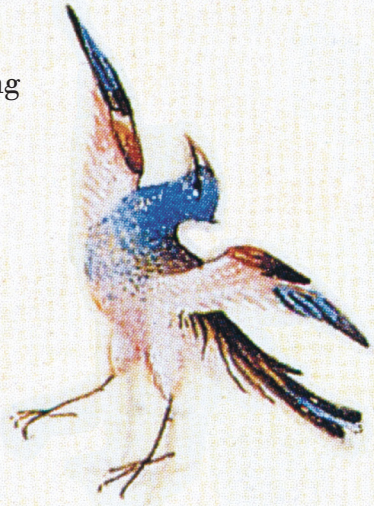
QUADERNI DI ETNOMUSICOLOGIA 1

Reflecting on Hornbostel-Sachs's *Versuch* a century later

Proceedings of the international meeting
Venice, 3-4 July 2015



Fondazione
Ugo e Olga Levi
onlus

Marie-Barbara Le Gonidec

Enhancing and developing the Hornbostel-Sachs System: the case of flutes and bagpipes

The work I have been carrying out in the past years in the field of the Hornbostel-Sachs system concerns two wind instruments, the flute and bagpipe. I would like to explain how I was able to extend the category they belong to in the Hornbostel-Sachs system.[1] I first became interested in flutes during the first part of my academic studies, and later in bagpipes, also pastoral instruments, which was the subject of my PhD research in the Balkan area. In 1985 I had my first opportunity to work with Geneviève Dournon,[2] director of the department of ethnomusicology at the Musée de l'Homme in Paris. At that time, the department held roughly 1,200 flutes, and I based my Master's thesis on particular types of flutes which are often known in French as *flûtes obliques* (rim-blown) because they are held obliquely. This is a descriptive term that makes sense in Western culture if we consider the traverse flute or the flute played vertically (like the recorder), but which is not pertinent in the context of transculturally based classifications. These 'oblique' flutes are widespread in Balkan states. They are the Bulgarian *kaval* (figure 1, p. 108), and also the *nây*, or *ney*, played in classical oriental music (figure 2, p. 108). The name, 'oblique' flute, is not pertinent in all cases, as we can observe in the example of the Persian *ney* (figure 3, p. 108).

If we compare Turkish and Persian flutes, we see that the Persian flute is played in line with the body's vertical axis. I decided then to provide another name, basing my choice on the English 'end rim-blown flute', which is more logical (even if in French it is translated with the lengthy term: *flûte à insufflation sur le biseau terminal*). That first study [1988] was monographical and concerned this type of flute only. From an organological standpoint, I studied the body of twenty or so flutes from the collection held in the Musée de l'Homme, choosing examples that presented a different mouthpiece or a different playing technique.

1. Many thanks, for the illustrations found herein, to the Kunitachi college of Music, the Musée des Civilisations de l'Europe et de la Méditerranée, the Société des Océanistes, Hyptique; to Alice Barrat, Bertrand Bilger, Cyrus, Jean-Pierre Dalbéra, Kudsi Erguner, Dobri Giaurov, Paoun Kušlev, Constance Le Gonidec, Jean-Sébastien Martin, Benoît Mager, Valérie Pasturel, Todor Trifonov, Jean-Michel Vandercamère, Anton Varela, Hugo Zemp; to the *zampognari* seen in Saint Chartier in 2007 and to the Slovak player of *koncovka* I met thanks to Igor Mačak. I would like to thank Laurence Fayet for helping with the English terms in the classification of flutes.

2. This paper is dedicated to her in gratitude for what she awarded me during my studies.

1.

Figure 1.
Dobri Giaurov playing the *kaval*, a traditional end-rim blown flute from Thrace, Bulgaria
PHOTOGRAPH BY MARIE-BARBARA LE GONIDEC, 1993

Figure 2.
The traditional musician Kudsi Erguner playing the Turkish *ney* PHOTOGRAPH BY JEAN-MICHEL VANDERCAMÈRE, 1988

Figure 3.
A Persian musician playing the *ney*
PHOTOGRAPH BY JEAN-MICHEL VANDERCAMÈRE, 1988

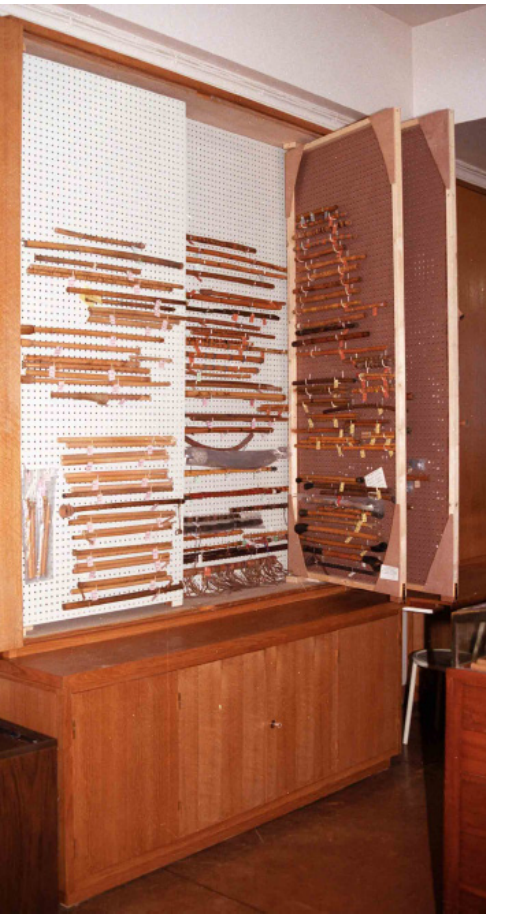
2.

3.

4.

Figures 4-5.
The furniture manufactured to store the flute collection in the Musée de l'Homme in Paris

Details of the furniture when open
PHOTOGRAPH BY MARIE-BARBARA LE GONIDEC, 1989



5.

Some years later, in 1989, Geneviève Dournon engaged me to reorganize the entire flute collection due to the imminent reorganization of the hall in which the flutes were kept. They were aligned in a row, in the open, on a sort of rack that hung from the wall. We moved them to a wooden structure (figure 4, p. 109), made of vertical shelves inside various cabinets and of horizontal shelves inside drawers (figure 5, p. 109).

At that time, the Musée de l'Homme was under the direction of the National Museum of Natural History in Paris, and the collections were, first and foremost, for study. So, since the time of André Schaeffner (the founding father of ethnomusicology in France, hired in 1929 by the Trocadéro museum of ethnography, progenitor of the Musée de l'Homme), the arrangement of the collections was in function of the scientific prospective. It was the Hornbostel-Sachs system that prevailed, that is to say the technological prospective that was adopted by the two researchers: the function of an instrument is that of producing sound. How does it do that?

During the time in which Geneviève Douron was the director (after André Schaeffner) of the collection of musical instruments in the Musée de l'Homme – even though the cultural and musical knowledge connected to those instruments had allowed them to be classified in their social and cultural contexts – the Hornbostel-Sachs was still the prevailing system for the categorization of the collections. We were, therefore, convinced, Geneviève Dournon and I, that the new structure should be a sort of 'analytical catalogue', making the organization of physical space correspond to the theoretical one, as shown in figure 5, where, at the top, we would find the flutes that are either 'side-blown' or 'end rim blown', and lower down 'vertical' flutes (generally the duct flutes).

I mention this work carried out in 1989, which was not part of my university degree course, to underline the fact that between my master's research and this reorganization, together with my own bibliographical studies, my knowledge of flutes has grown considerably. I was astonished by the morphological difference of flutes, when apparently, on a visual plane, we were dealing with a 'simple' pipe. However, if we look closely, we realize that the embouchure system, which is to say the arrangement of the elements that allow the sound to be emitted, is sometimes surprising, and we find instruments like the one in figure 6[3]. It is similar to a block flute whose block has been lost, but that's not really the case, and we wonder how it is able to function at all. I later learned that it is the player's tongue which, introduced into the flute, re-creates the air duct. There are even more surprising flutes like the *gasuo* (figure 7, Kunitachi College of Music, inv. 995) belonging to the Hmong people who live in the province of

3. These illustrations, which are not technical drawings, were taken from bibliographical sources and from observed specimens in order to help understand the characteristics of the embouchure. Unless otherwise stated, all technical drawings are by Jean-Michel Vandercamère (1990).

Guizhou in China. Therefore, I began to notice that, in the Hornbostel-Sachs classification system many types of flutes are set in the same subdivision, when other subdivisions could have been created. So how could we go about making the classification more detailed? This is the problem I intended to face when I presented the work I published in French in 1997.

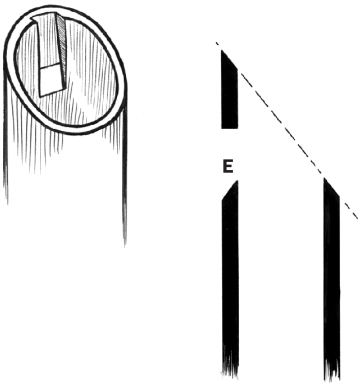


Figure 6.
A block flute with a missing block or a flute without duct?

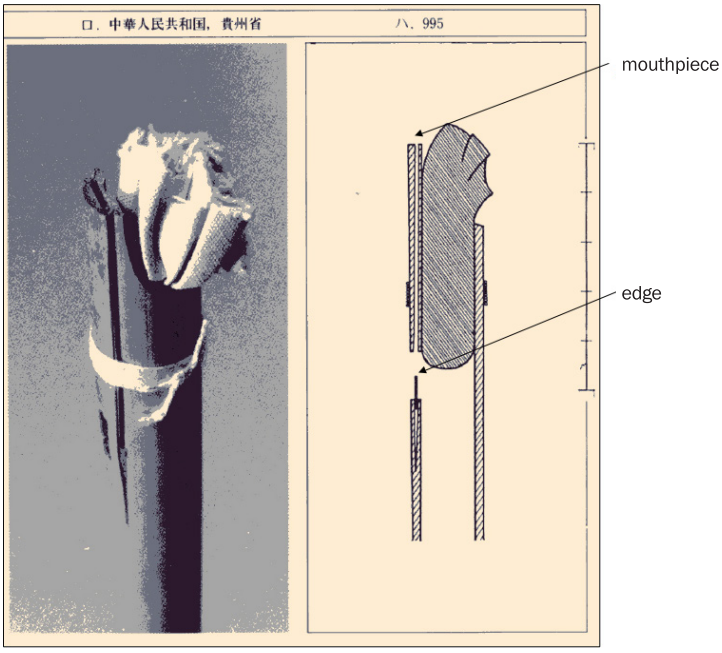


Figure 7.
Flute *gasuo* played by Hmong people, Guizhou, China, 1984.
Tokyo. Collection of Organology, Kunitachi College of Music (inv. 995)

Flute without a duct or with buccal air-duct?
New terminology for flutes

Under aerophones, category 4 in the Hornbostel-Sachs classification (see below), the flute is in position 421; it works thanks to the air stream that blows across a sharp edge. The jet of air must reach the edge through a conductor that is set in the flute (421.2 with duct), for example in the block flute, or which is produced by the player's mouth (421.1 without duct) when playing (in the case of the side-blown flute), or also by the player's nose. In my view, since conducting the air is a necessity, it is preferable (figure 8) to use positive terms, and, therefore, instead of saying 'without duct', it is preferable to speak about 'buccal air-duct' flutes for those in which the duct is not a part of the body of the flute itself (figure 8, on the right).

