In the footsteps of his master Bacigalupo
. . . or the discovery of Martin Zumbach
Arranger of Organ Barrels
and
*Manufacturer of Barrel Organs**

Paul Fricker

On the corner of a small street in Geneva, I am intrigued by the magnificent and colourful sounds, heard from a long distance … *Under the Bridges of Paris* . . . this immortal tune played by pan flutes and violins, in splendid arrangement and accompanied by very special basses.

A First Encounter:

The beautiful and elegant Lydia turns the crank of a Violinopan; she's beaming in front of an audience that is delighted by this small street concert. She asks me to choose a tune from the three repertoire lists of beautiful music inside her organ (**Figure 1**).

And, what a surprise! I discover the interior of the instrument, which is a barrel organ with an endless screw and look—an enormous amount of small pins, placed next to each other on the outline of the barrel, generate this magnificent sound.

I can choose between 24 tunes available on the three barrels, which are easily changed and of which two are placed in a storage space underneath the small cart (**Figure 2**).

Figure 1. Lydia playing the Zumbach Violinpan

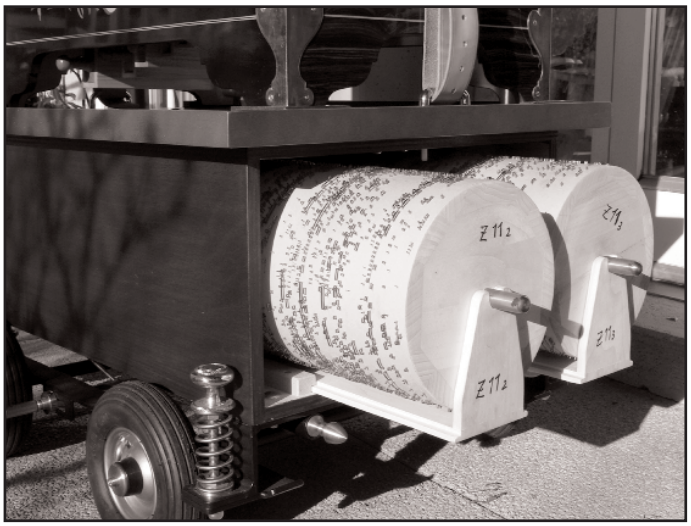

Figure 2. Two eight-tune barrels for the Violinopan stored in the cart.

What a magnificent technique, for a barrel organ, and such harmonious sounds when Franz Doelle's *When the White Lilacs Bloom Again* resounds. It's pure joy! I feel my heart beating … for the engineer.

Who on earth is able to manufacture such a musical and traditional masterpiece? Want to know my discovery? It's Martin Zumbach, of course, a passionate organ manufacturer and a virtuoso at the keyboard of a church organ.

He lives in a beautiful region of Switzerland, near the lake and mountains of Zoug. He was born in 1932 and when he was still an adolescent, he had already played organ in the community church of his village (he still does

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today). He learned the trade of cabinetmaker, and continued his training with the church organ manufacturer, Walter Graf in Sursee. It was at the water treatment plant at Zoug that he practiced his trade, starting in 1959 and retiring forty years later.

Figure 3. Martin Zumbach, barrel arranger, at work in his shop.

But his passion for music and the construction of small barrel organs became very much alive in his spare time (**Figure 3**). However, by lack of relevant technical documents (which are rather rare these days), Martin had to learn everything in his own workplace—a modern method, well known in the industry: learning by doing.

In 1958, Martin repaired a barrel organ for the first time and soon he installed a small workshop in his new house. At that moment, the antique dealer Paul Döbeli asked him to restore and repair barrel organs. And that's how Martin learned his best lessons! These instruments also served as his models … "It is really exciting to bring these old instruments, (Bacigalupos, Bruders, Holls and Fratis) back to life and to let these flute pipes sing again in perfect harmony, just like they used to do in those old days."

