Issue No. 8
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CAROUSEL ORGAN

The Official Journal of the
Carousel Organ Association of America (COAA)
Devoted to enjoying, preserving and sharing knowledge of all outdoor mechanical musical instruments, including band, fair and street organs, calliopes, and hand-cranked organs of all sizes.

Inside this issue:

The COAA Logo is Coming!
Watch for it at future COAA rallies or on page 2 of this issue!

Editor/Publisher — Ron Bopp
Assist. Editor — Angelo Rulli

A Gaviman By Any Other Name

Fred Dahlinger, Jr.

When you read about turn of the century fair organ operations in England, you frequently encounter the term "gaviman." It designated the person who was responsible for operating the organ with a fairground attraction. The attraction could have been a mechanical ride or a show front for a bioscope, a traveling menagerie or another form of tented show. The purpose of the organ was to attract and entertain a crowd, and perhaps to mask some of the ambient noise. The gaviman made certain that the organ accomplished its duty (**Figure 1**).

One assumes that the popularity of the Gavioli organs in the island kingdom caused the term to be manufacturer specific, so staunchly affiliated was the French manufacturer's name with the activity. The person was, as the term indicated, usually a man. Our research has not uncovered the use of the term in America, though the same function was performed by dozens of largely nameless men whose names were not recorded or have been forgotten. Infrequently we have found the term "organist" in American outdoor show trade publications. It designated the person that looked after carnival carousel and show front organs.

We have not seen an exhaustive historical derivation for "gaviman," but suspect that the term was likely used no earlier than the 1880s, when larger rides and organs were beginning to appear on British fairgrounds (**Figure 2**). Rationally, it would have been in use prior to both the importation of Marenghi organs shortly after the turn of the century and the closure of the Gavioli firm less than a decade later. The name would have been generated as part of the vernacular of the fairground after the defined work role became adequately large to necessitate the assignment of a person's entire time to look after the organ.

. . . continued on page 3

The President Speaks . . .

As I write this message we are one week from the first rally of 2001. The rally at Dutch Village in Holland, Michigan will be the largest rally ever held there. I am looking forward to seeing everybody and listening to some great music.

We are already booking rallies for 2002—one is in the planning stage in Pennsylvania in August. As we firm up these dates for 2002, we will post them in the calender in the *Carousel Organ.*

The organization is growing at a steady pace, we are at record levels with our membership, and the *Carousel Organ* journal is alive and well! We get great reviews from around the world about the journal. Thanks to the editors and the members who send in the articles. Its a great service you are doing for the organ lovers of the world.

See you all at a rally this year!

Terry

From the Editor's Loft . . .

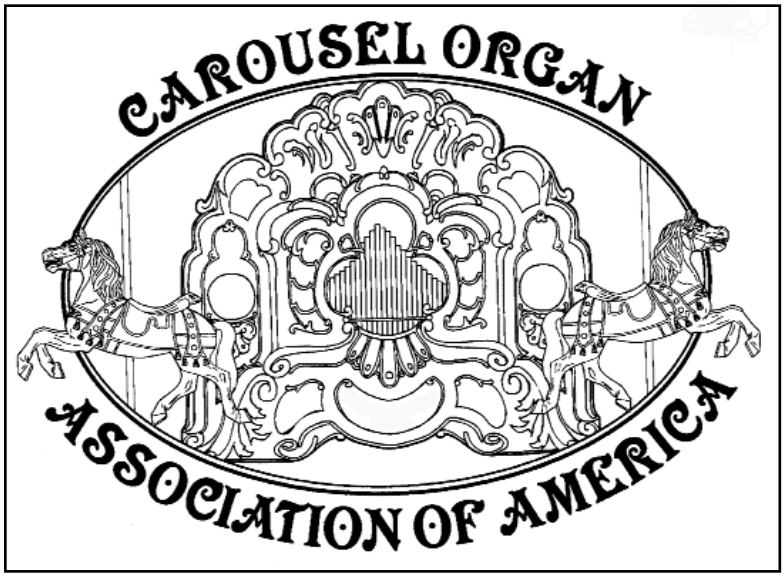
Spring has sprung and so has another great issue of the *Carousel Organ*. You will note a variety of articles in this issue including one of the most fascinating articles *A Gaviman by Any Other Name* written by Fred Dahlinger. In a sense, we all are Gavimen for our own organs. That makes us responsible for our organs and reading the *Carousel Organ* just makes that job a little easier. In addition David Wasson has written a fine article detailing some of the information used in his fine sounding organ (and information that perhaps another COAA member can use for his project).

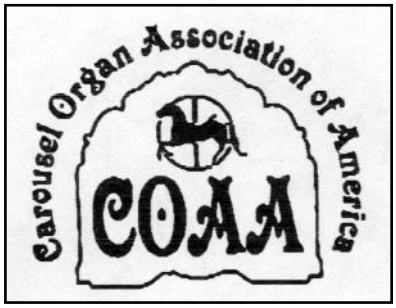
Included with this issue are a couple of articles that should make the smaller organ owner (I mean small organs, not small organ owners—*he he—ed*) happy. Mike Barnhart has submitted an article about building a cart to mount your organ upon and Eve Crasse (France) has been kind enough to tell us about the beginnings of LeLudion, the French organ-building firm.

What does the future hold for readers of the *Carousel Organ*? Well, I hesitate to give you all the 'scoop' but we will finish up Dave Kerr's fine calliope-building article; read another one of Matthew Caulfield's interesting points about Wurlitzer rolls; and much, much more! Remember, if you don't renew your membership, you won't be getting any more issues containing these fine articles. And also, don't forget to submit an article—share your knowledge and experience!

Ron

COAA Logos . . .





Two logos have been chosen for the Carousel Organ Association of America. The one to the left will the one used on T-shirts and other large apparel. The logo above will be utilized for smaller items such as hats and stationary. The artwork shown here is from preliminary drawings received from the artist just prior to publication of this issue and will be refined prior to use (and hopefully, the Bearcreek rally).

. . . continued from page 1 (***A Gaviman By Any Other Name***)

A gaviman would have been responsible for the assembly, operation, routine maintenance and packing of the organ. The unwritten or understood job description may have included setting up the organ for play, removal of any protective covers and wraps, and the installation of the drive belt between the pump crankshaft wheel and whatever device was used to power the instrument. Some organs had their own dedicated steam engine, supplied with steam by the boiler that powered the ride's engine. The gaviman may have connected, serviced and lubricated the organ engine. If steam or electric power was unavailable, the gaviman was probably the person who manually cranked the organ. Cleaning, wiping down and general care for the presentation of the organ would have been a daily job for the gaviman, as it would for any fairground employee whose area of responsibility was within view of the public.

Figure 1. The gaviman is likely the fellow standing to the left of the cylinder-operated military trumpet organ on the front of Alf Ball's Great American Bioscope (sic). Note that other employees accompanied the organ with snare and bass drums, and a large cymbal. This William Keating photograph was taken in 1898.

We doubt that few, if any, gavimen had the requisite skills to do proper organ tuning and regulation, but some may have learned basic techniques by observing the actions of hired craftsmen charged with doing those tasks. One must remember that the organ trade of the time was characterized, to a degree, by competition, secrecy and employment provincialism. Professional trade skills were not readily shared.

Musically speaking, the gaviman's input was limited to selecting the tunes to be played. That may have entailed the shifting of the cylinder in a barrel organ or the placement of books, or a book cradle, into position in a book organ. Paper roll organs generally don't require much operator attention, a fact always touted by their marketing. Roll operation would have spelled the demise of the gaviman post had the system been implemented in large quantities in Europe.

It was important that the gaviman's musical selections be chosen wisely (**Figure 3**). Experienced amusement caterers knew that different audiences required varying serenades. The right selections drew the crowd to an attraction. The wrong ones drove the people away. Whether the ride foreman or show manager directed the gaviman to play certain tunes is unknown. One suspects that after a few fairground appearances, the owner's preferences, local favorites and crowd demands were routine knowledge of the operator. New popular tunes would have been desirable, for the organs were a pre-radio means of circulating such music to the public. Standards and old favorites were sure to please many and kept the owner's investment in new music to a minimum.

It has not been unusual to assign responsibility for American show organs to the show's chief electrician. They have some relevant technical skills and also generally appreciate the heritage of such instruments, though they differ significantly from the carnival's typical sound reproduction systems. At other times the kiddie land ride manager or a ride operator may have been delegated to look after an organ. Often the

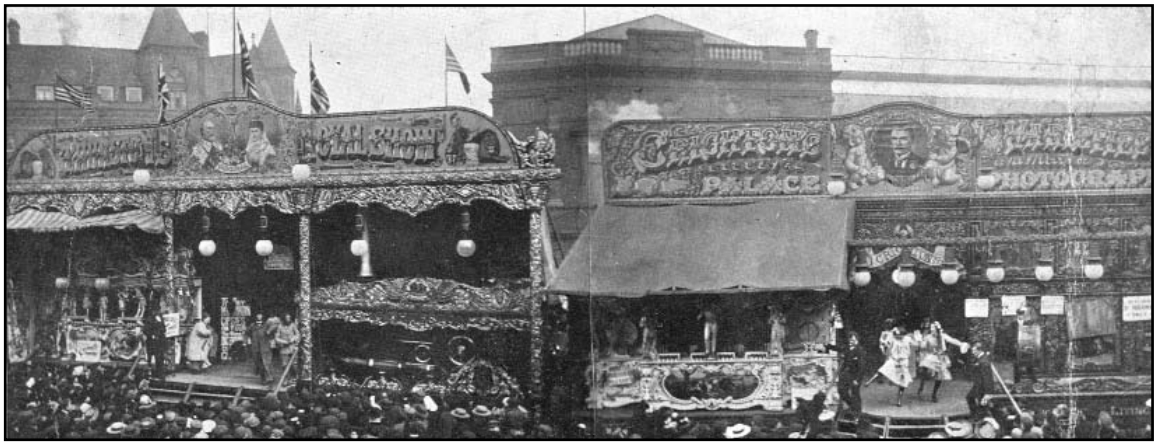


Figure 2. Huge British show fronts featured 89 key organs when this photograph was taken. Large fairs presented a competitive opportunity for showing off the best music that an organ could play, with the gaviman responsible for making the music go forth. Photograph by Nellie E. Cole, circa 1905.

organs were simply turned on and left to run continuously until the midway closed down early the next morning. The sabotaging of band organs by employees that do not appreciate their melodies was not unknown.

It was only with the American carnival band organ renaissance of the late 1950s that the gaviman position became something known about domestically to any degree. When local reporters came to the show seeking a story, press agents often sought out the organ man. They told great stories about the organs, the difficulty of keeping antique devices going in modern times and other familiar themes that one sees repeated. They were something of a bridge to the great carnival days of decades before, knowledge of the organs being tightly held by a few knowledgeable authorities. The peculiarities of the organs were seemingly reflected in the personalities of their caretakers. They could be obstinate, difficult and precise in their demands, but if they knew their business they were well worth the challenge that their employment represented.

Figure 3. The workers on this motor car switchback found a few spare moments to have their picture taken before the crowds arrived for the day. One of them is probably the gaviman for the gigantic Gavioli that enthralled riders with its melodies. Author's collection.

"Old time" organ man A. L. "Tony" Crescio (1890-1962) was the first to gain widespread notice (**Figure 5**). He was hired to rebuild a long forgotten 89-key Gavioli for the Royal American Shows in 1956. Crescio maintained the big instrument on the show until health and age removed him from the post. He had a background that included Berlin origins and time working for Bacigalupo and C. W. Parker, and perhaps others, making him one of the best trained carnival organ operators to ever have such a post.[1]

Erwin Heller (1917-1990), son of old time itinerant organ repair man Max Heller, found similar employment with Floyd Gooding's Million Dollar Midway, taking care of the largest stable of band organs ever owned by any American midway operator (**Figure 6**). The prize of the collection was the 96-key organ that Harry Beach commissioned Heinrich Voigt to assemble and that he then sold to Gooding. Heller moved on from the Gooding show and eventually landed with the James H. Drew Exposition Shows. There he looked after another large German organ that played from rolls, along with other instruments in the Drew family's personal collection. He spent his last years caring for the Stinson Organ Company instrument that was featured on Geren Rides of Valdosta, Georgia. The organ wasn't just his life, the trailer housing it was also his home on wheels. Jimmy Drew wrote the following tribute of Erwin: "He is as good an organ man as there ever could be."[2]

The Drew organ, later entirely restored by the combined efforts of Mike Kitner and Rosa Ragan, is now looked after by Billy Solomon (**Figure 7**). His position might be considered the top organ post in the American carnival business. He manages the fairground centerpiece which owner James H. Drew, Jr. has lavishly outfitted in a specially equipped trailer. It set a new standard of quality for such equipment. In addition to the immaculate housing for the organ, a comfortable, climate-controlled reception space is an integral part of the state-of-the-art Drew organ trailer. Expert driver, attentive organ operator and always a public relations ambassador, Billy makes every presentation of the organ a treat for viewers and listeners.