Hornbostel and Sachs state that the flutes (421) without duct (421.1) can be end-blown (421.11) or side-blown (421.12). Before explaining my proposal, let's have a look at the Hornbostel-Sachs system:

421	edge instruments or flutes
421.1	flutes without duct (the player himself creates a ribbon-shaped stream of air with his lips)
421.11	end-blown flutes (the player blows against the sharp rim at the upper open end of a tube)
421.111	(single) end-blown flutes
421.111.1	open single end-blown flutes (the lower end of the flute is open)
421.111.11	without fingerholes (e.g. *tilinca* from Romania)
421.111.11	with fingerholes (e.g. *ney*)
[…]	
421.12	side-blown flutes (the player blows against the sharp rim of a hole in the side of the tube)
[…]	
421.2	flutes with duct or duct flutes (a narrow duct directs the air stream against the sharp edge of a lateral orifice)
421.21	flutes with external duct (the duct is outside the wall of the flute; this group includes flutes with the duct chamfered in the wall under a ring-like sleeve and other similar arrangements)
[…]	
421.22	flutes with internal duct (the duct is inside the tube. This group includes flutes with the duct formed by an internal baffle – natural node, block of resin) – and an exterior tied-on cover – cane, wood, hide –).

Fine... but then, where should notched flutes or oblique flutes (figure 9) be placed? They have been categorized under end-blown flutes. I sustain that the classification of the end-blown flutes should diverge from the Hornbostel-Sachs arrangement. In fact, the review of certain taxonomic criteria would allow us to progress much further.

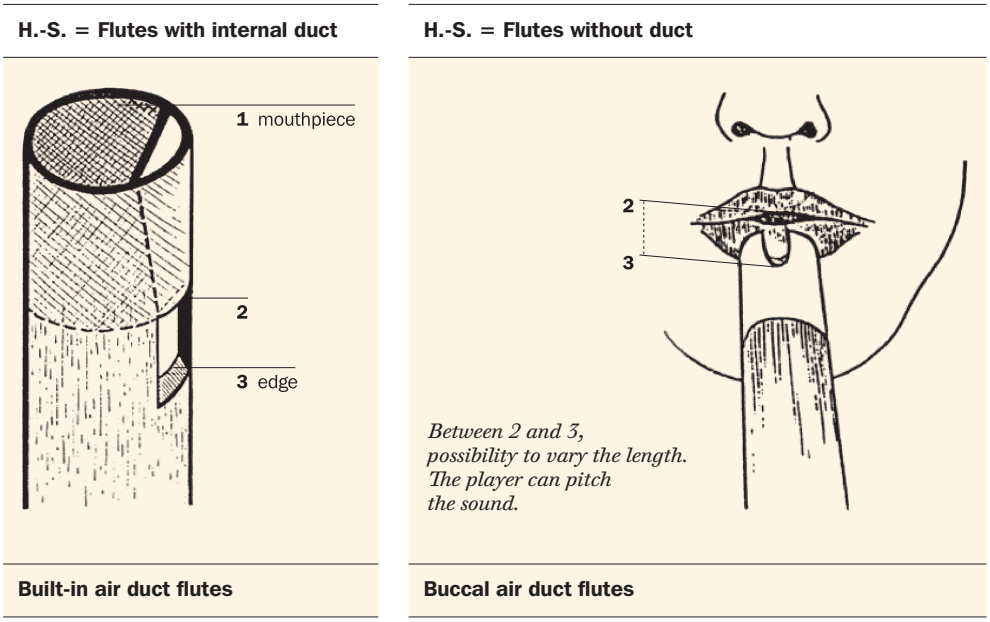


Figure 8.
Diagram showing the difference between
the Hornbostel-Sachs typology
and the one I propose for the two main categories of flutes,
type 421.1 and 421.2

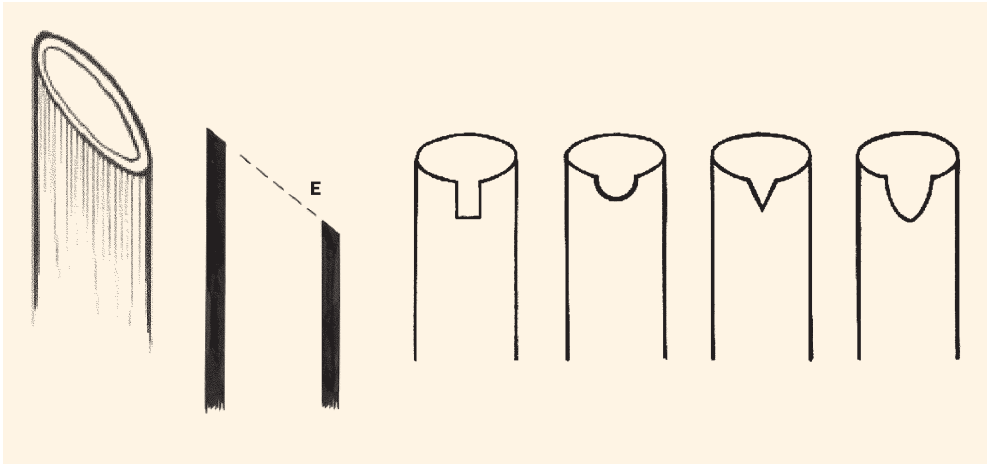


Figure 9.
Mouthpiece cut obliquely and different types of notched flutes.
Cutting the tube obliquely or making a notch have the same result:
separate the mouthpiece from the edge. But they are
two different processes we can distinguish in the typology

Acoustics teach us that the sharp edge, and not the mouthpiece, is the fundamental element in the flute, and that is why I propose to base the classification of flutes on the position of the edge in connection with the mouthpiece. I will start from the number 1 to avoid having to state long numbers. The classification is based on real flutes, already well known to scholars (which are mentioned with their vernacular name), or stored in the Musée de l'Homme in 1996. In Appendix 1 it is possible to find the inventory numbers of the flutes now preserved in the Musée des Civilisations de l'Europe et de la Méditerranée of Marseille (MUCEM) and at the Musée du quai Branly (MQB) in Paris.

In the case of figure 10:

1	buccal air-duct flutes, we find
11	(on the left) end mouthpiece and edge;
12	(in the middle) end mouthpiece and shifted edge;
13	(on the right) side mouthpiece and edge.

1 buccal air-duct flutes
11 end mouthpiece (letter M) and edge (letter E)
12 end mouthpiece and shifted edge
13 side mouthpiece and edge

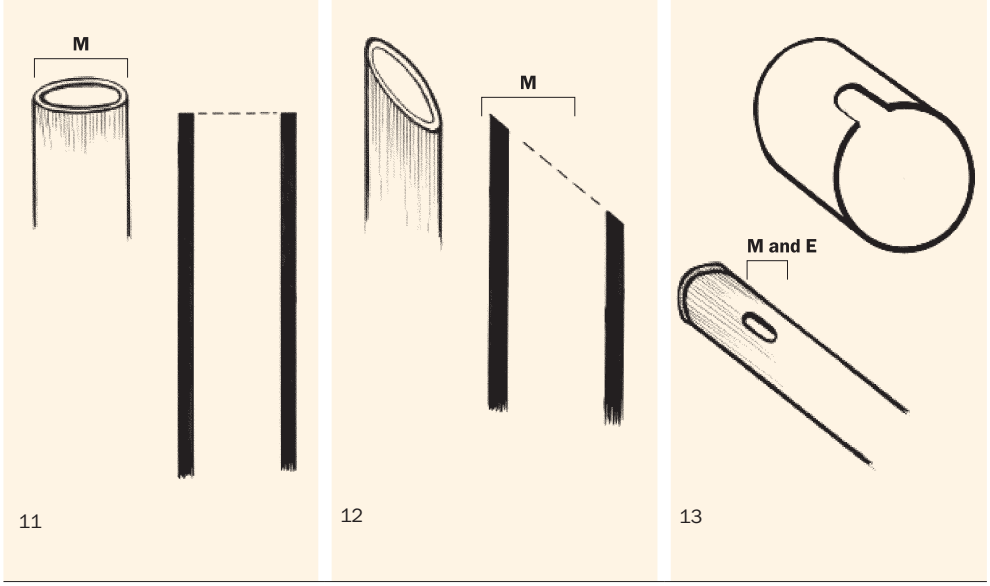


Figure 10.
Three different types of buccal air-duct flutes

In the case of figure 11:

11	end mouthpiece and edge, the following criterion is
111	open mouthpiece, as opposed to
112	half-open mouthpiece.

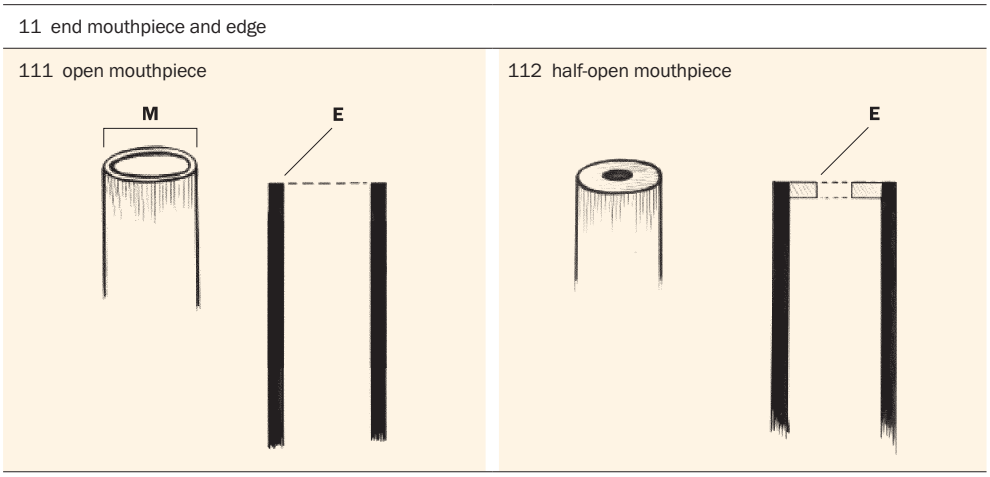


Figure 11.

An open mouthpiece can be divided into (figure 12):

111.1	simple
111.11	capped embouchure (which means the mouthpiece is inserted in the end, like, for example, in Persian *ney*, where the mouthpiece is positioned between the teeth)
111.2	bevel-edged
111.21	capped embouchure (Turkish *ney*).