By 1975 Martin arranged and pinned his first barrel—not for a street organ but for a flute clock! Relying on his long time experience and with great enthusiasm, he created his first barrel organ in 1982. Using references provided by his master Bacigalupo, he manufactures all necessary parts himself, from the flutes to the wooden barrels. Thanks to his constant search for perfection, he soon becomes a real craftsman. But even more important, his virtuosity as an organist is immediately apparent from the harmonization of his organs, thanks to his mastery of the arranging of barrels. His arrangements of old as well as modern tunes distinguish themselves by his use of accompaniments, basses and tremolos. One would sometimes think that there are more flutes than present. It's one of Zumbach's uncommon qualities, even his hallmark. He revives the spirit of the clock makers of the old days, who manufactured those magnificent music boxes in the Jura region of Switzerland. He's a very calm and serene person, who has transferred his character into the warm and harmonious sounds of his instruments as well as into his arrangements.

Figure 4. A close-up of the pan flute pipes.

The Violinopan

This instrument is an artistic marriage of pan flutes, violins and bourdon pipes. It has 36 keys and 72 pipes:

- 20 cylindrical, stopped pipes in bamboo, fed from the side, like the pan flutes. They are one octave higher.
- 26 open pipes, the violins (hence the name: "Violinopan").
- 26 large pipes in the base, stopped pipes make up the bourdon registed.

Figure 5. A top-side view of the violin pipes.

Each of the 36 keys operates two pipes, of which one is pitched one octave higher than the other. The lowest note is F, the highest D. The scale is chromatic from A to C, comprising all semitones (only C# is missing). The instrument is tuned in A (495Hz). Air pressure is 145 mbar, which generates fairly loud tones.

Martin is convinced that today's organ grinders actually often perform small concerts. Therefore, an organ with 36 keys is a fair compromise between the musical possibilities, the size and the weight of the instrument. Martin has also succeeded in producing an original sound, recognizable from far even by people whose mind is occupied by other stuff. It's in this field that excels the quality and originality of his arrangements, his fascinating sounds and his pan flutes, in combination with the violins in his instruments. This original musical assembly is very rare these days for a barrel organ.

The barrel arranger

The arrangement of the barrel is the most essential stadium in the creation of a cylinder operated organ. Let's enter Martin's workshop—what a pleasure! What a surprise! All is calm, light—and every tool has been stored in its proper place. There, on the bench, is a barrel mounted in an old organ, ready to be marked according to the "direct division" method. But beware, there is no computer here. No musical software to assist in writing and composing music. No possibility to check the music before perforating the holes—or, in our case, before setting the pins and bridges. And don't even try to find an electronic device to set the pins on the barrel. Here, everything is done by hand in the old-fashioned way by the "hammerman," trusting his own musical ear. And what an artist he is!

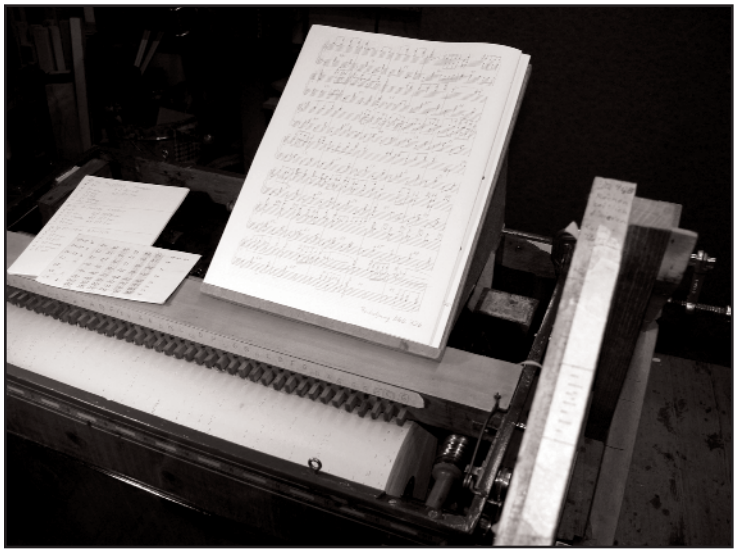

Figure 6. The arranging of the music.