It was the recent demise of one American carnival organ operator that sparked this article. The passing of "Frenchy" St. Germaine, long associated with the Reithoffer Shows 90-key Carl Frei organ, was noted in the "Lifelines-Final Curtain" column of the trade journal *Amusement Business*. The notice may

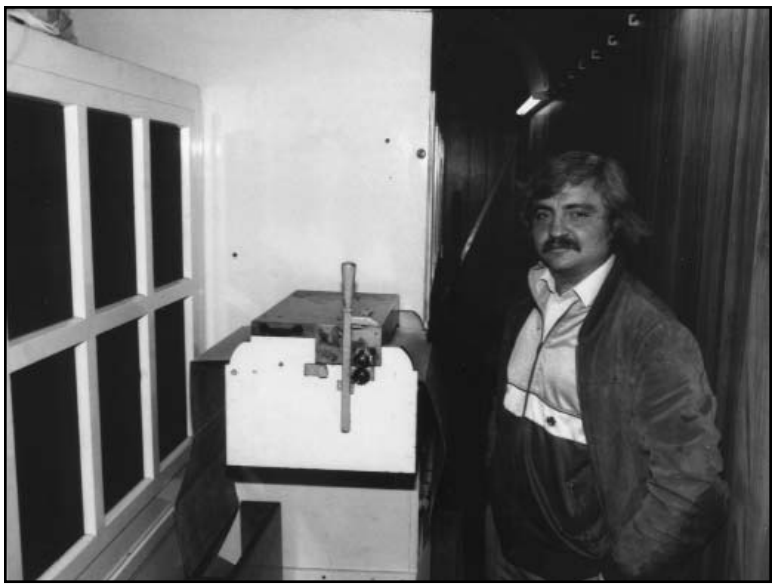


Figure 4. This genial Dutch gaviman, whose name is unfortunately not recorded, played the entire repertoire of the Hinzen Model 38 Ruth for a group of Americans on a quiet Sunday morning in Nederweert in 1986. Author's photograph.

Figure 5. "Tony" Crescio rebuilt a big 89-key Gavioli for the Royal American Shows in 1955-1956, converting it to play Model 36 Ruth music. Few people could have managed that task in those days. Gilbert Hill photograph, circa 1956, author's collection.

have been the first for an organ operator. I met Frenchy (also spelled "Frenchie" in places) for the first time at the "Extravaganza," the extraordinary trade show for the carnival business that takes place annually on the International Independent Showmens Foundation grounds in Gibsonton, Florida. From that February 3, 1993 interview and other printed sources we have been able to document the following about Frenchy's career and life.

Clarence "Frenchy" St. Germaine was born in Danielson, Connecticut on December 23, 1912. The origin of Frenchy's nickname was never clarified, but is thought to have been a show-originated moniker derived in recognition of his family name. He stated that he worked on band organs at Wurlitzer's North Tonawanda, New York factory, along with Max Nowicki, Sr., father of the present day organ man, in the mid to late 1930s. His carnival career started at age 15, or in 1929, recollections varied, operating the carousel with Artdick's Greater Shows, owned by Art Lewis and Dick Gilsdorf, from 1929 to 1931.[3]

As with many carnival personnel, Frenchy moved between shows, always seeking a better paying and more responsible job. From 1934 through 1938 he was foreman of the Ridee-O on the O. C. Buck Shows, where he also served as mailman and agent for *The Billboard*, the weekly trade publication (**Figure 8**). He eventually served fourteen years with the O. C. Buck Shows, owned and operated by the son of a carousel builder. In 1939 he moved to W. J. "Billy" Giroud's New England Shows in the same capacity. His wife at that time, named Mary, was working for Mrs. Ridder with the World of Mirth Shows. Frenchy served as the merry-go-round foreman on Max Gruberg's World's Famous Shows in 1941. By 1943 he had been a ride foreman on both the World of Mirth Shows and O. C. Buck Shows and resided in Camden, New Jersey. Late that year he was mentioned as Corporal St. Germaine, indicating that World War II military service had interrupted his show career.[4]

Frenchy told me that he worked the seasons of 1945 and 1946 with the World of Mirth Shows, the big railroad outfit that played top fairs in the eastern US and Canada. Perhaps he was familiar with the modified Model 33 Ruth organ on the show's carousel. Other tours were made with the Lawrence Carr Shows. Frenchy also said that he had a small operation of his own, Whalling Amusements (perhaps Whaling City Shows 1963-1966?) that he sold in 1974. He joined the Reithoffer Shows in 1970 and remained with them for over two decades, through the end of his carnival career. At one time he handled the show's Hurricane ride, all purchasing and operating the organ.[5]

Figure 6. Erwin Heller's last organ position was managing the Stinson organ that was specially built for Geren Rides, Inc., shown here in 1989. Photo courtesy Ellijay (GA) *Times Courier.*

When being a ride foreman became too arduous an assignment, Frenchy was given the exclusive task of caring for the Reithoffer show's concert band organ (**Figure 9**). It was one way that caring carnival owners provided for long term and valued employees, moving them into responsible roles and keeping them active in their senior years. While he may have looked after other organs in the past as a ride foreman, it was the big Carl Frei organ that made his place in the annals of organ operators. Frenchy garnered many free bits of publicity for the Reithoffer Shows by presenting the organ to various reporters and visiting dignitaries. One widely distributed article was authored by Ron Gustafson and printed in the July 31, 1981 issue of the Dunkirk-Fredonia (New York) *Evening Observer*. Other free publicity and good will came from appearances at the Smithsonian Institution's Spring Celebration in 1981, the IISF trade shows in 1992-1993 and elsewhere. Frenchy was proud of the day when show owner Pat Reithoffer, Jr. (1920-) honored him in a ceremony as "Organ Master Extraordinaire."[6]

Figure 7. Billy Solomon (right), manager of the big German organ with the James H. Exposition, enjoys showing the Drew masterpiece to band organ experts. He's shown here with Dick Lokemoen Photograph courtesy of Dick Lokemoen.

The first time I saw the organ that Frenchy maintained for the Reithoffer Shows, three days after our meeting, he was not there. But he had kindly called ahead in our behalf and made arrangements for the visit. The very accommodating show management had the show's Chief Electrician not only open the organ trailer, but he also erected all of its ornamentation and permitted a viewing of the works of the organ. There were four large crates of music inside, but by 1981 a duplex Wurlitzer 165 roll system had also been installed in tandem with the instrument's book playing system. It made the operation easier, but limited the musical capability of the instrument. It was also a response to the nine cardboard books that were bought in the spring of 1981 at a cost of $3600, following a waiting period of eighteen months.

The organ had been brought to the states by the Winston Tobacco Company. Though it is typically identified as a Gavioli, the heritage of the organ is unknown. Internally it appears to have been largely assembled from older organ parts in the Waldkirch shop of Carl Frei, Sr. (1884-1967). It may well have been one of several post-war commissions that established Frei in Waldkirch, the historic center of German fair organ manufacturing. The facade of the organ is definitely a later, post-World War II, German product and bears figures similar to those found on other German organs of the 1950s and 1960s. Design-wise it is a near twin to the facade of the 105-keyless organ built by Frei and owned by Joh. Ludwig Barth & Soehne. The figures were likely executed by Wilhelm List of Furtwangen, Germany, who supplied similar images for a new 1959 Frei organ. One source identified the post-war owner as Emil Fetscher of Karlsruhe, Germany. Reithoffer show publicity states that the organ appeared at the Munich Oktoberfest between 1947 and 1950. Carl Frei, Jr. (1912-1997) then entered the picture, perhaps as an agent for the owner. The organ was acquired by the Rudolf Robrahn family in 1968 and rebuilt for them by Frei in Waldkirch.

The organ was spotted by an agent for Winston in the early 1970s at the big annual fair in north Germany, the Bremen Freimarkt. Winston mounted the organ, still in its European style wagon, on a Fruehauf drop deck trailer to enable it to be towed to various promotional events. They christened it the "Winston Band Wagon," giving it a name that people could connect with even though it was inaccurate in the historical sense. The cigarette manufacturer even went to the expense of cutting an LP recording of the organ's music to share with listeners.

After a few years the organ promotions had run their course and the organ was sold sometime after 1974 to Pat E. Reithoffer, Jr., the third generation owner of the Reithoffer Shows, an important American carnival.[7] It has appeared on the show's midways ever since, now under the guidance of the fourth generation of the family. The trailer that houses it today is painted in a fine example of American carnival painting and is labeled the "Reithoffer Bandwagon."[8] (**Figure 10**)

ported by Walter D. Nealand.

Endy Bros.

MIAMI, Fla., March 25. — Michael Roman has signed his new 36 by 50-foot cookhouse, with a seating capacity of 100. He also has purchased a new semi-

CLARENCE (FRENCHY) ST. GERMAINE, for the past five years mail-man, The Billboard agent and Ridee-O foreman with the O. C. Buck Shows, has signed in the same capacities with W. J. (Billy) Giroud's New England Motorized Shows. His wife, Mary, again has been engaged by Mrs. Ridder, of the World of Mirth Shows.

trailer and Fruehauf trailer to transport the cookhouse in addition to a small truck. All canvas has been purchased

Figure 8. Frenchy looked very dapper when his portrait was taken for a 1939 issue of the trade publication *Billboard*. He had nearly a decade of show experience by this time.

The organ played a 90-key scale devised by Frei, but the details of the scale are unknown as the tuning book was not with the organ when visited. Following our 1993 visit, the organ trailer was rear-ended by another semi that knocked the organ loose inside the trailer. The required repair work exceeded Frenchy's capabilities and the organ was sent off to Max Mowicki, Jr. for repairs.. It was there for five months, with Frenchy later relating how the old smashed pipes were taken out and replaced with new ones.

Though summer seasons were spent on the road, Frenchy had other off-season employment. In later years he owned a restaurant in Shelburne, Massachusetts. He also retired from a job with the transportation department of the Bedford, Massachusetts, airport. In his personal life, he enjoyed the happiness of a 54-year marriage to his wife, Charlotte. They had a daughter, Linda Drohan. Following his death on November 27, 2000, there was a Mass said at St. Stephens Catholic Church with burial in the church cemetery in Framingham, Massachusetts, the city in which he resided. With Frenchy's passing the band organ world lost one of its more colorful individuals.[9]

Figure 10. The Reithoffer Bandwagon occupies a prominent position at many of the show's annual fair engagements. The organ continues to be housed in its original European lift-top wagon, now mounted on an American six-wheel trailer chassis. Photograph by the author, 1993.

Figure 9. It's a sultry summer evening somewhere in the South and the Reithoffer organ's visual allure is at its peak. Frenchy found it a convenient time to pose for the unidentified photographer of this print.

Notes

1. More about Crescio and American carnival band organs of the 1950s can be learned from the author's remarks in the booklet accompanying the compact disk "The Royal American Shows Grand Gavioli Band Organ" issued by Circus World Museum, Baraboo, Wisconsin.
2. Letter to the author dated June 10, 1985. Jerry Betts' tribute to Heller is in *Carousel News & Trader*, March 1990, pages 30-31.
3. *Carnival*, VIII, 6, page 3.
4. *The Billboard*, April 1, 1939, page 44; May 10, 1941, page 32; January 16, 1943, page 32; November 27, 1943, page 39.
5. Undated clipping from *OABA News*, author's collection.
6. *Amusement Business*, March 9-15, 1992, cover.
7. A biography of Reithoffer is in *The Billboard*, June 6, 1960, page 59.
8. The show sells different recordings of the organ, but the do not always reproduce the sounds from the Carl Frei. The one owned by the author is actually a dubbing of Ken Smith's 63-keyless Ruth-style organ.
9. *Amusement Business*, December 11, 2000, page 3.

Fred Dahlinger is always interested in learning more about the history of the band organ in the United States. *Carousel Organ* readers can expect some interesting stories about famous American instruments and related topics in the future.

20-note Organs and a Wedding

On June 2, 2001, the editor and Mary Jo Bopp's son, Jason, and Amy Bohachick were united in marriage to the sounds of Mozart and traditional wedding music provided by two 20-note organs. COAA member Mike Schoeppner provided the entire musical accompaniment for the wedding on 20-note Raffin and 20-note Jäger und Brommer street organs.

Many attendees expressed approval of the flawless and simplicity of the music and a future mother-of-the-bride requested information of such music for her daughter's wedding.

The Pitman Chest And Its Possible Use In Band Organ Construction

David Wasson

Many of you have probably seen my band organ *Trudy* at several of the organ rallies in the Midwest. This organ has been a sort of test bed for me to work out many of my ideas that I have had over the years about organ building. I am now in the process of building the "finished" version of my organ. One of the many decisions I have faced in construction of the final version is what type of chest work to use. Almost every chest in my prototype organ has been different. The two main types I've experimented with are: pallet chests with sliders, and ventil chests with pouch valves. The last chest I built was based on an adaptation of the Pitman design. For me, this chest has been my favorite. Regrettably, it is also probably the most complicated. The stop action on this type of chest is every bit as fast as the key action. I have also come up with a fairly compact design.