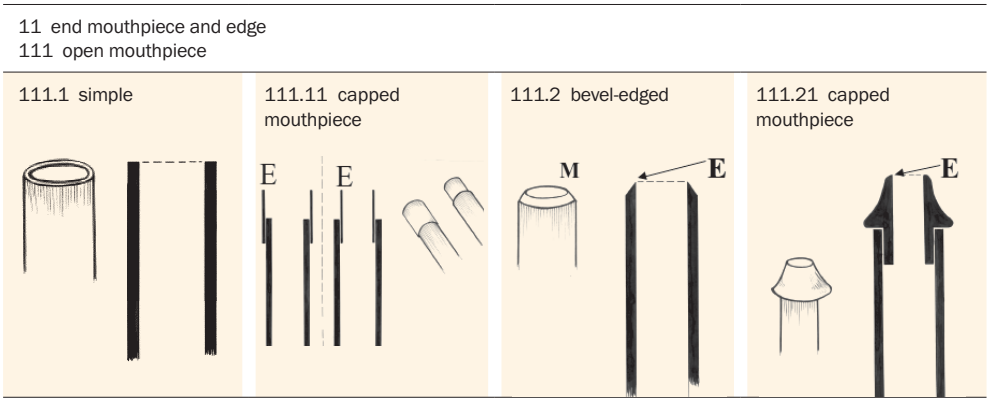


Figure 12.

To follow, for flutes of type 12, end mouthpiece and shifted edge, we have (figure 13):

121 end mouthpiece, slanted;
122 notched or with partial window [Schaeffner 1936];
123 windowed.

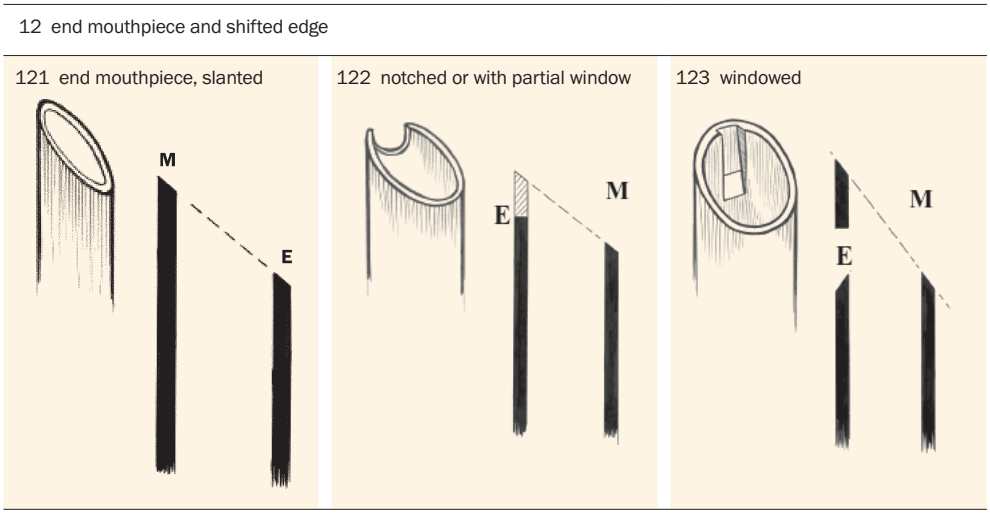


Figure 13.

And then in flutes of type 13 side mouthpiece and edge (of which the transverse flute is an example) we have (figure 14):

131 simple
132 with inserted embouchure, which corresponds to the head-joint of the transverse flute, the only example I know of.

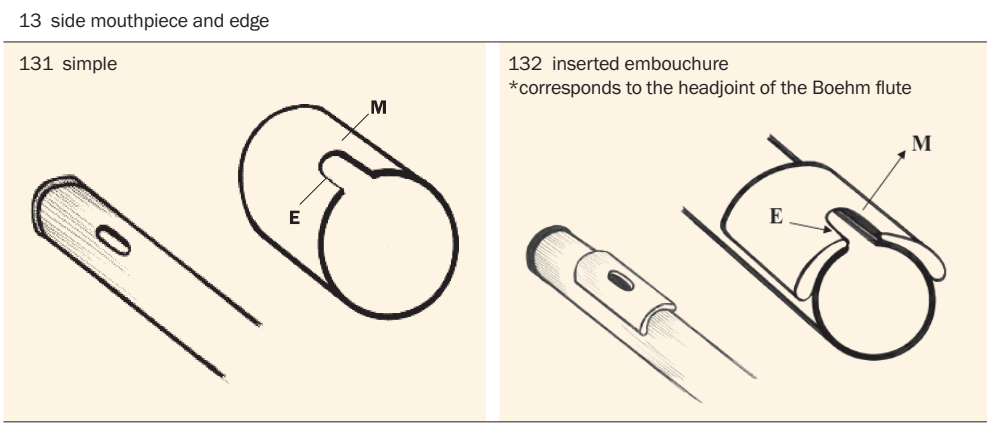


Figure 14.

In built-in air duct flutes (category 2) the duct can be (figure 15):

21 inserted
or
22 built-in, or integrated into the body of the flute

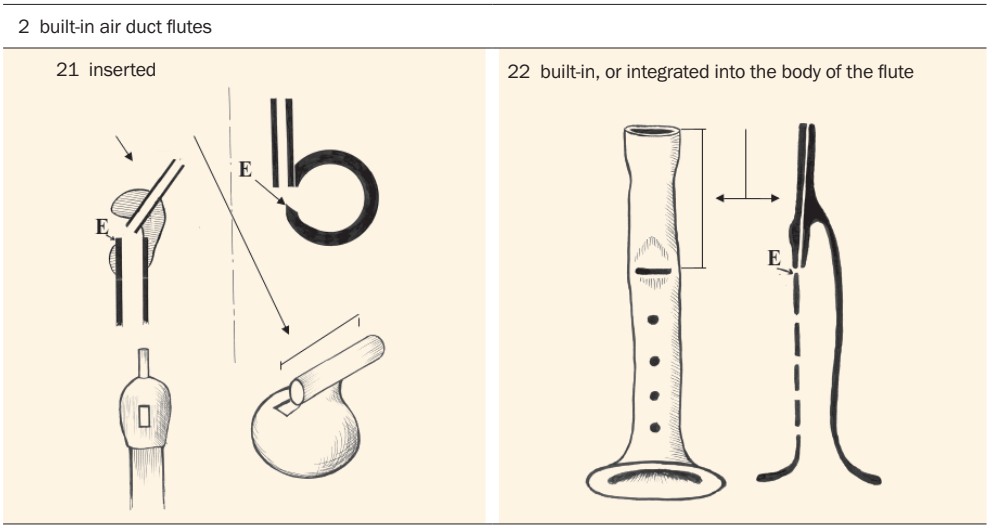


Figure 15.

Let us observe category 22, where the integrated duct can be (figure 16):

221 internal (Hornbostel and Sachs start with external)
222 external
223 semi-external (Hornbostel and Sachs do not mention it)

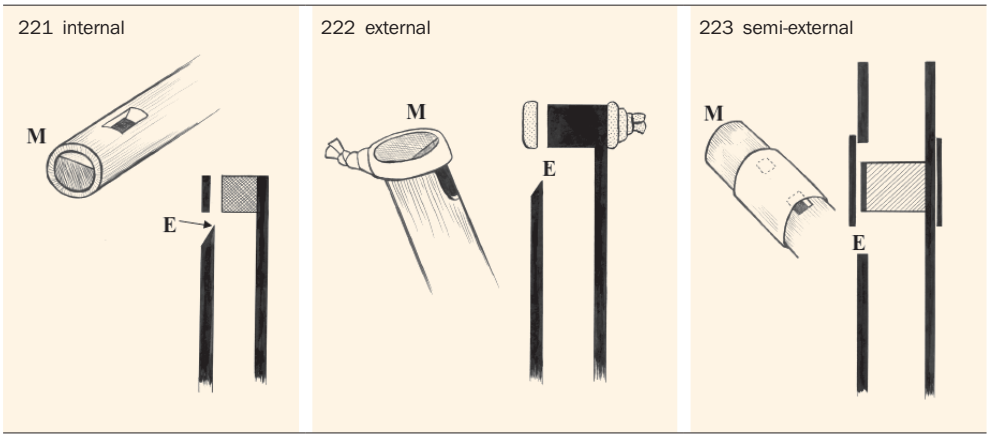


Figure 16.

In case of 221, the duct may be (figure 17):

221.1 with initial conductor
221.11 made with a plate, or
221.12 made with a block.

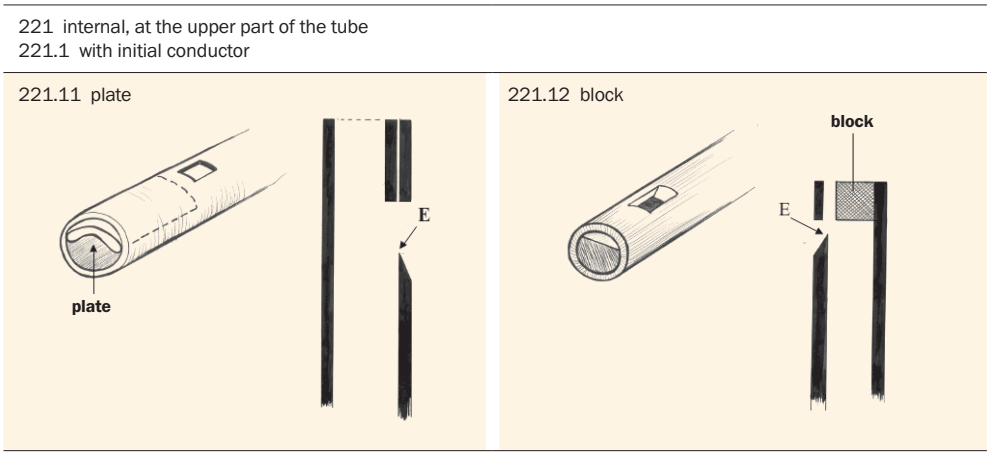


Figure 17.

The type 221.1, with an upper block (or plate having the same function) is in contrast with the 221.2 halfway block. Figure 18 shows, on the right, two flutes from Mexico and Argentine (now at the Musée du Quai Branly). On the top, the flute is made of bone, and a small wax block was added. The flute below is made of cane, and part of the natural partition (the inside node) has been conserved.

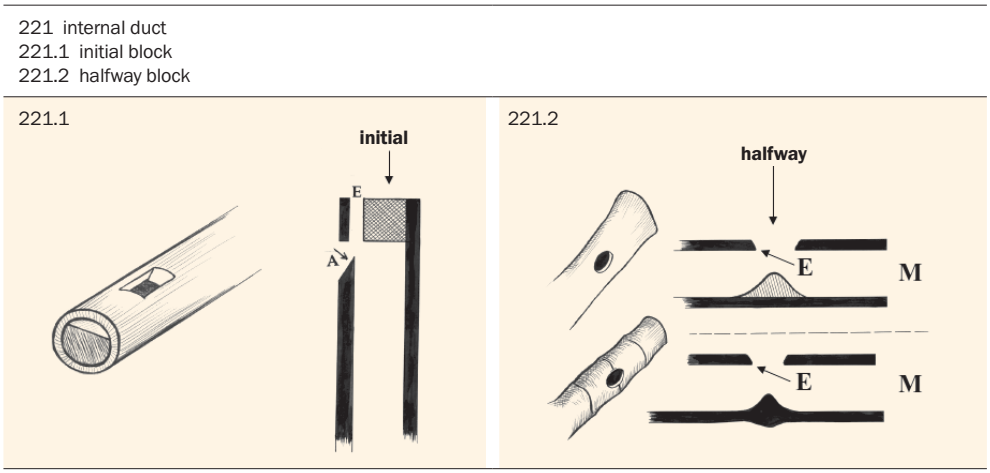


Figure 18.