First, Martin composes and arranges his music on paper, then he plays it on a large organ with 566 pipes and 10 registers, which he built himself (of course). The next step is to "calculate" the music (or, to measure the notes and to transform them into numbers, in order to divide the barrel [200mm across] in equal parts). Each melody—note by note, measure by measure—has to be placed with great precision and cover a complete turn of the barrel (**Figure 6**). One turn will last for about 1½ minutes or take 72 turns of the handle. Martin admits he already hears every note while marking the barrel.

The length of the notes is dependent on the pins or bridges of various length, which will make the flutes sing for a short or long time. A pin corresponds to a short note, while longer notes are formed by a bridge—both are easily recognizable. The pins and bridges are "hammered," or fixed, at irregular intervals, and as always, it's the precision that counts. Conflicts between pins or bridges would generate false notes, while a not-well-centred barrel or irregular pin height would lead to the valves being opened too fast or too slow. Chords would then sound incorrect and unstable.

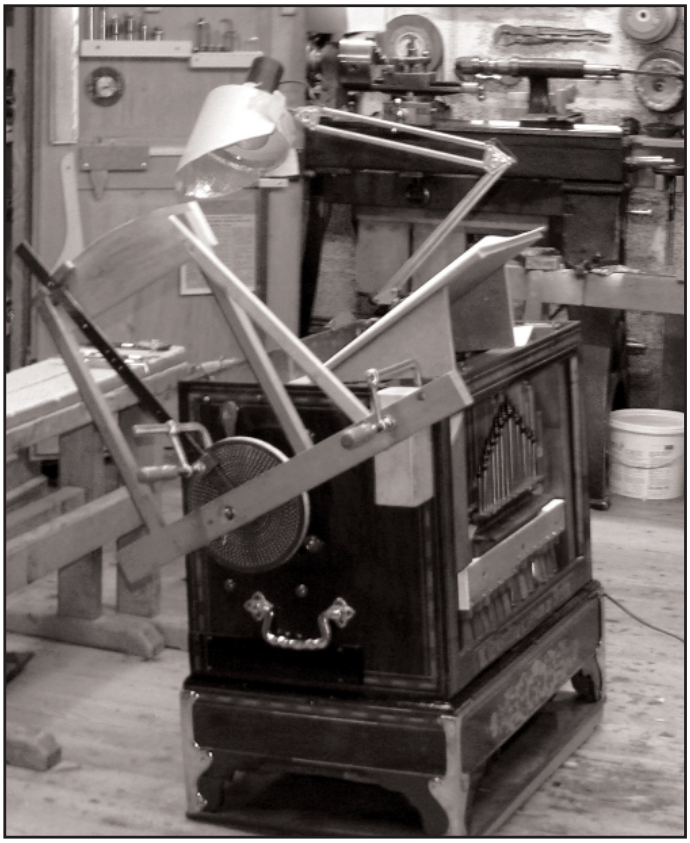

Figure 7. Arranging using the direct division method.

By moving the barrel only 1.7mm, one can place eight melodies on it. One barrel easily contains 10.000 to 15.000 brass pins and bridges, and Martin is a master in

this high-precision work. It takes him over a month to create such a gem—a true genius. It's also important to know that barrels cannot be exchanged between organs, because of the variable geometry of the instruments. Therefore, each barrel is the musical score of just one instrument, which partly explains the originality of barrel-operated organs.

Martin uses the so-called "direct division," a method for which he places a division disc directly on the axis of the cylinder (**Figure 7**). A long lever mounted on the division disc increases the "resolution" of the division. After each measure this lever is shifted by a distance equal to the corner radius calculated for the measure. All this is done while the barrel is mounted in the organ.

