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Contradictions in the Perception of Organ Stop *Vox humana*: From a Bear's Roar to the Human Voice. An Analysis and Comparison of Verbal Meaning and Sound Production

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ABSTRACT

The verbal naming of certain music timbres is considered to be a highly inventive aspect in the terminology of pipe organ stops. Most titles match the produced sound of stops, e.g. *Flute*, *Violina*, *Gamba*, *Posaune*, *Trompete*. Though some eloquent expressions (such as *Vox humana*, *Vox Angelica*, *Unda maris*), their etymology and attribution to certain organ sound present a contradictory centuries-long process. The article focuses on *Vox humana* (Lat. 'human voice'), one of the oldest reed stops with short resonators, of the Regal type. Its subtle manufacture and voicing is proof of an organ builder's excellence; there have been distinguished over 10 shapes of complex pipe scales that differ even in the frame of the same organ building school or master. The history of stop naming displays an intriguing conflict of verbal and sound perception. The origin of the title goes back to the beginning of 16th c. France, where *Voix Humaine* was used alongside *Jeu d'enfants*. Eventually organ builders in European countries adapted their versions: *Voz Humana*[*-e*] (used in Spanish organs), *Voce Umana* (Italy), *Anthropoglossa*, *Menschenstimme* or witty *Bärpfeife* ('bear pipe') in Germany. The article highlights the disagreement between the title and sound of the stop based on the excerpts from treatises written from the 17th to beginning of the 20th centuries. A systematization and comparison of pipe construction types that were manufactured in the 17–19th c. are presented.

INTRODUCTION

Regarded as one of the oldest baroque pipe organ stops, *Vox humana* stands out among the most refined reed stops, with short resonators of a cylindrical and/or conical form and of the Regal type. Usually this stop, being second to the more frequent reed type *Trompete*, was specific for large baroque organs with two or more manual keyboards. However, it is noted, that some one-manual organs in Sweden (dated end of the 18th and beginning of the 19th c.) or Lithuania (dated middle of the 19th c.) featured *Vox humana* beside *Trompete*.

For over 500 years of its existence *Vox humana* experienced plenty modifications of pipe scales, changes of the title and therefore accumulated a variety of sound-timbre features. There are over 10 different resonator shapes of *Vox humana* pipe scales; they differ among the examples attributed to the same organ building school and even produced by the same organ master. The manufacture of stop pipes requires a complex and thorough calculation, accuracy of the master and a long lasting process of voicing, and is widely considered as proof of the organ builder's excellence. So could it have been an organ master's dream to produce an organ stop that could perpetuate itself and convey personal voice – *Vox factorem*? This article focuses on mostly baroque types and the variety of *Vox humana* stops, its spread among countries and different organ building traditions.

VOX HUMANA IN EUROPEAN ORGAN TRADITION

The continuous implementation of the stop, titled with different versions of the Latin *Vox humana* ('human voice'), is noticeable in late renaissance and baroque pipe organs by various European organ building traditions starting from the middle of the 16th c. till the middle of the 19th c., when the romanticized transformations emerged. Mostly the stop was typical of instruments of the French and German organ building style, and directly related ones. However, according to Wedgwood, some ancient German organs featured *Pilgelchor* equipment – a *Vox humana* like effect "to represent the distant singing of pilgrims" (Wedgwood, 1905, p. 118).

Some of the origins of using the *Vox humana* stop in the organs go back to the middle of the 16th c. – French pipe organs, the stop besides *Voix Humaine* was called *Jeu d'enfants* (Lat. 'voice of a child') as well. In c. 1600 *Vox humana* was mentioned in Belgium, the Netherlands (e.g., master Neijenhoff, c. 1600, Schiedam St. John's Church, The Netherlands), and later – in Spain (*Voz humana[e]*, e.g., unknown master, 1762, Tarifa St. Matthew's Church, Spain) (see Eberlein, 2009; Stauff, 2016). Through the Bader family of organ builders that operated in the Netherlands and Westphalia, and the organ master Arp Schnitger the use of *Vox humana* was introduced to Westphalien and North German territories in the middle and second half of the 17th c. At the same time there are some known examples in English pipe organs. Since 1700 the stop was introduced to the East and Middle Germany (through the masters Claude Legros and Andreas Silbermann). In c. 1730 through the organ masters Johan Niclas Cahman (c. 1670–1737) and Lambert Daniel Kastens (c. 1690–1744) the *Vox humana* stop was brought to Scandinavian countries. There, e.g. in Sweden, organs by Wahlberg used the reed stops *Trompete* and *Vox humana*, and by the way, *Vox Virginea* (1764 organ in Karlskrona Fredrikskyrka). And in c. 1750 the Badische organ masters took over the stop from the master Johann Andreas Silbermann (1712–1783).