Let's now return to type 221, having an initial block (221.12). In figure 19, the block is at the same level with the end of the pipe (221.121), forming a right angle (221.121.1) or cut in a beak shape (221.121.2). The first type is illustrated by a widespread flute in Eastern Europe, like the Bulgarian *duduk* seen in figure 19. The window is at the opposite side of the fingerholes. This allows one to partially cover the window with his lower lip to change the timbre of the flute. The beak-shape type is also widespread. This is the common French *flûte à bec*, in English, *recorder*.

221.121 block at the end of the pipe

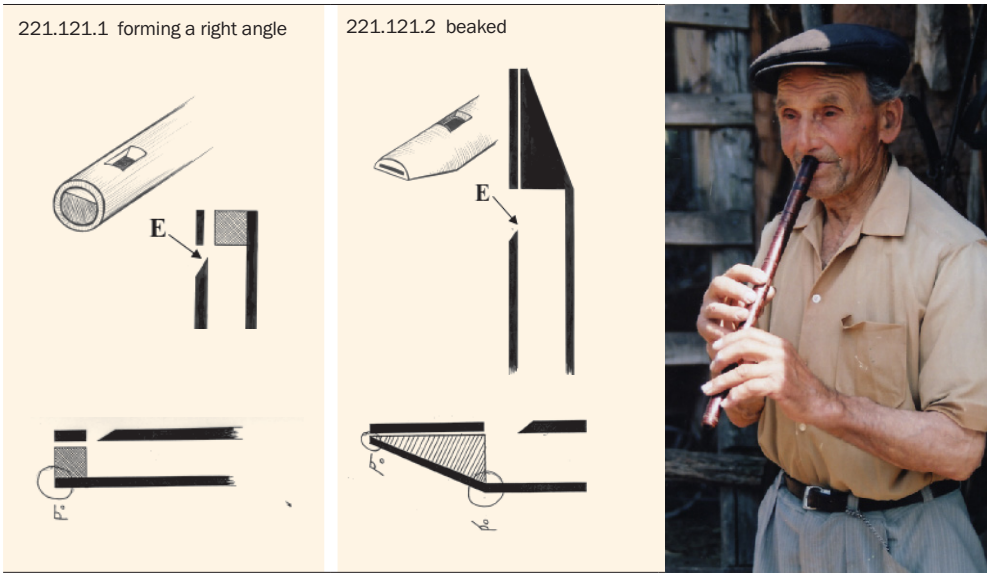


Figure 19.
On the right, the Bulgarian *duduk* played by Todor Ivanov Trifonov, Dolna Riska, Bulgaria PHOTOGRAPH BY MARIE-BARBARA LE GONIDEC, 1992

In the case of flute 221.121.1, a 1 needs to be added, without being followed by a 2, that is without opposition. It is the case of the flute from Slovakia, called *fujara*, which become famous in 2008 for having been inscribed in the Representative List of the Intangible Cultural Heritage of Humanity UNESCO (figure 20, p. 120). The mouthpiece is deflected, as in the case of the bass and the great-bass recorder from the Renaissance and Baroque periods, and of the *mohoceño* from Bolivia. A lateral embouchure is fixed in the block, opening into the air-duct.

221.121.11 with inserted side mouthpiece

The instrument can also be made to include an insufflation tube:

221.121.111	with insufflation tube (simple)
221.121.111.1	side-placed. In the case of very long flutes, it can prolong the air-duct a long way from the main tube. Its main purpose is to bring the mouthpiece down half-way along the length of the flute, at level with the musician's mouth.
221.121.111.2	end-placed, for the flageolet seen in figure 20, even if the function is different from the previous example.

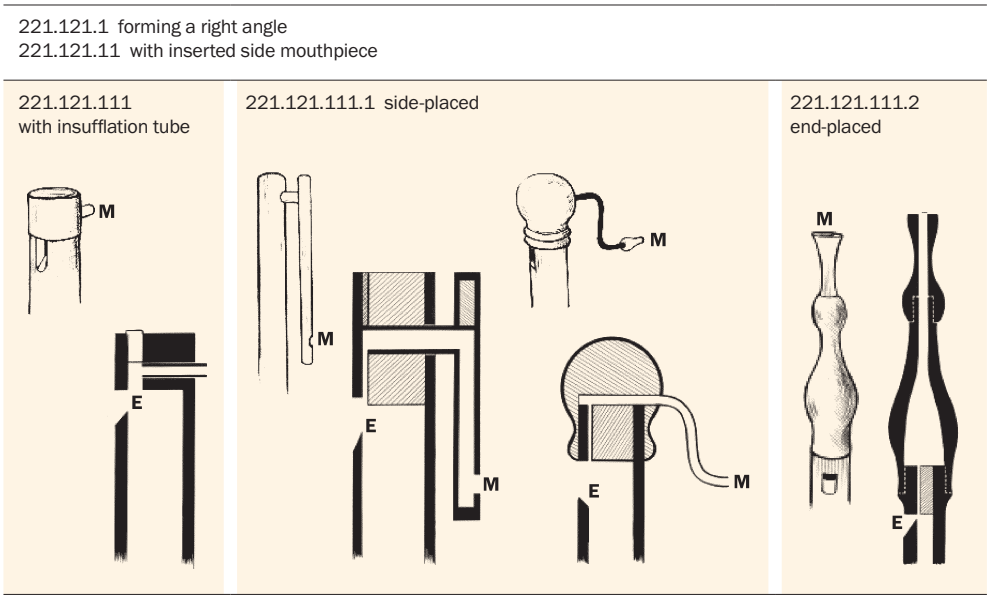


Figure 20.

Figure 21 shows an interesting side-blown flute with air-duct, well known in Sweden and in Slovakia, without fingerholes. This is a clear indication that having an end or side mouthpiece is not irrelevant, but represents a secondary criterion. Its type is 221.122, with protruding block.
Let's return to the non-initial block (type 221.2) which we called 'halfway block'. It works as a deflector, deviating the air. The flute that uses this kind of deflector can also have an adjustment device (figure 22) that is used to deviate the air in order to reach the edge.

221.21	with deflector. The deflector may be:
221.211	simple, or
221.212	double, by plates (as in figure 22) or by rings [Rivière 1994, 54].

221.121 block at the end of the pipe
221.122 block protruding

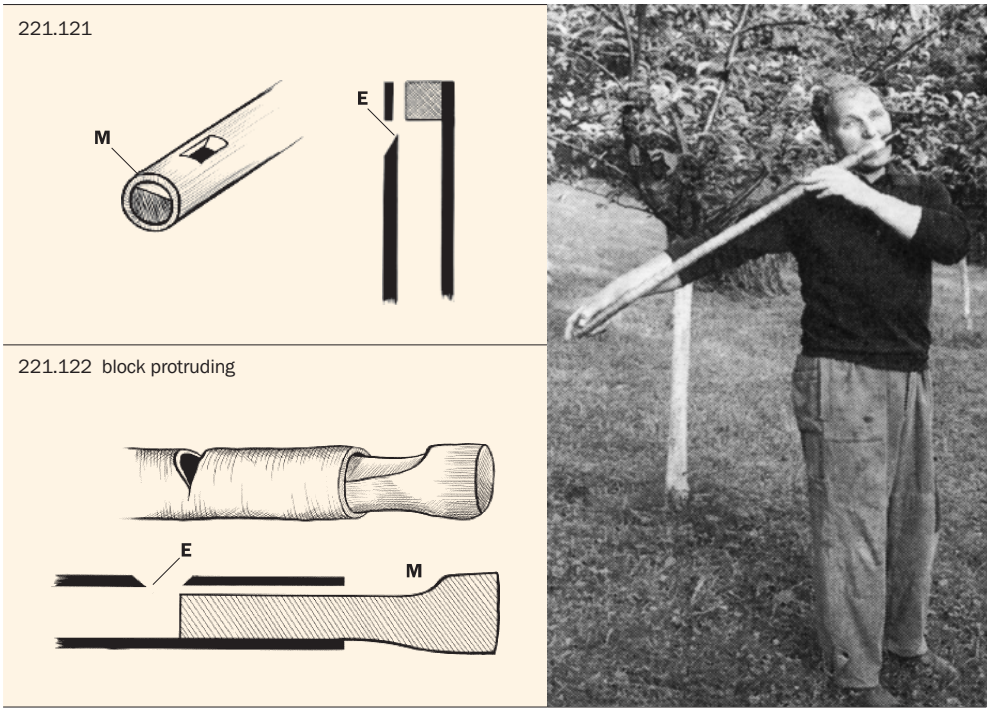


Figure 21. On the right, the Slovakian *koncovka*, a side-blown air duct flute without fingerhole
PHOTOGRAPH BY MARIE-BARBARA LE GONIDEC, 1991

221 internal duct
221.1 initial block
221.2 halfway block
221.21 with deflector

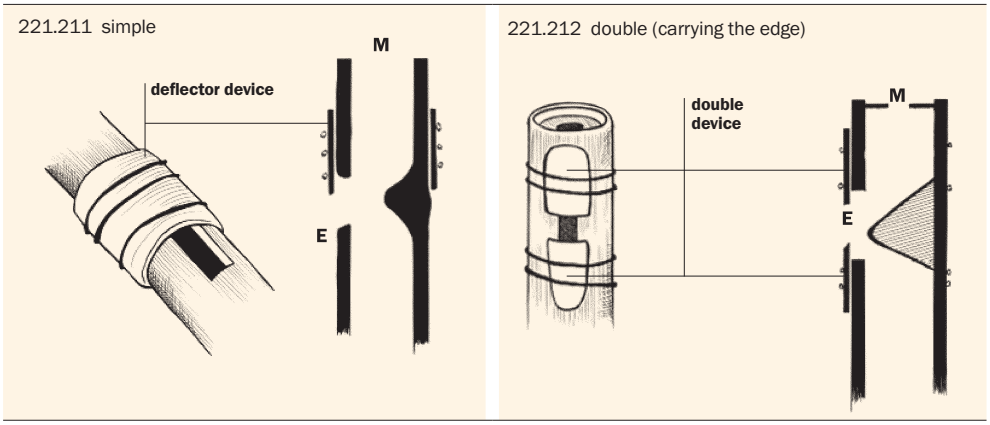


Figure 22.

The upper device helps the air stream to go just to the edge, but the second is the edge itself, which can be adjusted. In a way, it is similar to the embouchure on a Boehm transverse flute: the edge (which needs to be very accurate to generate a pure sound) is not on the pipe but on the added piece.
This is the case with flutes from the Amazon area, made from vegetable matter. The half-way block is a natural node of the tube and it is not possible to change its position, however, the flute can be tuned by moving the devices.

Let's now look at figure 23, which shows the external block (type 222). In effect, the integrated air duct is not in the pipe but outside the pipe, and the air circulates outside the wall of the pipe and not inside it. The duct is obtained by a ring, or by a plate:

222.1 ring (Indonesian suling)
222.2 plate (which forms the upper wall of the air duct).

