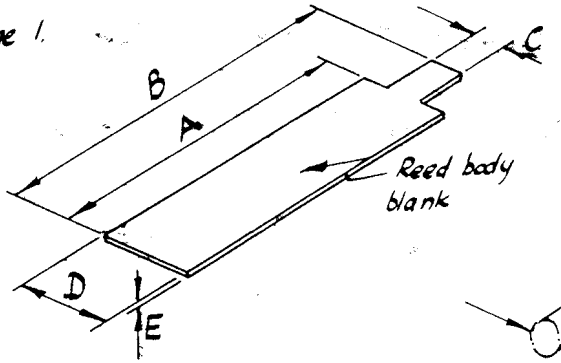


	A	B	C	D
G'	4mm	12mm	16-18mm	2·4mm or 3/32 inch
D'	4mm	16mm	19~22mm	2·4mm or 3/32 inch
G	5mm	16mm	35-38mm	3mm or 1/8 inch
D	5-6mm	16mm	50-53mm	3mm or 1/8 inch

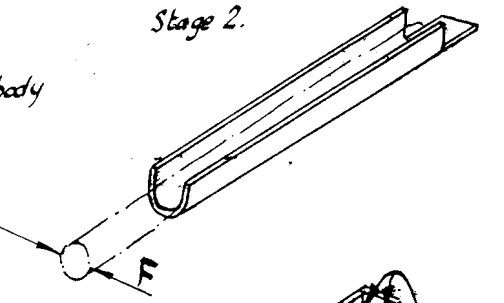
C. Wallace
1978.

METAL DRONE REED

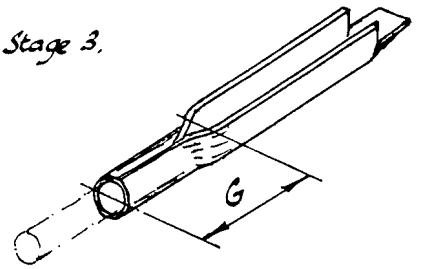
Stage 1.



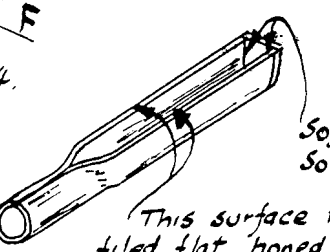
Stage 2.



Stage 3.

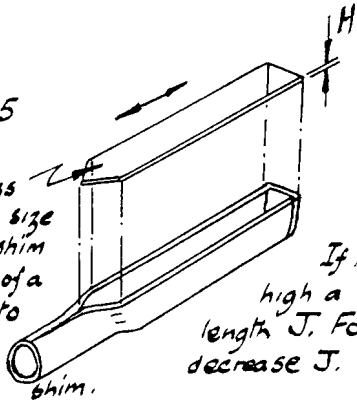


Stage 4.



This surface to be filed flat, honed then polished. so as to make air-tight seal with tongue.

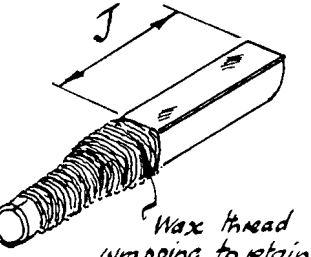
Stage 5



Shim brass when cut to size stroke the shim with the end of a steel rule, to flatten and temper the shim. Support shim on hardwood block.

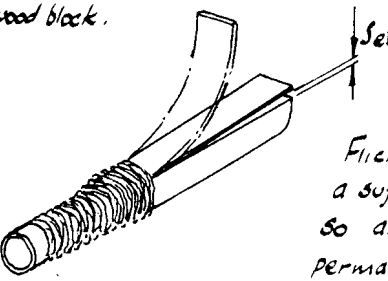
If reed plays too high a pitch increase length J. For too low a pitch decrease J.

Stage 6



Wax thread wrapping to retain tongue and to make air-tight seal.

Stage 7.



Flick reed tongue as shown a sufficient number of times so as to achieve a very small permanent set in tongue

G. Wallace.

REED

DIMENSION		G'	D'	G	D
A	INCHES	1"	(1 1/8) 1.125	(1 1/2) 1.5	(1 3/4) 1.75
	MM	25	28	40	45
B	INCHES	(1 1/8) 1.125	(1 1/4) 1.25	(1 3/4) 1.75	2
	MM	28	31	45	50
C	INCHES	(1/8) 0.125	(1/8) 0.125	(3/16) 0.1875	(3/16) 0.1875
	MM	3	3	5	5
D	INCHES	(3/8) 0.375	(3/8) 0.375	7/16 0.4375	7/16 0.4375
	M.M.	9	9	11	11
E	INCHES	←	26 SWG 0.0159	→	
	MM	←	0.40	→	
F	INCHES	(3/32) 0.09375	(3/32) 0.09375	1/8 0.125	1/8 0.125
	M.M.	2.4	2.4	3	3
G	INCHES	(5/16) 0.3125	(3/8) 0.375	(1/2) 0.5	(9/16) 0.563
	MM	8	9	12.5	15
H	INCHES	0.003	0.003	0.005	0.005
	MM	0.08	0.08	0.12	0.12
J	INCHES	(7/16) 0.4375	(1/2) 0.5	(21/32) 0.656	25/32 0.78
	M.M.	11	12.5	16.5	20.