The German tradition also used another version of the title – *Anthropoglossa*, *Menschenstimme* or even the witty *Bärpfeife* ('bear pipe'). The use of the latter still marks some uncertainty. E.g., Werckmeister's remark that *Bärpfeife* sometimes dubbed *Vox humana* is disputed by Wedgwood pointing to it as "truly a questionable enough compliment to the human voice" (Wedgwood, 1905, p. 6); on the other hand, Audsley notes, that *Bärpfeife* "of 2 ft. and 1 ft. have whistling tones resembling those of the human mouth" (Audsley, 1925, p. 41).

The spread of *Vox humana* in Lithuanian baroque organs, starting the 2nd half of 18th c., was affected by the East

Prussian organ building school of German legacy by the master Adam Gottlob Casparini (1715–1788), who settled in Königsberg, and possibly – Gerhardt Arendt Zelle (?–1761), the founder of Vilnius Late Baroque Organ Building School. Thereafter, from the 2nd half of the 18th c. to the middle of the 19th c., *Vox humana* remained one of the main exclusive reed stops in almost all large (2-keyboard manual) Lithuanian baroque organs as well as portatives (small organs).

Italian baroque organs featured the same title *Voce Umana* as well. However, in the organ heritage of this country we encounter a different type of the stop and its pipes. Italian *Voce Umana* is characterized by labial pipes instead of reed, and every tone is produced by two unevenly tempered pipes that produce a wavy sound (e.g., organs by the Antegnati family masters in Bergamo St. Nicola Church, 1588, and Brescia St. Carlo Church, 1630, Italy).

TIMBRAL AND CONSTRUCTIVE PECULIARITIES

Usually an 8-foot *Vox humana* reed stop was produced seeking to imitate the human voice. However, an English music historian Charles Burney (1726–1814), who had listened to the sound of many glorious organs in Europe (e.g., Gottfried Silbermann's 1736-organ in Frauenkirche in Dresden) and set down his tour impressions in the famous volume *The Present State of Music in Germany, the Netherlands, and United Provinces* (1st ed. 1773), stated after a disappointing visit to Müller's 1738-organ in Haarlem church: "[...] the world is very apt to be imposed upon by names. [...] I must confess that, of all the stops I have yet heard which have been honoured by the appellation of Vox Humana, no one in the treble part has ever yet reminded me of anything human so much as of the cracked voice of an old woman of ninety, or in the lowest parts of Punch singing through a comb." (Burney, 1775, p. 305) Though in some cases Burney praised this stop as "one of the best [...] of that kind" (e.g., Amsterdam church organ) and expressed modest compliments on the "sweet" *Vox humana* like sound of a fine oboe or clarinet, but, still, not "a human voice". Later on James I. Wedgwood presented with Robertson's note, recorded in 1897, that the thin and nasal *Vox humana* tone may resemble "anything, from Punch's squeak to the bleating of a nanny goat", adding his own remarks "a ludicrous caricature of the human voice" or "the peculiar 'flavour' of the stop has also led to the mock-name of the 'gas-pipe'" (Wedgwood, 1905, p. 178–179).

There are not so many surviving authentic examples of centuries-old *Vox humana* worldwide; most baroque organs were rebuilt in the 19th c., usually *Vox humana* was removed or replaced during the changes of the stop list. However, the comparison of known examples shows a very different approach to and manufacture of the same titled stop.

It is worth noting that in Lithuania, a remote East-Central European country, the authentic baroque *Vox humana* has survived in several organs: in Kretinga Franciscan church (unknown master, end of the 17th c.), Vilnius church of the Holy Spirit (Prussian master Adam Gottlob Casparini, 1776), Tytuvėnai church (Vilnius school master Nicolaus Jantzon, 1789), Žemalė church (unknown master, 1839), and some fragments in Kurtuvėnai church (Vilnius school master Mateusz Raczkowki, 1792–3).