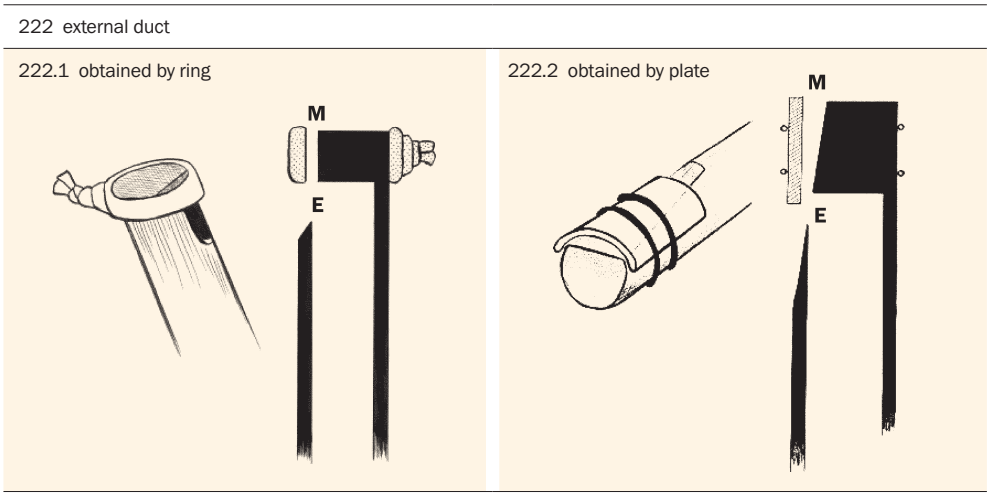


Figure 23.

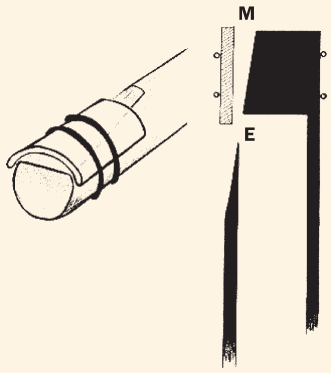
In the side view we can see the pipe in black, and the added device – ring or plate – in grey, which is not part of the pipe. Flutes of this type are always made of vegetable matter, and the node of the reed or the bamboo used to make the instrument is part of the device.

In the case in which the duct is obtained by a plate (figure 24), it may be:

222.21 level with the end of the pipe, or
222.22 beak-shaped.

222.2 external duct obtained by plate

222.1 level with te e d of the pipe



222.22 beak-shaped

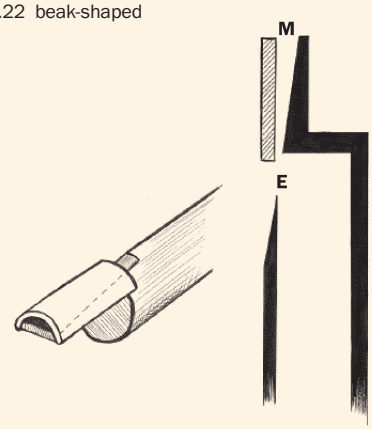


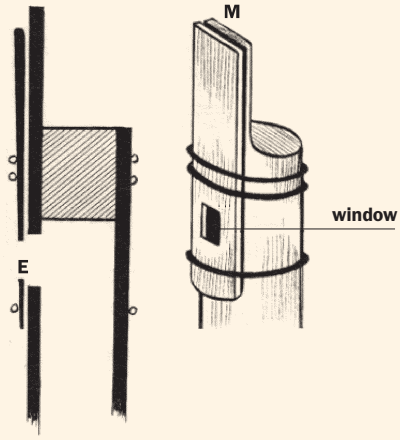
Figure 24.

When the device is beak-shaped (figure 25), the sharp edge may be obtained in two ways:

222.221 the plate itself bears the window
222.222 a second plate corrects the edge.

222.22 beak-shaped

222.221 with a plate bearing the window



222.222 with a second plate correcting the edge

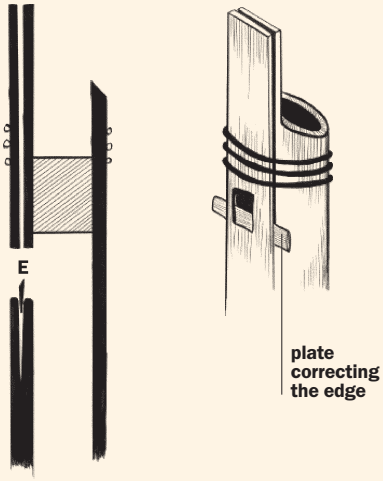


Figure 25.

The latter is the most extraordinary type of flute, and is the case of the flute mentioned above (figure 7, p. 111). Therefore, we know that the duct can be:

21	internal (recorder)
22	external (suling)
23	semi-external, a type that exists in two forms (figure 26):
231	with mobile ring (generally found in Southeast Asia: Sumatra, Timor, Flores [Kunst 1942], and among a minority of Vietnam)
232	with mobile block. This is the courting flute of Native American (found in North America). The system is very complex. The block inside the pipe deviates the air upwards where an outside block (with a plate to realize a channel to let the stream pass) forces it to enter it again, just where the edge is. This system is adjustable.

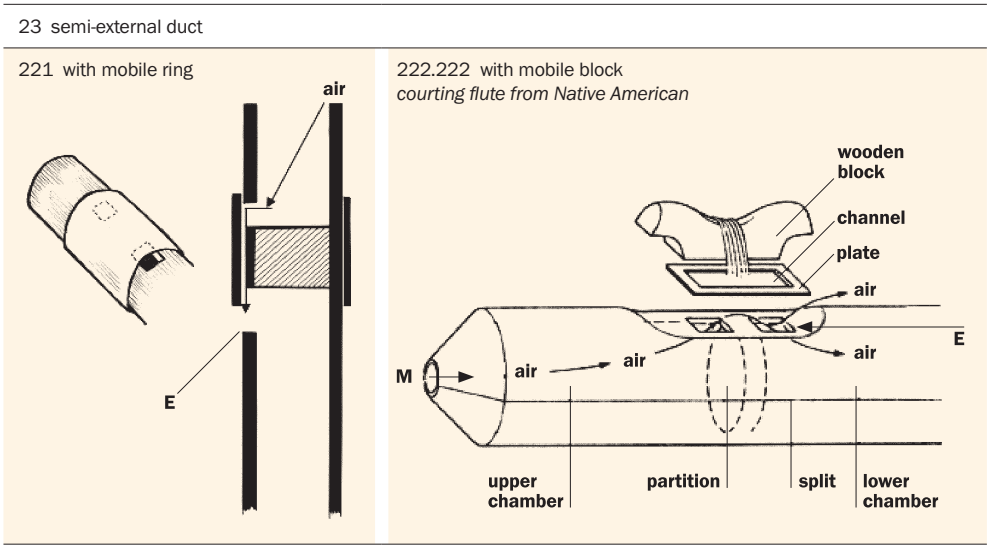


Figure 26.

This classification concerns one-pipe flutes. What happens in this classification when considering panpipes or vessel flutes? Panpipes (figure 27) are generally flutes where the duct is not part of the body: they belong instead to the type that I consider with buccal air duct (type 1), with end mouthpiece and edge at the end of the pipe (type 11), which is open (111). Then we must add the distinction between 'pluritubular' and 'unitubular', therefore, the Panpipe is a pluritubular flute from type 111, and the Romanian *tilinca* is an unitubular flute from type 111.

The Panpipes from the Solomon Islands [Zemp 1972] in figure 27 belong to the typology described above as half-open mouthpiece (type 112).

1 buccal air duct
11 end mouthpiece and edge
111 open (unitubular: *tilinca*, Romania; pluritubular: *nai*, Romania)
112 half-open (unitubular: Jivaro's nose flute; pluritubular: Solomon Islands flute)

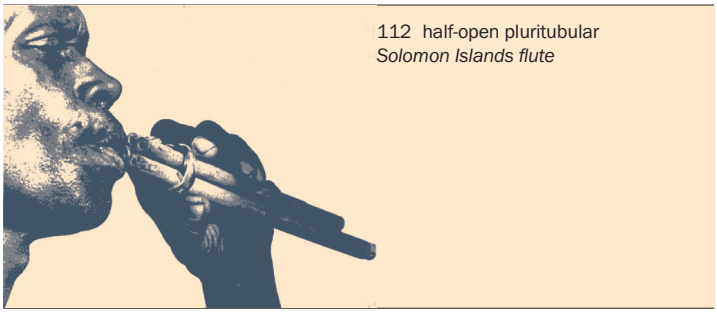


Figure 27. PHOTOGRAPH BY HUGO ZEMP, PUBLISHED IN 1972

As far as vessel flutes are concerned, three are the types we already know of (see figure 28 for a comparison between tubular and vessel flutes): a buccal air duct vessel flute, one with external duct and the ocarina. Being that the vessel flute is round, there is no question whether the mouthpiece and edge will be at the side or at the end. The vessel flutes on the right, in figure 28, have already been considered in figure 15, together with the ocarina (type 21 in figure 15, p. 117).

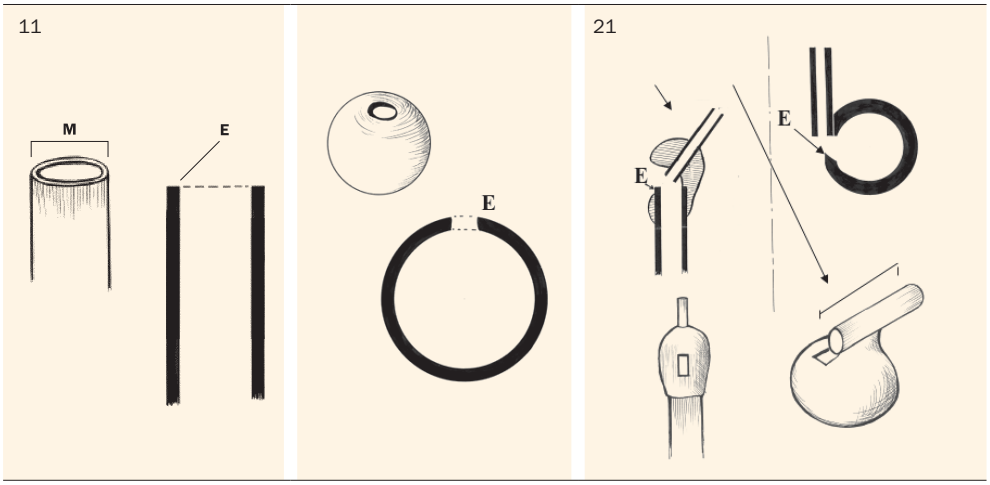


Figure 28. Mouthpiece system of vessel flutes compared to tubular flutes

The Hornbostel-Sachs classification was, therefore, absolutely pertinent in relation to flutes with or without air ducts. The mouthpiece was privileged, but without further investigation: the breadth of their knowledge of flutes was not sufficient. My proposal, in relation to the Hornbostel-Sachs classification, is

to substitute the word 'without' with 'with' because this changes our way of thinking and we may observe more closely what is 'built-in' and what 'must be arranged' for the instrument to function. And thus the term mouthpiece-system, which indicates a relation between the different elements in the system, in which the edge is the central point. How the rest is set up is also important, how the duct is integrated with the instrument or arranged by the player. I think, and hope, I have been exhaustive in regards to this group.