The Pitman type chest (**Figure 2**) was first suggested to me by a friend who builds church organs. So I started looking through books on classical organ building, and came up with a design that somewhat simplifies a Pitman chest. The finished chest in my prototype organ has worked so well that I have decided to base all of the chestwork in my new organ on this design.

Most of the construction can be done on a drill press. It is not my goal to describe how every single piece in this chest should, or can be made. With this in mind, I am writing this with the assumption that the reader has reasonable knowledge of woodworking tools. Anyone with the interest to build a chest such as this, should have experience building other mechanisms related to organ construction.

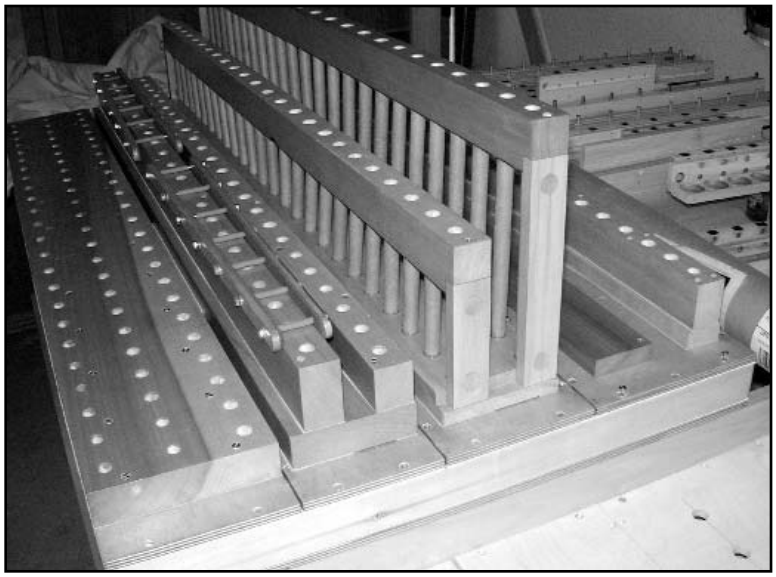


Figure 2. Pitman chest built to control 216 pipes in 4 stops of 24 notes each.

The drawing (**Figure 1,** page 9) is a cross section of the chest showing the valve that lets the air into the pipe. The spring loaded pouch block on the bottom of the chest operates from a vacuum signal from the main stack. With a bit of redesign, it could just as well work on a pressure signal. The cross section drawing is a bit distorted in order to include the stop action valve. In reality, it is in line with the pipe valves as shown in **Figure 4**. The idea behind this type of chest is to dump the pipe valve pouch to atmosphere. This can only happen when the stop action is activated simultaneously with the key action.

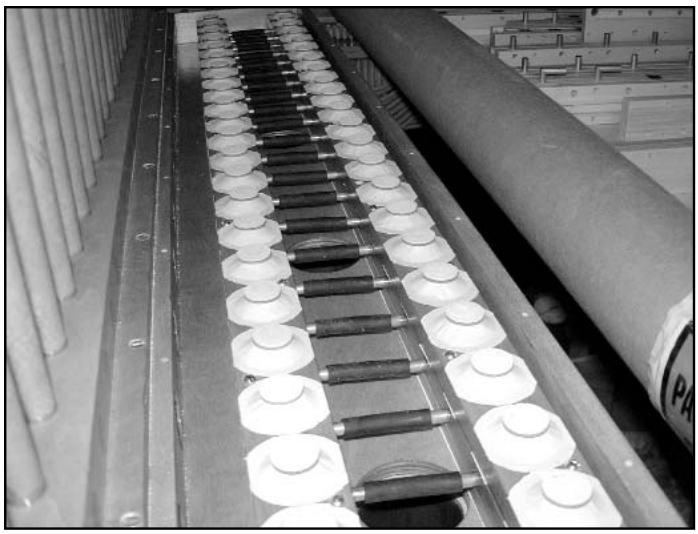


Figure 3. Two of the valve chests inside the main chest.

The principle of operation is as follows: when the key action is exhausted to atmosphere, and the stop action is off, the pitman valve jumps up because of the chest pressure on the bottom. This keeps chest pressure on both sides of the pipe valve pouch, and the pipe does not play. The pitman valve actually moves when the stop action is off. With the stop action on, there is now atmosphere on the bottom side of the pitman. Now, when the key action is exhausted, the pouch is able to dump through the key action, and the pipe plays. I've not had the opportunity to observe the movement of the pitman valve, but it is probable that the pouch actually dumps around the pitman and out the stop action valve.

In the drawing, both the stop action and key action are drawn in the off position. In some circumstances, it is not always possible to have the key action groove placed directly under the valve chest. So, I have drawn the chest on the right with its key action coming from the chest on the left, through a tube, instead of from a groove on the bottom. The two chests in (**Figure 3**) are an example of this sort of situation.

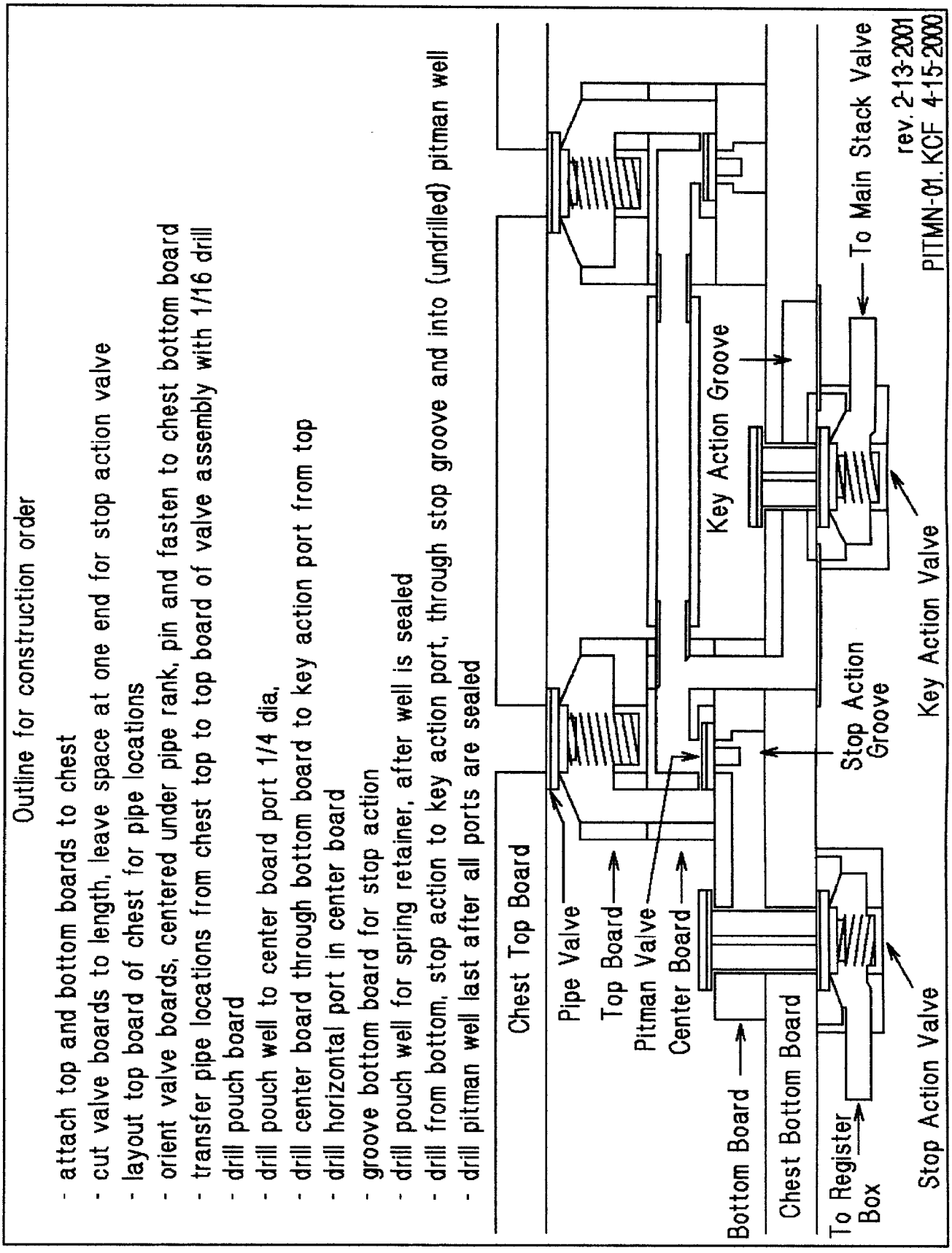


Figure 1. A cross section of the Pittman chest.

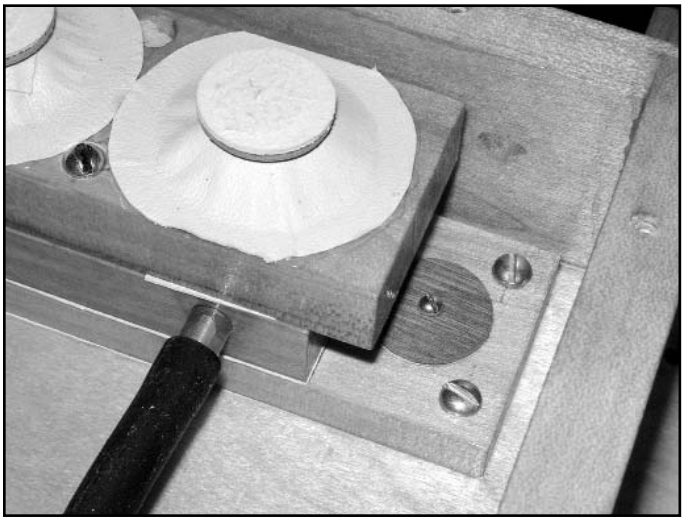


Figure 4. Side view of the three layer valve chest. On the left is a pipe valve and on the right is a stop action valve.

I have purposefully not given any dimensions on the drawing—as it would probably make the drawing more difficult to read. But, for scale, here are some of the important dimensions and a few construction suggestions.

The chest top and bottom board are made of 3/8" baltic birch plywood. Do not confuse this with ordinary construction plywood. This plywood has no voids, and has many more plys per thickness than ordinary plywood. In short, it is nice wood to work with, and is a good choice if you need a large thin piece of wood that is dimensionally stable. The sides of the main chest, and internal valve chests are made of 1/2" poplar. The bottom board of the valve chest is 3/8" thick. This wood is relatively hard, and is much easier on woodworking tools than maple. The overall thickness of this chest, including the pouch blocks on the bottom is about 3". The sides are 1 5/8" tall. With a gasket on the top and bottom, it will be a bit taller. I have not included the gaskets in the drawing. The leather used for the top and bottom of the chest was normal thickness packing leather, about 1/16" thick or slightly thinner. All of my leather came from Columbia Organ Leather Company.

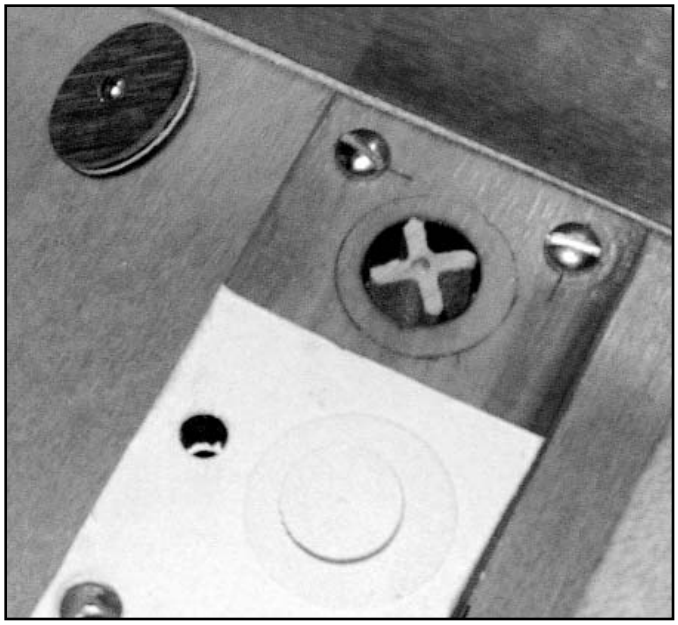


Figure 6. Top two layers of the valve chest and upper valve disk of stop action removed to show fluted valve stem.

For me, this chest has been my favorite. Regrettably, it is also probably the most complicated. The stop action on this type of chest is every bit as fast as the key action.

