The Music Box

an international magazine of mechanical music

THE JOURNAL OF THE MUSICAL BOX SOCIETY OF GREAT BRITAIN

Volume 7 Number 2 Summer 1975

Mekanisk Musik Museum

Claes O. Friberg **Q. David Bowers** *Tel. (01) 22 21 22*

Vesterbrogade 150 / Copenhagen / Denmark

THE GENEVA COLLECTION
of Automatic Musical Instruments
FOR SALE

Claes O. Friberg and Q. David Bowers, directors of Copenhagen's Mekanisk Musik Museum, are pleased to announce the purchase intact of the Geneva Collection — one of the finest groupings of automatic musical instruments ever to appear on the market. This fabulous collection, together with other important acquisitions, is featured in our MMM Review No. 5 which is now being published. Listed, illustrated (in most instances), and priced for sale are several hundred — that's right, several hundred — disc-type music boxes, a fine array of cylinder boxes, organettes reproducing pianos (Ampico, Duo-Art, Welte, and Hupfeld), coin-operated pianos, several magnificent orchestrions (including the world's only known example of the Hupfeld Helios III/42), an interesting selection of fairground organs, many beautiful dance organs, and other automatic musical instruments of interest.

Over the years we have been important suppliers to members of the Musical Box Society of Great Britain. If you are a dealer, it will pay you to get acquainted with the world's largest wholesale stock of instruments. If you are a collector, you will appreciate the savings you can make by purchasing here. We invite you to subscribe to the "MMM Review", a large illustrated magazine which is published approximately each eight or nine months. A copy of our very latest "MMM Review" No. 5 featuring the Geneva Collection is yours upon publication for $2.00 (£0·80), or you can subscribe to our next six issues for $10.00 (£4·00). Your complete satisfaction is guaranteed. If you do not find this to be the most fascinating catalogue you have ever read, then just let us know and we will refund your money — and you can keep the catalogue free of charge ! By the way, also in this issue is featured some interesting editorial matter in addition to instruments for sale — an article by MBSGB Member Graham Webb telling of the "good old days" when he had his shop in Portobello Road, a feature by Harvey Roehl (owner of the Vestal Press in New York) which tells how he discovered automatic musical instruments and really became involved in the hobby, and other items of interest.

Right now we have in stock and available for immediate sale f.o.b. Copenhagen approximately 500 automatic musical instruments of all kinds. If your travel plans include Denmark, be sure to pay us a visit ! It is best to let Claes Friberg know in advance you are coming for our for-sale items are located in several warehouses around Copenhagen. However, no advance notice is required to visit our permanent museum display of instruments. The museum is open daily except Monday and Tuesday.

Are you an active collector or dealer ? Then it will really pay you to get acquainted with the Mekanisk Musik Museum !

Mekanisk MUSIK MUSEUM

The Music Box

an international magazine of mechanical music

THE JOURNAL OF THE MUSICAL BOX SOCIETY OF GREAT BRITAIN

Volume 7 Number 2 Summer 1975

The Editor writes. . .

HAVE you ever paused for a moment to think of the collective capabilities of our society? Channel interest and intellect on the scale which we have at our cumulative disposal and what do you end up with? The answer is a force of immense strength which, although it may not exactly match the attributes of the mountain-moving faith, can certainly perform in an impressive manner.

The assembly of knowledge and skills that together make up our society has resulted in such a vast storehouse of energy. After a period of uncertainty during the early days of our existence, we have, like a tornado of intent, set off on a course towards a greater awareness of what mechanical music and its instruments happen to be all about.

An active strain amongst our membership is hard at work rediscovering lost technology, applying modern principles and freshly evaluating concepts. We can now make new discs thanks to the expression of our musical knowledge on the one hand, and the re-creation of disc-manufacturing techniques on the other. Several members are actually at work making new musical boxes, both cylinder and disc. And not content with the feckless art of the copyist, they seek to improve in the best way possible. One such demonstration of fresh creativity is the moulded plastic damper in use in the new German-built Symphonion.

But amidst all this activity and overt demonstration of intelligent enthusiasm, one grey area still remains. It centres on the fact that too few people really know what is going on, what is happening, what it is all about. They do not know what we are doing, why we are doing it, or what it is all in aid of.

This was highlighted by the comments of the guest speaker who addressed members and guests at our Annual Dinner following the Summer meeting on June 7th. Madeau Stewart, distinguished musical researcher and broadcaster on musical instruments and their history, made a plea for much greater communication between the outside world of music and our society. She regretted the fact that in general so little value was placed on the importance of mechanical music as an interpreter of music in the contemporary scene and referred to the many notable musicians who were ignorant of the storehouse of repertoire preserved on mechanical instruments.

Miss Stewart went on to congratulate the society for the work which it was doing in preserving knowledge of mechanical music and suggested that there were many publications and periodicals which would be interested in publishing contributed articles on instruments of interest and urged members to write this type of general interest article. This, she felt, would do much to foster further the aims of our society. It would also assist in preserving those surviving but as yet unearthed specimens of mechanical instruments.

We do have experienced authors and writers amongst our membership and the many poor-quality, inaccurate accounts of musical boxes which have appeared in outside publications should inspire some of us to put the record straight.

Now we have a plea from an outside sympathiser (Miss Madeau Stewart), isn't it time we took heed?

ARTHUR W J G ORD-HUME

Contents *page*

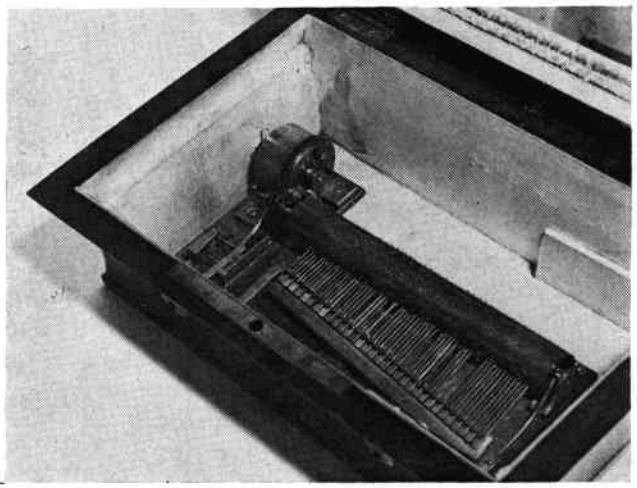
Cover picture: **25¾in Stella in Louis XV-style case (see page 66)**

Hon Editor: Arthur W J G Ord-Hume
Editorial offices:
14 Elmwood Road, London, W.4
Telephone: (01-) 994 3292
Advertisement manager: Arthur Heap
Advertisement enquiries:
51 Station Road, Delamere, Nr Northwich, Cheshire, CW8 2HZ
Telephone: (060-688) 2122

THE MUSIC BOX is designed by Arthur W J G Ord-Hume and published four times a year by The Musical Box Society of Great Britain.

WHO INVENTED THE MUSICAL BOX?

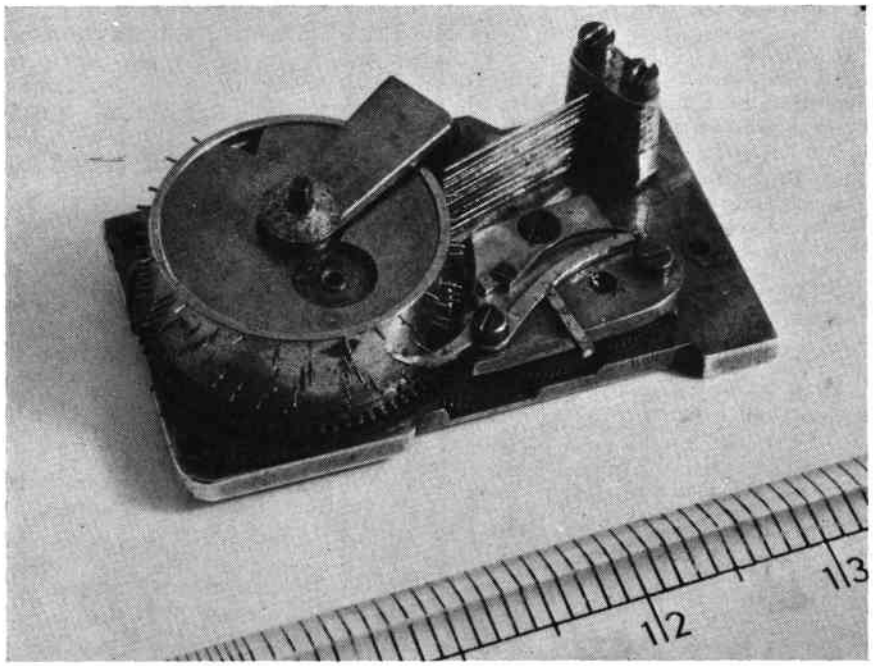
AT THE Summer Meeting of the Musical Box Society, the Editor of THE MUSIC BOX presented a paper on his recent investigations into the history of the musical box which have cast some measure of doubt on the accepted history of the birth of the tuned steel tooth in mechanical musicwork. In this article, derived from that paper, he demonstrates that styles hitherto considered to be very early continued to be used well into the second half of the 19th century, and suggests that the musical comb was probably in use half a century before the date accredited to its invention. He also sets out to re-define what it was that Antoine Favre invented in 1796



WHEN first I began taking an interest in the subject of musical boxes, I naturally accepted as gospel all that I was told and all that I read regarding the history of the things. On reflection, I believe my attitude to have been both reasonable, for I was learning, and justified, for I was in no position to determine otherwise.

And so, with certain yardsticks in mind, I have journeyed many years through musical boxes, basing judgements on what I knew and making assumptions from this foundation. It did not occur to me to challenge what I had been told and it was not until recently that I began to suspect that most of that which I thought I knew might be based on suspect history.

I became increasingly aware of certain doubts that have been growing in my mind over recent years concerning the circumstances surrounding the birth of the musical box. I knew, for example, that I had seen musical movements with combs and cylinders which somehow did not fit into the accepted story of Switzerland being the birthplace of the musical box. They certainly cast doubts about the date of invention being the closing years of the 18th century. The outcome was that I was forced to draw certain conclusions which are in contradiction to everything that we already know (or think we know) about the tuned steel tooth in musicwork.



Top: Dressing-case musical movement owned by Keith Harding. Governor has two wheels and three pinions; 122mm long cylinder, three airs, six-point change cam with lateral engagement. Above: Tiny musicwork with pinned spring barrel and stacked teeth in the De Vere Green Collection and fitted into a gold vinaigretteo.

Certainly the comb-playing movement had a date and place of invention or first use and the point I make is the somewhat controversial one that we know neither the date nor the place where the first movement made its appearance. And, as a corollary, we don't know the name of the inventor, either.

I also suspect that we have got our suppositions wrong when we suggest that the earliest comb-playing movements played from discs. Now this is not to suggest that the history of the musical box is entirely wrong, or that its salient characters from the end of the 18th century forward are suspect. The argument I make is that the tuned steel tooth in musicwork existed at a much earlier date, and that the cylinder was the natural means of providing a musical programme.

During the 18th century, there was a growing interest — and associated market — for musical novelties such as clocks and watches. One of the principle problems facing the watchmaker was that of manufacturing a watch small enough to fit in the pocket, yet large enough to contain a sufficient number of bells and each

of ample size in order to allow music to be played. There was obviously much need for something which would combine the ability to produce a musical sound with that of compactness. At least one man was working along these lines and this was a watchmaker named Antoine Favre who was born in Geneva in the year 1767. Favre is said to have produced "a carillon without bells" in 1796. The original documentation surrounding this event is preserved in the Register of the Society of Arts of Geneva for February 15th of that year. It has been reproduced in part on numerous occasions, but specifically in *Histoire de la Boite a Musique* by Alfred Chapuis and published in Lausanne in 1955. The pertinent extracts are reproduced as Figures 118 and 119 on pages 141 and 142 in that book.

Although Antoine Favre indisputably achieved this goal in the year 1796, and this is well documented, there are several writers who claim the use of the tuned steel comb had been used prior to this. Indeed there is some meagre evidence to suggest that Antide Janvier used the tooth principle in his musical clock of 1776 and this even may not have been the first use. Some attribute the invention to Piguet in 1802. While Piguet was certainly an early pioneer and was undoubtedly the maker of the *thinnest* musical movements ever produced, the incontrovertible evidence of Favre predates this claim by eight years.

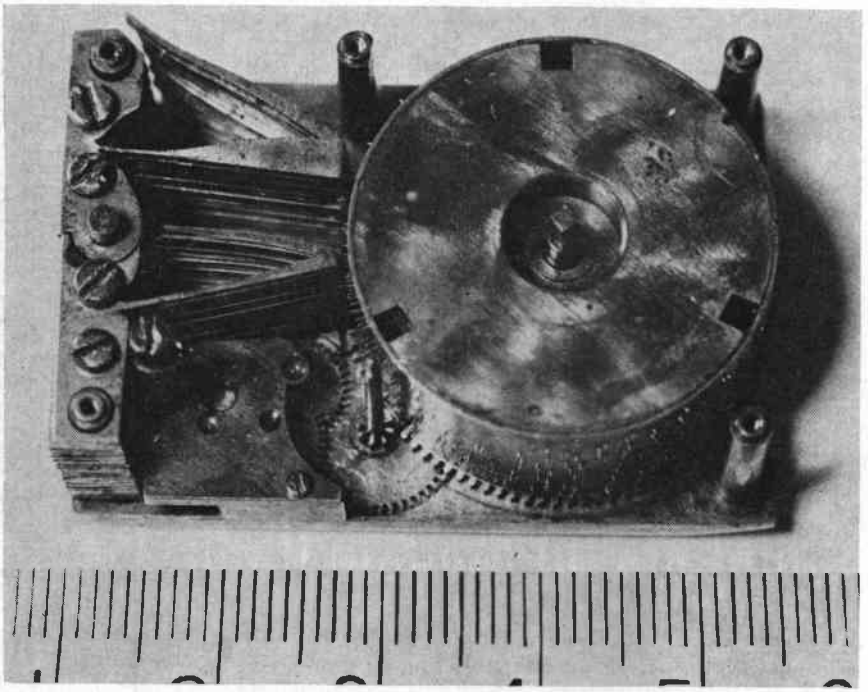
Other suggestions are that the celebrated clockmaker, Abraham-Louis Breguet (1747 - 1823), was the inventor.

Swiss claims

It might be worth mentioning here that all the claims for Favre as being the first to use the tuned steel tooth (i.e., the inventor) emanate from Swiss writers, namely Alfred Chapuis, Elie Wartmann, J D Blavignac and the Swiss archives. Antide Janvier, on the other hand, was a Parisian, and although he later worked at Neuchatel, so was Breguet.

One should also comment that although Favre's may have been the only recorded use of the tuned steel tooth, it does not automatically follow that it was the first.

The arrival of the tuned steel tooth in the matchmaking circles of Switzerland made possible the production of musical items of extreme smallness and neatness. It was now possible to place the movement within, say, the tiny confines of a seal. According to



The musicwork in a musical singing bird-cage clock probably by Leschot. Owned by Richmond Mason and the subject of a detailed article on page 227 (Vol 6), the movement is 45mm long and has 32 teeth in two stacks around the spring barrel.

Chapuis (*ibid.*) Favre used a musical movement of the type having the pins for the music arranged around the barrel of the spring so that as the barrel rotated, the pins plucked steel vibrators or teeth. This would suggest that in miniature work, it was the cylinder format which came first, but is not conclusive evidence of such.

The *sur plateau* or disc movement appears to have been in use for an astonishingly long period of time. The man who perfected the sur plateau was almost certainly Isaac Daniel Piguet, born in Le Brassus near Geneva in 1775 and who died in 1841. In the Chaux-de-Fonds museum of watches there is a specimen of I D Piguet's work dating from the very early years of the 19th century.

A grandson of his, Louis Elisèe Piguet, was born in 1836 and lived right up until 1924. From the same Chaux-de-Fonds museum collection we find a fine sur plateau musical watch, employing the identical 1802 technology, but made well into the second half of the 19th century.

So from this we make the first deduction. Do not be misled into thinking that all sur plateau musical movements are very early: they may not be.

Because musicwork was such a cottage industry, developments and improvements in one quarter might not be taken up in another for perhaps several generations. A master craftsman who excelled in the making of one style of musicwork would probably see no reason or justification for changing to a fresh method. As a businessman, he would probably consider that the necessary "learning curve" to be spent getting used to the revised technology was not worth the effort if his present style of work was satisfactory. The Piguet story is a typical instance of this. The family (for a time the business was known as Piguet et Meylan) was famed for its extremely thin pocket watches and snuff-boxes which played music. Some of their musical movements are no more than one-quarter of an inch thick! It stands to reason that having established this capability, the technology would remain even as time went by and fashions changed, if only for occasional use.

We can now show that both the cylinder and the disc movement operated concurrently for very many years. As distinct from the pinned spring barrel of Favre's apparent early use, the definable cylinder as a separate entity was also used in music work for playing tuned steel teeth from a surprisingly early epoch.

In Utrecht's clock and watch museum there is on display a pocket watch with cylinder and sectional comb. The watch is perfectly original and bears the maker's name Chevalier et Cochet of Paris, and if we examine clockmakers' records, we find this to

date from between 1790 and 1805 — apparently encompassing the earliest epoch of the tuned steel tooth in miniature musicwork.

We now arrive at a most unusual "missing link" musical box which survives in the Reuge collection at St Croix. Illustrated as Figure 142 in Chapuis' *Histoire de la Boite a Musique* (page 162), we find that, although at first familiar in appearance, if we look closely we find an altogether unfamiliar movement. Eighteen pairs of teeth, each individual pair a different and apparently unrelated length, and each pair screwed down individually, a brass cylinder playing one air only, a motor inside the barrel and a gear train ending in a large paddlewheel air brake. This piece remains unlike anything else to have been produced in Switzerland, yet in spite of this it bears an apparent relationship to early musicwork in Paris and Vienna.

Now to the question of the sectional comb comprising in its earliest form single, separate teeth, and in its apparently final form in groups of up to six teeth. It is generally supposed that after the introduction of the one-piece comb, attributed to Francois Lecoultre in 1814, the changeover to one-piece combs was effected within 15 years or so. In spite of this, sectional-comb miniature movements which are capable of being dated by their musical programmes are to be found which date from as late as at least 1840 and possibly considerably later.

Clock base movements

In Volume 6 of *The Music Box* three very different types of musical movement for use in clock-bases were illustrated. The first, on pages 332 and 333, depicted a fusee-wound mechanism with single comb teeth. Although bass was left and treble right, the governor was at the left and the motor at the right, this being supported in accepted musical box fashion by trunnions.

The second movement, on page 334, was similar in almost every respect except that here the treble teeth were in the centre, bass being at both ends.

The third movement, illustrated on page 336 of that volume, was still in reversed layout (governor left, motor right) and with the comb bass at the left. This time, though, the comb was in groups of four and the fusee-wound motor was mounted clock-fashion between plates. From the considerations of clockwork, it is my contention that only one of these is likely to be Swiss in origin, and that is the first. The third one I consider to be either French or Viennese, and the second one remains uncertain.

Disc movement in a musical watch. Note how some of the teeth are cranked to pass under the disc to engage with pins on the other side: at least three teeth are broken off. This style of movement was probably made over three-quarters of a century.

The argument here is the solution to the question—how did the musical box get invented in so many different styles and formats all, apparently, around the same time?

The obvious answer is that, as with a burgeoning technology, everyone was trying to reach the end result by his own design path. I grant that that is one explanation, but it assumes that the starting point in time and location was common to all and this I contest. Consider the facts: Favre invents a miniature musical movement for fitting inside a watchcase or seal. What is the connection between that achievement and something the size of a large-sized musical movement for fitting in a clock-base? Why should one automatically progress to the other? Accepting that this may have been the case, then it is equally probable that the process may have taken place the other way about, and that Favre adopted an existing technique to make a miniature movement. This is a clearer line of argument than to assume the scaling-up to relatively large proportions of a system of miniaturising music for a snuff box.

