Hybrid Winds

Linsey Pollak

lives on the Sunshine Coast in Queensland and is a renowned community music facilitator, composer and musical director who has built instruments for over 20 years, specialising in aerophones from Eastern Europe. He has a reputation for making and playing instruments made from rubber gloves, carrots, watering cans, chairs, brooms, bins and other found objects. His ongoing obsession combines much of this: making music more accessible to communities through instrument building and playing workshops.

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When I was about fifteen I had a dream that featured a wind instrument whose sound I remembered clearly on waking. It reminded me of a somewhat mellow crumhorn (Renaissance wind-capped double reed pipe) or a sort of high-pitched baritone sax. That sound eludes me now, for I have always been chasing that elusive, dreamt, wind-instrument sound.

I started my instrument making journey 25 years ago making bamboo flutes. That quickly led to a longer stint of making wooden renaissance flutes, and an interest in other Renaissance and medieval winds. But the real love affair began 20 years ago with the Macedonian gaida (bagpipes), and so I travelled to Macedonia for eight months over three successive trips in order to learn to play and make them. That love affair has since taken me on a myriad different musical journeys, and although I still make gaidas, my main wind instrument making activities of late have been in the area of hybrid winds. These are wind instruments that are variants of existing instruments, or are deeply inspired by other wind instruments. This article describes some of them.

I've often performed and recorded with this instrument and its sound is excellent. Very occasionally it explodes during a performance, but the audience assumes that it is part of the act.

Gaidanet

As the name implies, the gaidanet is a hybrid of the gaida and the clarinet. It is actually a narrow-bored clarinet-type instrument (cylindrical bore and single lip-blown reed) but the fingering and tuning resemble that of the gaida. The beauty of the gaida is the style of ornamentation that is used, determined to a large degree by the existence of a fleahole which is actually the first fingerhole positioned exactly behind the thumbhole. The 'fleahole' is a very small hole with a small tube inserted which extends into the bore (See Fig. 1: one can use a chicken feather quill or a biro refill tube about 8-10mm long). This has the effect of raising the note being played by

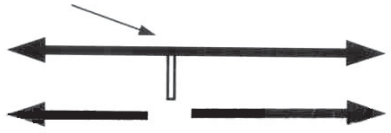

Figure 1: Gaidanet.

a semitone when it is opened. In fact it only works for the top half of the octave in Macedonian gaidas, but for the full range in Bulgarian gaidas which have a more conical bore. This enables a unique style of playing and ornamentation.

What I wanted to do was to have access to the gaida style of playing and ornamentation while playing a lip-blown instrument like a clarinet. I experimented first with a clarinet mouthpiece and a bore diameter of 13mm. With a bore of this size the open fleahole notes were very muffled, and I eventually worked down to an 8mm bore diameter, using a sopranino saxophone mouthpiece (not soprano) which works very well. I made the initial instruments in wood turned from Brigalow and Gidgee – local Australian hardwoods. But I've also made them in bamboo and aluminium (see Clarinis below). The sound is very soft, but the instrument comes into its own as an electroacoustic instrument. I use a woodwind pickup called a Danabug (made in Scandinavia) which works superbly for this instrument.

Clarinis

After developing the gaidanet I didn't take it any further for a few years. However, in early 1997 I developed further the idea of amplified narrow-bore clarinets and developed the clarini (or family of clarinis). Basically these are narrow-bore clarinets that I make out of aluminium tubing (internal diameter = 9.5mm), though the material could be plastic, bamboo, wood, etc.

In performance I always use them as electroacoustic instruments with the pickup inserted directly into the bore of the instrument just below the mouthpiece. They can of course be played without amplification but are very quiet instruments. Because these instruments do not cross-finger, enabling a chromatic scale, I make a family group of instruments with different scales and tunings and a shared interchangeable mouthpiece. They can be built in a whole range of tunings. Because one of my main influences is music from Eastern Europe I use various Turkish and Greek scales as a basis for tuning. The advantage for modal playing is that each instrument is firmly based in the scale to which it is tuned.