What about bagpipes?
Let's look at the Hornbostel-Sachs classification once more to see what is put forth for those instruments:

4	aerophones
421	edge instruments or flutes
422	reedpipes
422 1	oboes
422 2	clarinets

The suffixes to be used for any division of this class (aerophones) are:

6	with air reservoir
61	with rigid air reservoir
62	with flexible air reservoir

The Hornbostel-Sachs classification is based on the notion of polyorganic instruments:

> Thus, for a bagpipe in which chanter and drone are both of the clarinet type, the code-number would read i.e. a set of clarinets with flexible air reservoir. But if, for instance in a monograph on bagpipes, one wished to especially distinguish these [chanter and drone] features, one could write 422-62:22, i.e. reed instrument with flexible air reservoir whose pipes are exclusively clarinets [Hornbostel and Sachs 1961, 11].

All the bagpipes belong to type 422-62. And, furthermore, we need to know what kind of reed is used in this 'reedpipes aerophone with flexible air reservoir' to be able to classify them.
The problem is that very often in museum collections, the reeds are missing... So, what to do?
Leonardo da Vinci was known to say: «Il vento passato per le pelli delli animali farà saltare li omini. Cioè la piva che fa ballare» (The wind that passes through the skins of animals, makes men jump. That is to say, the *piva* makes men dance). What is a *piva*? As da Vinci explained, it is a wind instrument with a flexible air reservoir, a bagpipe. I will explain my position, which is closer to Leonardo

da Vinci's than to Hornbostel and Sachs. First of all, I must thank Jean-Pierre Van Hees for this quote: bagpipe player and the author of the recently published *Cornemuses, un infini sonore* [Van Hees 2014], he has given me the opportunity to discuss matters regarding bagpipes since I first met him in 1994. At that time, I was working at the Montluçon museum (in France, Allier department), and I took part in an exhibition on the bagpipe maker Jean Sautivet (1796-1867), the first maker known in popular tradition, a contemporary of the Romantic writer George Sand (1853). He used to build the kind of *musettes* (according to the generic term used at the time) that are now called *musette du Centre* (figure 29, p. 128). They are made of a chanter, a small drone and a bass drone. For the catalogue of the exposition, I proposed a classification of which I will underline the principles. This classification was also partially used by Jean-Pierre Van Hees in his publication.

As I mentioned before, during the second half of the nineties I was working on my thesis on Bulgarian pastoral instruments, and a catalogue of Yugoslavian instruments [Marković 1996], written in Serbian, inspired me. In fact, in Slavic languages, or at least in Serbian, Croatian and Bulgarian, it is not the instrument that produces a sound (*zvouk*), but a voice (*glas*), like with human beings. I decided to translate the word *glas* literally with 'voice' and not 'sound'. Before the war in 1992, Yugoslavia was a confederation of different peoples. You could find different kinds of bagpipes (*gajde*, generic term in Serbian), like the *mišnice* from Dalmatia, a double chanter bagpipe, or the Albanese *gajde* from Kosovo and Macedonia, with one chanter and one drone (like the Bulgarian bagpipe, figure 30, p. 128), or the *gajde* from the Banat region (figure 31, p. 128) which seems to have two pipes, like the previous model.

To describe them, the Belgrade museum catalogue speaks of bagpipes with two voices (*dvuglasna gajde*), like the *mišnice* and the Albanian *gajde*, three-voices (*triglasna gajde*), like the *gajde* from Banat, and four voices (*četiriglasna*). This term could also be used, for instance, for the Italian *zampogne* (figure 32, p. 128) and for the Scottish bagpipe as well.

Let's now look at the *gajde* from the Banat region in figure 30. Since I had only some pictures in front of me and as I saw two pipes, I could not understand why the catalogue considered it was a 'three-voiced' bagpipe. The description was not very clear, or perhaps my translation skills were limited. But hearing the sound on a record, I could hear that there were more than two voices. I thought that the idea of 'voices' instead of the characteristics of the pipes (chanter, drone...) would be an interesting way to start because it better respects the principles of the instrument, which is a reed instrument: every voice is the product of a reed. In fact, in the *gajde* from Banat, the melodic pipe (or chanter) is made of a double-bore tube. We can only see two tubes (a chanter and a shoulder drone) but this instrument has three reeds, and so three voices.

29.

30.

31.

32.

Figure 29.
Musette du Centre from Berry and Bourbonnais regions, played by Benoît Mager
PHOTOGRAPH BY BERTRAND BILGER, 2006

Figure 30.
Paoun Stojanov Kušlev with his *kaba gajda*. Devin, Bulgaria
PHOTOGRAPH BY MARIE-BARBARA LE GONIDEC, 1992

Figure 31.
A Serbian musician playing the *gajde* from Banat. Banja Luka, Serbia PHOTOGRAPH EXTRACTED FROM A VIDEO MADE BY MARIE-BARBARA LE GONIDEC, 1991

Figure 32.
Two *zampogna* players at the Saint Chartier festival, France
PHOTOGRAPH BY JEAN-PIERRE DALBÉRA, 2007

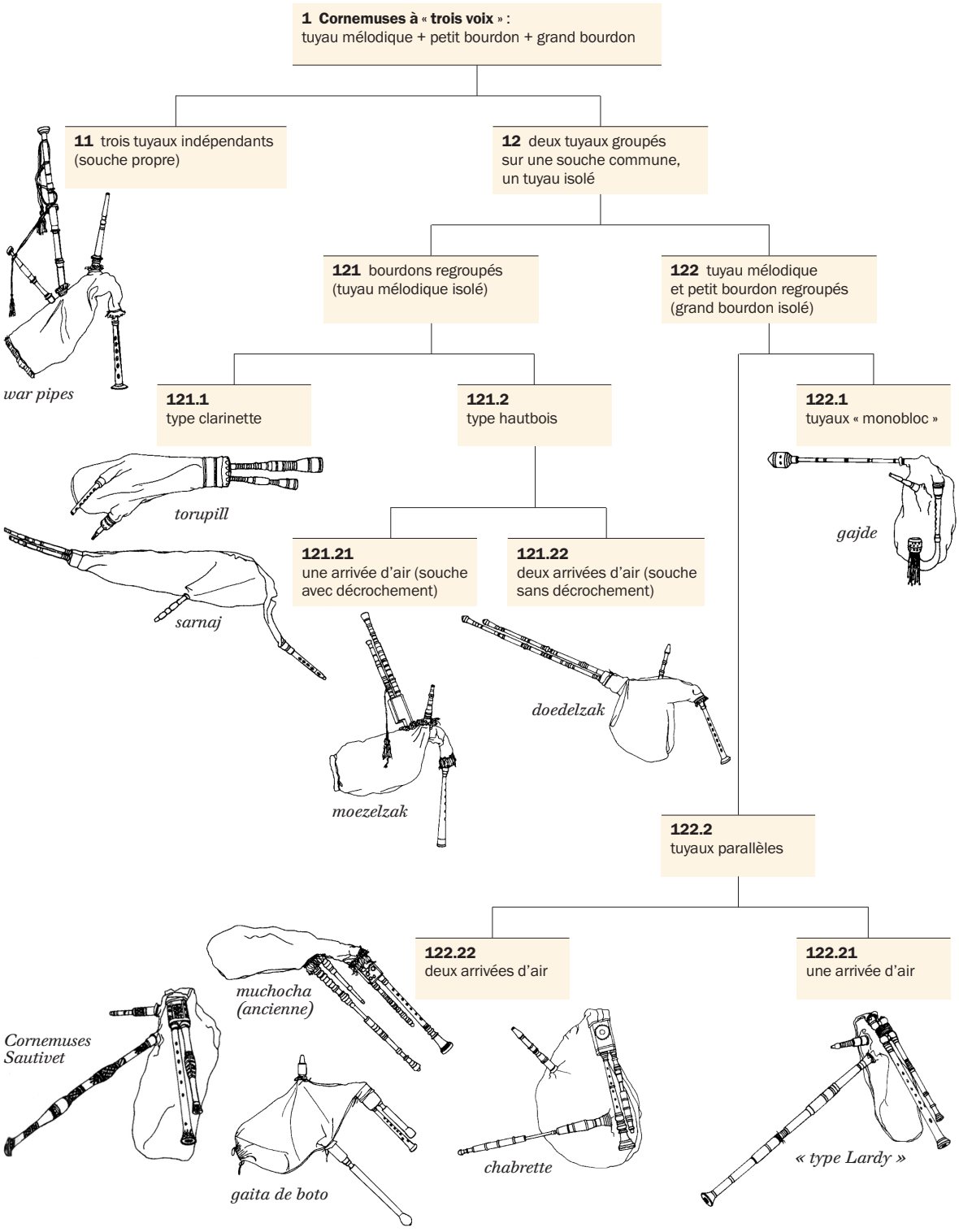


Figure 33.
The three-voice bagpipe tree
DRAWINGS BY JEAN-SÉBASTIEN MARTIN, 1996

The exhibition was dedicated, as mentioned above, to a three-voice type bagpipe, the *musette du Centre France* seen on figure 29, p. 128. To explain how this kind of bagpipe sounds, and to place it in the three-voice family of bagpipes, I put forth a typology that I presented as a tree (figure 33, p. 129). Originally published in French [Le Gonidec 1996, 36-38], I will give the English translation of all the *taxa* in appendix 2.

To be classified as a bagpipe, a wind instrument must have, at least, those three elements: bag + blowpipe + chanter. This basic model corresponds to a one-voice bagpipe. This is the case with the *askavlos*, a Greek bagpipe which reminds us of primitive medieval bagpipes made with a bladder.

In general, there is a bag to allow more than one pipe to make sounds simultaneously. A second voice could be that of the drone, like in the *biniou* from Brittany (figure 34) and many other bagpipes from Europe. But this is not the only two-voice family conformation: bagpipes with two chanters, too, like the Tunisian *mezwed* (figure 35) are two-voiced.