Nowadays, some examples of *Vox humana* pipe construction are distinguished as the most representative and typical examples among others. Seeking to produce the delicate and rapid pulsation of sound like the vibrato effect, *Vox humana* most commonly was performed in a combination with other 8-foot registers with stopped pipes or *Tremulant* (in some cases the latter equipment was installed inside the *Vox humana* as a double-stop construction) (Friedrich, 1989, p. 45).

The *Vox humana* pipe consists of two main parts: a metal or wooden boot (bottom part) and metal (very rarely wooden) resonator (top part). The quality of timbre and sound especially depends on the construction and shape of resonator that usually was produced using two main geometrical forms of cylinder and conic (plus a conic with flat top) and various combinations (see Fig. 1)

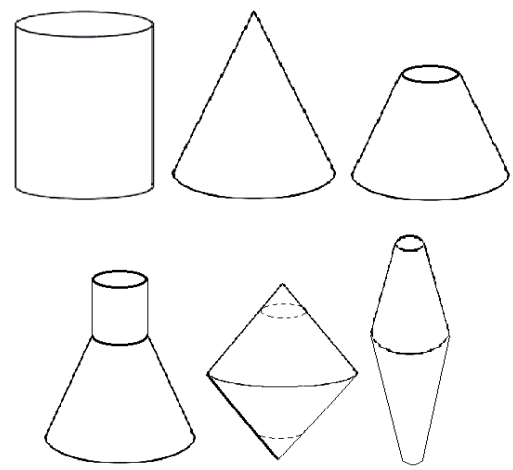

Figure 1. The geometrical forms as the basis of *Vox humana* pipe construction: cylinder, conic, conic with flat top, and their combinations: cylinder and conic with flat top, double conic (and/or with flat top), spindle.

Types of Construction of *Vox Humana*

The historically settled types of *Vox humana* pipe construction and attributed examples are:

1. Half-stopped resonator with cylindrical top section, bottom section – inversion of cone with flat top. Example: *Voix humaine* in Meaux Cathedral (France), 1627, master Valéran-de-Héman (Bédos, 1766, engraving No. 18, fig. 141).

In 17–18th c. France, this stop experienced slight modifications, the resonators of lower tones were prolonged. Similarly *Vox humana* was produced in the 17th c. Netherlands (example: organ by the Duyschot family masters, c. 1687, Leiden St. Peter Church).

In c. 1670 a *Vox humana* with a cylindrical resonator appeared in the Adlington Hall organ, Macclesfield (UK). This type of resonator may be linked to the organ master Bernard Smith and was adopted by German masters, e.g., Andreas Silbermann, Gottfried Silbermnann and Johann Michael Stumm. Examples of type 1 presented in Fig. 2.

This type of construction is quite similar to the resonator and pipe scale of *Zink*[*e*] (also *Zinck*[*e*], *Cink*[*e*]) stop. The latter example has survived in Kretinga Franciscan Church (unknown master, end of the 17th c.; Lithuania), its inauthentic title *Trompet* 8' was made in the 19th c. (see Fig. 2 & 3).