Figure 2 shows the measurements for a clarini in 'A' Hidzaz tuning (F, G, A, Bb, C#, D, E, F, G): a 12mm OD aluminium tube with a 1.2mm wall thickness (ID: 9.6mm), fingerhole size 6.5mm, and a sopranino saxophone mouthpiece. Measurements on figure are in mm. Numbers marked indicate the distance to centre of fingerhole from top of tube. Note played with open hole is given.

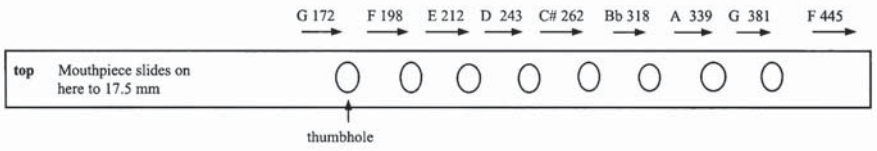

Figure 2: Clarini.

Saxillo

For many years I was obsessed with the sound of the tarogato, a Hungarian conical-bored single-reed instrument somewhat resembling a wooden soprano sax but with a much mellower tone, partly due to the bore profile and mouthpiece design. It was developed in the late nineteenth century by Schunda and later by Stowasser in Budapest. I was lucky enough to come across a very good Stowasser tarogato, but I also had a real ambition to design a tarogato-type instrument that had no keys.

There was an earlier Hungarian folk instrument also named tarogato that was a double-reed shawm or oboe-type instrument. However, the modern tarogato, although carrying the same name, is quite different. Since the end of the last century, it has been a keyed instrument with a gradually changing key system that became similar to the Albert system found on some clarinets. The tarogato, however, overblows an octave (like the sax) because of its conical bore. I wanted to design a simple conical-bored single-reed instrument with no keys – a sort of folk sax. Because the design and intent was similar to a tarogato, I called it a tarogatino (it was to be smaller and pitched in C rather than Bb like the tarogato).

In 1988 I began experimenting and built my first tarogatinos; and over the years I have modified the design (modifications are mainly very small changes to the mouthpiece and upper bore). I make them in wood, usually an Australian acacia called Gidgee (Acacia Cambagie), step boring them on a lathe and then reaming them to the final bore taper. I have used modified clarinet mouthpieces and sopranino sax mouthpieces.

The instrument has changed gradually over the last ten years and I now call it a saxillo. It is still pitched in C, with the lowest note being the D above middle C, and it has a cross-fingered chromatic range of just under two octaves. The mouthpiece is a heavily doctored clarinet mouthpiece with an insert that reduces its bore. The saxillo has a spun brass bell, but this aspect of the instrument is currently in the process of change. The sound is like a mellow soprano sax.

The Hybrid Zurna

The zurna is a loud and fantastic Turkish double reed instrument. The suona is a loud and fantastic Chinese double reed instrument. You either love them or loathe them!

I wanted to combine the sound and tuning of the Turkish zurna, which has a virtual, conical bore. The former is actually cylindrical, but with a sort of peg insert at the top end of the bore below the reed that makes it a 'virtual conical bore'. The Chinese suona has greater accuracy of pitch and extended range due to its conical bore. So, in my hybrid zurna I've used the bore profile and the attached brass bell of the Chinese suona in conjunction with the tuning and body shape of the Turkish zurna, combined with an oboe staple and a zurna-shaped reed made from a plastic drinking straw rather than flattened cane. In the sidebar I include details on making these reeds for those people who have various 'folk shawms' without working reeds.

The instrument works extremely well and is quite similar in sound to the Turkish zurna with perhaps more activity in the upper harmonics. It has a range of nearly two octaves (if the reed is working well) and it's definitely an outdoor instrument. The zurna comes into its own when played in pairs (one instrument droning, or both in unison) and played with a davul or daouli or tapan (large double-sided drums played with one small and one large stick). There are literally hundreds of varieties of this instrument in different parts of the world.