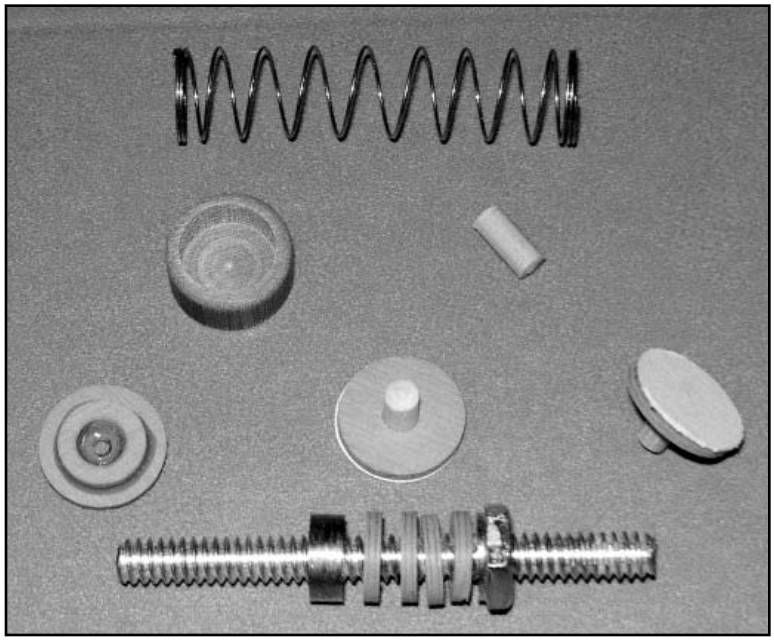


Figure 5. Pouch spring, lower spring retainer, Pitman valve stem, upper spring retainer, Pitman valves and fixture for making upper spring retainer.

The valve chests are 1 1/2" wide (**Figure 4**). The top two boards are 1/2" thick and the bottom board is 3/8" thick. The pouch well is 1 1/4" in diameter. The top board can be made wider to accommodate a larger pouch if it is needed. If the pouch is increased too much in diameter, probably some experimentation will have to be done in order to optimize the size of the ports in the chest. The spring under the pouch should be made as light as possible to allow for good repetition, and maximum air flow when the valve is in the on position. This will vary depending on the pressure of the wind in the chest. For the pipe valve facings I used valve leather about 1/16" thick. All of the drilled ports in the chest are 1/4" in diameter, The hole that the pipe valve covers is 1/2" in diameter, and the valve is 3/4" in diameter. This pouch will work with a hole as large as 5/8" in diameter, but the valve should be increased to 7/8".

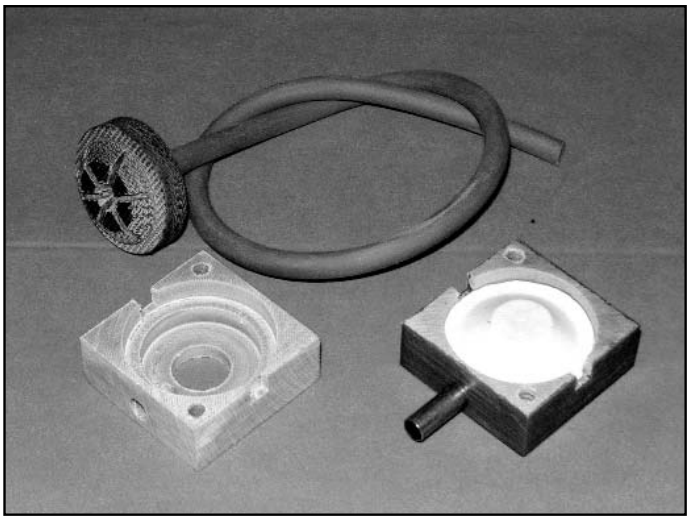


Figure 7. Unfinished and finished spring loaded pouch blocks. On top is a vacuum assisted pouch dish.

The well for the Pitman valve is made with a 7/8" flat bottom drill, to a depth of 1/8". The Pitman itself is made of a 1/2" fibre disk, with one side faced with medium thickness pouch leather (**Figure 5**). The other side has no facing, as it seats against a surface that already has leather on it. The stem of the valve is a 1/4" long piece of 1/8" dowel pressed into the center, and glued when the leather face is attached.

The key action and stop action valves are made of 3/4" fibre disks covered with medium pouch leather. The valve travel I have used is about 1/32". This seems to work well for both valves. This travel is set by the length of the valve stem. The disks are glued onto the ends of a piece of 1/2" wooden fluted valve stem material. Of special note, is that one end of the stop action valve is attached with a small screw to the valve stem instead of being glued. This is so the valve chest can be removed without having to destroy the stop action valves (**Figure 6**).

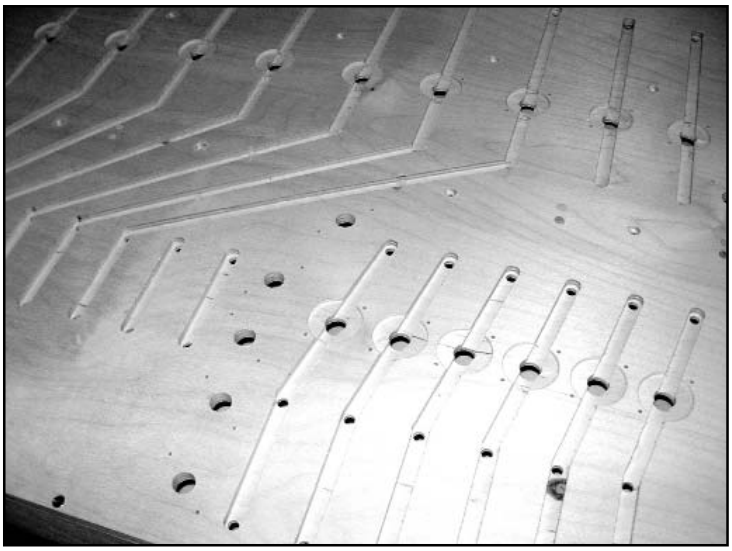


Figure 8. Key Action grooves on an unfinished chest.

The spring loaded valve blocks are made of linen phenolic (**Figure 7**). They are 1 3/8" square and are 1/2" thick. The valve well is 1" in diameter, and the counterbore is 1 1/4" in diameter. The signal tube is 3/16" in diameter. The pouch blocks for both the key action and stop action are identical. You may have to do some experimenting to decide what strength pouch spring to use. Pouch springs are available from Organ Supply Industries, and are available in several strengths. The lower spring retainer is turned from a 1/2" piece of phenolic rod, and then pressed into the bottom of the block after the pouch is installed. The spring retainer in the valve chest is just the same, except it is 1/4" tall, and the one in the blocks is 1/8" tall. The upper spring retainer is made from two fibre disks glued together. The upper one is 1/2" in diameter, and the lower one is made from a 1/2" diameter disk turned down to just fit inside the spring. I used extra thin pouch leather for the pouch itself. See **Figure 5**.

Figure 9. Key action pouch blocks and key action grooves covered with pneumatic cloth.

The key action groove is 3/8" wide and 1/4" deep in the bottom board of the chest (**Figure 8**). The lower key action valve seat is made from a 1 1/4" fibre disk with a 1/2" hole drilled in the center. This valve seat is let into a 1 1/4" hole drilled just deep enough to allow it to be flush with the outer lower surface of the pipe chest. The key action groove is covered with pneumatic cloth with enough overlap to cover the edge of the lower key action valve seat (**Figure 9**). This may not be the best solution, but so far it seems to work well. The stop action groove is also 3/8" wide and 1/4" deep in the bottom board of the valve chest.

In closing, I would remind you that all boards and ports should be sealed, to help not only for appearance sake, but to make everything reasonably airtight. I have used shellac and it seems to work well for both sealing ports, and finishing the outside and inside of the chestwork. Should you have any questions, email me at wasson@foxtail.com.

David Wasson, along with his wife Darlene, travel extensively from California to attend organ rallies throughout the United States. David has been interested in band organs for 25 years.

A Bursens Organ Comes To California

Andrew Pilmer

Ron Wolf, of San Diego, California, recently took delivery of a 68-key Bursens street organ from A.C. Pilmer Automatic Music Ltd. of York, England. Here are some interesting details about the Bursens family and their products.

Joseph Bursens was born in 1867 and worked as an organ builder for Mortier in Antwerp. How he originally came into the mechanical organ business originally is not known. He was a typical hard-working Flemish man who, after a long day in the Mortier factory, built instruments on his own account in his own workshop. He rented the organs out during village fairs and similar events, and it sometimes occurred that he had to move an organ on a day that he should have been working for Mortier, so much so that on a certain day, Mortier gave him an ultimatum to either stop building organs, or leave his employ.

Bursens left around 1907 and for a time ran a dance hall in Antwerp until he found a suitable workshop where he started to build his own organs. He chose the Hoboken district of Antwerp (derived from the old name Hoge Beuken = High Beech Trees) and established himself in the St. Bernardsesteenweg. Joseph Bursens was one of the first to make organ card in Belgium, and at various times his wife and eight children were involved in gluing up the cardboard sheets ready for making up into books.

Figure 1. The photograph shows a proud Ron Wolf (right) together with Russell Wattam (left) in front of the organ.

The business flourished building and rebuilding organs for dance halls in Belgium and street organs for customers in the Netherlands. Several of these Joseph Bursens street organs are still in existence such as the 54 key "Pipo," the 56 key now known as the "Carillon," the 64 key now in England originally known as "Carillon," and of course the famous 70 key recently restored in the Utrecht museum, "De Zeventiger."

In 1929 the company was taken over by Arthur Bursens, Joseph's youngest son, born in 1890. In 1904 he too had begun working at Mortier until his father established his own company. Around the time he took over the business, Arthur entered into partnership with one of his staff, Gustaaf Roels, and later the trade name ***Arburo*** was coined from the partner's names i.e. **AR**thur **BU**rsens and Gustaaf **RO**els. Some early organs bore simply the names of Bursens & Roels. The famous roll-playing dance organs were conceived at this time. The market was full of large dance organs, but Bursens saw an opening in small village cafés for a small, reliable and relatively inexpensive instrument. The key to this was the use of paper music rolls which could be made in quantity and sold cheaply, overcoming the principal complaint among those customers that book music was too expensive to buy regularly (and therefore keep up with the latest tunes).

Around 1930 the firm moved to other premises further along the same street, to no. 635, where Arthur would live and work to the end of his life. Business boomed until the outbreak of war in 1939. A large staff made munitions boxes for a time but organ building resumed after 1945. Roels left the firm in 1950 to begin a sawmill business in the Belgian Congo. Frans de Groof took over his interest in the company, but the Arburo trade name, which had become well known, was retained. Indeed, the company often referred to itself as Orgelfabriek Arburo (Arburo Organ Company). The years after the war were especially busy, and it often occurred that the firm not only supplied the organ for a new café, but also built the bar and made the tables and chairs! Both book and roll-playing organs were built, the largest being 96-key café organs.

At this point it is worth clarifying the trade name "Ideal" which can sometimes be seen on book organs. This is not a mark of Arthur Bursens but of his elder brother, Alphons. Born in 1887, Alphons also worked for Mortier before joining his father. The circumstances surrounding the split are not known, but it was probably when the younger son Arthur assumed control of the family firm in 1929. Alphons had his own workshop in Violierstraat, Antwerp where he built book-playing dance organs in the well-known Bursens quality. The organs some-

Arthur entered into partnership with one of his staff, Gustaaf Roels, and later the trade name **Arburo** was coined from the partner's names i.e. **AR**thur **BU**rsens and Gustaaf **RO**els

times bore the logo "Swing Orchestra" and these instruments were built in association with the music arranger Urbain van Wichelen (who incidentally produced many Arburo rolls under the Swing label). The 84-key is still a common type in collections. Alphons died in 1967.

Figure 2. Close-up showing the melody pipework, glockenspiel and band mistress.

The popularity of juke boxes in cafés and changing tastes generally brought much less demand for Arburo products, but repairs and restorations kept the firm busy. Arthur Bursens did not want to introduce electronics into his products as other Belgian makers such as Decap had done and was to remain a builder of full-pipe organs along traditional lines. He would not even use electric blowers on organs, as he believed them to make too much noise. Frans de Groof died in 1967 and Arthur Bursens decided to retire. The story of the so-called "Bursens Warehouse Hoard" and its purchase by Q. David Bowers is well documented and need not be repeated here.

Arthur retained the workshop, but soon found that retirement was not for him. First of all two small 38-key organs were made, both of which came to England. A demand existed for larger ones, and so a series of four new 52-key organs was built. All of these instruments came to the British Isles as well. Three remain there; one was later sold to Japan as part of the Schuhknecht collection. The 52-key organs had a brand new scale, 22 melody, 12 accompaniment and 8 bass, with registers for bourdon, violin and flute or trumpet on melody, and trombone on bass.