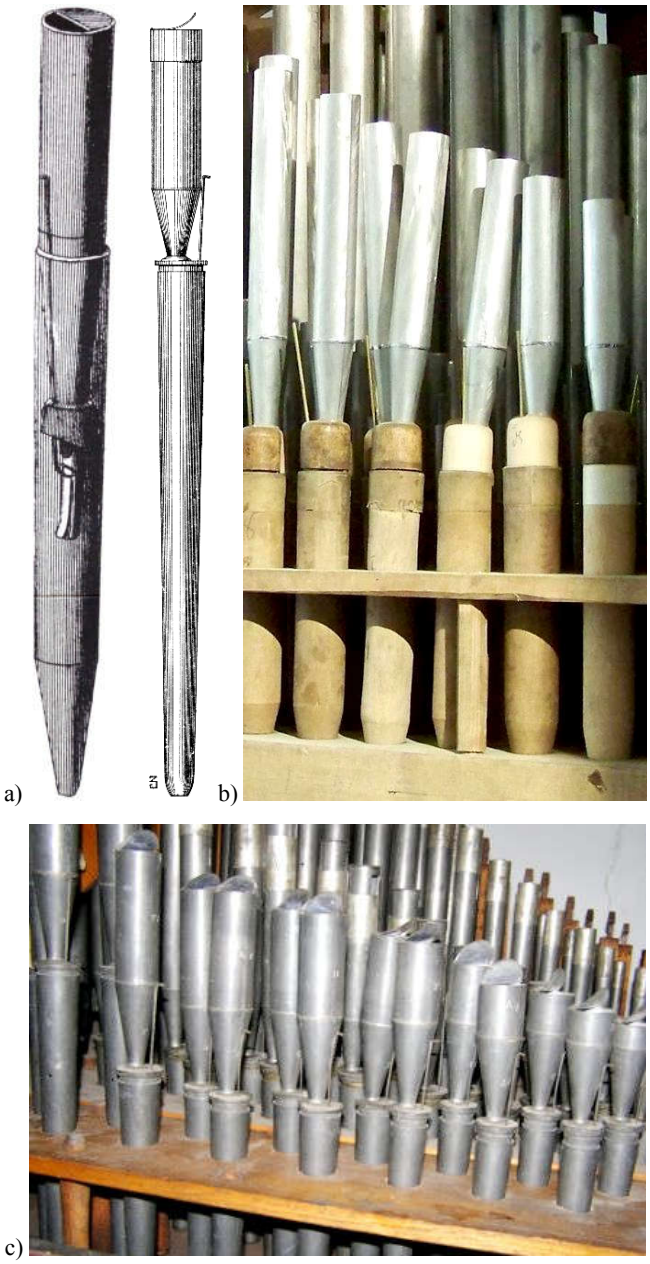

Figure 2. Pipe examples of Type 1: a) *Vox humana* drawings (left – Bédos, 1766, engraving No. 18, fig. 141; right – Audsley, 1905, fig. CCCLVI); b) *Trompet* pipes in Kretinga Franciscan Church (unknown master, end of the 17th c.; Lithuania); c) newly manufactured (2008) *Vox humana* pipes of this type for the organ in St. Paul's Stoneycroft, Liverpool (UK).

2. Double conical resonator on cylindrical foot, wide cylindrical resonance hood with central cavity and small surrounding holes. This type was exploited by the master Arp Schnitger in the 2nd half of the 17th c. This type of pipe has survived in the organ by Dietrich Christoph Gloger, 1758–63, Cadenberge St. Nicolaus Church (Germany). Albertus Antonius Hinsz continued Schnitger's organ building tradition in the Netherlands. The manufacture of his *Vox humana* in Kampen St. Nicholas Church (The Netherlands, 1741–3) is an obvious example of Schnitger's influence (see Fig. 3).

Like the first type, the second type is quite similar to the resonator and pipe scale of *Zink*[*e*] (also *Zinck*[*e*], *Cink*[*e*]) stop (see Fig. 3).

Figure 3. Pipe examples of Type 2: a) the copy of the *Vox humana* pipes from Arp Schnitger's organ in Hamburg Hauptkirche St. Jacobi (1688–93; a copy of Schnitger's organ installed in new organ in Gothenburg Örgryte New Church and implemented by GOArt/Göteborg Organ Art Centre, Sweden, in 2000); b) *Vox humana* by Albertus Antonius Hinsz (1741–3, Kampen St. Nicholas Church, The Netherlands); c) an example of analogous construction – the copy of the *Zink* stop from Arp Schnitger's organ in Hamburg Hauptkirche St. Jacobi.

3. Double conical resonator on cylindrical foot, without hood, open. Known examples: Gottlieb Heinrich Herbst, 1728–32, Schlosskirche in Lahm, Itzgrund (Germany). Similar pipes specific for the organ by Christian Müller, 1738, Haarlem the Grote Kerk or St. Bavokerk (The Netherlands); by the Paris master Jean-François Lépine, 1759, Béziers St. Nazaire Cathedral (France; the stop titled *Voix humaine a l'allemande* 8'). This type of newly manufactured *Vox humana* pipes was used for the old organ by Joseph Gabler (1739–50, Weingarten Basilica of St. Martin, Germany, see Fig. 4).