An alternative consideration is to explore the contemporary skills and level of craft to try to see if it was *technically* possible at the time we are considering — around the middle of the 18th century—for the tuned steel tooth to have been used.

We find a clockwork-driven carillon playing a musically-pinned barrel in the Harbrecht clock in the British Museum. This is not the earliest such use, but it is an easy one to select. It was built by Isaac Harbrecht in 1589 — 207 years before Favre's invention.

The pinned brass cylinder shifted laterally to play alternative tunes by means of a snail and cam is also of early origin. Another easy one to pick is by Le Roy built in 1759 and playing bells — 37 years before Favre's invention.

If we look at ruling styles of clockwork and find that all the salient parts of the musical box were known, understood *and in use* at least fifty years before the date of Favre's invention. Manufacturing techniques, assembly and finish, all pre-date Favre by at least a century. And cylinder programming for music in clocks pre-dated Favre by around *a quarter of a millenium!*

Illogical assumption

Based on this alone, I find it illogical to accept the assumption that the tuned steel tooth was not discovered until 1796, for how can its presence have been felt in places so far afield as Paris and Switzerland at a time when the watchmaking industry was operating largely as a diversely-spaced cottage industry without adequate means of communication?

So was the cylinder musical box beyond the capabilities of the ruling technology of the 18th century? We find the answer to be an emphatic NO.

Cylinder-programmed music in clocks was well advanced a long time before Favre's invention of 1796. And the possibility of its use in conjunction with tuned steel tooth-played music prior to Favre's time cannot be ruled out. But if this is the case—and in a moment I shall discuss evidence — then what did Favre really invent, for we have proof that he invented something!

Did Favre invent the tuned steel tooth? There would appear to be too many anomalies rearing their heads at us for us to be able to say with any certainty that he did. What he probably did do, though, was to miniaturise an existing technology to enable the musical movement to be fitted into objects smaller than clocks. Probably it was he who substituted the cylinder of the musical clock for the pinned spring barrel to comply with the information which Chapuis provides.

So was Antoine Favre the first to use the tuned steel tooth? I think not and I believe that we do not have to look to far in order to turn up some evidence to show its earlier use.

Assuming that Favre's invention concerned the modification by miniaturisation of an existing practice, then our evidence should be capable of being located in the annals of clock-making. Unfortunately, though, while many clockmakers made musical clocks and there are plenty of references to them, writers on clockwork are notoriously imprecise in their definition of the means of providing music which features in a particular clock. In so many cases, the scant reference "musical" in a clock's description conceals whether the clock features a comb-playing movement, a carillon or even an organ, or, in some cases, a combination.

For this reason, searching through clock descriptions can be a daunting and frustrating task. Even where the clock is pictured it is not always possible to determine that it is musical. It is two exceptions to this which immediately concern us. Both refer to clocks illustrated in the second volume of the three-volume work *La Pendule Française* by Tardy, and published in Paris in several editions at various dates from 1961 to 1973.

Louis XVI movement

The first illustration appears on page 320 and is of a glass-cased timepiece from the period of Louis XVI (1750-90). Described as a "Régulateur à musique, quantième", this has a large cylinder musical movement as a visible feature of the case front. The layout of the movement is conventional as regards the juxtaposition of cylinder, motor, governor and comb, and the teeth are arranged in what appear to be segments of about 10 teeth.

The second illustration appears on page 402 and features a small glass-cased clock by Breguet and clearly of the Empire period, an epoch which made itself noticeable in clockmaking about 1804-05. Although this is subsequent to Favre, the comb-playing musical movement in this item is so clearly a development of the clock carillon as to justify the supposition of interdependent conception.

The movement, which Tardy illustrates in close-up on his subsequent page, has 25 separate pairs of teeth, each pair located with one screw. The comb and cylinder are directly derived from the carillon clock in style of embodiment within the clock. The cylinder is driven from behind by a spring barrel placed centrally and at right angles to the cylinder axis. The governor assembly is also arranged behind the clock plate, a layshaft axially parallel to the cylinder operates a conventional endless and air brake. Built as part of the clock, it is hard to consider this piece as dating much later than 1810.

There are other items which exist and pose this self-same question of date and place of origin.

So once again, did Favre employ the pinned cylinder at all — for this we have seen was a ruling technology. If we re-appraise the wording of the original claim made by Favre, we find that it was that he had found a way of making an artificial carillon *for watches.* I read this as indicating that he succeeded in making the whole arrangement very much smaller very much more compact, so probably he made use of the spring barrel, or perhaps he was the first to use the primitive disc or *sur plateau* system.

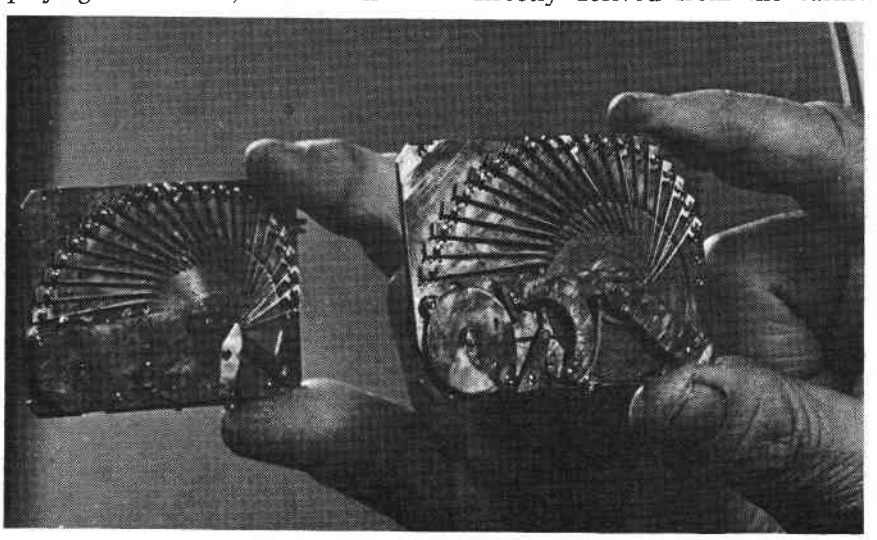
Incorrect history

Of course, if all this is so, it is rather a serious matter for us, for it means that the whole history of the musical box as we know it must be re-written. And even if that is the case, we are still left with the question where did the first musical movement come from?

Now the cradle of the musical box, so we have always been told, is the Vallee de Joux in Switzerland — quite a distance from Geneva where Favre was at work. Close to Geneva is Le Brassus from whence we know many fine early musical movements emanated. But what about the movements in Viennese Empire clocks which have clockmaking styles of engineering rather than watchmaking? Well, they could come from Paris, but they might also with equal probability have emanated from Vienna or Prague. Both were strong centres in the making of cylinder musical boxes in later years and presumably the industry had to start sometime.

If we now relate the Viennese and Czech clockmaking styles to the picture, it becomes no wild guesswork to be able to see the musical box styles which are comparable. And somewhere between Geneva and Prague stands that early haven of musical clocks and mechanical music in general — Augsburg, famed for its art, its

Continued on page 77



From the collection of the late Benoit Roose is this fine example of a Piguet et Meylan *sur plateau* movement pictured against a mirror to reveal both sides of this slimline musicwork.

THE REGINA MUSICAL BOX

A History of Regina, Past and Present — Part 2

by Mary Kosiarski

Continued from page 15

BETWEEN 1892 and 1921 — the life span of musical box production at the Rahway, New Jersey, plant of Regina, some 100,000 musical boxes were shipped. During the peak period, sales exceeded the staggering figure of $2m per year. But now it was 1904, the year of the great fire of Baltimore, the terrible disaster which killed 1200 people when the *General Slocum* burned in New York harbour, and the year of the St Louis centennial exhibition. It was also the year the bottom dropped out of Regina's musical box sales...

THE year 1903 had been a bad one both for Regina as a company and Gustav Brachhausen. Sales had taken a sharp plunge and the musical box was destined never to recover the ground so dramatically lost.

Regina's bankers, the German-American firm of Knauth, Nachod and Kühne, decided that it was time to step in and assume command of the situation. Brachhausen stayed on, demoted to factory manager. The product of this era was the Regina Style 61 Musical Desk, first shipped in the fall of 1903 and the last of which left the works as late as 1914.

It was during 1904 that a new serial number system was adopted for the musical boxes using seven digits, the first digits representing the model number.

Just about the time electrical power was being distributed in Rahway (1909-10), an electric vacuum cleaner supplemented the new Regina product line. Styled the Model "B", it was powered by a ¼ h.p. motor. This, one of the first electric suction cleaners to be offered for home use, featured two pumps working up and down similar to the old side-wheel paddelboat, and cased rather like an old cylinder phonograph. As well as marketing one of the earliest domestic vacuums, the Regina plant was also the first manufacturing in Rahway, public or private, to use electric power for lighting.

It was during this time that Brachhausen began to relinquish his interest in the company through a series of stock maneuvers. He was to stay on with the company for approximately eight more years.

Concurrent with the declining musical box market, the company introduced its first piano soon after 1900. Sensing the impending death of the disc machine and recognising the popularity of the coin-operated pianos being introduced by makers such as Wurlitzer and Peerless, Regina distributed its own-branded models brought in from makers such as Polyphon, Marquette and Peerless.

1897 ad (top) explains disc-box merits. 1902 (above) describes the successful mix of Seth Thomas and 15½in. Regina.

Regina's first production piano was the mechanically-played Regina Sublima, introduced sometime after November 1904. Prior to this, the company had factored the Polyphon-produced piano of similar action. Both the Polyphon and Regina pianos featured a reiterating or sostenuto action with piano-forte control for soft and loud playing.

From 1905 to around 1910, the company marketed the Style A Regina Piano Player, this being a pneumatic push-up type of instrument. Concurrant with this, the firm marketed the Reginapiano player piano. This was manufactured by Marquette Piano Company of Chicago and was identical except for having the name "Regina" cast into the bedplate, and the Regina name on the fallboard.

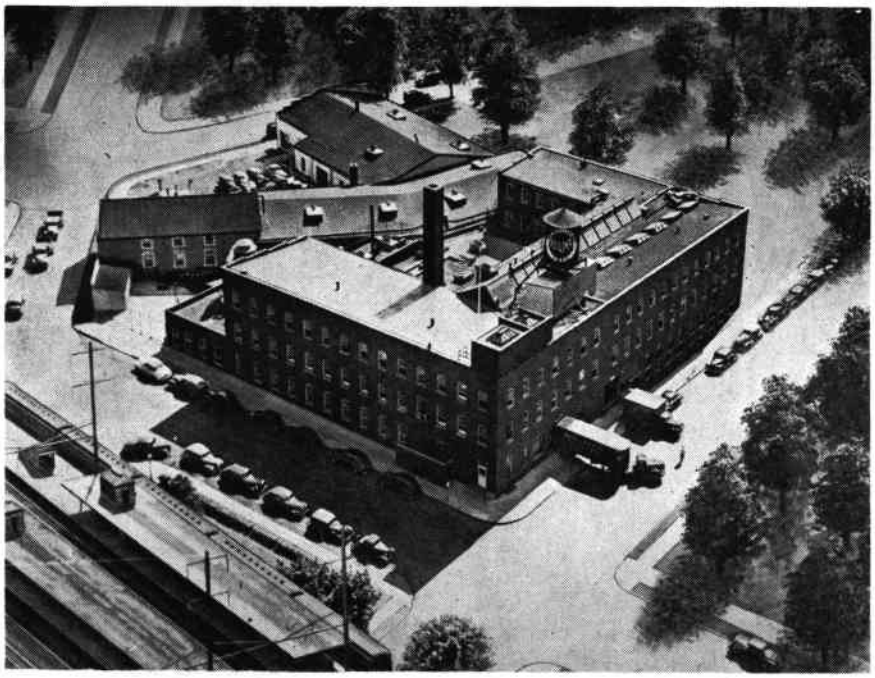
Diversification appeared the only way to remain in business. In 1912, Regina began making printing presses. As the second decade of the present century advanced, the company made a belated attempt to enter the phonograph business. Starting with the Reginaphone which was a disc musical box

In 1897 (above) Regina advertised for the first time the 27inch Orchestral model. By the following year (below), the self-changer had been perfected. Note that the Regina Sublima name, later applied to pianos, originally referred to the 20¾inch disc box. Typical of Regina advertisements of the period those at the right, from top to bottom, date from 1998, 1899 and 1898 again. Note the New York address at 4 West 15th Street. All the original advertisements featured in this article are from the author's personal collection.

combined with a disc phonograph, a hybrid introduced as early as 1905, cylinder phonographs such as the six-cylinder Hexaphone were made between 1914 tnd 1921. Musical gambling machines, the Regina hall clock with special four-chimes-per-disc movements, and the Yale Wonder Clock Company's Automatic Cashier & Discount Machine's musical movements were also products of this period.

Gustave Brachhausen had led an equally chequered career during this time. Around 1915, he sold out for approximately $1m. In the following year he lost his fortune in Germany and his marriage terminated by divorce. In 1919, he returned to Regina to work on the benches as a tool and die-maker. This was the year in which the very last Regina musical box was manufactured. Stocks held out a little longer and the last musical box to leave the factory for shipment was in 1921. The following year, the Regina Company went into receivership and so ended an immensely important chapter in the history of the disc musical box.

The story is not quite over, though, for in 1924 a new management team took over the bankrupt Regina Corporation. Brachhausen was still a bench-worker and must



From the Regina archives comes this picture of the old Rahway musical box factory as it looked in 1947. The plant is still there.

have felt some gratification as the firm slowly pulled itself out of the doldrums.

By 1929, Regina had introduced the first floor polisher and scrubber. Stronger and stronger grew the new corporation under successive presidents. During the 1930s came the first stick-type vacuum cleaner — the *Electrik-broom.* In 1940, the company purchased the Smooth Cut Can Opener Company of New Haven, Connecticut and the following year received local authority permission to embark on a $10,000 expansion program.

Meanwhile, Europe was in the throes of World War II and by 1942, Regina had become the first company in the entire New York Ordinance District to convert completely to war production. In August that year, the company was awarded the coveted Army-Navy E Award for extraordinary accomplishment in making bomb fuses.

So grew the company until its one-time musical box factory was outgrown. In 1957, Regina moved to a new 12½-acre site on which it had built a 120,000 sq. ft. one-storey factory. Since that time, the new premises have been expanded and enlarged several times and the product line of floor-care appliances extended.

And Brachhausen? He finally left the bench and spent the rest of his working life as night watchman for the Regina Corporation. The man who was once the key figure and patentee for so many of the important aspects of the invention of the disc musical box both in Leipzig and in Rahway, ended up as a humble servant of the empire which he had been responsible for creating. He died on October 2, 1943 at the age of 86.

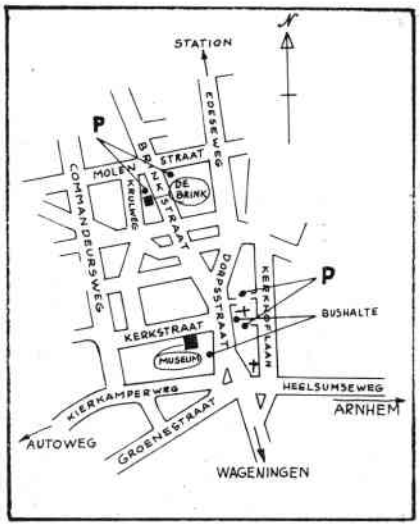
THE MOLTZER MUSEUM AT BENNEKOM

THE MUSIC BOX recently visited the museum which was established five years ago by our late member, Max Moltzer, in the village of Bennekom in Holland. Now relocated in new premises and run by Mrs Moltzer, the museum was reopened in a ceremony held on April 26th

WHEN visiting the Netherlands, everybody with the slightest interest in the instruments of mechanical music naturally heads for Utrecht and the world-renowned Nationaal Museum van Speeldoos tot Pierement, the director of which is our member Dr J-J L Haspels.

But there is another, smaller museum well worthy of a visit, which is not far from Utrecht. This is the Kijk en Luister museum in the delightful village of Bennekom.

Take the Arnhem train from Utrecht (the train also passes through Amsterdam 40km before Utrecht) and alight at the town of Ede (pronounced *Aida* if you are buying a rail ticket!) which is about the halfway point between the two cities. From outside the station, catch either a number 82 or 83 omnibus going to Wageningen and book to Bennekom - Dorp. This is about four kilometres south of Ede on the Wageningen road. Round



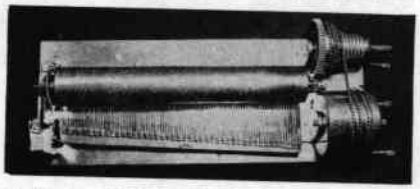
the corner from the bus-stop, in Kerkstraat, is the new building housing the Kijk en Luister museum. When you appreciate that this name means "look and listen" you have a fair idea what you are in for as you pass through the doorway into the spacious entrance hall with a giant-sized Symphonion standing on the left.

The main room of the museum houses musical boxes, both cylinder and disc, a fine 10-tune clockwork barrel piano (made by Cléophas Tricart, à Rosult-lez-Saint-Amand, Les Eaux [Nord]), a German street organ by Wilhelm Bruder, and the Amabile clockwork organette, this being only the second specimen know to exist (the other is in the museum of Walt Bellm in Sarasota, Florida).

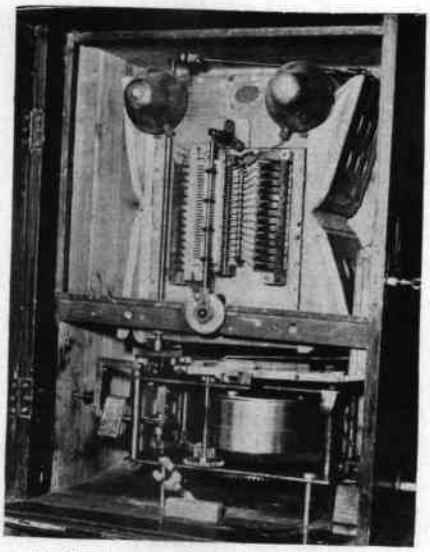
The selection of cylinder musical boxes includes some extremely

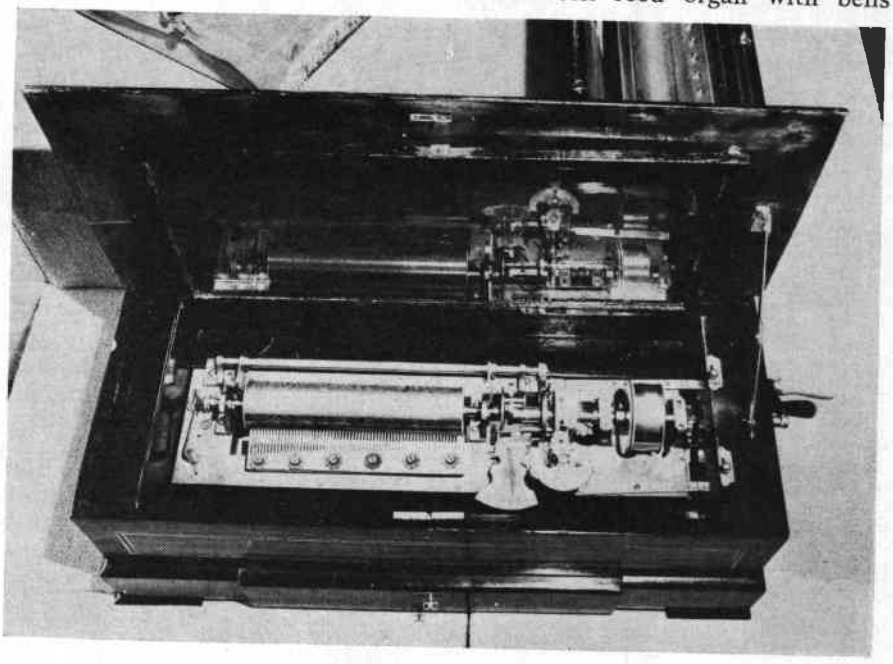
Left: Some of the interesting disc boxes on show including the 11inch Adler (above). The clockwork Amabile organette with bells (below right) is about 70 years later than the fusee-wound movement (page centre). The fine specimen of the Helicoidal (bottom) bears the name *Simplicitas* on the cock.

early movements set up without their cases in a glass showcase. Here the visitor can get a clear idea of the early musical box movement with sectional comb, fusee-wound spring and related drive components. On display are several quality cylinder boxes including a large two-per-turn Nicole, an interchangeable, and a concealed drum and bell box. Probably the most interesting is a retracting-cylinder helicoidal box in which, after playing the complete cylinder, the cylinder is pulled back away from the comb bodily before shifting laterally to the start position once more.