These compact organs were well received, being well designed and constructed, and to meet the continued demand, a new 68-key scale was designed in the early 1970s. The main advantage over the 52-key scale was the provision of a separate counter-melody section.

In all, about 17 organs were built on this scale, no small achievement for a man of advanced years. These lively instruments found new homes instantly in England and the United States. Four were even used commercially on the streets in Holland including the "Brabo," the "Broodvechter" and the "Venlo." Two are in private collections in Belgium. The last complete organ to be built and finished by Arthur Bursens was supplied to Turner's Musical Merry-go-Round, a large entertainment venue in Northampton, England (**Figure 5**). Because the organ parts had been built in series however, there remained components for one other, which was completed by Arthur Prinsen of Brasschaat and sold to a customer in England. Mr. Prinsen, whose wife is related to the Bursens family, played a large part in the late activities of Mr. Bursens, producing all the music books for the organs and often building decorative fronts in collaboration with Jef Ghysels of Brussels. Not all of the new 68-key Bursens organs were supplied with fronts from new however.

Arthur Bursens left behind a reputation for high-quality work and good technical design. Even after a lifetime of experience, he was still experimenting with new systems right up to

Figure 3. Keyframe with a music book in play. Part of the accompaniment and trombones can be seen.

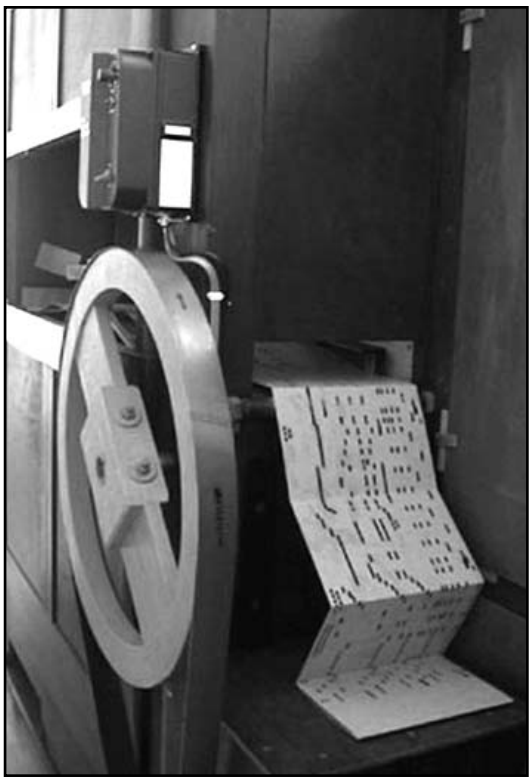


Figure 4. Rear of the organ showing wooden drive wheel and music book stacking up after being played.

the end. Because of this, hardly two Bursens organs are exactly alike in construction, although tonally there was a strong continuity throughout the years.

Ron Wolf, an enthusiast and collector, had been looking for a suitable street organ for his collection for some time and contacted A.C. Pilmer Automatic Music Ltd, to enquire if such an instrument was available there. Andrew Pilmer knew that Nigel Turner of Turner's Musical Merry-go-Round was seeking to reduce the number of organs there, and so purchase of the 68-key Bursens was arranged (**Figures 1-4**). It left Northampton in early January, having helped to entertain more than a million visitors to the attraction since 1986, and was taken to the company's workshops near York. Here the organ was completely stripped down, cleaned and re-leathered. The bellows were still in excellent condition, a tribute to Mr. Bursens' workmanship. The disposition (table above) was slightly changed, the trumpet on melody being replaced with an open flute, and in the violin register one rank was replaced with one an octave lower. The façade underwent considerable change, a new top proscenium being provided, and three new larger animated figures were added (**Figure 1)**. The whole was completely re-decorated and embellished where appropriate with gold leaf. Ron also ordered several new music books of his favorite European street organ tunes, which he had only previously heard on records and cassettes.

Figure 5. The organ just after completion in Bursen's workshop with Arthur Bursens in the foreground, Arthur Prinsen behind him on the left and Jef Ghysels , who built the front, on the right. Photo: Nigel Turner

The organ was shipped from England in early August of 2000 and, after a long journey which took it over the Atlantic Ocean and through the Panama Canal to Los Angeles, was finally delivered to Ron's home in San Diego. Russell Wattam, workshop manager at A. C. Pilmer Ltd., who had done much of the work on the organ, flew out soon after and put the organ together, tuned it, and made all those other minor adjustments necessary to guarantee a first-class performance.

68-Key Bursens Disposition

Melody: 22 notes g - e (chromatic):
Bourdon-Célèste, 2 ranks;
Violin-Célèste, 3 ranks;
Flute, 1 rank;
Glockenspiel. (connected to forte register)

Counter-Melody: 16 notes c - e (chromatic):
Voix-Célèste, 2 ranks,
Cello, 2 ranks.

Accompaniment: 10 notes g, a, -d chromatic, e, f, f#
l rank stopped,
1 rank cello

Bass: 8 notes — C D E F G A A# B
1 rank stopped,
1 rank cello (under case),
1 rank Trombones (on forte register)

Percussion: Bass drum (plus cymbal on forte register), 2 x wood block (changes to snare drum on forte register.

Tremulant: all pipe registers in the melody division.

Andrew Pilmer has been in the mechanical music business since 1975, restoring large organs and producing music books for them. His company is based near the historic city of York, in the north of England.

An Organ Wagon for Elizabeth

Mike Barnhart

Liz and I have attended many of the band organ and monkey organ rallies over the past many years. Even though we did not have a suitable organ to bring to the rallies we enjoyed walking around visiting with the many participating friends and listening to their organs. Without an organ, though, Liz felt a little inadequate and left out of the festivities. She wanted to dress up for the part of an organ grinder. Worse yet, she wanted me in a costume as well. Liz even had a monkey hand puppet to show off. But, alas it was not the same without an organ. So came the day when Liz exercised her wifely privilege by stating that she was to have a monkey organ. "O.K." I said, as I picked up my hammer and saw, "I will make you one." It soon became obvious to Liz that the organ I was making was going to be too big for her to handle and take too long to make. I was overruled with the edict that we purchase a brand new organ. "But, But," I said. "We need a monkey organ now" she replied. An order subsequently was placed for a 25-note paper roll (37 pipes) Alan Pell organ.

Figure 1. Liz Barnhart with her newly "constructed" organ wagon for the 25-note Alan Pell Organ.

The purchase of an organ solved one problem. But, I now faced another dilemma. How was I to transport the organ and rolls during the rallies? Over the years I have seen many monkey organs mounted on a wide variety of ungainly conveyances that ranged from baby buggies to miniature Conestoga Wagons. The soft sprung buggies allowed the organ to swing and sway as it was being cranked. Wagons having wooden spoked wheels with steel rims were difficult to steer and threatened to shake the organ to a pile of tooth picks as it was moved over uneven pavement (brick, cobblestone, gravel, boardwalks, curbs, train tracks, etc.) Liz favored the wooden spoked wheels because they are traditional with monkey organs. I agonized over possible cart configurations using wooden spoked wheels over an extended period of time without a satisfactory solution. The solution to my cart problem came in the form of a children's wagon ordered from Lehman's Hardware and Appliances.

Lehman's, my all-time favorite hardware store, is located in Kidron, Ohio, the heart of the Ohio Amish country. Lehman's caters to the Amish life style supplying all manner of high quality hardware, appliances, lighting, house wares, tools, toys, etc. to be found in rural America a hundred years ago. Lehman puts out a 150-page catalog titled the Heritage Non-Electric Catalog. On page 55 you will find iron and brass yard bells, Swiss cowbells, sleigh bells and pickle crocks. Pages 64 and 65 list children's wagons of various sizes and configurations.

The catalog is also accessible on line at www.lehmans.com. or at 877-438-5346. If you are in north/east Ohio visit Kidron and Lehman's. Thursday before noon is a good time. The locals bring in livestock in horse drawn wagons for auction. There is also an open-air produce and flea market. Have lunch, with the Amish, in the basement of the Kidron Town & Country Store. Watch out for the buggies!

The Lehman Model 4-WSW-A Medium 4-Wheel Steered Wagon was an ideal solution to my dilemma (**Figure 1**). The size of the sturdy wagon was right for the Pell organ. The wagon came with wide 10" diameter pneumatic wheels that would roll smoothly over the smaller cracks in the pavement. The steering is automotive style with independently swiveled wheels that provide good stability in turns. The most unique aspect of the wagon is the articulated steering of all four wheels to provide a very sharp 19" turning radius. The wagon turns immediately where it is, without the need for making wide swings or moving back and forth to get around a corner on a narrow pathway.

The wagon was customized to the needs of the organ by replacing the "stake bed" with a new box sized to accommodate the base of the organ and the stowage of 16 roll boxes (**Figure 2**). The sides and ends of the wagon box are made of 3/4" oak. The sides are clamped to the ends by 1/4" threaded rod. The bottom of the box is 1/2" oak veneer plywood (in my case two sheets of 1/4" plywood glued together) and set in grooves cut into the sides and ends. The top of the box is made of 1/4" oak veneer plywood assembled in three sections. The middle section, sized to the base of the organ, is screwed down over internal boards to carry the weight of the organ to the bottom of the box and to the wagon frame. The front end of the middle section has a cleat with a lip to hold one side of the organ base to the wagon.

The larger end section is hinged to provide access to the roll boxes. The smaller end section provides access to a stowage space in the rear. The smaller end section also has a cleat with a lip to hold the other side of organ base to the wagon. Both end sections are clamped in place with luggage clasps. The organ is released from the wagon by removing the rear end section.

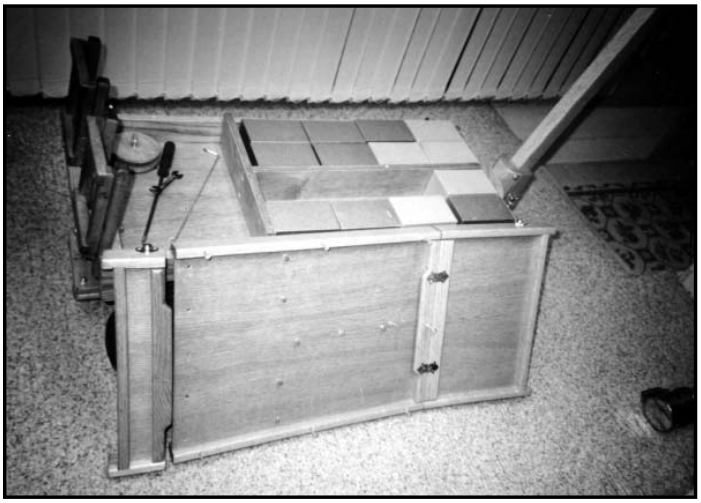


Figure 2. The base of the organ wagon has been modified to accommodate 16 25-note roll boxes.

The steel handle supplied with the wagon was replaced by an oak boot fastened to the wagon tongue and an oak handle that can be released from the boot with removal of a pin (**Figure 3**). This was done for aesthetics and convenient stowage of the wagon without having the handle sticking out at odd angles. The handle is held upright by two springs between the tongue and boot. A semicircle block fastened on the front of the wagon box allows for pushing the wagon from the handle and boot.

Figure 3. On front of the wagon is the oak boot which makes removing and attaching the handle much easier.

The wagon cannot be steered with the handle in an upright position. The handle must be lowered from the upright in order to turn the wheels. With the handle in the upright or near upright position turning the handle will twist the tongue. A block of oak was clamped in the tongue with two bolts to give the tongue more strength against twisting.

The most unique aspect of the wagon is the articulated steering of all four wheels to provide a very sharp 19" turning radius.

A rack made of two oak boards (from the original stake bed) with cross cleats was mounted beneath the wagon frame (**Figure 4**). This rack provides for the following functions: As a skid to prevent the wagon from dropping all of the way down on the edge of curbs and steps between the wheels; As a rack for an additional stowage box between the wheels (when required); As a lower support for the umbrella stand. The umbrella and its stand are stowed beneath the wagon box inside the wagon frame (clear of the steering linkage).

Figure 4. Looking underneath the organ wagon one will find the "skid" rack which also serves as a support for additional storage.

Another rack is fastened to the back of the wagon box providing for the upper support for the umbrella stand and for convenient stowage of two wheel chocks. The chocks in one position allow the wheels to set on level pavement. Or the chocks can be turned over to elevate the wheels to help level the wagon on uneven ground. Is there anything that I did not think of?

The next time you're at an organ rally you may find me faithfully cranking Liz's Pell organ on her Amish wagon in my generic German costume. You may ask. "Where is Liz?" I will answer. "Oh she and her monkey are walking around visiting with her many participating friends and listening to their organs."

Mike Barnhart, and his Wife Liz, are avid mechanical musical instrument enthusiasts who reside in Dayton, Ohio. In addition to being active in both the AMICA and MBSI organizations, Mike has found time to construct a "retirement" room complete with a large G-scale model outdoor garden railway which runs through the room.