Carrot Flute

The carrot flute is exactly what the name implies – a flute made from a carrot. It is an end-blown flute played in the same way as the Turkish ney, Bugarian kaval, Macedonian supelka or the New Zealand Maori koauau. In fact it is incredibly similar to the koauau. I'd been making carrot flutes for a few years when I went to New Zealand. While I was there I was introduced to the koauau by a maker who made them from clay (they are also made from bone). I had just started making a three-fingerhole design instead of a four-fingerhole one and coincidentally the koauaus mostly seem to have three fingerholes. To make a carrot flute I first cut the carrot to length and then drill it down the center with a 12-13mm drill.

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Then, using a carrot peeler, I shave the smaller end so that the edge around the hole is sharp (you need a nice fresh, crisp carrot). Next, I drill the fingerholes, usually with a 6 or 6.5mm drill. These measurements are suggestions only, but they are a starting point. All sorts of tunings are possible.

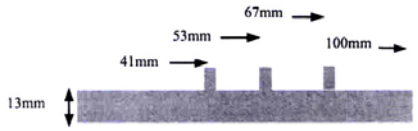

Figure 3: Carrot Flute.

Rubber Glove Gaida

The Rubber Glove Gaida is also what its name implies – a bagpipe made from a rubber glove. Well, what I mean is that the bag is replaced by a rubber glove , the type you use for doing the washing up. I've also hybridised the design of the chanter and drone. The gaida typically has a chanter with a single reed and one drone. It uses a whole goatskin with the blowpipe and drone attached to the two front legs and the chanter fitted to a stock tied into the neck. I've raised the drone by an octave and placed it parallel to the chanter in a double stock (similar to some of the French bagpipes, for example). I've simplified the outer design of the chanter, but the bore is the same (very slightly conical, but operating more like a cylindrical bore). As with the gaida, the tonic (that the drone is tuned to) plays with three fingers down. It also uses the 'fleahole' system described earlier in the section on the gaidanet. I've made these instruments in D and in A. There is a third hole in the stock that receives a tube from a foot-operated air mattress pump. I've often performed and recorded with this instrument and its sound is excellent. Very occasionally it explodes during a performance, but the audience assumes that it is part of the act. Most gloves will last for six months, depending on the quality of course.

When selecting gloves you need to be particular about the air pressure that they deliver when blown up (it varies depending on size and the thickness and quality of the rubber). With a bag the air pressure can be controlled, but with a glove it is more or less constant and so must provide what the reed needs. I've only tried rubber gloves with single reeds and not double reeds. Some double reeds will need more pressure than a normal rubber glove can deliver.

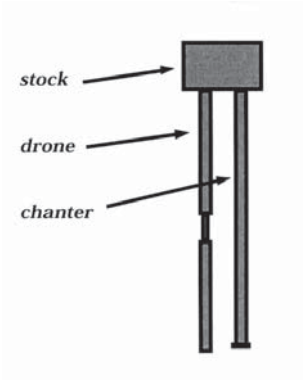

Figure 4: Rubber Glove Gaida.

Other Hybrids

Included are The Camping Stool Flute, The Watering Can Clarinet, The Microphone Stand Slide Bass Clarinet, The Inflated Trouser Bagpipe, and The Baby Bottle Pongi.

Zurna Reed Making

- I currently use an oboe staple for the zurna in A (5-finger note is A).
- Cut a 15mm length from a plastic drinking straw (use same diameter and strength as the one included with the instrument).
- Cut one end like this and flatten it.
- Tie it to the staple (oboe staple) with cotton so that the staple only just extends beyond the binding (inside the reed).
- Trim the end of the reed (with scissors) so that it has a slight curve and is 7mm long. Also trim the corners.
- Now flatten out the reed very carefully by drawing your front teeth along the length of the reed. Test the reed and if it is still too hard to blow keep flattening it out with your teeth. You will find that you need to keep doing this for the first few days, as it tends to revert to its original round shape.
- When you first try to play you will probably find the reed too hard to blow, so flatten out the reed by drawing your front teeth along the length of the reed. Do this very carefully so as not to destroy the reed. ■