This type of stop was called *Basson ou Voix humaine a l'allemande* 8' as well; in Bédos' catalogue the stop described as *Basson* (see Bédos, 1766, engraving No. 129, fig. 4). By the way, the Bédos' catalogue provides a quadruple type of conical-shaped resonator (see Fig. 4).

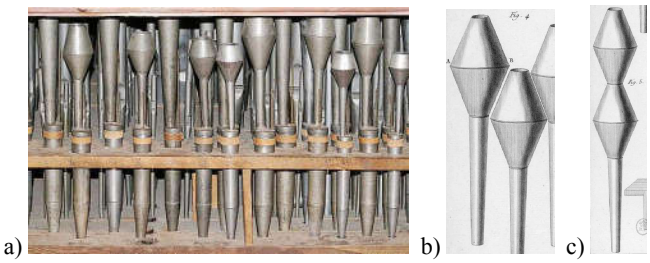

Figure 4. Pipe examples of Type 3: a) newly manufactured *Vox humana* pipes in the old organ by Joseph Gabler (1739–50, Weingarten Basilica of St. Martin, Germany); b) a drawing in Bédos, 1766 (engraving No. 129, fig. 4); c) an example of quadruple combination (Bédos, 1766, engraving No. 129, fig. 5).

4. Double conical resonator, open. The type is analogous to the *Bärpfeife* stop (see Fig. 5). It is known that the organ master Arp Schnitger produced this type of pipe (with asymmetric double cones, lower part longer than top) for the 1699 organ in Uithuizen Church (The Netherlands).

This type of resonator was used by East Prussian organ builders, and was discovered in the organ by Andreas Hildebdrandt, 1746–7, Gdansk St. Barbara's Church (Poland). A similar example is specific to Zaharias Hildebrandt's organ, 1743–6, Naumburg St. Wenzel Church (Germany). Hinsz used this type for some *Vox humana* pipes in his 1741–3 organ in Kampen St. Nicholas Church besides other pipes of type 1 construction (with a wide cylindrical resonance hood, see Fig. 5).

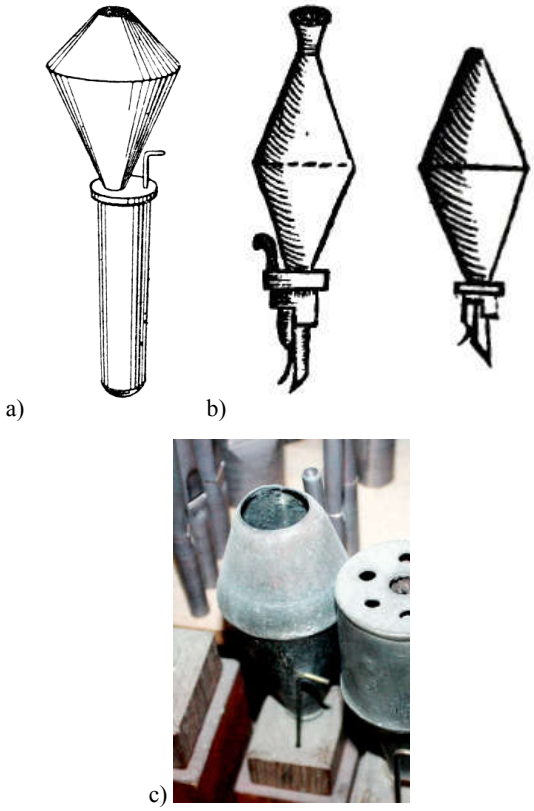

Figure 5. Pipe examples of Type 4: a) a drawing of a traditional *Bärpfeife* pipe (author unknown); b) a drawing of *Bärpfeife* (left) and *Vox humana* (right) pipes by Praetorius (Praetorius, 1619, fig. XXXVIII); c) *Vox humana* pipe with double conical resonator by Albertus Antonius Hinsz (1741–3, Kampen St. Nicholas Church, The Netherlands).

5. Resonator with cylinder bottom section and spherical (apple-shaped) head, pierced with small holes (Germ. Apfelregal, Knopfregal). Possibly, it is one of the oldest types of organ pipe construction but there are no surviving examples. Among mentioned historical examples are: the master Christoph Contius, 1713–6, Halle Marktkirche; Johann Georg Schröter, 1716, Erfurt Augustine Church (Germany). In his dictionary of organ stops, Wedgewood provides a drawing of the so-called *Apfel-Regal* pipe (see Fig. 6).