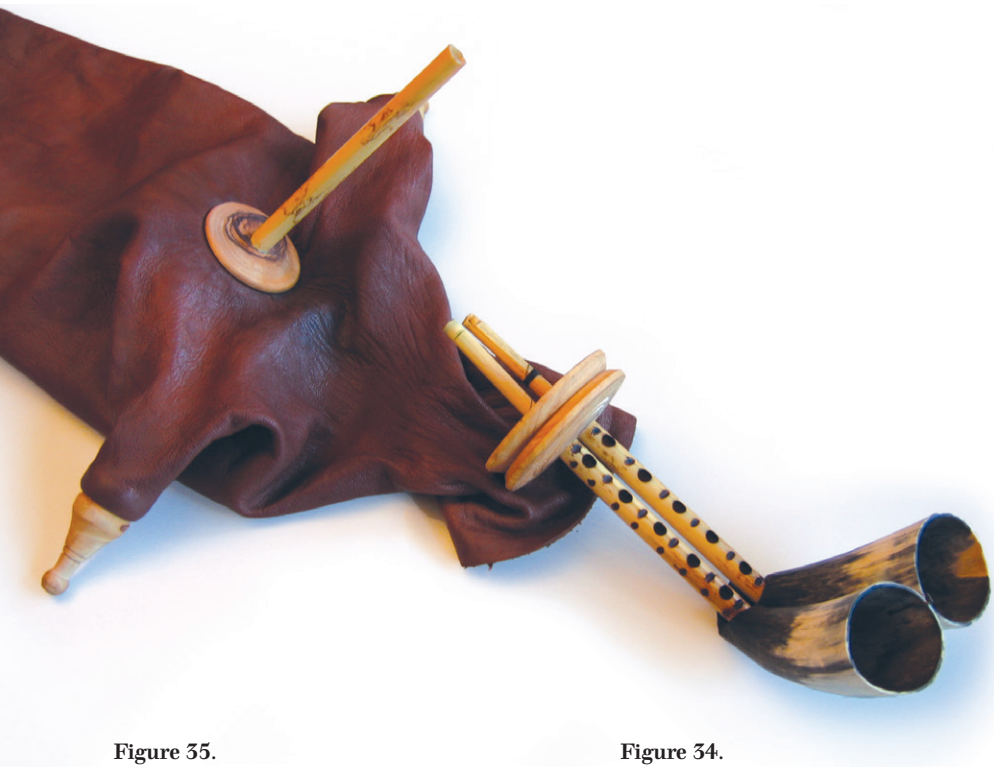


Figure 35.
Tunisian *mezwed* whose pipe was disassembled to show the reeds
PHOTOGRAPH BY MARIE-BARBARA LE GONIDEC, 2006

Figure 34.
Brittany regiment musicians playing the *biniou* (left) and the *bombarde* near to the Front of Yser (Belgium) during in the First World War
PICTURE PUBLISHED ON THE COVER OF THE FRENCH MAGAZINE L'ILLUSTRATION ON 3 JULY 1915 (PERSONAL COLLECTION). PHOTOGRAPH BY GEORGES SCOTT, 1915

I thought that the disposition of the pipes on the bag might be a relevant criteria, because it allows us to distinguish, in the same voicing group, one bagpipe from another. Then I focused my attention on the stock, because this is how the pipes are applied to the bag. So, for the three-voice bagpipes, that is to say type 1, we have a first branch (type 11) represented by the Scottish war-pipe (figure 36). Each chanter has its own stock (like in figure 37 showing Galician *gaitas* with one, two or three drones, each on its own stock). This is a 'dead' branch from which others do not stem, while, in type 12, two pipes grouped on a common stock + one isolated pipe, allows for many more possibilities (figure 38).

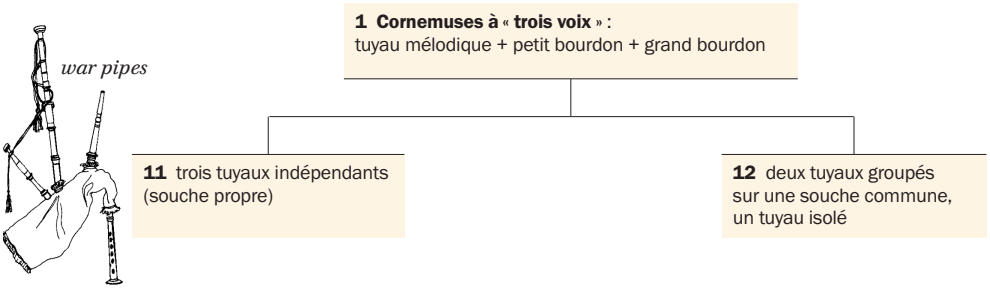


Figure 36.
Top of the embranchement showing the first distinction of the three voice bagpipes

Figure 37.
The galician group Os Raparigos at a bagpipe festival in Autun (Bourgogne). The traditional *gaita* is a two-voice bagpipe (on the right) but nowadays, we find three-voice bagpipe (on the left) and also some with four voices (in the middle, made and played by Anton Varela) PHOTOGRAPH BY VALÉRIE PASTUREL, 2005

This branching gives, first of all, type 121 with a single reed and two drones on a common stock, like the Estonian *torupill* (type 121.1). Type 121.2 instead has a double reed chanter. This is the case of the bagpipes seen in the paintings of Flemish painters of the sixteenth century like Bruegel, which show a different sort of stock, with (121.21) or without (121.22) recess. In type 122.1, seen in figure 38, there are only two visible pipes, the drone and the chanter, but, of course, three voices: this is the *gajde* from Banat in figure 31, p. 128. The chanter is not a single pipe but a cylindrical block with a double bore. I have called it 'monoblock' pipe. At the time, I did not notice the small drone set parallel to the chanter; I would, today, define it as a semi-melodic pipe. This pipe, called *kontra* in neighboring Hungary (figure 39, p. 134), has a hole which is played with the little finger of the lower hand. It can produce two notes: the fundamental in unison with the chanter (open hole) and the lower fourth (closed hole). It has a melodic-rhythmical role.

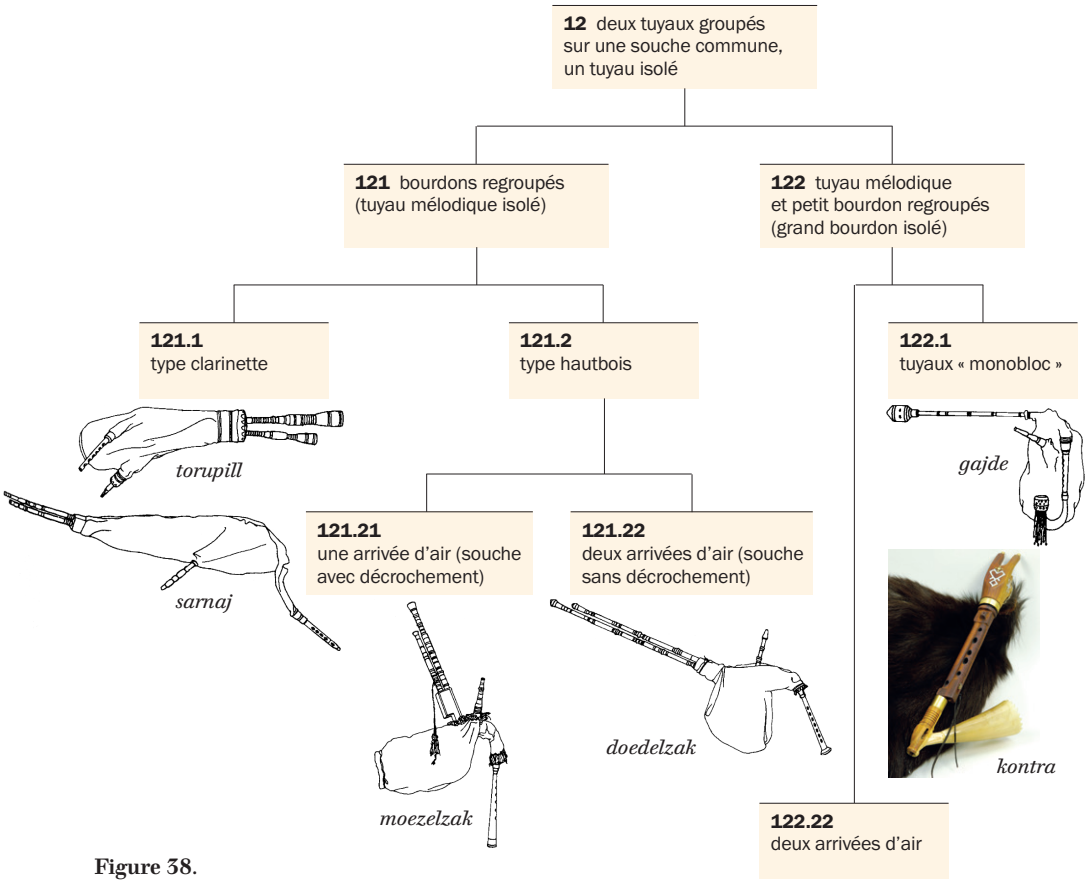


Figure 38.
Part of the tree showing the embranchement of the bagpipes from the type 12

Figure 39.
The double bore chanter of the Hungarian *duda*, named *kontra* with its two channels: one with finger holes to play the melody and the other with one single finger hole which has a melodic-rhythmical role

MARSEILLE. MUSÉE DES CIVILISATIONS DE L'EUROPE ET DE LA MÉDITERRANÉE (INV. 2005.127.1). PHOTOGRAPH BY ALICE BARRAT, 2005

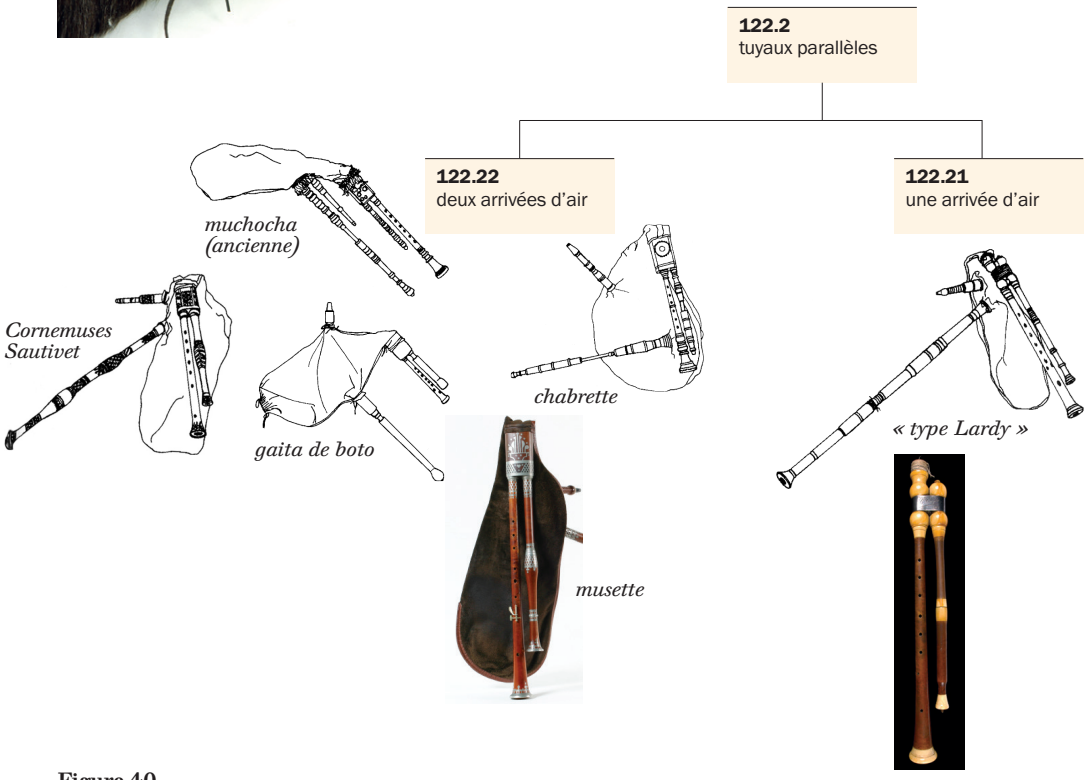


Figure 40.
The last branch of the tree showing the embranchement of the bagpipes from the type 122.2.
Details: on the right, the 'foot' of the *cabrette* from Auvergne which is inserted into the stock and easily removable, and on the left the *musette du Centre*, also with two parallel pipes (chanter and small drone) inserted into a double bore stock

CABRETTE: MARSEILLE. MUSÉE DES CIVILISATIONS DE L'EUROPE ET DE LA MÉDITERRANÉE (INV. 2001.8.7), TECHNICAL PICTURE OF THE DATA BASE
MUSETTE: PHOTOGRAPHS BY BERTRAND BILGER, 2006

Type 122.2 (figure 40) has two distinct and parallel reedpipes and a small drone set at the side of the chanter. There are two possibilities:

122.21 the stock for the parallel pipes has one hole only. Both pipes can be removed at the same time. This is the case of the Lardy type of *cabrette* from Auvergne (right). The detail shows the *pied* (the 'foot'), a device that can be replaced to play in another key (the *cabrette* was often played with accordion for the dance).