Disc-playing boxes comprise a major portion of the display and among the specimens to be seen are a Symphonion Eroica 3-disc, a 22 inch Monopol Excelsior, a $13\frac{5}{16}$ inch Kalliope, an $11\frac{3}{4}$ inch Orpheus, an 11 inch Adler, a $13\frac{1}{8}$ inch Komet, and an $8\frac{1}{4}$ inch and $5\frac{3}{4}$ inch Symphonion. An interloper in this section but nevertheless one of great interest, is the clockwork reed organ with bells and playing a zinc disc. Formerly in the Roose collection and illustrated on page 437 of Volume 6 of *The Music Box*, this plays with a loud and rather brash sound.





Another unusual item is an early piano-player with the Hupfeld mechanical action playing from rolls of thick card. A similar model was illustrated on pages 414 and 415 of Volume 6.

If you are in Holland, this museum should be a must on your itinerary. The museum secretariat can be contacted at Selterskampweg 20, Bennekom, Holland.

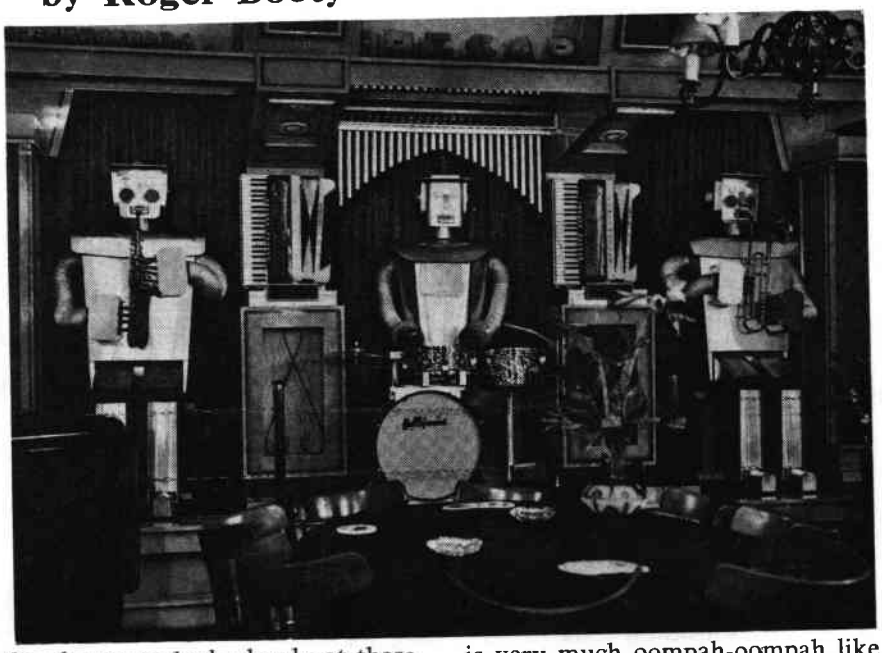
In conclusion, *The Music Box* thanks the museum and Mrs Moltzer for the hospitality extended, and for allowing extensive photographic facilities within the museum.

MECHANICAL MUSIC IN WESTERN GERMANY

by Roger Booty

THIS article has sprung, somewhat belatedly, from a couple of visits I made to Western Germany in 1970, both of which centred on the banks of the river Rhine. Instruments similar to those which I mention here can be found in other parts of Germany and indeed in West Berlin it is on occasion possible to hear street barrel organs as in Düsseldorf.

The picture of the organ, below, was in fact taken in the suburbs of Düsseldorf and this shows a small portable barrel organ being used as a means of making a living. As I know little German and as the organ was well covered against the weather, I was unable to discover the number of keys or tunes played. It did have at least two barrels however, as at Christmas hymns were played with the music being pinned well but with few embellishments. It was played carefully with notes being held as the operator stopped cranking proving that the bellows were in good order. The round of this grinder must have been quite large as he never returned within a month and judging from the few *pfennigs* he received for each tune he will never get rich from his labours.



At Christmas 1970 in the centre of Düsseldorf three other barrel organs were busy, two pipe and one rather poor reed organ, all of small size. The operators of these instruments were of a less artistic bent, being content just to turn the handle and change the tune.

In the older part of Düsseldorf city, there is the Schneider-Wibbel-Gasse, or Tailor Wibbel Alley, where is situated the Tailor Wibbel clock which has a mechanical organ which plays at 11.00 a.m., 1.00, 3.00, 6.00 and 9.00 p.m. It plays three tunes with two verses each, the first being played straightforward and the second having embellishments. When the organ is to play, two doors beneath the clock face open and the figure of Wibbel the tailor emerges sitting cross-legged to do a mechanical imitation of sewing. The music for this organ was also changed at Christmas, with the hymns being substituted.

Close to the tailor there is a carillon of bells hung on the wall above a shop front. As I never had the chance to look closely at these I can give no more information other than they were played at least once a day at 1.00 p.m.

Travelling up the Rhine from Düsseldorf you come to Königswinter where a call should be made at the Hotel Loreley on the Rhine bank. Here, in the Bier Keller which opens onto the road, you will find a large modern Decap dance organ. The showpiece of this organ is a trio of large robot like figures. The central one has a small drum set, the one on his right a saxophone while that on his left plays what at best could be called a misshapen trumpet. The sound is very much oompah-oompah like the old German bands with the outside figures standing up when it is their turn to play. Also visible are two accordions and a xylophone. The previous home of this organ was Hotel Eemland in Soestdijk which I would imagine was in Holland.

Still further upstream on the Rhine you come to Rüdesheim, and here more mechanical music. In the town's famous Drosselgasse, which is made up almost entirely of Bier Kellers, there is a set of bells up on a wall that is played mechanically at regular times. As it plays, a procession of small figures appear from a door, pass on a platform between the bells for about two feet before disappearing again through a second door. I believe there was a repertoire of five or six tunes but only one was played at a time. The bells perform at various times, one being 5.0 p.m. I must confess my memory has let me down on the finer details of this automaton-carillon.

Elsewhere in Western Germany there are carillons and glockenspiels, the one in Munich being about the best known. It seems to me that Holland is the country that gets all the fame with its excellent street organs and carillons but it is true that the Germans also have plenty to offer to anyone who is content to search a little for his mechanical music.

F. W. DUCOMMUN-GIROD AND HIS SONS

by Pierre Germain and Suzanne Maurer

ALTHOUGH a reputed Genevese maker, surprisingly little is known about Ducommun-Girod. In his book, John Clark states that he made boxes during the 1840 - 60 period but, in fact, as we discovered, he was active nearly forty years. Furthermore, Frederic Guillaume Ducommun had two sons, Louis and Jean, who continued his activity up to 1885.

Let us first dissipate the mystery of the name " F W DUCOMMUN-GIROD ". Girod is, as we suspected, the maiden name of Frederic Guillaume's wife and the " W " stands for William (Guillaume in French). Anglomania was fashionable in Geneva in the middle of the last century!

Frederic Guillaume was born in 1794 or 1795 in the Canton of Neuchatel and settled in Geneva around 1815. He was living with his father, David, and his brother, Henri, in the ward of St Gervais, where most of the watchmakers lived. According to an early census, all three of them were in fact clockmakers. The father, David, married his second wife in 1812. From a first marriage, she had a daughter named Jeanne Catherine, born Girod. The young girl was of the same age as Frederic Guillaume and the latter married her in July 1816.

An 1870 advertisement claims that the firm was founded in 1820. Frederic Guillaume Ducommun was then about 25 and in 1822 he is registered as " faiseur de musiques ", i.e., maker of musical boxes. His father and brother were working for him and his first son, Louis, was born in October 1821.

For a few years he must have been associated with a certain CUSTOT for we read in the directory of 1826 :

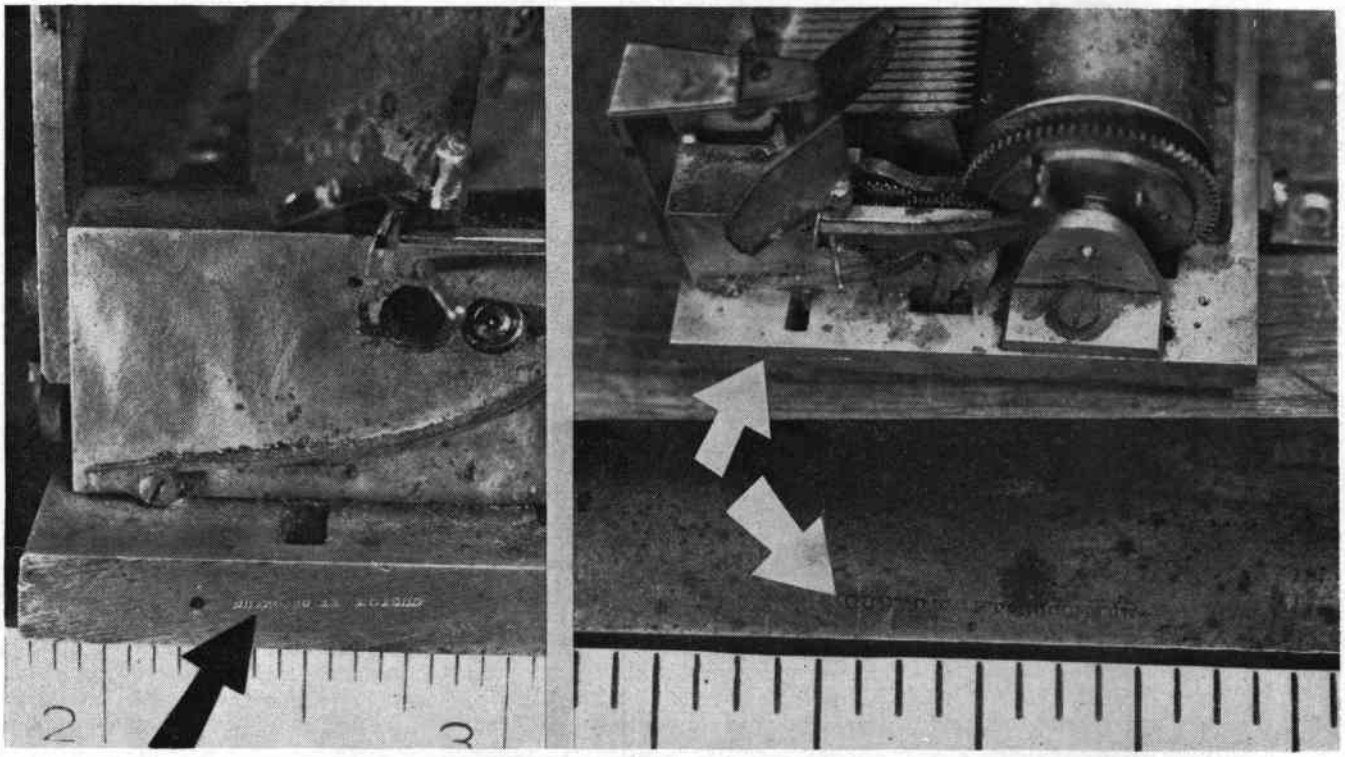
" CUSTOT & DUCOMMUN, méc. - mus., rue Tour-de-Boël."

We have seen, in the well-known Genevese collection of the " Conservatoire Autonome des Boîtes à musique ", a musical movement with a bedplate on which, in very small characters, the names CUSTOT & DUCOMMUN are stamped (see picture hereafter). The partner was probably François Gamaliel CUSTOT (1792 - 1830), a mechanic who lived in rue Tour-de-Boël from 1823 to 1827.

In 1828 Frederic displayed several musical boxes at the 1828 Exhibition of Genevese industrial products. A report praised his boxes very much, mentioning a brilliant arrangement (" jeu brillant ") as a common feature. The same year Frederic was living at Tour-de-Boël 62 and he was said to be a mechanic working on his own. His father and brother were still working for him, living next door in the same street. Olin L Tillotson in the American Musical Box Society Bulletin (vol 16, number 1) has given pictures of an early Ducommun-Girod movement, serial no 3175, mounted in a clock-base, with the date 1829 inscribed on the mainspring.

In March 1830 Frederic's second son, Jean, was born. By then he had four children : two sons, Louis and Jean, and two daughters.

From 1830 onwards we find the firm Ducommun-Girod regularly in the directories under the heading of musical boxes. The one of 1835 explicitly states that Ducommun-Girod, Tour-de-Boël 62, makes " all kinds of musical boxes ". His brother, Henri, who was to die a year later, was no longer working for him and his father, David, died two years later



The musical movement seen here bears the stamped impression, in small capital letters " CUSTOT ET DUCOMMUN " upside down on the governor end of the bedplate. The comb has teeth in groups of four and the box is in the *Conservatoire autonome des boîtes à Musique, Fondation Horngacher-Blyelle,* Geneva.

in 1837.

Around 1838, Frederic moved to a new address: quai des Bergues 29. The house, in the St Gervais ward, was facing the Rhône River. Frederic was the owner of the house and lived there until his death.

Frederic's two sons were probably working for him when he exhibited at the Great Exhibition in London in 1851 under the trade name "DUCOMMUN - GIROD, F W". A few years later in 1854, if we believe a passport delivered to him, he was a rentier. But according to a directory he was, in 1857, associated with his eldest son, Louis. It is reasonable to assume that he progressively retired after the London Exhibition, leaving the responsibility of the firm to his son, Louis.

Organ-box inventor

According to a document of the last century, it is Louis who invented the organ box in 1861, although Louis-Auguste Grosclaude, who was a maker in the late 1870's, attributes this invention to a collaboration between Ducommun and Kimmerling. It is also Grosclaude who presents Ducommun (which one of the three?) as a musician of great talent: collectors indeed agree that the music on the Ducommun-Girod boxes was in general well set up.

Frederic Guillaume Ducommun died in Geneva on 8th April, 1862, having made musical boxes for nearly 40 years. After his death, from April 1862 to May 1868, the two brothers were formally associated and at the Great Exhibition in Paris in 1867 they won a bronze medal.

In 1868 their mother, Jeanne Catherine, died and a year later in May 1869 Louis Ducommun took Louis Mittendorff as partner for a duration of five years. The trade name of the firm was DUCOMMUN and Cie and the aim was to manufacture and to sell musical boxes.

The DUCOMMUN and Cie firm was installed in a house with a tower, not far from the Nicole Frères premises, at the corner of the rue Kleberg and the rue du Mont Blanc, the Nicoles being at Kleberg 17. The house had been used as military barracks and is shown on the picture hereafter. From 1856 to 1862 it became the "Ecole d'Horlogerie pour jeunes filles". Initially the soldiers and the young girls had to share the same building and it apparently created some problems. Even a separate staircase for the girls did not help since the school eventually closed for a while, until the soldiers left! The 1870 bilingual advertisement reproduced hereafter dates from this period. The collector will note the reference to the Harmoniphone: "manufactured only by L. Ducommun et Cie". The house was demolished in 1871 - 72 and it might well have put an end to the DUCOMMUN et Cie for afterwards we have not been able to trace the firm any more.

FABRIQUE DE

BOITES A MUSIQUE

L' DUCOMMUN & C^ie^

7, RUE DU MONT-BLANC, 7,

GENÈVE

Maison fondée en 1820.

Médaille à l'Exposition de Paris 1867.

Boites de tous genres de 4 à 72 airs et au-delà.

Boite HARMONIPHONE. Cet instrument uniquement fabriqué par la maison **L' Ducommun & Comp.** se distingue des Boites appelées *Pièces Flûtes*, par une exécution musicale correcte et se recommande par le pureté et l'intensité de ses sons.

COLLECTION D'AIRS DE TOUS PAYS

LOUIS DUCOMMUN & C^IE^

Manufacturers of all kinds of Musical Boxes.

N° 7, Rue du Mont-Blanc, N° 7.

GENEVA

Established in 1820.

Price Medal Paris 1867.

Musical Boxes of every description containing from 4 to 72 airs and upwards if required. — The HARMONIPHONE. — This splendid and remarkable Instrument, manufactured **only by L. DUCOMMUN & C^o^** differs from the *ordinary Musical Box with Flute accompaniment* by its perfectly accurate musical execution. — It is also highly recommended for the purity richness, and volume of its sound.

A complete collection of the native airs of all countries.

Louis was still alive—and a bachelor—in 1882 and he was living with his brother, Jean. He is no longer mentioned in the 1890 census: did he leave the Canton of Geneva in the meanwhile?

Now, what about Jean, the youngest son of Frederic Guillaume? After his six-year association with his brother, Louis, he settled in a suburb of Geneva, producing parts for musical boxes ("fabricant de blancs de musique") until about 1885. For a while, afterwards, he ran a factory of chemical products and eventually retired in 1896. He died in December 1899.

The Ducommuns had therefore been on the scene of the musical box trade for nearly 65 years, from 1820 to 1885.

The home of Ducommun et Cie from about 1865 to 1872 was the white tower-like building with the hat-like roof right of the roadway, extending into the tower structure to its right. Originally a military barracks, it was pulled down about 1872.

Novice's Corner

Cleaning ormolu

ORMOLU is the term used to describe parts which are cast in bronze and then gilded, orginally by a mercury process but later by being dipped and lacquered.

Some musical boxes have ormolu decorations and sometimes lifting handles are provided for carrying. Ormolu may look like brass, but it tarnishes in a totally different manner, going dull and almost black.

Some ormolu, particularly if it is not finely and deeply chased, responds to metal polishes or to soaking in hot soapy water. Most won't, and polishes soon abrade the thin plating. Ideally, remove the parts and send them to a professional ormolu re-gilder.

Alternatively, place the pieces on newspaper out of doors, spray on foaming oven cleaner, leave for 10 minutes, then wash in hot soapy water. Repeat treatment several times if necessary. Don't breathe fumes, and wash parts and hands thoroughly.

HOW TO PLAY THE AEOLIAN ORCHESTRELLE

ONE of the most satisfying to play of all mechanical musical instruments is the paper-roll-playing Orchestrelle reed-organ. But although many of these instruments survive in Europe and in the United States, very few owners really know how to get the very best out of them. In this article, written by a Founder Member who has been restoring and playing Orchestrelles for many years, the secrets of expressive and sympathetic playing are set out in easy, non-technical language. Although the instructions basically refer to the 58-note model since many more of these survive than the 116-note styles, the comments and advice apply equally well not just to all Orchestrelles but to other player organs such as the Wilcox and White, Estey and lesser specimens

THERE can be fewer sounds less impressive or more devoid of musical expression than those produced from an Aeolian Orchestrelle played with lack of knowledge of the instrument or understanding of its capabilities. So often have I seen instruments with the left-hand knee board (the full-organ board) actually tied over to the a case column with a piece of string so that the organ is playing everything it has got all the time. About just as bad is to see an instrument with its right knee board (the swell shutter control) also tied over.

One basic thing, though, is easy to understand, I think. That is that if you play the instrument "full organ" all the time, so every single tone rank is sounding, then the power of the organ is diminished since it is spread over so many reeds. Far greater expression comes from playing on perhaps just one stop!

So to begin with you must understand that the Aeolian Orchestrelle is not just a reed organ. It is an orchestral instrument inasmuch as that it comprises a collection of different voices — some loud, some soft, some mellow, and some brassey. It is the subtle interplay of the Orchestrelle's voices which gives it its extreme beauty as a musical interpreter.