REED MAINTENANCE FOR THE BELLOWS BLOWN SMALL-PIPE

Before attempting any adjustment of either the chanter or drone reeds, first of all check that the pipes themselves are in good playing condition. This means checking that the bag is properly dressed and airtight to begin with and then that the bores of the chanter and drones are clean and well oiled. Check that the drone slides, tuning beads, and end stoppers are oiled and airtight, and that the key pads on the chanter are also oiled and 100% airtight. Dryness and lack of airtightness are the major cause of poor performance in the pipes and when corrected usually lead to a dramatic improvement in reed tone and stability. If however, there is no improvement in the playing of the reed after servicing the pipes, then the following information may be of some help.

CHANTER REED

The main problems are listed as follows:-

1) It is too hard and requires too high a pressure to play comfortably.
2) It is too soft and closes up with the slightest increase of pressure.
3) It produces false notes in the scale.
4) It is playing at the incorrect pitch, i.e. too high or too low on the required pitch.
5) It is prone to squeaking.

The remedies for these faults are:-

1) Too hard - Squeeze the blades together by means of the wire bridle and/or scrape the blades to thin and soften them.

2) Too soft - Squeeze the blades open by means of the wire bridle and/or cut a little off the top of the blades.

3) False notes - Check that there is a plug of cotton wool at the bottom of the bore and insert a $\frac{3}{4}$" piece if missing. Try adjustment of the bridle and a combination of scraping and trimming the tip if that fails. Usually it is better to replace the reed in bad cases.

4) Incorrect pitch - Pinching the blades together by means of the bridle will raise the pitch and opening them will lower the pitch. Scraping the blades will also lower the pitch and trimming the tip back will raise the pitch. As these processes affect the playing pressure and tone of the reed - take care.

5) Squeaking - This is either caused by air leakage which requires P.V.A. glue to be applied to the reed sides and wrapping or the reed being too hard (see above).

The individual tone of any reed can be altered by any of the above methods or combination of them, but as each reed has its own playing characteristics, there is a limit to what can be done to change it. Before ruining what may be a good but average reed, try fitting a new one to see if you can get what you require from that.

DRONE REEDS

I am referring to adjustments of my own hybrid metal body and cane tongue reeds that I have developed recently. However, some of the methods can be applied to other types of reed with success.

The main faults are as follows:-

1) Too hard - Playing at too high a pressure

2) Too soft - Tending to shut off when being played.

3) Incorrect pitch - Drone slide unable to tune in drone

4) Instability - Wavering in pitch with double toning.

5) Poor tone - Sounds windy or is unsatisfactory in some other way.

The remedies:-

1) Too hard - The cane blade can be closed by holding the blade against the metal body and passing a flame quickly over the base of the tongue next to the wrapping. It should sound easily when sucked through the staple end.

2) Too soft - Flick the blade back until it plays correctly. Apply heat if this method is not effective.

3) Incorrect pitch - Sharpen the pitch by extending the wrapping up the blade to shorten it. Lower the pitch by unwrapping the thread and therefore lengthening thereed tongue. The pitch can also be lowered by melting a small piece of beeswax onto the end of the blade or by scraping the base next to the wrapping. Having done this you may have to open or close the tongue by flicking back or heating to make it sound at the right pressure.

4) Instability - Usually caused by dirt between the blade and reed body and can be cured by inserting a piece of paper between the blade and body and pulling it out under pressure. If this does not work, try burnishing the back of the blade with a screwdriver shank. The blade may need to be replaced if either of these remedies do not work.

5) Poor tone - Check for air leakage on the wrapping by holding the blade closed and sucking through the staple end. Seal with P.V.A. glue or shellac if necessary. If after trying any one or a combination of the above methods, there is no improvement in tone, try reversing the blade or rubbing it down on fine abrasive paper and retying it. Blade replacement may once again be the final solution.

Ross Bagpipes C.R. 3:83

DRONE REEDS with BRASS BODY and CANE TONGUES

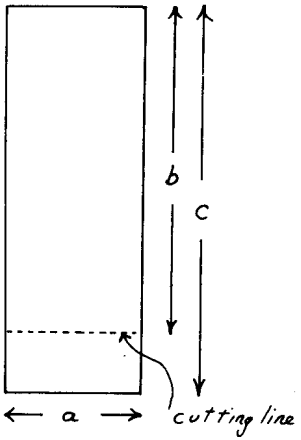
David Bailey

It was once said that the drones of Northumbrian bagpipes ought to sound like a swarm of bees. This was achieved by using small bore reed cane, which although sounds mellow and sweet, is prone to fluctuation in tone, when bag pressures are increased or decreased, and are in need of constant adjustment during the first 5-10 minutes of playing.