122.22 the stock for the parallel pipes, called *boîtier* (the box), has two holes: one for the chanter and another one for the drone. The pipes are removed one after the other to tune the reed. This is the case of the *musette* from Central France (on the left), like the instruments manufactured by Jean Sautivet. Making this tree, I wanted to find a place, among its 'cousins', for this local bagpipe, once again played in the Montluçon region and in Berry.

Finally, in 2014, Jean-Pierre Van Hees's book was published. There, we can find a very advanced study, based on all the bagpipes played in the world, in which he, a bagpipe player himself, integrates, in the classification he proposes, different notions on music. This classification, in which he maintained the notion of voices, is a chart where data overlaps in a complex system of abscissa and ordinates.
To conclude, let us remember that when I prepared the exhibition (1996) this extraordinary tool called Internet, which today provides all kinds of information and keeps people in touch, did not exist. Eleven years later we were able to create a website thanks to the contribution of numerous international musicians. (http://www.cornemuses.culture.fr/ figure 41).

Figure 41.
First page of the web site Cornemuse d'Europe et de Méditerranée www.cornemuses.culture.fr. REALISED BY HYPTIQUE, 2007

The method I employed for this classification, by using the notion of 'voice' and therefore of 'sounding pipe', is different from the principle employed by Hornbostel and Sachs. It allowed me to avoid distinctions between single or double reed bagpipe when it was not relevant, like in case 121, where it is useless to separate the Estonian *torupill* from Flemish bagpipes. However, my classification holds within it the same question that can be applied to the Hornbostel-Sachs classification: what produces sound in a bagpipe? Reeds, certainly, but what is typical of bagpipes is not the fact that they are clarinets or oboes, but that they can maintain air in a bag to supply the reedpipes. Many vernacular names are based on the words bag and pipe (in English for instance; and also in Greek where the primitive bagpipe is called *askavlos,* which means 'bag+aulos'). Other names are linked to the animal (usually a goat: *cabrette* in Occitan means little goat) whose skin is used to make the bag. Nevertheless, I would like to pay tribute to the ideas put forth by Hornbostel and Sachs, because their classification system, with its limits, due mostly to the time in which it was created, or other reasons we will not discuss here, remains, first and foremost, a model of rigor and logic which has helped me greatly throughout my research.

Appendix 1: Flutes

1	buccal air-duct flutes (vessel flute, South Afrika [MQB inv. 71.1989.69.3])
11	end mouthpiece and edge
111	open mouthpiece
111.1	simple (*tilinca*, Romania)
111.11	capped embouchure (*ney*, Iran; pluritubular flute from Malaita [Zemp 1971])
111.2	bevel-edged (Arabic *nay*)
111.21	capped embouchure, inserted (*kaval*, Bulgaria, *ney*, Turkey)
112	half-open mouthpiece (nose flute from the Jivaro People [Izikowitz 1935, 327])
12	end mouthpiece and shifted edge
121	end mouthpiece, slanted (p*išt'alka*, Slovakia)
122	notched or partial window (s*hakuachi*, Japan; flute from Argentina [MQB inv. 71.1933.72.566])
123	windowed (flute from Bielorussia [MUCEM inv. DMH1992.41.5]; *papan-oioilu*, Timor [MQB inv. 71.1971.59.7])
13	side mouthpiece and edge
131	simple (Baroque flute *traverso*)
132	with inserted embouchure (Boehm's flute; military *fifre*)
2	built-in air duct flute
21	inserted (Morilon flute [Izikowitz 1935, 375]; aztec flute [Kunitachi 1990, 41])
22	built-in, or integrated into the body of the flute
221	internal
221.1	with initial conductor
221.11	made with a plate (flute from Mexico [MQB inv. 71.1961.118.96])
221.12	made with a block
221.121	leveled with the end of the pipe
221.121.1	forming a right angle (*duduk*, Bulgaria)
221.121.11	(*taqoro*, Bolivia [MQB inv. 71.1991.268.7])
221.121.111	
221.121.111.1	(*fujara*, Slovaquia)
221.121.111.2	(*flageolet* [MUCEM inv. DMHxorg.990.15])
221.121.2	cut in a beak shape (recorder, double flute *dvojnice*, Croatia)
221.122	protruding block (*seljefloyte*, Sweden)
221.2	halfway block (flute from Mexico [MQB inv. 71.1938.164.354], from Argentina [MQB inv. 71.1908.24.189])
221.21	with deviator
221.211	simple (*osud* or *bedur*, India [MQB inv. 71.1979.20.22])
221.212	double (*pëlum-pëlum*, French Guiana [Rivière 1994, 54])
222	external
222.1	with ring (*suling*, Indonesia)
222.2	with plate
222.21	level with the end of the pipe (*bansiq*, Philippines [MQB inv. 71.1973.35.138])
222.22	beak-shaped (flute from Mexico [MQB inv. 71.1977.106.3])
222.221	the plate bears the window (*tung ti*, China [Institut d'Etudes des Cultures sur les Minorités 1986, 74])
222.222	a second plate corrects the edge (*gasuo*, China [Kunitachi College of Music, inv. 995])
23	semi-external
231	with mobile ring (flutes from Flores [Kunst 1942, 142])
232	with mobile block (courting flute from the Sioux People, North America)

Appendix 2: Bagpipes

1	*cornemuses à 'trois voix'* = 'three-voiced' bagpipes
11	*trois tuyaux indépendants (souche propre)* = three separate pipes (each with its own stock)
12	*deux tuyaux groupés sur une souche commune, un tuyau isolé* = two pipes on a common stock, one separated pipe
121	*bourdons regroupés (tuyau mélodique isolé)* = with drones in a common stock (separated chanter)
121.1	*type clarinette* = single reed type
121.2	*type hautbois* = double reed type
121.21	*une arrivée d'air (souche avec décrochement)* = one air pipe only inside the stock (stock with recess)
121.22	*deux arrivées d'air (souche sans décrochement)* = two separate air pipes inside the stock (stock without recess)
122	*tuyau mélodique et petit bourdon regroupés (grand bourdon isolé)* = chanter and small drone with common stock (separate bass drone)
122.1	*tuyaux monobloc* = pipes made from one piece of wood
122.2	*tuyaux parallèles* = parallel pipes
122.21	*une arrivée d'air* = one air pipe only inside the stock
122.22	*deux arrivées d'air* = two separate air pipes inside the stock

Bibliography

Hornbostel Erich M. von - Sachs Curt, 1961, *Classification of musical instruments. Translated from the original German by Anthony Baines and Klaus P. Wachsmann*, «The Galpin Society Journal», 14, pp. 3-29.

Institut d'Etudes des Cultures sur les Minorités, 1986, *Instruments de musique des minorités de Chine*, Pékin, Les nouvelles éditions mondiales.

Izikowitz Karl Gustav, 1935, *Musical and other sound instruments of the South American Indians*, Göteborg, Elanders Bocktryckeri Aktiebolag.

Kunitachi College of Music, 1990, *Flute*, Tokyo, Gakkiga ku Shiryokan (Collection for Organology, 9).

Kunst Jaap, 1942, *Music in Flores, study of the vocal and instrumental music among the tribes living in Flores*, Leiden, Brill (Internationales Archiv für Ethnographie 42 supplement).

Le Gonidec Marie-Barbara, 1988, *Etude organologique et typologique des flûtes à insufflation sur le bord terminal*, Master's thesis, Paris X-Nanterre University.

– 1996, *Typologie des cornemuses à trois voix* in *Les cornemuses de George Sand*, Montluçon, Musées de Montluçon, pp. 36-38, 108-109.

– 1997, *Essai de classification 'universelle' des flûtes*, «Pastel. Musiques et danses traditionnelles en Midi-Pyrénées», 33, pp. 24-37.

Marković Zagorka, 1987, *Narodni muzički instrumenti*, Beograd, Etnografski muzej u Beogradu.

Rivière Hervé, 1994, *Les instruments de musique des indiens Wayana du Litani (Surinam, Guyane française)*, «Anthropos», 89, 1/-3, pp. 51-60.

Van Hees Jean-Pierre, 2014, *Cornemuses, un infini sonore*, Spézet, Coop-Breizh.

Zemp Hugo, 1972, *Instruments de musique de Malaita*, II, «Journal de la Société des Océanistes», 34, pp. 7-48.

La nuova collana **Quaderni di etnomusicologia** della Fondazione Ugo e Olga Levi di Venezia promuove studi etnomusicologici o di musicologia transculturale, privilegiando l'edizione di primi risultati di ricerche innovative, rassegne sistematiche della letteratura specialistica, atti di convegni e traduzioni di studi di interesse etnomusicologico editi in lingue non comunemente accessibili. I volumi sono sottoposti a revisione tra pari.

The conference *Reflecting on Hornbostel-Sachs's Versuch a century later* was the last international conference organized by Febo Guizzi before his untimely death. It was hosted by the Fondazione Ugo e Olga Levi in Venezia on 3-4 July 2015. The conference intended to celebrate the 100 years of the Hornbostel-Sachs classification, and for the occasion Febo Guizzi had invited international researchers whose noteworthy achievements had been published in recent years, and those who, although they did not work specifically on the Hornbostel-Sachs classification, could help with the historical background that led to the 1914 *Versuch*, and shed light on the relationship between the systematics of Hornbostel-Sachs, Victor Mahillon, and André Schaeffner.
The conference was also an occasion to listen to some critical voices on the usefulness of the taxonomical approach in today's digital era; and, in particular, on questions regarding the hierarchical structure and the problems posed by the class of electrophones, which Hornbostel and Sachs never developed.
Just a few days before the conference began, Febo Guizzi had achieved the final version of his Italian translation, which along with the results of his emendations, were shared with the participants. This version, both in Italian and in English, is now published at the end of these proceedings.

ESSAYS BY: Margaret Birley, Roger Blench, Ignace De Keyser, Florence Gétreau, Cristina Ghirardini, Febo Guizzi, Erich M. Von Hornbostel, Lars Christian Koch, Vincenzo La Vena, Marie-Barbara Le Gonidec, Renato Meucci, Arnold Myers, Jeremy Montagu, Maarten Quanten, Curt Sachs, Rupert Shepherd, Gian Nicola Spanu, Nico Staiti, Stéphanie Weisser.

9 788875 520625