Building a 43-note Calliope

Dave Kerr

What on earth is a "Calliope" (pronounced "cal-eye-o-pea" although some American aficionados pronounce it "cal-leyopey" or just plain "calleyope")? *Calliope* was the Greek Muse of eloquence and heroic poetry. How she got mixed up with a brash musical instrument is anybody's guess. In the pipe organ world Calliope was originally a steam driven organ comprising thin walled tubular brass steam whistles in a musical chromatic scale and played from a keyboard or a or a piano type roll. It was invented by Joshua C. Stoddard and first displayed in 1856. The first instrument had 15 whistles, of graduated sizes, attached in a row to the top of a small steam boiler, originally played by a cylinder with protruding pins like a barrel organ. Later, Stoddard replaced the cylinder with a keyboard, the pipe valves were operated by wires attached to the keys—in this form it was first played by his daughter (perhaps her name was Calliope?). Because of the high pressures used, it was very loud and brash and meant to attract attention. It was usually employed by showmen running carousels or other amusements, or by circus folk during the early part of last century and in the late 1800s.

Figure 1. The Tangley Calliope.

The air calliope uses air and not steam and it too usually was on high pressure from a blower powered by either a petrol or electric motor. The one described here operates on lower pressure (about three inches water gauge) but it can be run on higher pressure (up to about eight inches, some commercial ones used up to 28 inches or between 3/4 and 1 1/2 PSI) but more of this later.

This project started through discussion between three friends who have an interest in organs, and theatre organs in particular. An article written by A.K. Brill (see inset on the right) describing the construction of a 43-note air calliope and two commercial calliopes, the American Tangley (**Figure 1**) and National Calliope, was used as the basis for ideas on construction. This was further extended with the conception of automatic operation using modern electronic control with the music recorded on E-prom (**E**rasable **P**rogrammable **R**ead **O**nly **M**emory). Since two of the group were electronic whiz kids, this was seen as an easy option.

Originally we were going to construct the pipes of brass and some were made of brass and copper pipe from the scrap metal yard. However, the scrap metal yard is an unreliable source, so commercially available material was investigated. Thin walled brass tube of the required dimensions is no longer available and commercially available brass proved to be prohibitively expensive, so alternative material was investigated. Plastic drainage and water pipe was considered the best alternative since all material could be obtained for about $50. Other material was sourced from garbage recycling depots and included vacuum cleaner motors (for the blower) at $3 and electronic organ keyboards for about $5. Solenoid valves to operate the pipes are a bit more problematical, luckily, one of the members has been collecting pipe organ components and had several pipe chests containing solenoids. Similar solenoids to mine can be obtained from the Perterson Organ Co. in Illinois for about $5.00 each. If you can't get the solenoids described later, you could try plumbing and garden irrigation suppliers or search the internet for solenoids. You might find something you can modify to suit your needs.

A. K. Brill

A. K. Brill was a Jewish newspaper reporter who established several Illinois papers along with an interesting career. Among his "accomplishments" were the fact that he became a lion tamer's assistant; was in trouble with the 'mob' after publishing a story about a local politician who placed boxes in front of slot machines so that children could gamble; and the fact that he got fired from one paper after exposing a mayor who turned out to be a stockholder of the paper he worked for.

He was interested in circus, carnival and illusionist equipment and for many years went about examining, measuring and drafting plans for what he had seen. He then cataloged this material and sold individual plans of various items. He did this for many years and his plans were widely used. Pertinent to this article is the fact that he wrote up plans for a 28-pipe calliope run by a vacuum cleaner motor.

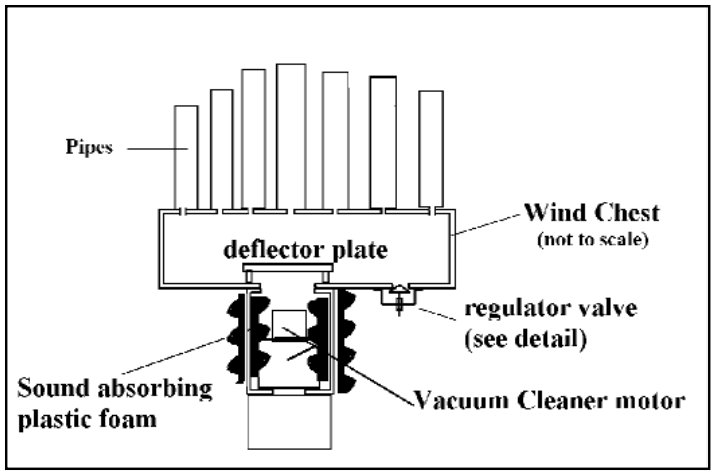


Figure 2. The wind chest.

Construction of the pipes is the most difficult part of the project and details of construction of both metal and plastic pipe will be given here. It is a distinct advantage if you have a lathe for this part of the project. A metal lathe fitted with both compound and cross slide makes the construction much easier. However, construction can be done using a wood lathe, but you will need to rig up some extra attachments, particularly for constructing plastic pipes. A little Aussie ingenuity would probably enable you to construct plastic pipes without a lathe. You need some sort of a spindle to hold the pipe while you cut the slots. Metal pipes (that is , brass or copper) are simpler since the pipe consists of two parts connected by soldered bridges.

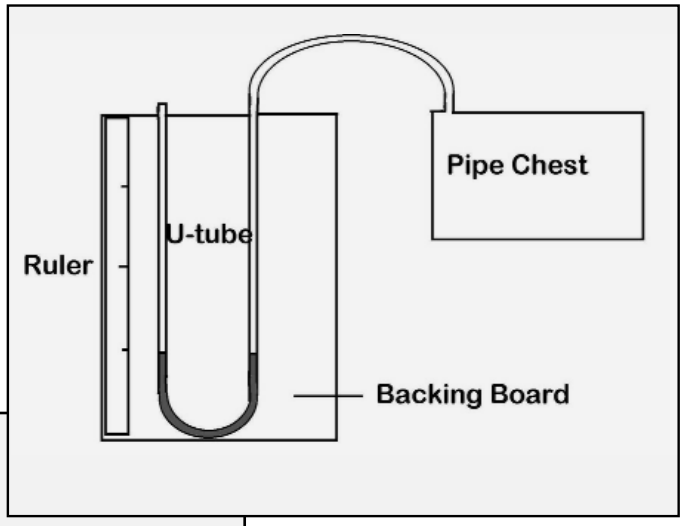


Figure 5. Home made manometer.

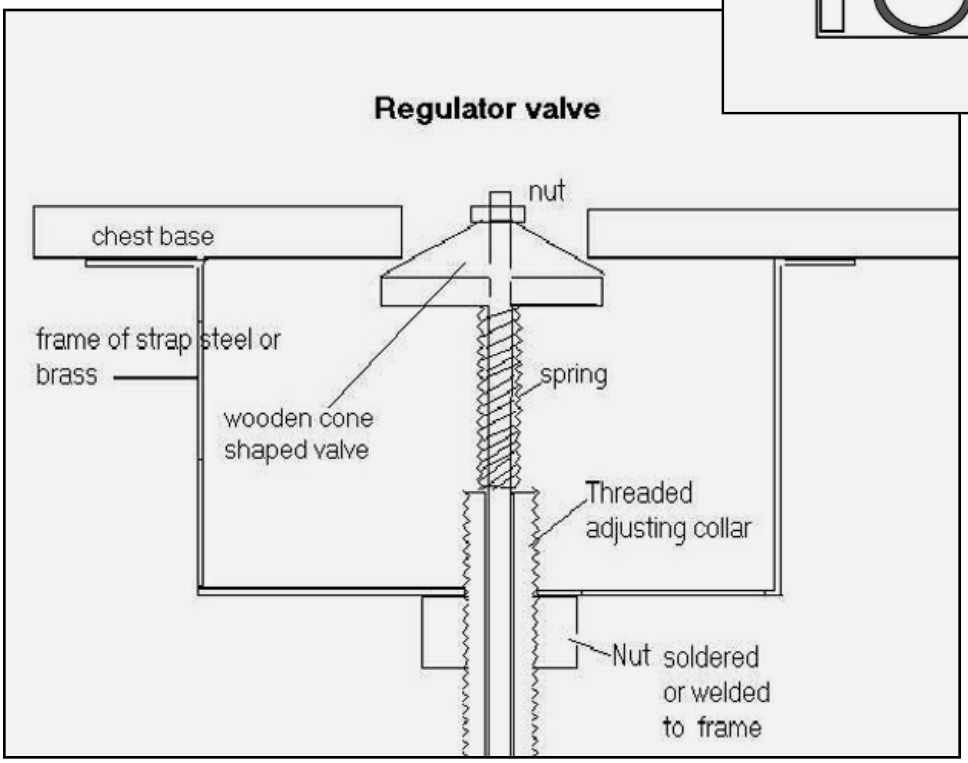


Figure 3. Regulator valve in base of wind chest.

The air supply was from an old vacuum cleaner motor but any blower which delivers approx.. 20 cubic ft per minute will do. The vacuum cleaner motor is very noisy and requires extensive covering with sound-proofing plastic foam. The box covering the motor will vary in size according to the dimensions of the motor. I used a 1200 watt motor but a smaller one (say 800 watt) would be adequate. Better still would be a blower powered by an induction

Calliope was the Greek Muse of eloquence and heroic poetry. How she got mixed up with a brash musical instrument is anybody's guess.

The Wind Chest

You will probably need to build the wind chest (**Figure 2**) before you make the pipes since you will need a source of air for setting the gap and for voicing and tuning. The chest top (**Figure 4**) and bottom are constructed from 12mm (1/2") fiberboard (MDF). The sides were made from 20mm (3/4 inch) solid timber, in my case 150mm x 19mm (6" x 3/4")DAR pine. Dimensions to the top were 900mm x 375mm (approx. 3 ft by 1 ft 3 ins.). If you are constructing a 48-note calliope such as the one I finally built, you will need a larger top, about 3' 6" x 1' 6". A regulator valve (**Figure 3**) is fitted on the base to spill excess air and is adjustable to set the required pressure. The cone shaped design was found to be better than a trap-door type because the high air volume tended to draw it closed due to the Bernoulli effect.

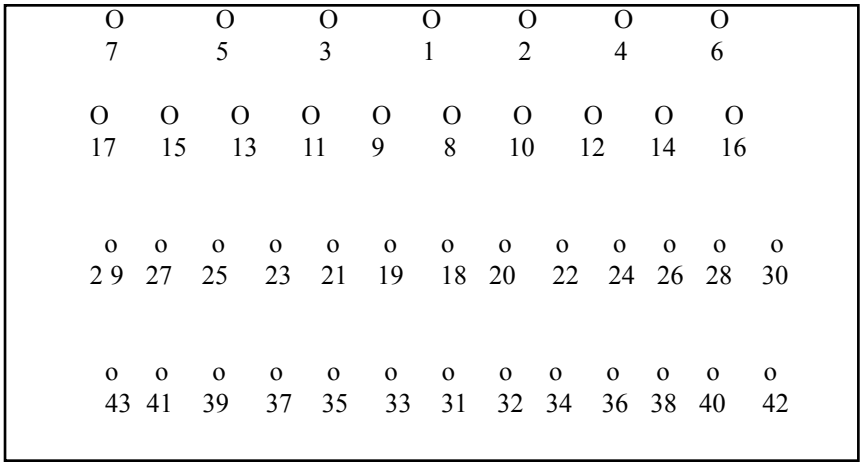


Figure 4. Pipe layout on wind chest top (not to scale)

motor since this would be almost silent. However, once the calliope is playing, it will drown out the noise of the motor!

In order to measure the wind pressure, you will need a manometer which is a piece of clear plastic tube bent into a u-shape and partially filled with water, and with a ruler at one side to measure the water column displacement (**Figure 5.**)

The Solenoids

These are likely to the most difficult item to acquire. I used pipe organ solenoids as illustrated in **Figure 6** but suitable solenoids would be ones which have a shaft movement of about 8 mm and to which a circular disk can be attached to act as a valve (see alternative design below). They should operate on approx.. 12 to 24 volts DC depending on the power supply you use. The solenoids are wired with one end of the coil soldered to an earthing rail of thick copper wire fixed to the underside of the chest top. The other end is soldered to individual wires to form a cable which is connected to the keyboard switches . Here I used computer ribbon cable of 50 wires (numbers 1 to 43 for the solenoids and number 44 and 45 for the earthing rail, leaving the remaining five as spares) which exits the chest laying flat on the edge between the top and sides of the chest. A gasket of leather or suitable material around the top edge ensures that there is very little if any air leakage.

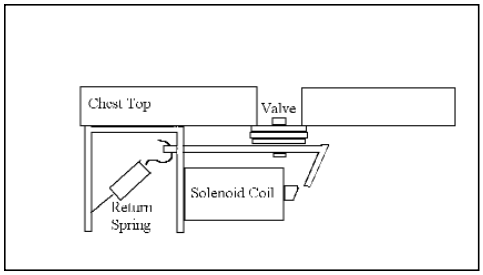


Figure 6. Solenoid for each playing hole.