To those who would like to get familiar with the arranging and pinning methods, I'd like to recommend the book published in 1775 by Father Engramelle, physician and musician, who was a member of the court of king Stanislas in Nancy: *La tonotechnie ou l'art de noter les cylindres—Hermann Editeurs des Sciences et des Arts*. In this book, Engramelle describes three interesting arranging methods. Today, hardly any literature is available on the subject because all arrangers—all with their own methods and little manufacturing secrets—have jealously kept their knowledge to themselves. But fortunately, for each of his barrels, Martin has kept an extended musical and practical documentation. His wife is even preparing video recordings. In 1996, Lothar Wonneberger published some very good documentation on the subject in the magazines of the German societies CCD and GSM. But even with a fine musical score, not every organ grinder will become a barrel arranger and pinner at once.

Figure 8. The mechanism to set the barrel in eight different positions

Figure 8. Martin Zumbach at work pinning a new barrel for a Violinopan.

Martin Zumbach, Organ Builder and Musician

During the 1990s, Martin built eleven complete Violinopan instruments. Today, his main job consists of restoring barrel organs and arranging barrels, always aiming at perfection.

These restorations give a renewed strength to old instruments, and naturally surprise the happy owners. Hearing such an organ "sing" at the final stage of the work is always a privilege

Figure 10. The author hand-cranking his Violinopan at the Waldkirch OrgelFest, June, 2008. Photo: Ron Bopp.

and a source of joy for Martin, who is even more pleased by his client's satisfaction. He has never wanted to turn it into a commercial business. But although he regrets that today's public often considers the barrel organ to be old-fashioned, he still takes part in various festivals of mechanical music.

Martin does believe that the large number of organs produced during the past 15 years, often as a serial product and playing the same repertoire, has made these festivals less attractive and less original. There's no doubt that the market has been flooded by plain and cheap instruments! Although he doesn't want to predict anything about the future of these meetings, he has come to the conclusion that both elderly people and young couples with their children remain fascinated by this music of an other era.

A Final Word

Ah … I hear Johann Strauss *Voices of Spring*, but of course, it's a VIOLINOPAN! And one would think they are hearing a Bacigalupo.

The musical and old-time passion dedicated by Martin is enormous; he dedicated it to his friends, but also to his very special music of the barrel organ, to the passers-by in the street who stop for a moment in front of the organ grinder, and to any human in this world.

There he is: a great, contemporary, many-sided artist, who only works for the happiness of us all and whom I was lucky enough to discover. In all modesty, I simply couldn't resist to introduce him to you.

All photos by the author except where noted.

[The editor wishes to thank COAA member, Björn Isebaert, for his translation of this article]

Paul Fricker has had a 15-year interest in hand-cranked organs. His first organ was a 20-note Raffin, and his collection has expanded to seven hand organs. His Violinopan has four cylinders pinned with French, German and Italian tunes. Besides rallies he plays classical music on his Violinopan organ in church where the normally empty seats are filled with listeners.

Giovanni Bacigalupo 1889 - 1978*

Mark Brayne

East Berlin, July 23, Reuter—for anyone who remembers the organ grinders once so common in Europe's capitals, with their gaily-decorated instruments and monkeys begging for alms from passers-by, an era has come to an end. In East Berlin, Giovanni Bacigalupo has died, the last of one of the continent's greatest dynasties of barrel organ builders and a determined Italian who more than any other kept alive a tradition almost squeezed out of existence by the development of recorded music.

He died earlier this month [July 10, 1978—*Ed*] aged 88, and was buried in a catholic cemetery not far from the central Berlin workshop

* A Reuter report (German press agency) printed just two weeks after Bacigalupo's death in a notice and tribute to Giovanni Bacigalupo in the German journal, *Musikhistorische Gesellschaft*, #1, 1978