6. Two-section tapered resonator, with dome-shaped top (hood) and round hole on the side (see Fig. 7). A historically mentioned, but not survived example is: Joseph Gabler, 1739–50, Weingarten Basilica of St. Martin (Germany).

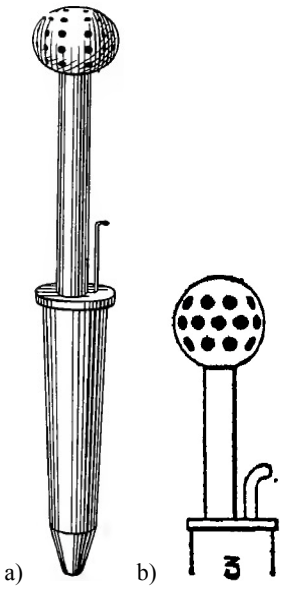

Figure 6. Pipe example of Type 5: a) a drawing of *Apfel-Regal* pipe by James Wedgewood (Wedgewood, 1905, p. 134); b) a drawing of *Apfel-Regal* pipe by George Audsley (Audsley, 1921, p. 224)

Figure 7. A newly manufactured pipe example of Type 6 by Robert Morton Organ Co. (1928, Ohio Theatre, Columbus, USA).

7. One-section tapered resonator, half-stopped. A historically mentioned example is: Johann Gottlieb Benjamin Engler, 1813–22, Wrocław St. Mary Magdalene Church (Poland); the organ featured a very rare example of *Vox humana* because of wooden square-tapered resonators from tone *c*.

8. One-section tapered resonator, stopped, with vowel cavity on the side of the top. A historically mentioned example is: Johann Daniel Boden, 1776, Sambleben in Schöppenstedt, Germany).

9. Spindle-shaped resonator (the length of top conic varies from equal parts to 2-3 times shorter due to the pitch), with vowel cavity on the top. Examples: Andreas Hildebrandt, 1719, Paslęk St. Bartholomew Church (Poland); Adam Gottlob Casparini, 1776, Vilnius Church of the Holy Spirit (reconstructed in 2006); Nicolaus Jantzon, 1789, Tytuvėnai church; Mateusz Raczkowski, 1792–3, Kurtuvėnai Church; unknown master, 1839, Žemalė Church (all mentioned in Lithuania) (see Fig. 8).

Figure 8. Pipe examples of Type 9: a) by Andreas Hildebrandt (1719, Paslęk St. Bartholomew Church, Poland); b) by Adam Gottlob Casparini (1776, Vilnius Church of the Holy Spirit, Lithuania); c) by Mateusz Raczkowski (1792–3, Kurtuvėnai Church, Lithuania); d) by unknown master (1839, Žemalė Church, Lithuania).

Types of *Vox Humana* Construction in the 19th–20th C.

1. Triple conical resonator. This type of pipe construction was more common in the pipe organs of romantic style, starting the 19th c. However, it is analogous to the old *Bärpfeife* stop construction; its triple construction was already mentioned by Adlung in 1726 (his book published in 1768) and later authors – Seidel (1844), Wedgewood (1905), Audsley (1921), etc.

In c. 1829 the organ master Ignaz Bruder in his workshop records book mentioned producing *Vox humana* with triple conical shape resonators. An example of *Vox humana* pipes of the famous Bätz-organ in the Hague (Fig. 9) was possibly manufactured during the rebuilding of the organ (the baroque organ was built in 1762 by Johann Heinrich Hartmann Bätz, but in 1837 his grandson Jonathan Bätz made the essential changes in the stoplist).

In the 20th c. this type was manufactured by the organ building workshop of Klais Orgelbau for Würzburg Cathedral (Germany, 1968–9).