Now much of the subtlety of playing comes quite naturally to a person who can claim to be a talented finger performer. But most of us who own mechanical instruments may not even be able to read a note of music, let alone understand the nuances of performance. There again, playing even a reed organ properly takes a greater degree of skill than may at first be apparent.

Master the controls

After having rebuilt your instrument, it is a bit pointless if you cannot spare the extra time needed to master the right way to make it produce the sort of breathtaking performance which can draw gasps and applause from your listeners.

To be able to get the best out of your Aeolian Orchestrelle and your music rolls, you must learn, practice and experiment yourself until you become adept at the use of all tone controls which include besides stops, the subtleties of pedalling, correct tempo variations, and the two knee boards.

Do not adopt a "rule of thumb" reaction to loudness markings on the music roll. "PP", "FF" and all the shades between do not automatically mean that you play up to full organ with all stops out, nor that the swell shutters should be open or closed. The position of the swell shutters depends for any particular effect on the stops which you are playing on. As an example, if one considers the Trumpet stop to be one of the loudest in the treble, you may find an interesting effect by playing a passage on the quieter French Horn stop with the swell shutters fully open, then for the next musical passage, change to Trumpet and snap the shutters shut, so producing a sound which is actually quieter! But this is advanced stuff, so lets begin by learning about the stops, their names and how they divide.

The basis of the Orchestrelle is a sound called an 8ft tone or pitch. This is the sound produced by an open organ pipe eight feet in length. Middle C on such a pipe will coincide with middle C on the Orchestrelle when you have drawn an 8ft or foundation stop. A piano has the same basis and middle C on both instruments will have the same pitch.

The keyboard of the Orchestrelle plays 58 notes (just as the music roll) but there is a division at the 21st note from the bass —G#.

From this break upwards, starting with the A, the stops in the treble will sound from this break downwards, the stops in the bass will sound. Note that the break comes well to the left of the centre of the keyboard, so do not get confused over which stops play which portion.

The bottom 13 notes of the keyboard as far as C two keyboard octaves below middle C can be extended an octave lower by the addition of a 16ft bass or sub-bass register, but more of this later.

If you draw an 8ft stop in the treble and one 8ft in the bass, then you can play a complete scale of the same tonality from bottom to top. Now push these stops in and draw a 4ft in the top (treble) and 4ft in the lower (bass) and once again you can play a complete scale of the same tonality from bottom to top, except that it will be an octave higher than before throughout.

There is a number of combinations of stop names on Orchestrelles and there are numerous variations which means that a comprehensive listing is out of the question. However, there are several recognisable tone colours which, although they may be called by different names, are characteristic of the Orchestrelle. Here is a typical set, divided between treble and bass and starting from the softest stops which happen to be in the centre.

Bass	Treble	Tone
Muted Strings	Muted Strings	8ft
Aeolian Harp	Aeolian Harp	8ft
Viola	Violin	8ft
Gemshorn	French Horn	8ft
Horn	Euphone	8ft
Bassoon	Oboe	8ft
Flute	Flute	4ft
Cornopean	Trumpet	8ft
Contra Bass		16ft
Double Bass		16ft

On some larger models, you will find the addition of :

Flute Diapason	Double Flute	8ft
Piccolo	Piccolo	2ft

In your first attempts to learn the right way to play the Orchestrelle, I suggest that you follow closely the steps I shall set out below.

1. Select a fairly short music roll preferably of a piece of music which you both know and like. This should not be a fast, complicated piece, but ideally a hymn, serenade or waltz.

2. Leave both knee boards well alone and avoid the tempation to so much as touch them until you are proficient enough to be able to play a roll using all the other accessories towards performance. *A good performer can get by without using either knee board,* considering both as nothing more than a bonus to his performance.

3. Sit comfortably on a proper organ stool — note that the usual type of piano stool is not really suitable and a sloping-topped organ seat will make you feel much more at ease. You must sit at the proper height so that when your feet are on the pedal boards your thighs are straight or pointing slightly downwards.

4. Learn and practice the right way to pedal. To begin with, cultivate slow, regular and full pedal strokes — left, right, left — using the ball of the foot to push down the pedal. Keep your heels near the front or hinge-line of the pedal boards. Don't rock from side to side on your seat as you pedal — imagine there's a pile of books on your head! More on pedalling later on.

5. Learn which stops on your instrument are the soft-speaking ones, and which are loud. Set the instrument to MANUAL and put your finger on a key — any key will do — and listen to the sounds produced by each stop individually, and then try various combinations of stops and see how the tonal colour can be changed. Note that some stops sound best over certain areas of the keyboard.

6. Now draw out tempo and re-roll stops. Place your selected music roll in the spool box, rotate the bottom spool by hand until the paper fully covers the tracker bar. In the case of pressure models, now close the glass door. Push back in both the tempo and re-roll stops *fully.*

7. Start to pedal to bring up air pressure, suction in the case of the small Aeolian Grand. Feel with your feet the gentle resistance as the reservoir fills and the sound of the spill valve operating will tell you when things are ready.

8. Draw two stops only, such as Muted Srings.

9. Move the Tempo lever or knob so starting the roll moving. Few tempo readings on these instrumenst seem to be correct, so adjust to get the right speed.

10. As the roll plays, correct the speed as you wish and watch the pattern of perforations as the music plays. Note how music consists of phrases which are interwoven and/or successive. The implied pause between phrases is the only place where you should ever change stops — never in the middle of a note — more on this in a moment.

As with a roll on a player piano, you cannot hope to give a good performance until you have practised the roll and decided on your stop registration and changes. It is a bad scheme to practice using the same stop setting : don't be afraid to vary the registration until you have produced a result which pleases you.

Swell shutters

When you have got reasonably proficient at operating the hand controls of the Orchestrelle, you can now experiment with the swell shutters — incidentally in Aeolian terminology they are called "shades" but you can now forget that. If you move your right knee to the right, so pushing that knee board over, the shutters will open and the organ will sound louder. Notice the effect on different stop combinations. See that you can play a soft horn-toned stop with the shutters closed, then exchange the horn for muted string and open the shutters — and get almost the same volume tone. This is a basic and important secret to effective playing and is a question of balancing all the many variables of stop combinations with the swell shutter positions to produce either a constant level of sound, or a varying one.

Earlier I told you that the Orchestrelle was a set of individual voices. In fact, think of it either as a choir or as an instrumental group, and remember that each choir and instrumental group has soloists; it is the solo voices which have the greatest character. Small groups of individual voices have subtle tone shades. If you don't like the choir analogy, think of an artist carefully mixing his paints to produce delicate shades.

Now so far I have said nothing about the left knee board. This is the swell which opens up every stop so you can play "full organ". Naturally, rather like the multiple adapter which lets you plug in so many electrical appliances into one socket that you blow a fuse, the full organ swell is the easiest control to mis-use.

There are two distinct types of full-organ. One, the commonest, is the cranked lever which presses against all the stop controls at each side of the keyboard at once, so putting everything on. The other is a much more delicate device called the "tonal" system which is true crescendo/diminuendo control Always found on Orchestrelles with pneumatic stop control, here the operation of the pedal progressively opens the stops form the softest to the loudest by opening

pallets on a simple control box.

The tonal type of swell allows voices to be added one at a time, so you can build up the full organ sound gradually just by gentle and gradual moving of the knee board.

Whichever type of swell your organ has, it can be used in several ways. Firstly it can be used for those short passages where full organ is really needed. Second, it allows you a breathing space in which to change your stop setting. Let me give you an example of both of these.

There are many pieces of music where the melody is played on a solo voice, probably with the swell shutters fairly wide open to enable it to sing out. At intervals, a full orchestral chord may be interspersed. If you try to open the swell fully for this, the effect will be minimal; if you try a very smart movement of the stops, you will need great skill (and probably ten fingers per hand) to get the right effect. What you can do, though, is keep your melody stop drawn, and introduce full organ briefly by a quick outward movement of the left knee.

Full organ to solo

The second use is more subtle. Let us take the opening of, say, a Rossini overture where crashing chords announce a solo voice. The double forte opening bars just cannot be selected and cancelled in the time allowed, so here you draw the stops you wish to use for the solo voice part, and start playing with the left knee board fully open. Again during the music you may build up gradually to a crescendo followed by a solo part. Here you build up in the usual way by adding stops. At the double forte (FF), you put on full organ which has now over-ridden the stop selection. You can now close all the stops more or less at leisure while still playing full organ, and select your solo voices to follow. They are introduced by the simple expedient of closing the full organ swell.

Except when using the pneumatic tonal swell, mentioned earlier, all movements of the full organ swell should be swift, otherwise you may get some strange n o i s e s like bagpipes starting up as wind is admitted to a fresh register in the middle of a succession of notes.

In concluding my remarks about the knee swells, you must cultivate the ability to pedal the organ while sitting more or less still on the stool — it is wrong and uncomfortable (not the least to say tiring) to pedal as if you are a sprint cyclist taking a steep hill! This will enable you to control the knee swells e v e n l y, precisely and steadily.

If you find it phyically impossible to co-ordinate up and down with feet, and knees apart with the legs (perhaps, if female, you are wearing a tight skirt, or are naturally shy), then as a last resort you can control the knee boards with your hands. The disadvantage here is that while operating knee swells by by hand, there is nothing else you can do such as change stops unless you have an incredibly long, and preferably hooked nose.

There are two types of tempo control found on the Orchestrelle — one a stop knob which was pushed in and out to vary the speed, and the other a player piano-type sliding lever.

Proper use of the Tempo control is important during roll-playing. It is not sufficient to set a tempo and leave it at that: more often than not, the music roll will call for speed variations during playing, or your own sensitivity towards the music you are playing may dictate that you will wish to make corrections to the tempo as you go along.

First of all — speed. The musical term shown on the roll and indicating "slow" is Largo: that for "fast" is Presto. Between these two opposites lie several steps and it will pay you to learn their proper sequence so that, for example, if you have to change form Allegretto to Andante you will instantly know whether you must play faster or slower.

Largo
Adagio
Andantino
Moderato
Allegro Moderato
Allegretto
Allegro
Presto

The actual speeds indicated by the two extremes are largely a matter of taste and depend on the way the roll itself is cut. Largo might be between 20 and 30 on the indicator; presto from 100 to 120.

During playing, a music roll will sometimes show speed variations. For example, a symbol rather like a crescent moon with a dot inside it means hold on that particular note or chord. How long you hold is a matter of practice and individuality but the important thing is not to slow down as the mark approaches, but to stop the roll very quickly and accurately with the m a r k on the tracker bar. Immediately after the mark, you must return to the proper speed and again the acceleration must be instant and precise.

Sometimes you will see the abbreviation *rit.* placed against a perforation and this means that you must gradually slow down until the word Tempo appears when you must immediately resume proper speed.

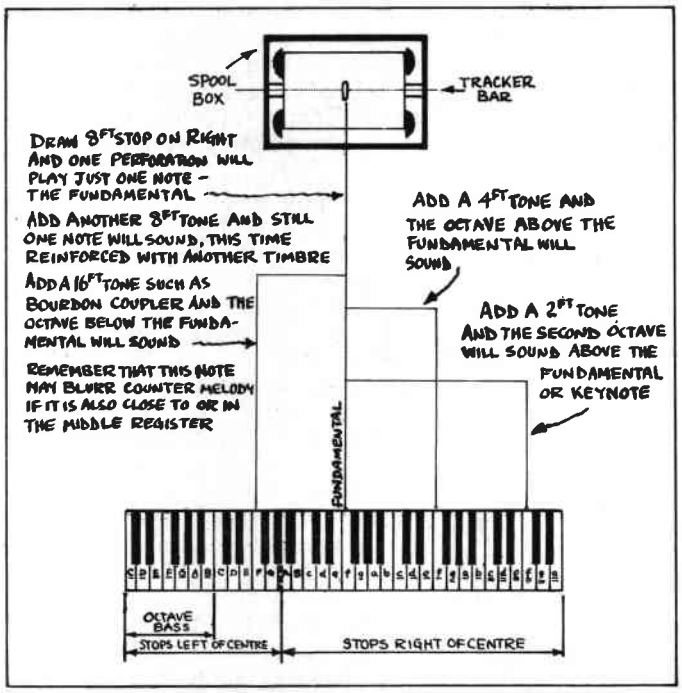
To ensure accuracy of this movement, if your instrument has a knob, place the knuckle of the forefinger against the stop jamp and move the knob using the thumb and second (longest) finger. This means your fingers will s l i d e against each other and it will be easy to revert to the original setting when the word Tempo crosses the tracker bar. Similar techniques can be used with the lever control type, the basic technique being to establish a fixed point with the knuckles or other fingers so that the control can be brought back to that point.

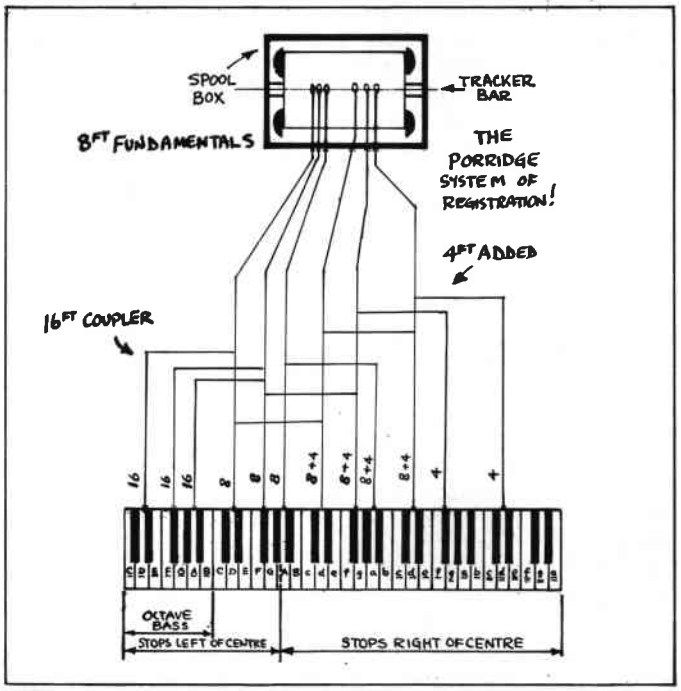
Stop-changing guides

When and where should stop changes be made? This is left entirely to the performer and his own appreciation of the music. After you have played your chosen practice roll through a few times you will detect where there are thematic changes, "sentences" or phrases in the music which stand out and are separated by the unwritten, implied punctuation of good music. It is at these points that you consider altering registration — this means making stop changes. With a lot of practice, you can "read" these points in the patterns of perforations in the music roll.

No rule-book says you *have* to keep altering your choice of stops —remember the old b a r r e l-organist's tale about the player who had had the same stops drawn for forty years! But stop changes highlight musical phrases and make your performance colourful and individual.

Cultivate the ability to make crisp and positive stop changes: a stop closed slowly, or opened uncertainly can produce some unexpected noises which are uninspiring to say the least. Building crescendo passages using individual voices and without using the full organ or tonal knee board needs skill in knowing the effect of each stop combination. Normally extra voices should only be added between phrases and the build-up should be from the softest-voiced ranks up to the trumpet which is the loudest. Trying to build up on a loud voice seldom works and usually serves only to thicken the music, like adding s t a r c h to





Above : One note (the fundamental or keynote) in the music roll can sound four notes (octaves) depending on the stops selected. An effective "mixture" for some musical passages. Above right : Here six notes are indicated by the music roll. With 8ft, 16ft and 4ft stops, 12 notes sound. If melody and accompaniment or counter-melody are closely interwoven, both can be effectively lost by this sort of registration.

porridge.

The exception to the rule is a higher-pitched stop such as a flute 4ft or piccolo 2ft. As an example, build up a crescendo from French Horn through to Trumpet, missing out Flute. This is the sort of climax to a work which terminates in massive chords or arpeggios. Now add the Flute and the treble will immediately brighten and stand out, the effect being heightened if you can soon afterwards add the piccolo, although this is itself a relatively soft stop.

Another possible execption is the Oboe to Trumpet combination where the Trumpet is playing a solo with the swell shutters other than fully open. To this can be added the Oboe to produce a nasal twang to the tone, rather like the Nazard in pipe-organ terminology.

In involved, "busy" music, it is often necessary to suppress the bass so that the melody will stand out. I refer here, of course, to 58-note music. If you have, say, French Horn, Flute, Trumpet and Flute in the treble, it will probably be inadvisable to match these in the bass, so other than 16ft tones, use only one or at most two prominant b a s s voices. Sometimes the 4ft Flute can be of advantage in the bass to heighten a thick bottom end sound.

The art of good Orchestrelle playing is to cultivate the ability of building up to a crescendo in a piece of music from one solo stop by the subtle addition of extra stops in such a manner that the listener cannot detect any noticeable addition but is only able to detect the overall effect. This may at first sound to negate the theory that it is the solo voices which have character : here I am referring to the gradual modification of a tone by the addition of more voices to a crescendo.

Just as important as the smooth crescendo is taking the matter the other way — starting from full organ and gradually easing back to a solo voice. The ability to do this, and to know just where and when and which voices to adjust is the mark of a skilled player who has practised his music roll and organ very carefully.

Remember that there is only one thing slightly worse than changing from Aeolian Harp to Trumpet in the middle of a pianissimo passage — and that is to do it in the middle of a chord !

Tone balancing

So far I have spoken about adding voices to reach a crescendo, and taking them away for a diminuendo. There is another subtlety to be learned — adding voices up to full organ *but* achieving a diminuendo e f f e c t. This apparently impossible objective is most effective for some orchestral-type pieces of music. The technique is very simple but again demands practice, for it consists of balancing the increasing volume of sound from additional voices by the gradual closure of the swell shutters and softer and softer pedalling.

Pedal not so soft that you loose notes—this is an old lesson learned by barrel-organists.

Those who are really adept at operating a player piano will appreiate the extreme shades of musical effect which can be achieved without touching the hand controls, but by subtle use of the feet. The player-pianist knows how to accent with a quick dab of the foot at the right moment. If really expert he also knows and can achieve the opposite which is to approach a chord and at the very split second before the chord sounds forth he momentarily stops pedalling to obtain a deliciously soft chord or terminal of a cadence.

Although by comparison with the player piano, the Orchestrelle is not such a subtley-built monster, much can be done with footwork on the pedals.

Talking of footwork, I strongly urge anyone who pedals anything, be it piano, harmonium or Orchestrelle, to avoid the almost universal habit of regular, even pedalling. I know all the old "How to Play the ——ola" manuals advocate steady pedalling but it is the very worst thing to do. One becomes unconsciously attuned to the tempo of the music and the beats in the bar become related as thrusts of the pedals. When you want to give an accent, your studied rhythm un-

Continued on page 71

'J.G.M'

by Christopher Proudfoot

MANY collectors have stumbled across those Victorian musical photograph albums containing a small cylinder movement in the back. And many have been the attempts at identifying the maker or the factor by those mysterious initials, J G M. Here Christopher Proudfoot reveals the meaning of those letters

AS A gramophone collector, I have always felt that I somehow belong to a lesser breed of mortals than the musical box man, and I suspect that most members of the latter would confirm this as a true fact.

It is gratifying to find, therefore, that my insatiable appetite for talking machines and matters pertaining thereto has led to the unearthing of a tiny piece of history which should gladden the hearts of all devotees of the musical photograph album.

Many of these repositories of oval portraits and seaside snaps contain movements stamped J.G.M. & C. This is sometimes followed by "Made in France" or simply "Paris". Somehow, even in initial form, this sounds a very English treatment of a name, but apparently it has eluded identification so for.

Perusing some old copies of *The Sound Wave* last summer, I came across an article in the issue for August, 1915, headed "Notable Talking Machine Houses". This was number one in the series and was entitled "The House of Murdoch".