. . . a manometer which is a piece of clear plastic tube bent into a u-shape and partially filled with water, and with a ruler at one side to measure the water column displacement.

Pipe Construction

Thin walled brass tubing is no longer available or, if available, is very expensive. Drainage and water pipe in brass or copper is much thicker and the sizes available do not follow closely the ideal sizes listed in **Table 1** (right, in imperial measurements). You will need to select the most appropriate sizes available and make substitutions for sizes either side. The list in **Table 2** shows the relationship between the length and diameter of pipe, musical note and frequency in metric units, together with the substitution sizes for plastic pipes.

Metal pipes consist of six (6) parts: base tube, base plug, inlet pipe, saddles (or stand-offs), main pipe (which is the resonator) and tuning plug and is illustrated in **Figure 8** (next page). Plastic pipes have a one piece tube in which slots are cut and consist only of the tube, base or inlet plug, inlet pipe and tuning plug and is illustrated in **Figure 7** (below).

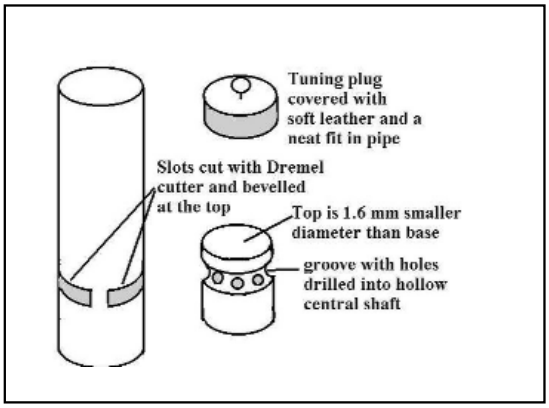


Figure 7. Construction details of a plastic pipe.

In making either metal or plastic pipes you will need to make the base plugs and tuning plugs. I used fine grained Australian hardwood (Jarrah) but any dense timber which is fine grained and

Table 1
Pipe Measurements*

Tube No	Qty	Tube ID	Tube Length	Base Length	Gap	Inlet	Top Plate
1	1	3-7/16	20	2	1	11/16	3-7/16
2 & 3	2	3-7/16	18 1/2	2	1	5/8	3-3/16
4 & 5	2	2 -15/16	17	2	7/8	9/16	2-15/16
6 & 7	2	2 -11/16	15	2	7/8	9/16	2-11/16
8 & 9	2	2-15/32	13-1/2	2	7/8	1/2	2-15/32
10 & 11	2	2-3/16	11-7/8	2	13/16	1/2	2-3/16
12 & 13	2	1-15/16	10-3/4	2	5/8	7/16	1-15/16
14 & 15	2	1-11/16	9-5/8	1-1/2	9/16	3/8	1-11/16
16&17	2	1-11/16	8-5/8	1-1/2	9/16	3/8	1-11/16
18 & 19	2	1-11/16	7-5/8	1-1/2	9/16	3/8	1-11/16
20 & 21	2	1-7/16	6-7/8	1-1/2	1/2	3/8	1-7/16
22 & 23	2	1-7/16	6-1/8	1-1/2	7/16	3/8	1-7/16
24 & 25	2	1-3/16	5-5/8	1-1/2	5/16	5/16	1-3/16
26 & 27	2	1-3/16	5-1/16	1-1/2	5/16	5/16	1-3/16
28 & 29	2	1-1/16	4-5/8	1-1/2	5/16	5/16	1-1/16
30 & 31	2	1-1/16	4-1/8	1-1/2	5/16	5/16	1-1/16
32 & 33	2	15/16	4	1-1/4	3/16	1/4	15/16
34 & 35	2	15/16	3-3/4	1-1/4	3/16	1/4	15/16
36 & 37	2	13/16	3-7/16	1-1/4	3/16	1/4	13/16
38 & 39	2	13/16	3-1/4	1-1/4	3/16	1/4	13/16
40 & 41	2	11/16	3-15/16	1-1/4	3/16	1/4	11/16
42 & 43	2	11/16	3-11/16	1-1/4	3/16	1/4	11/16

*measurements in inches

stable should do. Avoid softer woods as these will dehydrate and fall out of the pipe. The base plug should be a driving fit in the base

Figure 8. An example of a metal pipe (exploded view).

of the pipe. It consists of the base, a semicircular section groove about 3/4 of the way up into which holes are drilled towards the centre, meeting a vertical hole from the base. This is the air way (or languid of organ pipes). The top of the plug is 1.6 mm (1/16th inch) smaller in diameter than the base to allow a circular stream of air to be directed against the beveled lip of the main tube (**Figure 7**). This 1.6 mm difference is consistent throughout the range of pipes. This results in 0.8 mm gap respectively all the way around. This is very small and requires a measure of precision in manufacture, and in reality, requires a lathe. An alternative plug could be made from three flat disks separated by spacers, either metal or perspex or somesuch, the top disk being 1.6 mm smaller diameter than the other two.(**Figure 9**)

Table 2
More Pipe Measurements

Tube No.	Musical Note	Frequency (Hz)	Tube I.D. (mm)	Substitute Dia.*	Tube Length (mm)	Base Length (mm)	Gap for High Pressure	Gap for 3-4" Pressure	Total Pipe Length	Hi Pres. Pipe Height	Lo Pres. Pipe Height
1	F	174.614	87	3 1/2	508.00	51	26	21	558.80	584.20	580.19
2	F#	184.997	87	3 1/2	508.00	51	25	21	558.80	584.20	579.47
3	G	195.998	87	3 1/2	469.90	51	25	20	520.70	546.10	540.66
4	G#	207.652	76	2 1/2	469.90	51	22	19	520.70	542.93	540.10
5	A	220	76	2 1/2	431.80	52	22	19	483.60	505.83	502.10
6	A#	230.082	76	2 1/2	431.80	51	22	18	482.60	504.83	500.20
7	B	246.942	76	2 1/2	381.00	52	22	17	432.80	455.03	449.90
8	C	261.626	76	2 1/2	381.00	51	22	16	431.80	454.03	448.20
9	C#	277.183	76	2 1/2	335.28	52	22	16	387.08	409.31	402.78
10	D	293.665	56	2 1/2	335.28	51	21	15	386.08	406.72	401.08
11	D#	311.127	56	2	301.63	52	21	14	353.43	374.06	367.83
12	E	329.628	49	2	301.63	51	16	14	352.43	368.30	366.23
13	F	359.228	49	2	273.05	52	16	13	324.85	340.73	338.15
14	F#	369.994	41	2	273.05	38	14	13	311.15	325.44	323.75
15	G	391.995	41	2	244.47	38	14	12	282.57	296.86	294.57
16	G#	415.305	41	2	244.47	38	14	12	282.57	296.86	294.07
17	A	440	41	2	219.08	38	14	11	257.18	271.46	268.18
18	A#	466.164	41	2	219.08	38	14	11	257.18	271.46	267.78
19	B	493.882	41	1 1/2	193.68	38	14	10	231.78	246.06	241.88
20	C	523.21	37	1 1/2	193.68	38	13	10	231.78	244.48	241.48
21	C#	554.365	37	1 1/2	174.63	38	13	9	212.73	225.43	222.03
22	D	587.33	37	1 1/2	174.63	38	11	9	212.73	223.84	221.53
23	D#	622.254	37	1 1/2	155.58	38	11	9	193.68	204.79	202.18
24	E	659.255	30	1 1/2	155.58	38	8	8	193.68	201.61	201.88
25	F	698.456	30	1 1/2	142.87	38	8	8	180.97	188.91	188.77
26	F#	739.989	30	1 1/4	142.87	38	8	8	180.97	188.91	188.47
27	G	783.991	30	1 1/4	128.59	38	8	7	166.69	174.63	173.89
28	G#	830.609	27	1 1/4	128.59	38	8	7	166.69	174.63	173.59
29	A	880	27	1 1/4	117.48	38	8	7	155.58	163.51	162.18
30	A#	932.328	27	1 1/4	117.48	38	8	6	155.58	163.51	161.88
31	B	987.767	27	3/4	104.78	38	8	6	142.88	150.82	148.88
32	C	1046.302	24	3/4	104.78	38	5	6	142.88	147.64	148.68
33	C#	1108.731	24	3/4	101.60	38	5	6	139.70	144.46	145.30
34	D	1174.659	24	3/4	101.60	32	5	5	133.35	138.11	138.65
35	D#	1244.508	24	3/4	95.25	32	5	5	127.00	131.76	132.10
36	E	1318.51	21	3/4	95.25	32	5	5	127.00	131.76	131.90
37	F	1396.913	21	5/8	87.31	32	5	5	119.06	123.82	123.76
38	F#	1497.978	21	5/8	87.31	32	5	5	119.06	123.82	123.56
39	G	1567.982	21	5/8	82.55	32	5	4	114.30	119.06	118.56
40	G#	1661.219	17	5/8	82.55	32	5	4	114.30	119.06	118.34
41	A	1760	17	5/8	100.01	32	5	4	131.76	136.52	135.58
42	A#	1864.655	17	5/8	100.01	32	5	4	131.76	136.52	135.36
43	B	1975.533	17	5/8	93.66	32	5	3	125.41	130.17	128.80

(pipes 37 to 43 were made from electrician's plastic conduit)

* based on available plastic drainage and water pipe, these figures in inches because of varying I.D. in commercial pipes.

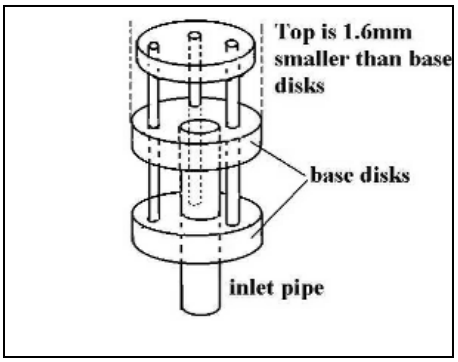


Figure 9. An alternative base plug made from three flat disks.

Tip: *to fit the base plug so that the gap is even all around the inside of the pipe, use a bearing or gear puller. Fit the claws in the slots (***Figure 10***) or over the top part of the base pipe and fit a small piece of metal over the base hole for the tip of the advance screw and then simply screw it up until the top of the plug contacts the claws.*

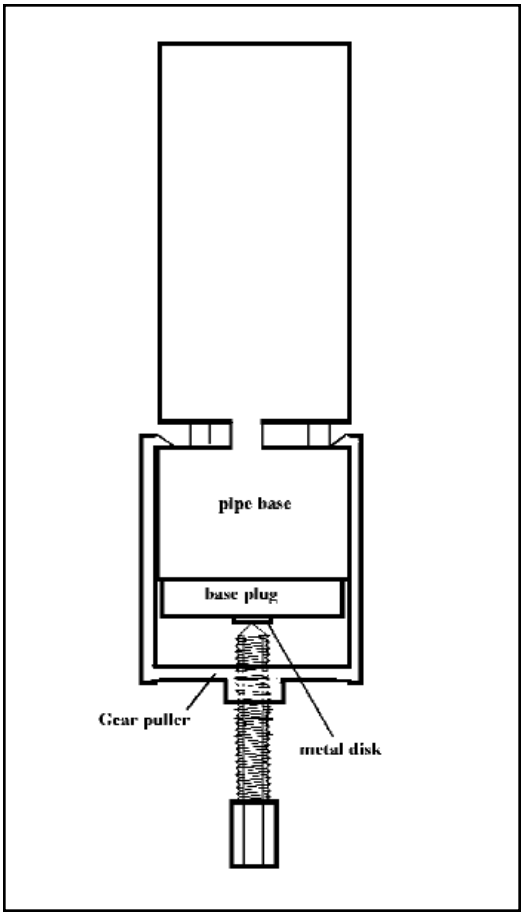


Figure 10. Using a gear puller to fit the base plug into the pipe.

The tuning plug is straightforward. It is a disk about 12mm thick (thicker for the larger pipes) which is covered in soft leather and a firm to tight fit in the top of the pipe. For leather you could try a leather clothing maker for scraps and offcuts. The thinner the better, like the leather in kid gloves. You will need to overlap the leather over the lower edge of the plug to stop it jamming and wrinkling up. Screwed into the top of the plug is a screw eye of appropriate size to allow the plug to be pulled up the pipe for tuning. You may need to braze or silver solder the join of the screw eye to stop it opening when pulling the plug up.