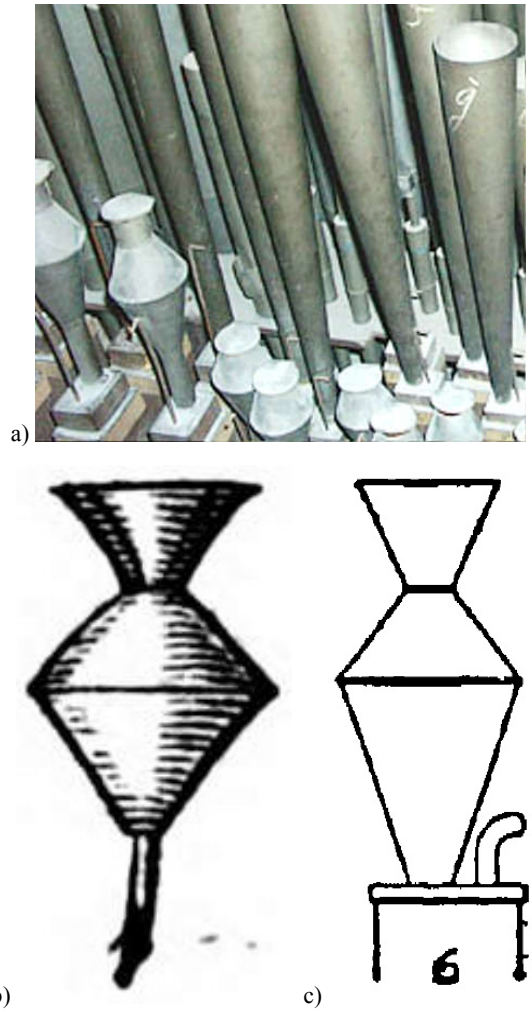

Figure 9. Example of triple conical resonator: a pipe from the organ by organ master Johann Heinrich Hartmann Bätz (1762) and rebuilt by Jonathan Bätz (1837, Evangelical Church, The Hague, The Netherlands); b) drawing of the *Bärpfeife* of triple-conical construction (Adlung, 1768, p. 73); c) drawing of the *Bärpfeife* of triple-conical construction (Audsley, 1921, p. 224).

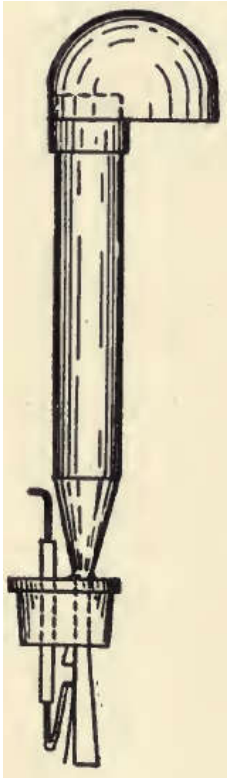

Figure 10. Example of conical-cylindrical-spherical combination: a drawing of *Vox humana* pipe in Norman and Beard's organ in Norwich Cathedral (1899, England) (Miller, 1913, p. 92, fig. 20).

2. One-section tapered resonator, with closed cover. Example: organ by Jemlich workshop, 1899, Lößnitz Johanniskirche (Germany), the stop is placed in a distant box over the organ case. This type of newly manufactured pipe was introduced in 1932 and 1956 – catalogues by 20th c.-organ building workshop of August Laukhuff.

3. Free reeds (Germ. *Durchschlagende Zungen*). The first known examples are dated the end of the 18th c.; in the 19th c. it was the most popular type of resonators among organ building workshops, e.g., organ by the Walker workshop, 1879, Düsseldorf Johanneskirche (Germany).

4. A combination of conical bottom section, cylindrical middle section and half-spherical resonance hood. In 1913, an interesting and rare example of *Vox humana* pipe construction was printed in Miller's study about organ building, while discussing the organs of the 19th c., and referring to Norman and Beard's organ in Norwich Cathedral (Miller, 1913, p. 92; see Fig. 10).

Labial Type of *Vox Humana*

This kind of organ stop features the vibrant, wavy (Germ. *Schwebende*) and slightly untuned sound (uneven tuning), and is attributed to the group of Principal stops. To this day the stop has been used in Italian organs since c. 1550, with the title *Voce umana* or *Fiffaro*, *Piffara*, *Bifara*. Furthermore, this type of stop was brought into the surroundings of Germany and later spread more widely through the organ builder Eugenio Casparini (Johann Caspar, 1623–1706), who after returning from Italy, manufactured this stop for the 1697–1703 organ in Görlitz St. Peter and Paul Church. This type is quite analogous to another labial stop *Unda maris*, which is more common.

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