Founded by John Gloag Murdoch, who died in 1902, this house owed its existence, I was amazed to read, to "the tiny musical movements, so popular in photographic albums. This led to an enormous trade in musical boxes, followed by other instruments of the automatic variety, viz: Organettes, Seraphones, D.V. Ariels and Celestinas...

In the infuriating way of *The Sound Wave* and its rival, *The Talking Machine News*, no attempt was made to treat the subject in any greater depth, and one was left guessing when exactly these movements were being supplied and who made them in France. All the same, I think that this probably provides the answer to the J.G.M. question.

Who would have thought that the mighty oak of the Murdoch Trading Company (as it later became) would have sprung from such a tiny, tinkling acorn!

The firm of John G Murdoch & Co Ltd was established in the year 1863 with premises at 91-93 Farringdon Road in London. The period of most of the photograph albums seen would appear to indicate a date between 1870 and 1900. The company is known to have traded with the Paris Company of Jerome Thibouville-Lamy. *Editor*

EARLY DISC BOX DAMPERS

by R G Moss

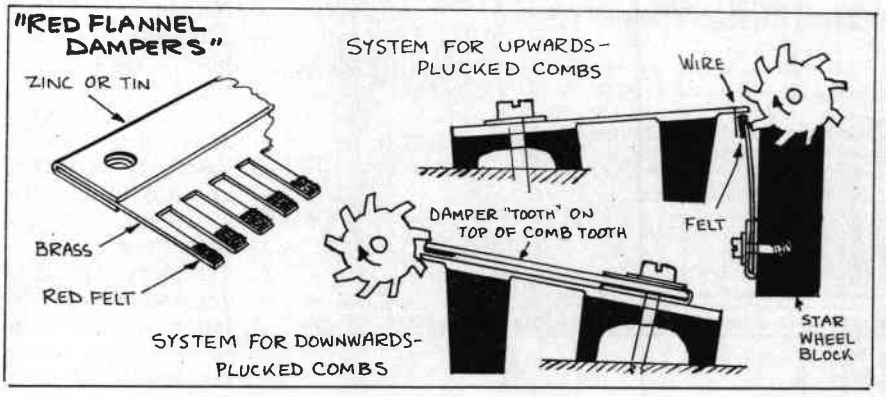
THERE are several well-known methods of damping musical box combs and these range from plasticine to brass stampings.

However, one of the earliest methods of damping a disc box comb does not appear to have been discussed in print before. I refer to *red flannel* dampers.

These comprise a piece of thin brass shaped rather like a comb and with the back made firm and rigid by a U-section of brass or zinc. On the tips of the "teeth" are attached small pieces of red felt. On the other side of the tip is a shellac-like substance.

There appears to have been two methods of employing this form of damper. The first, and the most obvious, was to superimpose the felt-tipped comb on top of the normal musical comb, the comb screws securing both together. This applies only to lower combs, i.e., those that are plucked downwards by star wheels. The star wheel first pushes the felt tip down on to the vibrating tooth and damps its vibrations before plucking the tooth once more. Normally, the assembly is covered with a decorative metal cover which conceals both comb and damper assembly.

The second method is rather more elaborate and concerns another unusual aspect of musical box combs. Some time ago a disc box was seen which featured a small hole drilled just behind the tip of each tooth, the hole passing down in the vertical plane. Then another comb was seen where each tip had a short piece of stiff wire soldered into each hole so that it protruded underneath the tip. The operation of this system is generally as shown in the sketch.



The star wheel pushes the felt outwards to engage with the wire soldered to the vibrating tooth, thereby damping the vibration. The star wheel then continues to pluck the tooth in the normal manner.

This unusual system of drilled tooth tips and stiff wire has been seen in conjunction with blunt-tipped comb teeth and is a feature of some of the very early small Symphonion disc boxes.

As predicted by Max Wendland, whose brother, Paul, invented the star wheel and associated comb damping system, these dampers did not last long and had to be renewed too often for them to be a success.

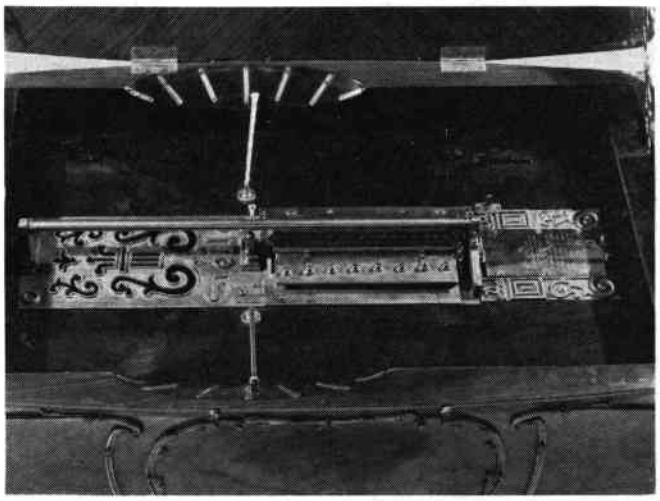
This unusual system proves once again that the further one looks into the subject of musical boxes, the more interesting and absorbing the subject becomes.

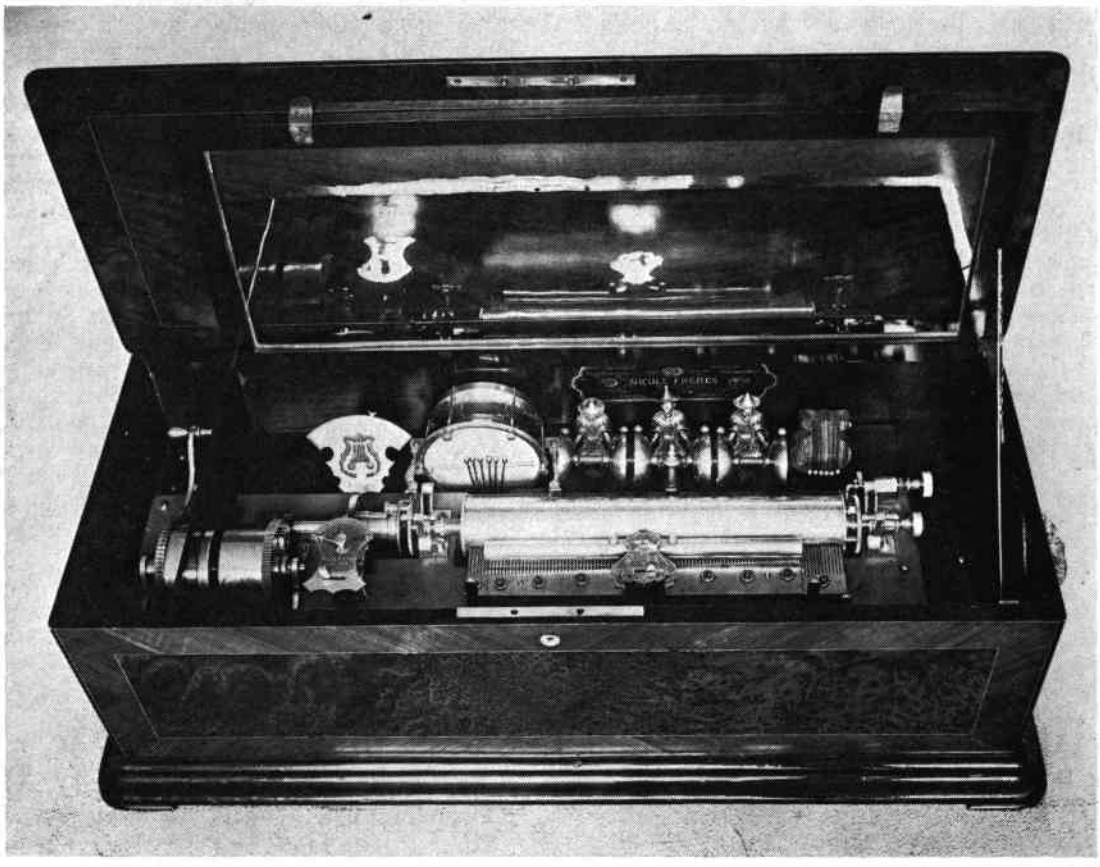
I would like to express my thanks to the late John E T Clark who first gave me the opportunity of looking into this little known aspect of dampers.

LOUIS XV STELLA

The Orchestral Grand style of Mermod's Stella was first introduced about 1901 and its advertising literature (reproduced in Volume 4 of *The Music Box*) claimed that it was the only musical box of this size — the discs were 25·11/16ins. in diameter — sounding two comb teeth for every note in the tune sheet " resulting in a greater volume of tone and harmony." Known as the Style 200 and 204, one model was manufactured with an electric drive motor.

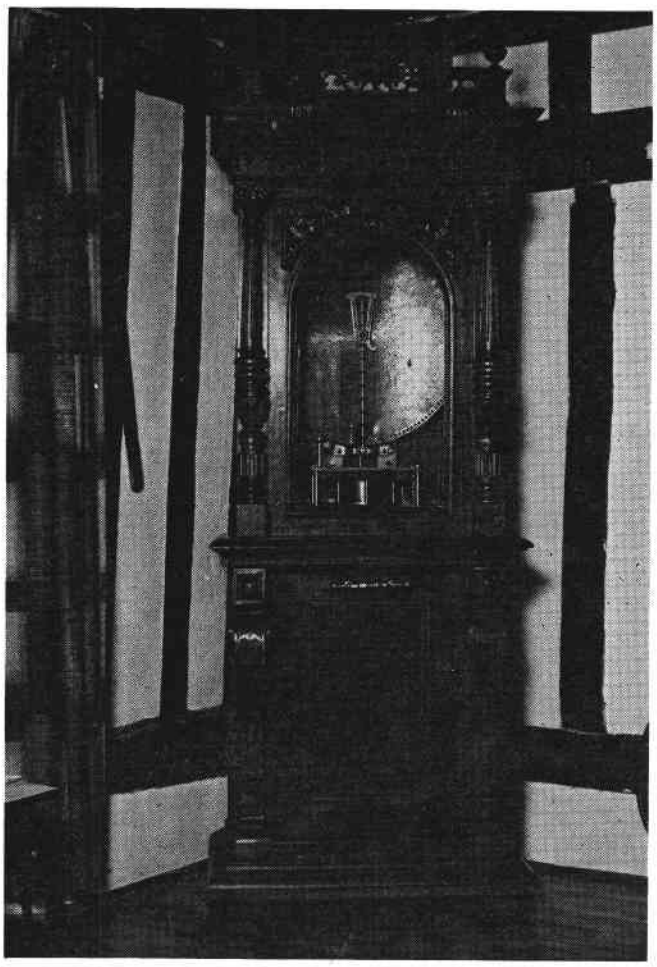
At Christie's sale on May 15, this outstanding specimen of the Orchestral Grand came up for sale. Also featured on the cover of this issue, it has a kingwood-veneered cabinet after the style of Louis XV and the bombé front and back have shaped parquetry panels either side of a central Vernis Martin-type finished cartouche bearing a Watteauesque painting. Ormolu mounts and giltwood stand give the piece a width of 127cm (50ins.). The two-comb movement, each comb with 100 teeth, has in place of the usual disc edge riders two metal-strip-protected cut-outs in the thick fore and rear case edges as seen in the picture below. With the box went 134 discs.

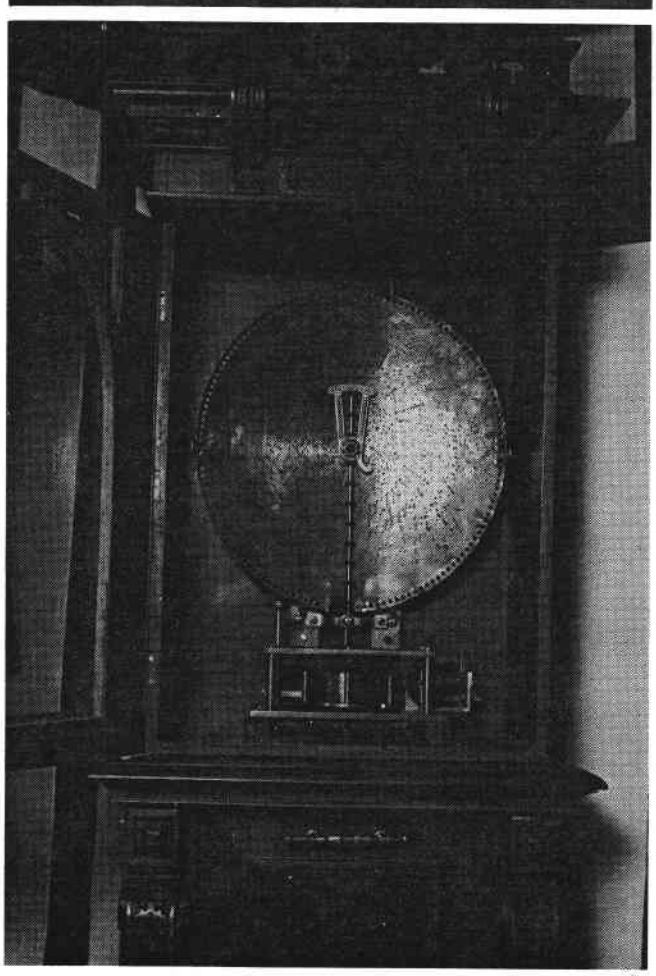




A fine specimen of the orchestral-format cylinder musical box by Nicole Freres. This one has six bells struck by three seated mandarins, a six-strike drum and castanet, and the comb is fitted with a zither. Interchangeable cylinders, speed regulator, tune indicator and twin motors complete the specification.

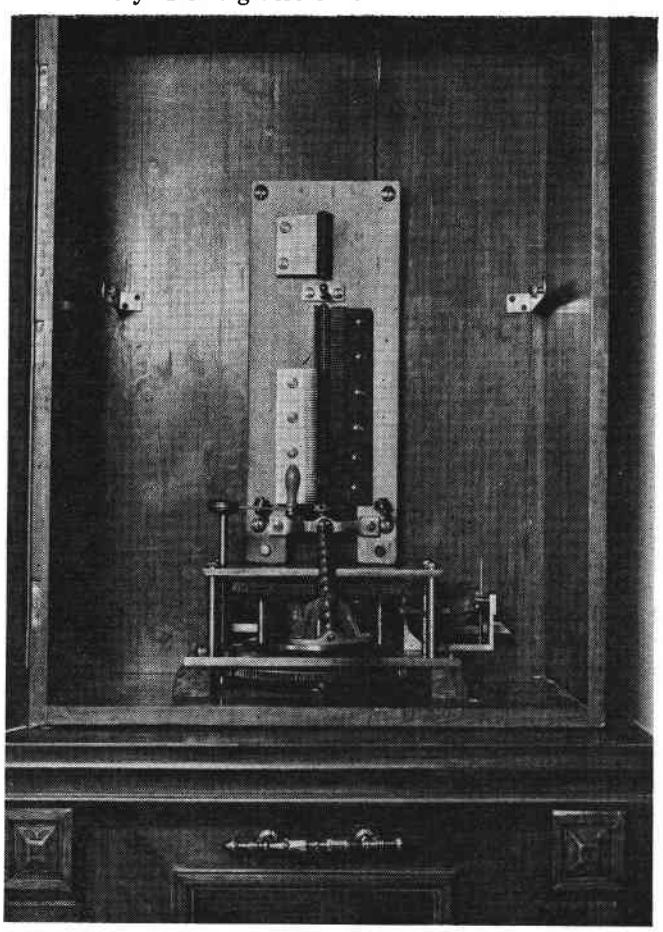
FOUR-COMB KALLIOPE





The Kalliope disc-playing musical box was the product of a relative late-comer into the musical box field. Hugo Zetsche and Emil Wacker's Kalliope Musikwerke was not established in Leipzig until 1898, yet within the short space of eight years, the company operated a large multi-storey corner factory at Bitterfelder Str. 1. The Kalliope musical box was distinguished by its bright tone and the early, smaller models were characterised by being wound from the centre spindle.

The passing of the 19th century and the burgeoning 20th century produced a wide range of tall musical boxes and an almost universal style of case appears to have been adopted by the leading makers such as Polyphon, Symphonion, Komet, Monopol and Adler/Fortuna. Kalliope was no exception in following the reigning Teutonic styles of big-disc box.



Seen here in an evocative period surrounding, is a most unusual specimen of the larger-sized Kalliope. Belonging to member Brian Clegg of Shipdham, Thetford, this model has four combs: two treble in unison arrangement plus one bass comb, with the addition of a second bass comb above the centre spindle. This means that the disc pressure bar must extend slightly beyond the centre of the disc, hench its unusual shape. The discs are 58 cm. (23 ins.) in diameter.

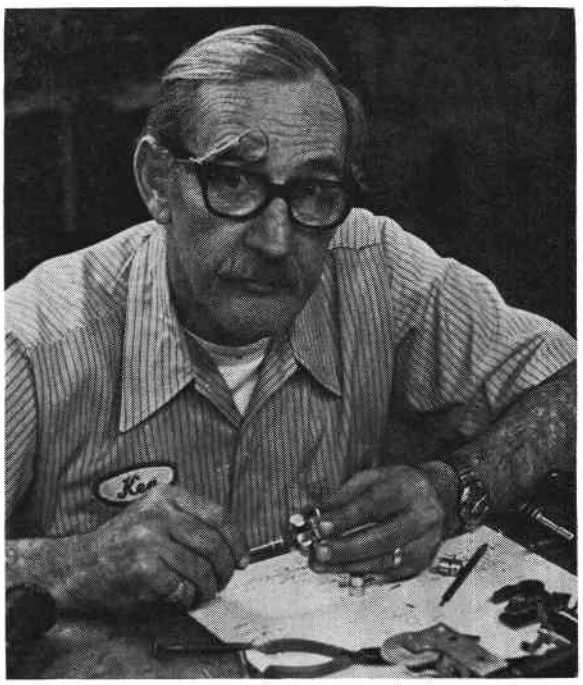
The mechanism is very deep and, rather like the early models of the 24½ ins. Polyphon, the motor is wound from inside via a vertical handle (seen left of the comb bedplate in the picture above). Another feature of the Kalliope is the unusual air brake which comprises two metal quarter-circle segments spring-loaded in the closed position. As they spin, centrifugal force opens them out against the spring tension.

Brian Clegg also punches discs on his own-designed machine. *The Music Box* hopes to illustrate this process shortly.

THE GOVERNOR

by Ken Fritz

ON page 33, Ken Fritz discussed the making of a new endless screw. In this, the second of his papers, he discusses the design of the governor and advises on the proper way to make up a new second wheel



Technical Topics

IT HAS been my firm belief through the years that the greatest problem in governor repair lies in the person doing the work. The problem is simply a lack of knowledge both in theory and mechanical skill.

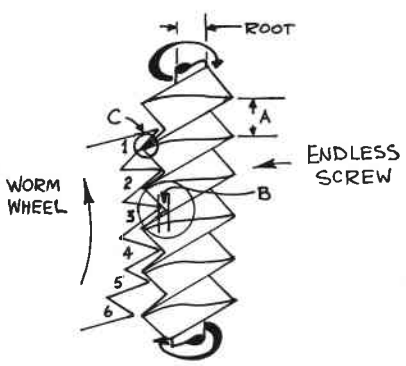
The governor is quite simple in reality. All it really takes is the patience to do each task thoroughly and adequately. I promise that if you follow the hints contained in this paper, you can make your own repairs as good as the next man, professional or otherwise.

The first necessity is to know your theory, so that is where we will begin.

A great effort is made here to shy away from the purely theoretical approach — the equations, formulae and all the other long-hair idealistic problem-solving methods. It soon becomes a heavy burden and a complete understanding comes very slow, I find.

As the title suggests, our approach is rather simple. The pitfalls are many and the warnings to you are numerous. They are, however, not offered haphazardly: the reasons are more than justified for the end result.

What makes it work? Consider the teeth in the sketch which are numbered 1 to 6 as one tooth on the second wheel.



Beginning with number 6, the tooth moves upwards engaging the endless spiral near the tip and forcing it to turn. The action of linear velocity between contacting surfaces is towards the core or root of the spiral, so enhancing the rate of rotation.