This problem was overcome by the use of all metal drone reeds with either brass or copper bodies and brass or steel tongues. However, this gives an extremely metallic hard sounding note, which although relatively constant in pitch, can be loud and not pleasing to everyones' ear.

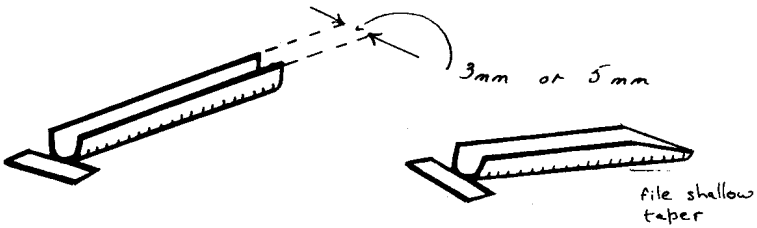
A compromise is reached by using metal bodies and cane tongues which gives a sweet, mellow, quiet, constant note. The manufacture of such reeds is not particularly complicated but is "fiddly". The use of jigs greatly eases the process, briefly described as follows:-

24/26 Gauge brass or copper sheet is used and cut to the following sizes:-

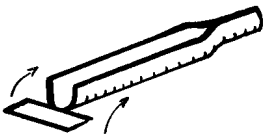


Dimensions	g'	d'	G	D
a	9mm	9mm	11mm	11mm
b	26mm	28mm	40mm	45mm
c	29mm	31mm	45mm	50mm

Using a piercing saw or tin snips carefully cut towards the centre along the indicating dotted lines, but leave 2-3mm of metal at the centre. Soften (anneal) the metal by heating to "cherry" red and allow it to cool naturally. The long section now needs bending into a U shape, This can be bent around a former and squeezed against the former to give an exact outside width of 4mm for the large G and D reeds, and 2.5mm for the small d' and g' reeds.



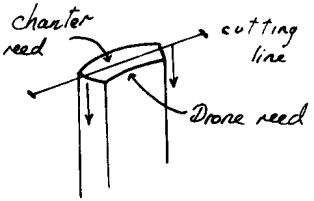
The end marked by the sizes in the above sketch needs rounding off so that it will fit into the drone. Round off just enough of its length to achieve a secure fit once wrapped with hemp. This can be done around a small silver steel bar or drill or something of appropriate size using pliers.



Fold up the end flap, trim it to size and solder all joints to ensure an air-right fit. File down and clean up the drone body.

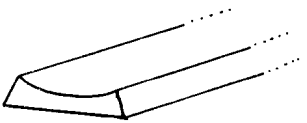
The top edges, against which the cane beats, will need filing flat, then rubbed even truer on a board of medium grade wet and dry paper and finally fine wet and dry. It is advantageous to polish the beating surface to a high shine but keep it flat.

Preparation of the cane tongue is difficult in that the cane splits easily and careful handling is necessary. For those who attempt to manufacture their own chanter reeds, the off-cut from the back of the cane can be utilised for the drones i.e.



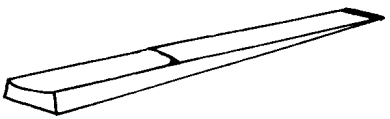
If a long knife blade is used to slice straight down the cane across the cutting line, then both pieces of cane can be usefully employed.

Further trim the cane into approx. 5mm and 3mm pieces.

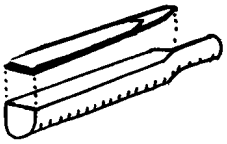


The bottom edge now needs flattening by rubbing a wet and dry or fine glass paper and finally burnished by rubbing on a hard surface to give a shine on the beating surface and ensuring its flatness.

A long slice is taken with a sharp blade to form a very delicate thin wedge i.e.



Cut the thin end, to form a point that will fit comfortably onto the metal body. i.e.



Finally begin to wrap waxed hemp thread around the round end of the reed body until it will fit snuggly into the drone and continue wrapping the thread into the drone and continue wrapping the thread around the cane reed. The tongue may need gently flicking open until a <u>small</u> gap exists between body and tongue.

Then try out the reed. If it is low in pitch and adjustments by the sliding drone cannot reach the necessary pitch, then wind one more thread wrapping around the tongue. Repeat if necessary.

Alternatively, if the pitch is too high a reversal of the above is necessary.

If the reed shuts off or is not steady, flick it open a little more, but be careful. It may also help by using one of the superglues and attaching a small weight i.e. solder. This will steady the beat but lower the pitch and is frequently necessary on large reeds, but not on small ones.

I will be only too pleased to answer any enquiries by post, provided an S.A.E. is enclosed

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