Voicing metal pipes

With metal pipes, make the base first and attach the bridges which should be bent inwards slightly to firmly clasp the base of the main tube or resonator. This will allow you to slide the tube up and down to find the best position of the gap (called the mouth in organ pipes) for the pipe to sound best. The tuning plug should be in place and when the pipe sounds best, try to get the tuning plug at about the right position for the note being tested. This will ensure the best gap for that note. The gaps given in the tables above are approximate and will vary slightly according to other factors e.g. the size of the languid and the air pressure used. The bridges are made from brass or copper strips about 5 to 10mm wide and about 25mm long, depending on the size of the pipe. You will need 6 bridges for the larger pipes, reducing to 3 for the small pipes (less than 25mm diameter). I made a former from steel bar for making the bridges (**Figure 11**). The center piece is hinged and to make the bridge simply lift the center flap, insert a strip of brass or copper, let the flap down and size it with a large hammer.

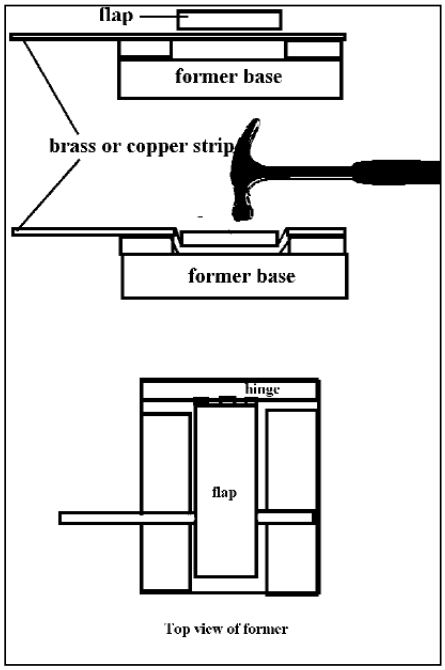


Figure 11. The bridge former made from steel bar.

Part II of "Building a 43-note Calliope" will be printed in the October, 2000 issue of the *Carousel Organ.*

Dave Kerr and his wife, Myra, live in Stirling, Australia (Australian Capital Territory). Before retirement Dave was managing National Parks including the Tidbinbilla Nature Reserve (with lots of kangaroos). Now he "tinkers" in his workshop and maintains the Compton Theatre pipe organ and is helping restore the Gebruder Apollo carousel organ.

The LeLudion Story

Eve Crasse

The Beginnings

The story of LeLudion started with the crossing of the paths of two people with a passion for mechanical music. The place was the first district of Paris - a chance meeting in front of an antique dealer who specialized in organ clocks. Both students were interested in the same type of music - one was enchanted with fairground music and the merry-go-round and the other was fascinated with the mechanism that made this wonderful music.

Several years passed before realizing the workshop as it is known today but the chance meeting was the start. Being able to teach the craft of mechanical music as well as working with great customers all added to the experience over the last 25 years.

The craft of mechanical music? In France there was no formal school, not even for organ building. You had to learn from retired professionals. Today it is different in that there is a unique school near Strasbourg (in the eastern part of France) where the apprentice can find good teachers.

The Birth of LeLudion

Philippe and Eve Crasse began the business of LeLudion in 1976 with Eve specializing in antique toys and Philippe restoring mechanical musical instruments. The field of restoring is best learned from the masters some of which included organ styles by the Limonaire firm and organettes from Jerome Thibouville (the two most popular companies seen in the French market). As work for the business came in, Philippe would compare the styles and mechanisms of these organs with each other.

Why the name of LeLudion? It means Cartesian diver and brings together both Philippe and Eve's passions. As an old toy, it could be a very simple or a very sophisticated item. It could have been made by a grandfather for his grandson's enjoyment or a divining machine by the fairman's hands, following the movement of a figure's wand - up and down. The Cartesian diver seems to answer the publics' question.

Figure 1. The 27-keyless "Baby" street organ in a painted case.

Cartesian Diver

Best described as a toy for the junior high school laboratory, it is simply a near-floating object in a closed plastic bottle that dives and rises according to pressure on the bottle. It involves physical forces of weight, pressure, gravity, vacuum and water.

Figure 2. The Maestro organ fitted with trumpets, tin flutes and bourdons. The organ, decorated with Spanish views, is fitted on a neat cart.

During those earlier years our vacations were dedicated to visiting collections and museums all over Europe including Utrecht, Rüdesheim, Waldkirch, Seeven, l'Auberson and so on. At that time it was also easier to assemble a collection of mechanical instruments including fair organs, music boxes and so on. This provided a way to show our customers the wonders of these instruments as well as enjoying them ourselves.

Naturally, the hope of an organ restorer is to build his own instrument and in 1984, Philippe was able to do just that—a 24-note organ made in the style of Thibouville. One year later, production of these organs in the LeLudion workshop began.

Figure 3. A view inside the 64-key concert organ as tuning progresses.

At first, the LeLudion workshop produced three models: a "bird organ" (serinette); a 35-key fairground organ (similar to the Limonaire) and a 24-key street organ. It was at that time that we were asked also to build a "kit" organ, one that the customer could do himself (a surgeon friend had made the first request—one that was to help him escape the tensions of work and relax). This became a difficult request because some builders could follow instructions and build a satisfactory organ while others seemed to have trouble following instructions. Other restorers had warned us that we were giving away "all the secrets."

As time went by we had wonderful opportunities to expand. A fairground ordered a 64-key organ with brass trumpets to use for a merry-go-round; a private club, owned by a poker player, wanted an organ to provide contemporary music for singing at private parties; and lately, a café in the northern part of France desired a Mortier dance organ. All this work required more workers and we progressed from two to, now, eight workers.

A Main Concern - Book Music

From 1990 to 1992 we worked out a plan to create our own book music for the organs we produced. Was it possible to create an organ without music to play on it? Of course not! Obstacles encountered were the unavailability of book makers (three existed in France but were too busy to help) as well as the lack of familiarity with using the computer to help punch the cardboard music. At first it was necessary to spend more time with the arranging portion of providing music and less with the actual punching. We enlisted the help of Michel Amirault and Richard Legardeur, local musicians who were available to arrange.

Utilizing the help of a data processing expert we designed a prototype computerized cutting and punching machine. After two years of experimenting (and spending a lot of money) it worked great. There was little software on the market at that time but around 1992 there seemed to be an explosion of music arrangers and bookmakers, most however interested in making music for their own organs. After this time there seemed to be many new tunes available.

LeLudion's 20th birthday was celebrated in October 1996 with a three-day street fair where many organ owners, some from as far away as Belgium and Spain, helped celebrate. This festive occasion has been preserved on a CD.

In keeping with the LeLudion philosophy, we have advanced our organ-building techniques over a large range of organs, both key and keyless. Our fair organs are designed in the polyphonic type—which means that each pipe and each rank must receive enough wind without having compromise with other ranks. Bellows units (or blower) were conceived with this principle. Also, the wind channels are made large enough to accommodate the number of pipes. We enlarged the instrument composition with an increased numbers of pipes (double basses and accompaniments) operated with automatic stops.

Figure 4. The fairground organ *Le Superb*, a 35-key Limonaire-type organ playing with a carousel.

The smaller street organs use the standard 27-keyless system (even in the busker organ, the Piccolo) which allow for accompaniment of the performer. In Germany the 20-note organ is more popular (often without accompanying singer) but our models, especially the larger 32-key Maestro model is capable of extremely fine musical shading and variety of playing musical selections. Certainly some readers will remember the impromptu concerts given at the previous Chicago and Seattle MBSI conventions.

Eve and Philippe Crasse's history is noted in this interesting story of LeLudion. They continue to make organs in the south of France as well as attend many organ rallies on the Continent.

In Memorium:

Captain John Leonard—Capt. John passed away at the age of 77 on May 9, 2001. He is survived by his wife, Pauline. Officially he was a retired Great Lakes captain and a prominent member of many marine and Great Lakes historical organizations. His newspaper obituary referred to him "as a colourful man with a tremendous sense of humor."

Unofficially he was a friend and an icon of band organ rallies, faithfully bringing his North Tonawanda organ to COAA, ABOA, MBSI and AMICA rallies. Capt. John was featured in the Meet Your Member column in issue #3 and a full featured article that Capt. John authored in issue #4.

Carol Heller—wife of Dale Heller, Wichita, Kansas, passed away on May 11 after a short illness. The Hellers have recently joined the COAA.

Did you know?

This will be your <u>last issue</u> of the *Carousel Organ* if you have not renewed your membership! So—please send your dues to:

Marge Waters, 7552 Beach Rd, Wadsworth, OH 44281

AMICA Pacific CAN-AM Chapter
invites you to its first

BAND ORGAN RALLY

Sept. 1-2, 2001 (Labor Day Weekend) in scenic Ocean Shores, Washington

Join us at the Ocean Shores Convention Center for a weekend of American and European fair organs, street organs, a steam calliope, and a host of other mechanical musical instruments. Enjoy the large organs outside, then go indoors to the exhibit and demonstration rooms. Registration fee includes a mart, banquet, two box lunches, open house, door prizes and discount coupons from local businesses.

Located on the Pacific Ocean, midway between Seattle and Portland, our rally site is only minutes from beautiful sandy beaches. Galleries, shops, good restaurants, and recreational activities abound, all within easy walking distance of the rally. The host hotel, Linde's Landing, is offering special rates.

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Meet Your Member

Who am I? Well, I own a lot of Stinson organs, I travel a long way to a lot of rallies and I have a friend, Pee Jay!

As a child my two younger sisters and I were told by our mother to meet at the merry-go-round should we ever get lost each year during the local town festival. I don't think we ever got lost, but that instruction changed for me later when I was old enough to run around the festival by myself to: "meet mother at the merry-go-round at a certain going-home time." I think I was always on time, but still have fun yet today accusing my mother of always being late and this is probably what caused my addiction to live band organ music.

At age 12, a ride operator lifted me over the fencing of a portable Allan Herschell Merry-Go-Round. My wish had been granted-now I could see how a wooden box sitting by the center pole, was making such wonderful music. Later in life I would learn that this band organ, that belonged to the Gooding Amusement Company, was probably a Wurlitzer 146A with a 153 Façade. At age 15, I was recording unfamiliar wooden band organ boxes with a reel-to-reel tape recorder. A year later with some financing from my very supportive Dad, money I earned and a neighbor's help (who was a welder), I was building a lighted and motorized merry-go-round in the backyard. I had to do this, I guess, to play the recorded music I had obtained and, my Grandpa built me a 100-watt amplifier to do the job just right! It became so popular that even today I am best remembered in Jackson, Ohio for that merry-go-round (by the way, Grandpa was also asked to build an amplifier with less wattage).

Around the time I graduated from high school, I saw the unbelievable at the Circleville, Ohio Pumpkin Show-the Gooding Ruth Organ. Later having somewhat better finances and a driver's license, I found myself on several occasions chasing the Gooding Ruth Organ around Ohio to see it again and again. I clearly remember the goals I had in my mind as I entered the Air Force in 1963: I would hopefully see a day that I could own my own band organ. As I look back I cannot remember a time that I have not been interested and mesmerized with band organs and often wonder how one can stay motivated to save money to buy organs and not waver over a period of nearly 50 years. It became a passion that required at times significant sacrifices, especially while raising a family. My mothers thoughts today are simply, "what would have happened if she had said, meet me at the ferris wheel?"

Who am I? Well, if you still don't know, just ask Pee Jay. Or " 'Til we meet at the Merry-Go-Round!"

Larry Kern

COAA Organ Rally — Bearcreek Farms

The second COAA rally of the year will be held at the Bearcreek Farms in Bryant, Indiana on July 27 - 29, 2001. Playing time will be from 10:00 a.m. to 5:00 p.m. on Friday and Saturday and 11:00 a.m. till ? on Sunday.

Bearcreek Farms is situated on 200 acres and offers an antique village with plenty of shopping as well as an attractive indoor water park with huge waterslides and miniature golf. There is also the Tin Lizzie Museum with a collection of 25 old cars.

Registration is $5.00 per couple and members should respond to Kim Pontius at 765-348-0107. Cabins have been set aside for COAA members at $55.00 per night — reservations should be made directly with Bear Creek at 1-800-288-7630.

2001 Organ Rally Dates

Event	Location	Contact Person	Date
Mid-America (MBSI) Band Organ Rally	Honeywell Center Wabash, Indiana	Frank Rider 219-563-5030	July 19-21, 2001
COAA Rally #2	Bearcreek Village Bryant, Indiana	Kim Pontius 765-348-0107	July 27-28, 2001
Heart of America (AMICA) Band Organ Rally	Crescent Hotel Eureka Springs, AR	Marty Roenigk 800-671-6333	Aug 17-18, 2001
COAA Rally #3	Jamestown, NY	Dan Wilke 716-825-7266	Aug 24-26, 2001
COAA Rally #4	Delta Queen Gallipolis, OH	Amanda Crouse 800-765-6482	Aug 31-Sept. 1, 2001
Organ Grinder Show and Tell Gateway/HOA (AMICA)	The City Museum St. Louis, MO.	Cynthia Craig 314-771-1244	Oct. 19-20, 2001