As the worm tooth advances, it continues to move deeper towards the root, causing the spiral to speed more and more. Maximum speed for the ratio of the spiral and the worm is obtained at the moment the tooth has reached its maximum depth into the spiral. As the tooth slides away from the spiral root, above the center of the worm gear, the force exerted to the spiral is lessened. As long as the pitch is correct and one tooth is always climbing into the spiral, equal force is achieved from the source of power.

First inspection of a running governor should be through the side holes of the body plate to check the clearance between the worm and spiral. This is the dimension shown as B in the sketch and should not exceed 0·020ins or be less than 0·015ins. The second point of inspection is the rake clearance indicated at C. No part of the second wheel should touch any part of the endless except at the extreme tip.

When the rake of the second wheel touches the endless you have a tug-of-war situation which results in the wheel binding. More about this later.

Dimension A is the pitch of the endless. To obtain the pitch, measure with a thread gauge in USA standard threads—the reason for this will follow.

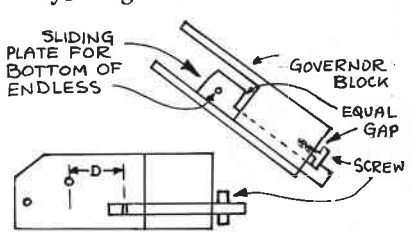
Now, the first idiosyncrasy of the endless is almost uncanny! The dimensions of the endless, length, diameter, pivot size, taper on the upper shank, are all in Swiss inches. The spiral, thread or screw is dimensioned in *base 10* dimension which has subsequently become the US standard for threads.

There was no way to calculate correct diametrical pitches of worm gears in the small sizes required for the musical box at the time of its manufacture except in the base 10 method—1 = 10 × ·100, ·100 = 10 × ·010, ·010 = 10 × ·001, ·001 = 10 × ·0001, and that's pretty darn small!

The 24 pitch endless will have a pitch of 24 spirals to the inch, even although there are only seven ground in.

The worm gear or second wheel if you prefer, or yet again the escape wheel as some call it, is not too difficult to figure out.

Finding the proper pitch is quite difficult for those who prefer always to guess!



The diameter must be known and here we do make a calculated guess. The first thing to do is to set the depthing bridge or potence plate (the lower bearing for the endless) at the midway position of its adjustment range. You then measure very accurately from the centre of the second wheel pivot hole to the centre of the endless pivot hole. Let's assume that this dimension is 0·237ins. You then double and multiply by π (pi) using

five significant decimal places (3·14159). Now you should have:

(·237 + ·237) × 3·14159 = 1·4891136

If your endless pitch is 24, you must find a circumference to suit 24 divisions per inch. Our dimension is almost 1½ins, we have 24 divisions in 1in and a surface dimension of 0·0416666in from the center of one tooth to the center of the next. We determined this by dividing 24 into 1. We must now divide this answer into our wheel circumference.

Let me explain at this point that we are neglecting pitch diameters, the point from which these dimensions would normally be taken.

The answer we have from all this is 35·738783, or 35¾ teeth. Our answer is not realistic in that if we made exactly 35 divisions with the dividing plate, the tooth centre would be 0·0424in — a difference of 0·001in. Now this doesn't seem like much, but it is metal *added* and to equalise this dimension by backing off the endless would result in too shallow an engagement of the tooth into the spiral. Let's pick an even number, 0·001in less than our original radius.

·236 + ·236 × 3·14159 = 1·4828304

and

$$\frac{1{\cdot}4828304}{{\cdot}0416666} = 35{\cdot}587986$$

now

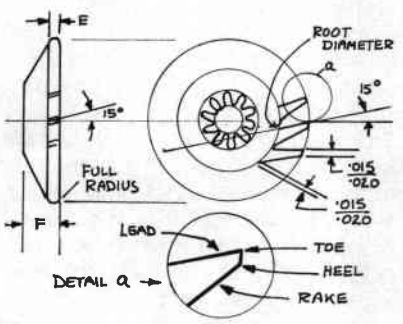
35 × 0·041666 = 1·458331

which is a difference of 0·024in or 0·0007in per tooth *less*, and that is OK.

A wheel blank cut to 0·472in diameter, divided into 35 equal divisions will produce a 24 pitch worm gear.

I suppose I have seen just about every tooth profile possible in a wide variety of worm gears. It is sad to say that too few have retained their original shape. Filing and re-filing have altered most beyond recognition and how they continue to operate is one of the big mysteries of life.

Well, so be it, but this is the way it is supposed to be. The relationship of proportions of the gear are somewhat dependent upon the

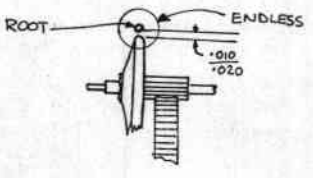


PENNIES FROM HEAVEN?

The street musician was ever popular with artists. From the collection of Claude Marchal comes this postcard of J Monge's painting called Rigoletto shown at the 1913 Paris Salon. Old man, monkey and poodle in classic doleful pose!

dimension of the endless spiral. The dimension E on the accompanying sketch is the most important as this is the cross-sectional area where the force from the worm is applied to the endless. Any force or load must be controlled rather critically in order to direct the lines of force in the most desirable direction. In this instance we want these lines of force or stress to be applied to the sturdiest part of the endless and to travel through this member to the center of the upper pivot.

This is quite easily obtained by limiting the driving edge of the worm wheel tooth or the leading edge of the toe to a width equal to, but not more than, the root of the spiral. It is also very important that the alignment of the worm wheel at dimension E (the root width) be exactly in line with the endless center. The root width of the worm and the root of the endless must be centered.



worm wheel is radially off-center.

Too often I see the result of sloppy craftsmanship in that the

The result causes stress in the endless, vibration, and an uneven rate of rotation plus added frictional resistance. All of this adds up to a slow-running machine. The real danger is stripping of the worm gears and the potential danger of a run on a fully wound main spring. This can happen because the wheel, being off-center, pushes the endless to the opposite side. The fully-wound mainspring places the maximum stress to the endless in side pressure, enhancing a skip, stripping, and that worst villain of all—the run.

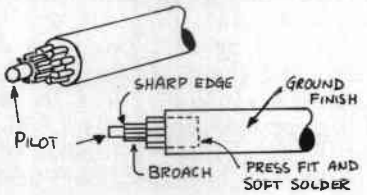
I think that a study of the sketches will provide a fund of information. If you make your worm wheels exactly to these outlines, then they will work easily and smoothly without filing.

It should go without saying that the wheel must be accurately centered on the pinion and staked tightly. Perhaps we should talk about that aspect for a moment.

At first glance, the following will appear rather complicated and involved to perform. You can, however, make, instal and finish a worm gear in just a few hours of work without having all those unnecessary hours of "fitting", which really is nothing more than fiddling trying to get an ill-matched wheel and endless to turn.

First you must "tool up" for the job to very close tolerances. The hole in the worm wheel is of the utmost importance, so let's start with that.

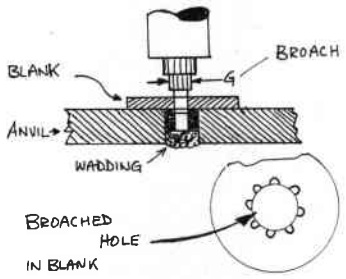
Most pinions for worm gears are the same, so one tool will do for 90 per cent of the jobs you are likely to have to do. I recommend that you fashion it well as it will return valuable dividends.



The first step is to make a broaching tool for the pinion hole and you do this by cutting one end off an old pinion and fitting it into a suitable shaft for the lathe collet. The pinion must butt into the base of the hole in the shaft, also the hole in this shaft must be exactly centered because this tool chucks into the lathe and the worm blank is cut in this mounting.

Rough cut some blanks and drill the center hole the same size as the pilot on the broach. You need an anvil or bench anvil with holes. Select one hole about the same size as the G dimension on your tool. Make a brass plug that just slips

into this hole and drill it through for a slip-fit to the pilot. This is an alignment plug.



Press the pilot through the hole in the blank, set the brass plug on the protruding pilot, and place into the anvil hole (I use a piece of wadded rubber to keep the brass plug in place). All you need to do now is press the tool into the brass blank until the G dimension has been pushed through.

When you make the broach, the G diameter is cut about 0·005in smaller than the pinion size so as to ensure a tight fit.

The blank is held onto the tool by friction and a very tight fit. All you need is to turn the blank to the shape and dimension, then place on the mill and cut the teeth.

Any book on the watchmakers' lathe will instruct you on milling attachments, dividing procedures and so on, so I'll not go into lathe basics here.

The gear is cut true in this manner and is as near perfect in concentricity as anyone could possibly make it.

Lay out the size of the tooth profile and your friendly grinding firm (*everybody* needs a friendly grinding firm!) can make a good worm wheel tooth cutter for you. I make my own from keyway cutters and they work quite well.

You will also need two stakes for your staking tool, one with a ball end and the other flat. Both, of course, are counterbored to fit over the pinion center. The ball-ended stake moves the metal of the pinion out in a dish form and the flat-ended one mashes or stakes the pinion firmly around the hole in the brass wheel.

Done properly and patiently, the worm wheel will run perfectly true and will be correctly mounted.

So we can see what makes the endless go, but what is the relationship between the endless and the worm wheel? Also, what is the prime importance of the pitch?

Very few craftsmen understand these two basic tenets. Actually, we have presented two questions, yet one answer will satisfy both. I could rephrase that and ask only one question, and still receive the same answer: What is the element of ratio of the endless to the worm?

We stated earlier that pitch is equal to the number of spirals to the inch in the endless and equal to the number of teeth per inch in the wormwheel. More on this coming up!

The endless will turn one complete revolution for each tooth in the worm wheel, so a 24 pitch worm wheel turns the endless 24 times in one complete revolution. The ratio, then, is equal to the pitch. The 24 pitch is a 24:1 ratio, 16 pitch is 16:1, etc.

A little logic and analysis will show you that the pitch of the worm wheel and endless screw, or the *rate* of the governor, is the final adjustment in determining the total rate of the musical box. Simple arithmetic through all the ratios of the music box, including the governor and excluding the wind brake, will indicate the controllable speed or the *going rate* of the complete mechanism.

It is reasonable that without the wind brake the machine will run and offer no indication of speed control or of a controlled rate. There must therefore be some way to calculate such a device.

I will demonstrate in a subsequent article that the ratio through the gear train in all musical boxes was substantially the same. This is true only to and including the great wheel. Different diameter cylinders require different rates and are adjusted in the first wheel ratio to the great wheel, and the worm wheel and endless screw ratio.

The calculation here for final rate is in pounds torque in the mainspring, stepping up in ratio to the endless where the force is in ounces torque measured in the shaft of the endless.

But how much torque do we want in the endless? And what about the wind brake?

Good questions! We could also ask how large must we make the worm and what pitch must we choose for optimum operation?

There is a simple formula to apply to render the answer to these questions. We have here the question of the time periods necessary for the playing of one tune on the cylinder. This question of the time to play one tune is a very vital one and will be dealt with in a subsequent paper. Sufficient to say that this will determine exactly the optimum speed of the music box. This is all basic design, but here I am more concerned with the whys and wherefores for the repairer.

Earlier I said that 28 pitch = 28:1 ratio, *et al.* What I did not say is that this is a *trial* calculation figure, for there is a formula to decide exactly how many teeth are required in the worm for a given pitch in the endless. Our first question is (1) how many teeth in the worm wheel, and then (2) what is the surface area required in the wind brake. Our formula is:

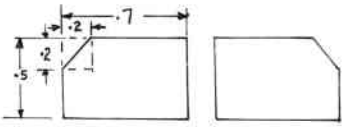
$$S_p \times S_s = W_T$$

where

S_p = endless screw pitch
S_s = wind brake surface area
W_T = number of worm wheel teeth

Bench work requires strange approaches to accomplish the task. In repairing the governor we resort to the most simple way.

In order to use the formula we must have at least two knowns so that we can calculate the remaining unknown. We go to the endless for guessing-in the area of the wind brake: if you have the wind brake, just measure the area of one vane and double the answer.



The sketch here shows how. Consider the angled cut as a square and subtract from your answer like this:

·7 × ·5 = · 35 = full area of one vane
·35 × 2 = ·70 = full area of two vanes
·2 × ·2 = ·4 = total area of angled corner

so

·70 — ·4 = ·66 = total wind brake area

Suppose we measured the existing wind brake and found a total of 0·84 sq in. Then:

28 × ·84 = 23·52

(where 28 is the endless screw pitch)

and this is OK because the decimal is almost ·5 and because it is a little over, take the whole number and call it 23. The worm wheel requires 23 teeth having the size and shape of the 28 pitch tooth as it applies to the endless.

Now you can see the final adjusted (by the wind brake) ratio is not 28:1, but accurately calculated at 23:1.

In a future paper I will talk about shop practice in making pinions from raw stock and so on. I will also describe the making of a complete governor from raw stock, including screws, springs, body—and every part in it.

Continued from page 64

consciously modifies how you do it. It also upsets the tempo of the music.

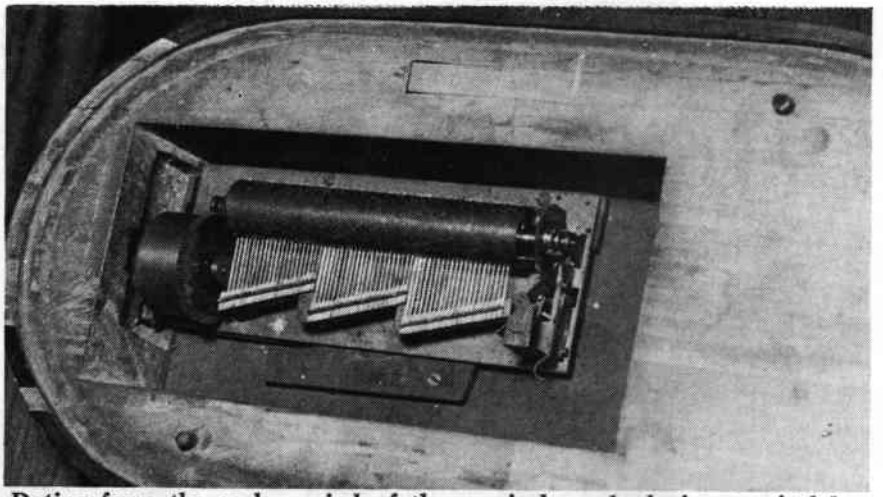
Once you have learned to control your Orchestrelle and want to concentrate on its musical abilities, practise pedalling in no recognisable rhythm. An irregular number of short strokes with one foot, long, steady ones with the other, let the organ breathe gently during easy passages, and then "get up steam" for the major passages. This is what is so drastically wrong with fitting a blower to an Orchestrelle or other player organ of this kind—it takes away the ability to blow the organ to suit demand and mood.

Right, I can now hear somebody saying that an organ needs blowing at steady pressure or it sounds horrible. Pipe organs, I'll admit, will overblow and produce strange other sounds if over — or underblown. This was a characteristic encouraged by Grenie of Bordeaux in 1810 when he built his *Orgue-Expressif*. The Dutch builder Winkel appears to have worked along similar lines. However, the reed organ has much greater latitude in its blowing. The volume of sound can be modified appreciably by how you blow it (although some ranks are prone to overblow unless you are careful), and to a large extent it is possible to accent on the Orchestrelle in the same manner as in the player piano — the effect is not so instantaneous, though, because their is a much larger volume of operating air to be acted upon than in the piano whose vacuum is capable of relatively large modification at short notice.

Scott Joplin annotated all his piano rags with the legend "Do not play fast: ragtime must never be played fast". Let me suggest an equally pertinent remark to the Orchestrelle player. Do not play the Orchestrelle too fast, and do not play with more voices than are absolutely necessary.

I have so far admitted reference to that which is probably the most mis-used of all controls — the *Vox Humana*. Many people think that the Vox Humana is as vital to a performance as is the music roll, and so keep it drawn throughout their performance. This just is not so. Personally, I detest this mechanical adjunct to the reed organ in all its shapes and sizes, but this is just my way of looking at the thing. Even so, there is a right and a wrong way of using it, so let's see what can be done to justify its existence.

Basically, on the Orchestrelle as in most other reed organs this



Dating from the early period of the musical comb-playing musical box is this clock base movement with three sets of individually-attached teeth arranged in "zig-zag" fashion. This piece may date from between 1800 and 1810 and is from the collection of Gerry Planus.

comprises a paddle-motor driving a long, longitudinally pivotted blade of thin wood or cardboard which is placed in front of the treble end of one tone rank, usually the flute, or French Horn. Because it is situated inside the swell shutters, it's effect can be heard across most of the treble register stops and is more noticable on some rather than others — this you can determine for yourself.

A properly-set-up Vox Humana operates promptly the moment its stop is drawn, rotates at a steady pace, and stops immediately the draw-stop knob is pushed in. Its rotation ceases not just because the supply has been cut off, but because a small mechanical brake connected to the stop linkage immediately bears on the rotating shaft, at the same time opening a valve to vent the inside of the paddle motor of all wind.

The Vox Humana used during rapid music which comprises a lot of short notes, does nothing advantageous for the music, but where there are long melody notes, the effect can be quite pleasing when used in moderation. One dramatic effect can be achieved during the playing of slow pieces of music where the melody high notes stand apart from the rest of the music. The piece is played using something like Flute, French Horn, and the Vox Humana but at a suitable point *and during the sounding of a long note,* the Vox Humana is closed, so hardening the sound being produced. Try this immediately before a crescendo starts to be built up and the result can be extra dramatic.

If you want bathos in terms of musical performance, play your hymns and romantic songs on Muted Strings, Aeolian Harp — and Vox Humana!

If you want to be able to play a music roll to perfection, then practice it. And, as a final dodge, if asked to play for an audience, be it friends or otherwise, select those rolls which you know! With lots of practice, you might just get by with a performance of a new roll, particularly if it is a piece of light music such as a waltz or a popular selection where you can "read" the message in the roll perforations, but more than likely your audience will become uneasy, talk amongst themselves, and shuffle away, leaving you pedalling your heart out and wishing you hadn't started.

Practice. Practice.

Then practice some more.

Just because the notes are already there doesn't mean that you can convert the holes in the paper into good music automatically!

In conclusion, learn to read the pattern of perforations in the music roll, if not exactly as music, then as style and rhythm. Practise very carefully your phrasing of pieces, learn the subtleties of pedalling (and don't stand for the nonsense spouted forth by player-piano buffs that the Orchestrelle isn't sensitive to pedalling and nor can it be — it is quite sensitive) and cultivate an absolute knowledge of what tonal effects your instrument can produce.

Always experiment and, as a final exercise, practise!

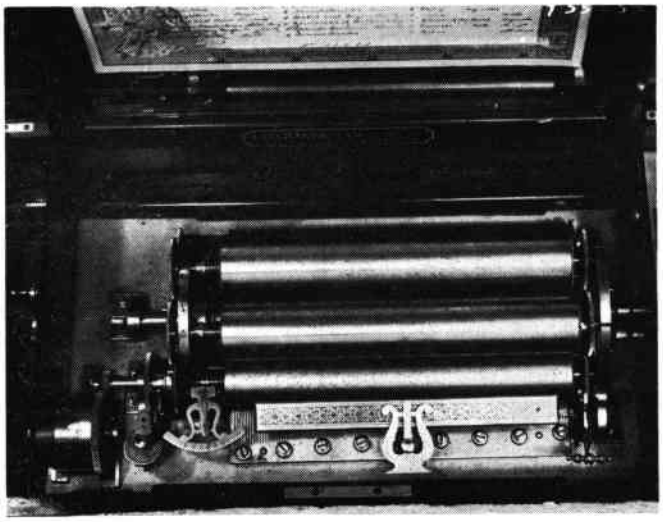
If this all sounds like repetition, then it has succeeded, because that's just what it is. Experiment, learn, practice, or ELP for short. Try operating an Orchestrelle without ELP, and you may have cause to wish you had not dropped the aspirate!

SOLD AT CHRISTIE'S

by Christopher Proudfoot

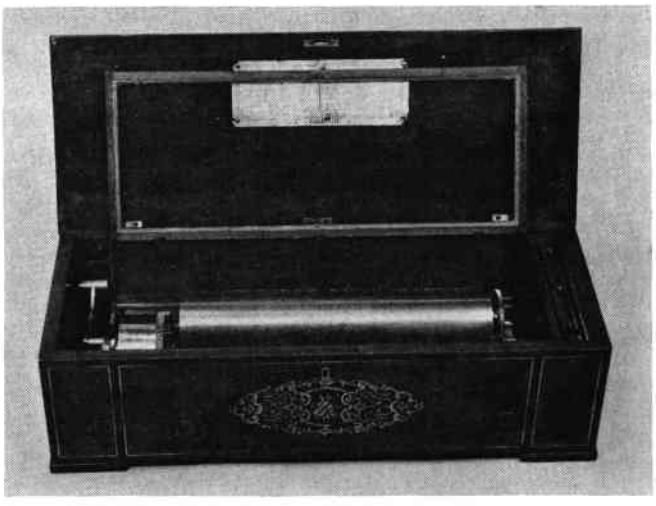
TO BE asked by the Editor to write him something on the subject of Musical Boxes was, I felt, akin to an invitation from one's grandmother to provide a course in egg-sucking. However, I know that short of finding a key-wind Nicole Freres overture box available for the taking-away, there are few things a collector likes more than looking at pictures of the beloved artefacts — I speak as a collector myself. I have therefore assembled a small collation of photographs of some of the musical machines sold at Christie's during the last two or three years.

The first, below, shows the interior of the six-cylinder revolver box by George Baker which made an auction record price of 1,500 gns on February 21, 1972. The nickel-plated cylinders each play six tunes.



One day a year or two ago I went during my lunch-hour to call on someone who wished to sell me a 1934 portable gramophone. While I sipped a cup of coffee, my host turned to his wife and said, " Shall we show him the coffin ? " I tried to look dutifully intrigued without feeling over-enthusiastic, until I was ushered into a bare room in course of redecoration, occupied solely by this Sublime Harmony interchangeable box on table (top left). They had no thought of selling it, until I suggested that it might make £1,000 at auction, which it duly did on January 22, 1974. In fact it made 1,000 gns for this was two years before we were to move to South Kensington and leave this pleasantly antique denomination to its fate in King Street.

On April 23, 1974 this unusual barrel-piano, or Piano-Harpa, appeared (lower left). The twelve-air barrel was 25¼ inches long by 4⅜ inches diameter, the case very plain and the tune-sheet headed : " Pianoharpa



förfärdigad af I. F. Nilsson Öster Korsberga, Lemnhult, Saxhult". It sold for 400 gns.

The star item in that sale was a magnificent eighteen-air Nicole box, no. 34801 (bottom of previous page). The three-per-turn cylinder is 16½in. by 3⅞in. and the rosewood case is handsomely inlaid with brass, tortoise-shell and mother-of-pearl. This one changed hands at 1,400 gns.

A snake in the grass? An Edison "Idelia" phonograph of about 1910 (left). Not really a musical box, but quite the handsomest phonograph we have seen here and it, too, made an auction record at 700 gns (a record for a phonograph, that is; the gramophone record stands at 1,100 gns, and on May 15 this year we established a new phonograph record at £750, for an Edison "Opera", the model which replaced the Idelia in 1912). The Idelia has the metal parts finished in oxydised copper, and this example was also blessed, or cursed, with an astonishing device for repeating a record over and over again.

From the sublime to the ridiculous: in the same sale was this curious little liqueur glass container, 12 inches high (above). Stamped "Made in Austria" and finished in a cheap mahogany-coloured lacquer, it contained a movement set in action by pressure on the keyboard. This also released the doors and lid in turn, with such force as almost to throw the whole caboodle on its back. Somehow, it had a charm all its own, as more than one person in the saleroom must have agreed, for it fetched 300 gns.

On March 15, 1975, Christie's held their first musical box sale at their new South Kensington rooms in the Old Brompton Road. The star lot (left) was once again a Nicole box, this time of the Overture variety, no. 32071, playing *La Dame Blanche, Fra Diavolo, Semiramis* and *Parisina* (Gamme no. 1367). The movement was in fine original condition, and the stand was carved in solid rosewood, unlike the box itself, which in spite of the fine inlay on the lid has the usual painted graining on the sides and front. The guinea having been a casualty of the move to South Kensington, this box, at £1,500, just failed to equal the record set by the revolver box three years before.

Society Affairs

Summer Meeting Report

THE Summer Meeting of the Musical Box Society of Great Britain, combining with the Annual General Meeting, was held on Saturday and Sunday, June 7th and 8th, 1975, at the Kensington Close Hotel, Wrights Lane, London, W.8.

The fine weather encouraged a good turn out and 119 members and guests attended the meeting, bringing with them an interesting assortment of musical boxes for sale or exhibition. The prices being asked appeared reasonable and many boxes were happily carried away to new homes. As usual, the two regular non-member workers for the Society, Mrs Sarah Tallis and Mrs Marie Waylett, untiringly manned the registration desk, collecting fees, subscriptions and selling back numbers of *The Music Box*.

The first talk of the day was given by our guest speaker, Gerald Stonehill, of the Player Piano Group. His talk, entitled "The Duo-Art Robot", was illustrated by slides and tape recordings and described the remarkable push-up reproducing piano-player which he has built in conjunction with Gordon Iles. This will play any concert or smaller type grand piano in the manner of the artist who cut the original roll. The mechanism incorporated many specially designed components to improve upon the original Duo-Art expression mechanism.

Our second speaker of the day was Graham Webb, who presented a talk, illustrated with many drawings, on the subject of early automata. His talk traced the birth of ideas several hundred years BC which were still in use to this day, particularly with regard to mechanical singing birds, and explained how they worked.

Following the luncheon interval, the Annual General Meeting was held. After the reading of the minutes, our President, Cyril de Vere Green, welcomed the following members from America: the president of the Musical Box Society International and his lady, Mr and Mrs Walt Bellm; L Dupol, M Werner, Mr and Mrs Ralph Heintz; and F Scharpenberg.

In his report the Secretary, A R Waylett, outlined the activities of the society throughout the preceding year after which the President thanked the entire Waylett family for their hard work during the year.

The Treasurer, W K Harding, explained the accounts of the society for the last two years with the aid of slides of the balance sheets. Following the adoption of his report, the audience gave the Treasurer a warm round of applause for his time spent keeping our accounts in good order.

The Editor, A W J G Ord-Hume, detailed in his report the events surrounding the introduction of the new size Journal and explained the costings, pointing out that the unit cost per Journal had fallen with the new method of printing. The President and all those present congratulated the Editor for producing an excellent Journal.

The Archivist, A Frost, mentioned in his report his suggested scheme for founding an archive of named tunes played on cylinder boxes. His scheme was based on the principal that only people who sent in tapes of named tunes would receive a master tape of unnamed tunes to listen to and try to identify. The scheme would enable owners of boxes without tune-sheets to identify their unknown tunes.

As there were no other nominations for officers, the Committee was re-elected *en bloc* with C Thompson as the new Vice-President to replace D A R Tallis, who retired. In closing the meeting, the President thanked the retiring Vice-President for his many years' hard work on the Committee and officially welcomed his replacement.

The business meeting concluded, the third talk of the day was presented by Norman Brown, co-editor of the Newsletter, entitled "I Belong to Glasgow", the first part of his talk was devoted to slides, some of which were taken at Dr Burnett's recent "at home" meeting showing some of the riches that had been on display, and others from various Scottish collections and museums. The second half of the talk was a light-hearted presentation by tape and cartoon slides to explain why two particular Scots were called "Haggis Bashers".

After the tea interval the final talk of the day was presented by Arthur Ord-Hume, on the early development of the musical box. His talk, illustrated with slides, made the point that we really do not know who invented the musical box and that all the elements of the comb-playing musical box — clockwork mechanisms, pinned cylinders, snail tune-changers and so on—were all well established prior to 1700. He suggested that had the advent of the musical box been delayed until 1796 awaiting the invention of the tuned steel tooth credited to Favre, then it appeared to have developed very rapidly in a number of geographically separated centres. He illustrated several musical movements which appeared to pre-date 1796 and finally concluded that the comb-playing musical box probably went back to at least 1750. This controversial talk prompted many questions from the floor.

During the meeting, the Recording Secretary, A K Clark, had been selling raffle tickets with the assistance of Alex Duman. At the draw, first prize (a modern Swiss musical box) was won by Dr Bob Burnett, and second prize (a copy of Bowers *Encyclopaedia* donated by Alex Duman) was won by Dorian Dinsmore. The raffle made a profit of £36 for the Society funds.

The evening was devoted to the second Annual Dinner and Dance, which was attended by 57 members and guests. The after dinner guest speaker was Madeau Stewart, renowned BBC musicologist and broadcaster on old instruments. She highlighted the great amount of ignorance which existed in the minds of most musical experts as to what the musical box could offer, and urged members of the society to do much more to spread an awareness of the musical importance of these instruments.

Alex Duman kindly presented every table with a bottle of Scotch and also presented a modern Reuge snuff box as a prize for the lucky ticket draw.

On the Sunday morning the practical meeting opened with a workshop session by David Tallis, who itemised the various materials used for cleaning a musical box and discussed the right way to use them. This was followed by J Weir who demonstrated his method of overhauling and adjusting disc-playing musical boxes and setting them up for correct playing after dismantling.

This concluded the Summer Meeting of the Society.

ALAN K CLARK

Player-Piano Topics

THE DUO-ART ROBOT

MENTION a cabinet piano-player with a reproducing action and one at once thinks of Welte with the *vorsetzer* and its wide, red-paper music rolls. But Gerald Stonehill has the world's only Duo-Art piano-player. Featuring an Ampico-built late Duo-Art drawer-type action, this cabinet player is the product of new technology which makes the original Aeolian system look somewhat antiquated. Its owner talked to THE MUSIC BOX about his Duo-Art Robot which, from its membrane valves to its vital 36 penny-pieces is altogether a rather odd monster

DURING the past year British player piano enthusiasts have been talking excitedly about a brand new machine which has already made several public performances in recitals of piano music. If for no other reason, its name is enough to stir interest in the mechanical musical instrument buff. This is the Duo-Art Robot.

Conceived as long ago as 1962, engineered with the close co-operation of one-time Aeolian Company boffin and now music roll producer Gordon Iles, and built between 1973 and 1974, Gerald Stonehill's instrument is designed to play Duo-Art reproducing piano rolls on any piano. It is a portable concert pianist.

Why did Mr Stonehill spend so much time and effort in making this machine when he already has a superb Steinway Duo-Art electric grand and a pedal-electric Weber? "I was receiving requests to lend my Steinway for Duo-Art concerts and with my music room on the first floor, each time the piano was moved, it was slowly being destroyed". An awkward turn on the stairs was demonstrably not intended to cope with traffic in 6ft 2in Steinways.

"I wanted to produce something which could be loaned for concert performances so that I could share my enjoyment with the general public."

Parts for the Robot began to be gathered 13 years ago, the principal item and what one might call the central part of the project being the acquisition of an Ampico-built Duo-Art drawer from the Steinway of an old lady in Pennsylvania who wasn't crazy on roll-music. This key component, a product of the last years of the reproducing piano in America and built around 1936 when Ampico and Duo-Art had merged, was collected by a friend and flown to London. It features the normal Duo-Art tracker bar with electric roll drive and built into a late Model B-style drawer.

Improved system

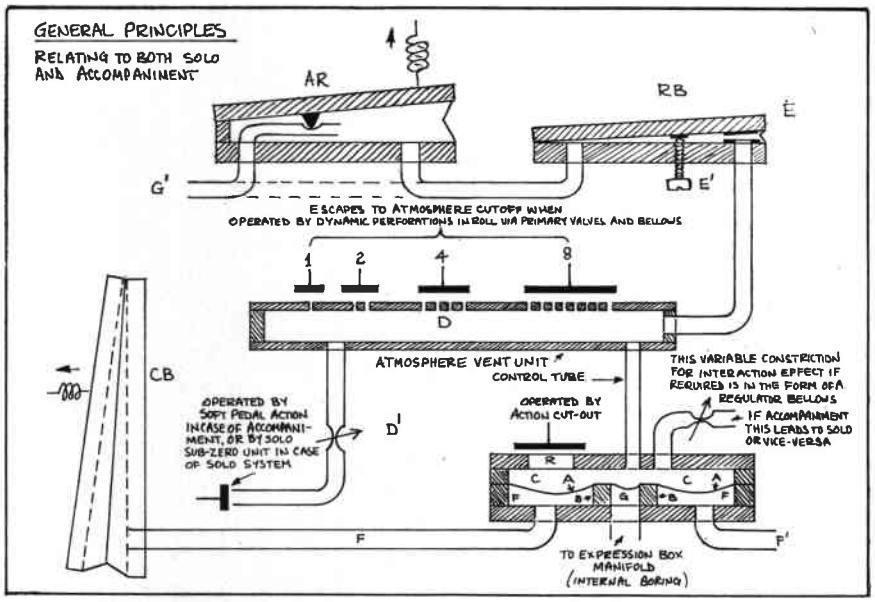
Early on in the project Gerald Stonehill became convinced that this was the opportunity to improve upon the original Duo-Art system. Gordon Iles, Ramsgate-based owner of the Artona Music Roll Company, came into the picture around this point. Iles, who was responsible for the later and final development work at Aeolian's Hayes factory in Middlesex, had long nurtured ideas as to how such improvements might be brought to reality. As an inventor of genius proportions, he soon assumed a major role in the operation.

A look inside the lower portion of the Robot immediately reveals that this is no recognisable Duo-Art-type action. In fact, the expression system owes more to the Ampico intensity-valve concept. Gerald Stonehill explained the thinking and reasoning behind the reappraisal of Aeolian's original ideas.

"The usual trouble with all Duo-Arts all round the world is that whereas they might have been efficient when they were new and in perfect working order, they have since become more and more sluggish. Now what Gordon Iles and I have done is to make a system which has no sluggishness at all — not even the calculated sluggishness. We have therefore had to put back into it with capacity bellows, or if you like, an inefficiency reservoir, a controllable sluggishness to get back to the finest performance which it is thought the Duo-Art was capable of."

Asked how he had been able to determine this peak of performance and to be able to design into the Robot an adequate system, he explained: "Certain functions are called for by a perforation in the roll and are then abandoned at a certain speed which can be perceived in the perforations so that they were still in action for a time although they were switched off—this is the natural delay in the pneumatic system. Now if they were switched off by the Robot while they were supposed to be still in action on the original roll, we knew that the robot was in fact working too fast."

Having made a capacity bellows (a pneumatic buffer) of the right size for the theme side — largely a process of trial and error — a similar capacity bellows of the



How the Stonehill/Iles Duo-Art system operates. The system of controlled leaks which replaces the familiar accordion pneumatics is seen in the middle. The capacity bellows is shown at the left.

same sluggishness was made for the accompaniment side in order to copy the observable slowness on the solo side.

The Duo-Art Robot is essentially a one-off experiment and no plans are in hand for the production of its components. "Neither Gordon Iles nor myself would stand in the way of anyone else wanting to copy our designs and in fact we could probably help them", says Gerald Stonehill.

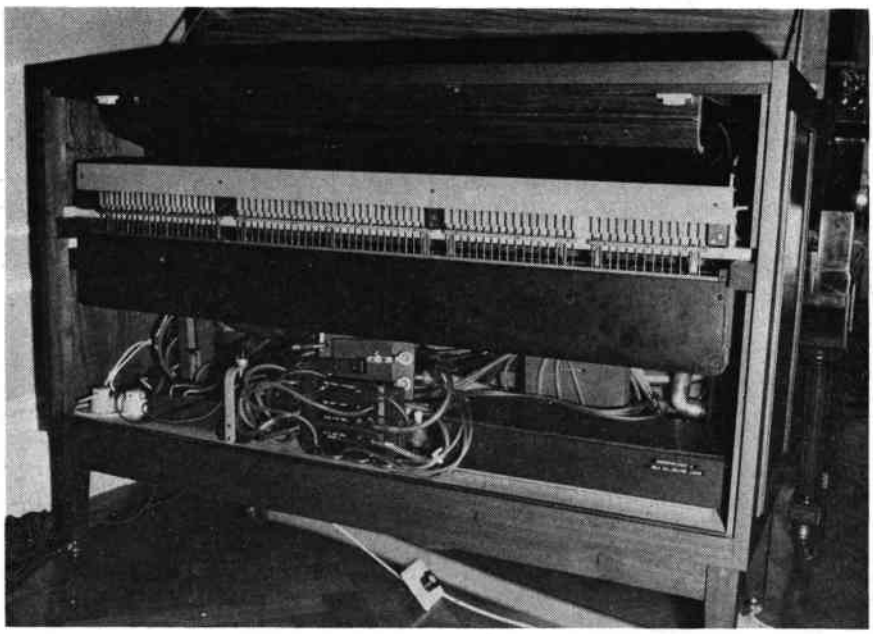
In construction the Robot is housed in a plain cabinet, access to the roll being by a full-size hinged lid. The piano-key fingers are all individually adjustable and it is here that is demonstrated an ingenious yet simple solution to a basic problem. The adjusters on the fingers are quite small and, even with their felt pads, there was the real danger that the fingers for the black keys would miss the key during the operation of the keyboard shift from the soft-pedal. The difficulty was overcome by bonding a penny to the end of each black key adjuster on the Robot. The penny, with a felt pad beneath, is so placed that the Robot's finger can always depress the black keys properly.

Like all good robots, the Duo-Art Robot has "feet", only these serve purely to operate the normal pedals of the piano — soft and sustaining.

The big spool-box facility of the late-type roll mechanism means that very large rolls can be played, rather like the half-hour Ampico rolls. Gordon Iles has accordingly cut some behemoth Duo-Art rolls expressly for the Robot.

As a utility instrument capable of being carried around to recitals, the Robot is an obvious success since it will play any piano and, of course, will play any Duo-Art roll. In one major respect, aside from all the foregoing, it differs from the Welte cabinet player: it does not have an internal pump. Whilst the Iles/Stonehill Duo-Art system takes up little space and quite probably the pump could have been placed inside the cabinet, Gerald Stonehill chose to exclude the potentially noisey pump and motor. As a result, the Robot stands connected to its suction supply by a large-diameter plastic umbilical which stretches across the music room at Mr Stonehill's home, out through the door, across the landing, down a flight of steps and into the business end of a familiar Duo-Art rotary pump. The result appears to be a measure of domestic inconvenience, but a commendably quiet power supply to drive the Robot.

Those who attended the Summer Meeting of the Society heard Mr Stonehill's talk on his Robot and heard tapes of the instrument in action. *The Music Box* is delighted to advise that Mr Stonehill has promised a series of technical papers in due course dealing with the design and construction of various components of this most interesting development.



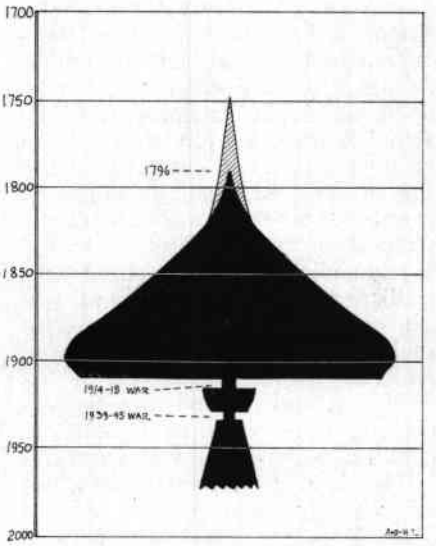
Although the picture of the Robot's fingers (left) may look just like those of any other player (the cover has been removed for this picture to show the adjusters on each key), the view inside the Robot (above) reveals a wholly new system using more Ampico technology than Duo-Art.

Continued from page 53

automata and its craftsmen as early as the start of the 16th century.

Relating clockwork to music-work, it becomes possible to identify items in terms of two styles. Let's call them Le Brassus and Vienna, for we know that both had associations with the very early perfection of clockwork and were later centres of making comb-playing musical movements for use in clocks.

To summarise, then, we can represent the production of the musical box as we have hitherto been told it by a diagram as seen here. The resemblance to a modern jet aircraft is interesting but quite incidental. At the apex we have the date of Antoine Favre's invention and the outward curves show the manner in which the industry responded to the stimulus, expanding through to the turn of the century after which it began to decline until the sudden inroads of World War I which effectively stopped production. After that

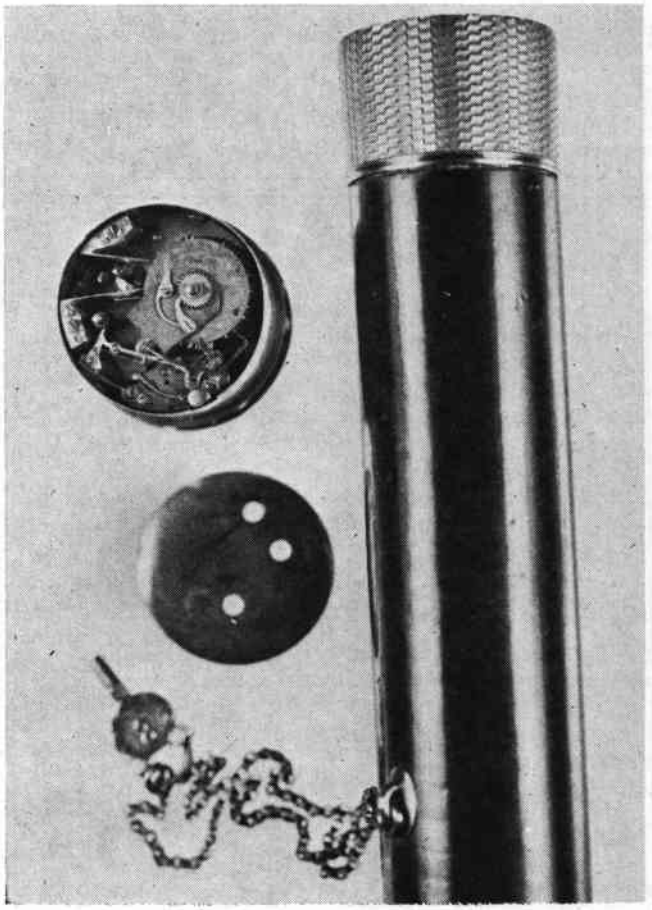


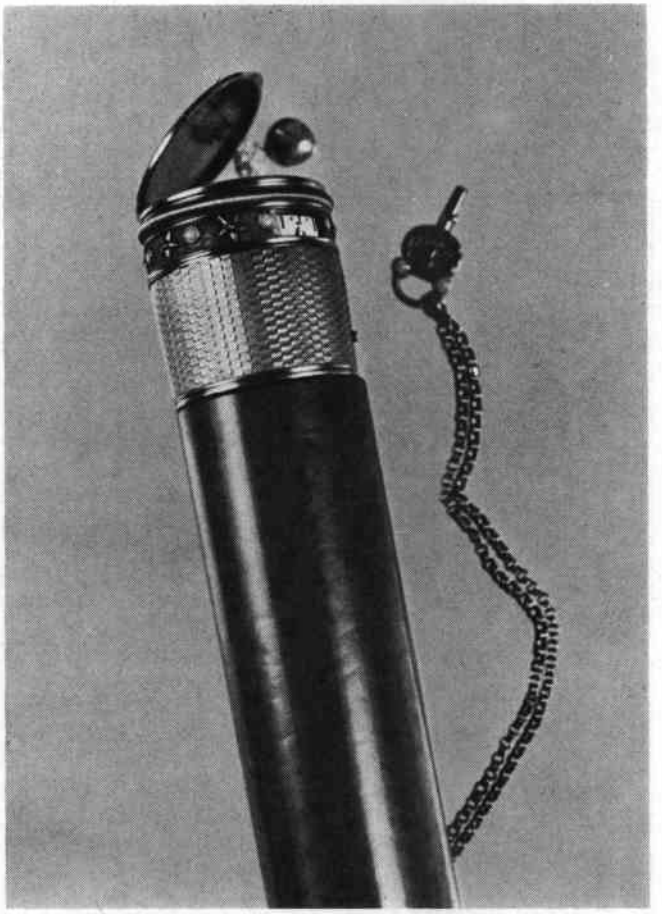
war there was a slight resurgence which was once more killed by the advent of World War II. And after that, modern movements have been produced in vast quantities and are still being produced to this day — hence the jagged edge to the tail.

But notice the shaded outline ahead of the nose of our futuristic jet-plane. I claim that this represents a truer picture of the comb-playing musical movement and believe that its use predates Favre's invention by around half a cenury. In this pre-history period, I also believe that the technology was employed by but a few clockmakers in musical clocks as an extension of the carillon technology.

In conclusion, may I emphasise one point and that is that I believe a far better understanding of the early musical box, particularly where it survives in conjunction with a clock, may emerge from an appraisal of the musical movement in terms of clockmaking than to consider it in the light of what may now be suspect parameters regarding the musical box.

And the fact still remains that the Swiss accounts of the birth of the musical box may ultimately prove to have been coloured with a measure of chauvinism. Certainly, I believe that we should consider them with an open mind.





The beginning of the 19th century saw the birth of the miniature comb-playing musical movement with its unique ability to make recognisable music from a very small mechanism. Musical seals, watches, key fobs, jewellery and similar novelties appeared in abundance. Of necessity, it was usually dictated by the size of the space available that the movement employed the pinned spring-barrel method of construction. Nowhere could this have been more necessary than in the case of the musical walking stick. Two such canes are known to exist, one in the collection of La Vielle Russie, New York, and the other belonging to M Jules Cavaillès. By courtesy of Catherine Dike of Switzerland, we reproduce these two pictures of the latter. Clearly visible in the left-hand picture are the two stacks of comb teeth to the left of the spring barrel the outside of which is pinned with the music to be played.

Record Reviews

ONCE again, the major number of records in this month's review comprise transcriptions of piano rolls, this time reproducing rolls of virtuoso players of the past.

Suitably included in its *Great Pianists* series, Saga's three latest releases are of Duo-Art rolls. First released on the Everest label in America, the new discs are processed from the master tapes to take advantage of the very latest in record master production techniques.

Wanda Landowska Concert (Saga 5389) is Volume 2 in the series, its precursor being a non-piano-roll offering. Landowska, doyen of the harpsichord and the old "78" records, is heard playing Mozart's Piano Sonata no 17 in D major (K576) on a Pleyel Duo-Art, followed by Beethoven's Andanti Favori in F major and Sonata no 12 in A flat major on a Steinway Duo-Art. The disc concludes with the Landowska arrangement of a selection of Josef Lanner's *Valses Viennoises,* a delightful and unusual collation.

Volume 3 is **Josef Hofmann Plays Beethoven (Saga 5392).** Here we have the Turkish march from *The Ruins of Athens,* the splendid Rondo a Capriccio, op 129 (*Rage over a lost penny*), the Moonlight Sonata and the Sonata in C Major, op 2 no 3. All demonstrate the astonishing technique of this child prodigy who made his debut at the age of six. At nine, he appeared with the Berlin Philharmonic Orchestra and then toured Scandinavia. Listen to the sheer brilliance of his playing and you can get some idea why he was in such demand that he toured America giving 52 recitals in ten weeks—a tour which the Society for the Prevention of Cruelty to Children stepped in and stopped!

This is a fine record indeed, but what a pity the very first note of Side Two has an unaccountable waver in it, not present on the Everest original.

Volume 4 is **Ignaz Friedman Plays Chopin (Saga 5394)** with a selection of Chopin pops. Included are the two Nocturnes, in B major, op 62 no 1, and in G minor, op 37, no 1, both very sensitively played by the artist whom Sir Neville Cardus described as "nearly the last Grand Seigneur of the piano". Probably no pianist today plays as did Friedman whose fantastic talents were taken from him by neuritis of the fingers while he still had a major part of his life before him.

In his lyrical performance of the Waltz in D flat major—the celebrated *Minute Waltz* — the Steinway produces some very odd jangles in the central portion which may be the piano rather than the music roll.

Aside from that, these are three delightful additions to the repertory of master renditions on piano roll. As next best thing to owning a Steinway and the rolls, these are to be recommended.

My final disc this month is of the music of the Mortier organ at the St Albans Organ Museum. **The Mammoth Sound of the 97-key Mortier Organ (Eros 8065)** was issued two years ago but has only just been made available for review.

Charles Hart's museum features a number of dance organs, including this one, named *The Four Columns,* which is heard playing 18 pieces of music arranged variously by Eugene Peersman and Arthur Prinsen. The choice of music is a little uninspired, almost all of it dwelling on a percussion-enriched ostinato accompaniment which gets a little monotonous.

Continued on page 84

Christie's
South Kensington

During the past five years Christie's have held regular and very successful sales of musical boxes at King Street; now, in order to expand these sales, we are transferring them to our new premises at:

Christie's South Kensington Ltd.,
85 Old Brompton Road,
London SW7 3JS
Telephone: 01-589 2422

The next sale is planned for August 7th, and will include several musical boxes, an early BERLINER hand-driven Gramophone and a fine collection of records. Catalogues will be available at the above address from mid-July.

Musical Box sales are held at two - three month intervals and are catalogued by Christopher Proudfoot, who is always pleased to advise on the sale or purchase of disc and cylinder musical boxes, phonographs, gramophones and allied subjects.

Letters to the Editor

Member W H Egerton, editor of the Newsletter of the MBSI, writes from New Canaan, Connecticut :
I HAVE just received the Spring 1975 edition of *The Music Box* and wish to compliment you on a spectacular presentation ! You, and the Music Box Society of Great Britain, are to be congratulated.

Member Harvey Roehl of the Vestal Press writes from Vestal, New York :
PLEASE accept my congratulations on the new format and general editing job of the Bulletin of the Musical Box Society — it really is a professional-looking job, and as one who knows how much work it is to assemble and organize this material, I feel qualified to make such comments! The size is much more workable when it comes to layout.

Member Q David Bowers writes from Beverly Hills, California :
WHEN I recently returned from a two-week trip around the United States I found in my post office box the brand new issue of *The Music Box*. It is really magnificent! I am sure you will find that the new large format gives you much more flexibility in illustrations and layout. The issue itself was absolutely fascinating to read.

Member Joseph P Petit of The Haybarn Museum of Coin Operated Bygones at Leigh-on-Sea writes :
CONGRATULATIONS on the new format. Both the quality of the articles and print I do not think could be better. I am looking forward to the future Orchestrelle article.

Member Roger Booty writes from Ingatestone, Essex :
CONGRATULATIONS on the new *Music Box*. It makes a change to see articles on Orchestrelles and pianolas.

Member Keith Harding writes from London :
PERHAPS you can publish a description of a Singing Bird Box stolen from Livia Gollancz, who has written to me about it. It was described in Victor Gollancz's book, *Reminiscences of Affection*, which also contains a colour photograph.

It is most unusual in that the Singing Bird Box itself is covered in Green Shagreen, with a blue on/off knob at the front and a gilt cover and ball feet. It may also bear the name of Marshall and Snelgrove, from whom it was purchased.

Member L W Tew-Cragg writes from Enfield, Middlesex :
I WOULD like to comment on Mr Ken Fritz's interesting article " The Endless ".

There are several points that I would question, but for the present the statement about the raw material used for the endless is the most important for anyone who may be attempting to make an endless for the first time.

Mr Fritz states that his raw material is from purchased hardened steel dowel pins. In the U.K. and Europe " off the shelf " dowel pins would most likely have been manufactured in accordance with British Standard Specification No 1804 and this requires the dowel pin to be manufactured from EN 32 steel and " case hardened ". Which of course highlights the point using such a standard dowel pin would result in the final endless being in a soft condition.

On running the endless and noting early wearing, one could be mislead into thinking that it was incorrectly formed, when in reality it is soft.

Member George Worswick writes to The Editor from Bardney, Lincoln :
IN YOUR talk to the Society in June, you asked for members to do research and publish any useful information in the Journal. That is after all the purpose of the Journal. But . . .

In the first issue of the *News Letter*, I asked for assistance with research into " fan disc " or " pinned disc " movements, this being an aspect of mechanical music which is very casually referred to in books. To date, six members have assisted, one of these from abroad. Perhaps members take the words in *The Music Box* more seriously, so I would once again ask members for help.

Another aspect of early music which I would like to follow up is in the " rigid notation " musical movement which appears to have been made only by E Nicole. Can any member help, please ?

The results of the above work would be for publication in *The Music Box*. If anyone is willing to help, would they please write to me. All help will be acknowledged, unless otherwise requested.

Perhaps I should add that though I would personally like to examine, this is not absolutely necessary, as much of the information can be obtained by the owner without parting with his treasure. Rigid notation movements

would require removing from their case, and the comb removed for examination. NO other dismantling. Pinned disc movements should be visible from both sides.

Member Mrs Ruth Bornand writes from The Bornand Music Box Company of Pelham, New York :

I HAVE just received my copy of your new Spring Journal and hasten to send my congratulations to you on same. It is a tremendous improvement in every way, an example of your outstanding efforts on behalf of the MBS of Great Britain as well as America.

Member Jocelyn R Walker writes from Reigate, Surrey :

IN connection with the current series of articles by Mary Kosiarski on the history of the Regina, I should like to pose the possibility of a direct connection, either open or clandestine, between the Regina Company and F G Otto and Sons who produced the beautiful Olympia—a superb example of which I am privileged to have in my charge for the time being.

Let me say in parenthesis that, as with all other worthy items, be they clocks, pictures or any fine things which we have acquired, these irreplacable examples of man's skill are ours for a brief period of their own existence and we should be aware of our responsibilities as their custodians.

To return to Brachhausen and Otto. Who was responsible for setting up the music for the Olympia discs? I have the tune *My Queen* on a 15½ inch Regina disc and an identical setting on one made for the Regina. The two discs can be held up to the light and every hole coincides. They will play simultaneously on the Olympia and Polyphon—both being in the key of G and perfectly in tune.

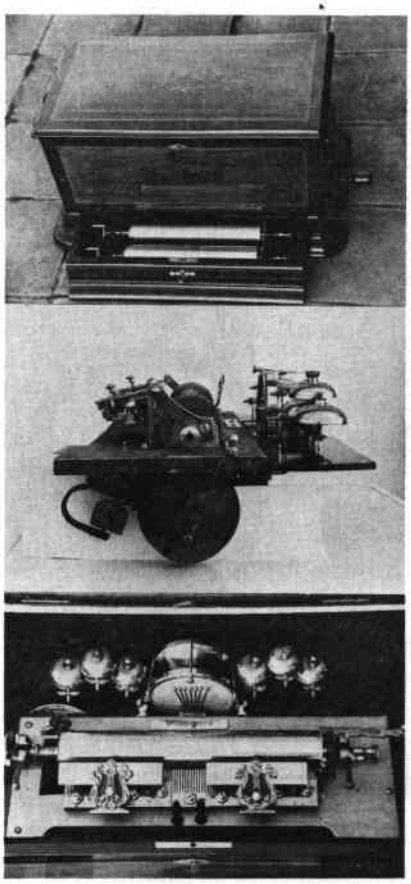
I believe that if either instrument were to have its drive wheel and centre pin modified, the discs would be interchangeable, the combs having the same scale and spacing. This suggests a high degree of collaboration between the producers of these two fine machines which would merit closer investigation or explanation.

Member Jean-Marie Verheggen of Embourg, Belgium, writes :

I AM enclosing three photographs of an unusual musical box. It is a three-cylinder interchangeable, each cylinder being 33 cm (13 inches) long. It is a sublime harmonie orchestral box and the movement is wound with a handle from the right-hand side of the case. The handle turns in an anti-clockwise direction.

All the mechanism, including governor and spring, is fixed under the bedplate as showed in the photographs. Notice the inclined position of the governor.

The box bears the stamped name of Junod.



Jean-Marie Verheggen's pictures (right) reveal a fine specimen of Junod's patent musical movement which has both motor and governor hidden from sight beneath the bedplate.

Book Reviews

A TUNE FOR A TOKEN
Q David Bowers, Token & Medal Society Inc, 79pp, 8½ins (216mm) by 11ins (280mm), illustrated, paper covers, $3.50; £1·65.

One unusual by-product of the mechanical musical instrument era was the manufacture and use of coin-like metal tokens which could be used in place of money to operate the machines. Q David Bowers has compiled a catalogue of some 180-odd such tokens.

Many are for use in mechanical instruments, some in gambling machines. The Harway Music Company's token was a little more commercial, bearing the inscription *Good for $10.00 on new piano or player or $5.00 on new talking machine.* Then there was the simple token bearing on one side *Geo & Joe's place* and on the other *Good for 5c drink or in piano.*

Aside from a lengthy introduction on the history and distribution of American automatic instruments, Bowers manages to inject much related historical material into the body of this little book. Each token is illustrated, most of them shown both sides full size and then twice full size. One, we find, was issued by Peter Bacigalupi's "phonographic arcade". Peter, surely a relation of the famed street organ builders, is quoted commenting on the way pianos were hired on profit-sharing arrangements in various locations.

This book will be of great interest to American members but should not be ignored by members elsewhere if they have an enquiring mind and are fascinated by the way these instruments were used commercially. Of course, tokens were used outside America —Polyphon in the guise of the New Polyphon Supply Company had their own—and later they came into universal use for bar and gambling machines other than mechanical instruments. Bowers stops short of these and gives us purely those he has found relating to music played by mechanism.

The book is available direct from Q David Bowers, Box 1669, Q David Bowers, Box 1669, Beverly Hills, California 90210, USA.

Classified Advertisements

Members : 3p per word (bold type 5p per word). Non-members : 6p per word (bold type 10p per word).
Groups of figures or letters up to six characters count as one word.

FOR SALE

FOR SALE. Various musical box discs of different diameters and types. Details from A C Herweyer, Achterom 5A, Hilversum, Holland.

MEMBERS in the North are reminded that Geoff Worrall, 16 Barber Road, Sheffield S10 1ED, stocks all material, rubber tubing, organ reeds, imported synthetics and adhesives, etc., for the complete restoration of players, and all roll playing mechanical instruments. S.A.E. for list. AH/AD/27

CYLINDER REPINNING SERVICE. A J Colley, Belle Vue Antiques, Kent Road, Congresbury, Nr. Bristol. Tel. Yatton 832220. AH/AD/26

BEAUTIFUL singing bird in cage, 11" high. Brand new, but mechanism similar to originals. Recommended £35. D Shankland, 124 Pencisely Road, Cardiff. AH/AD/31

NICOLE FRERES cylinder musical box number 26543, c. 1845. Movement only — no case. Good working order but needs overhaul and clean. £180. Arthur Ord-Hume, 14 Elmwood Road, Chiswick, London, W.4.

WANTED

MUSICAL mantel or bracket clock playing on the hour. Preferably small and attractive French ormolu type with cylinder in base. Cash purchase or would discuss exchange of cylinder, disc or organ from my collection. Arthur Heap, 51 Station Road, Delamere, Northwich, Cheshire. Tel.: Sandiway 882122. AH/AD/10

LIST OF MEMBERS

894 Mr & Mrs Jack G Hewes, 28655 176th Avenue SE Kent, Washington 98031, USA
895 Mrs Barbara W Baldwin, Flat 13, Esther Porritt House, Trinity Close, Tunbridge Wells, Kent, TN2 3QP
896 Albert Smith, 128 Walton Road, Walton-on-Naze, Essex
897 Peter G Schuhknecht, 3 Hannover - Nettelbeck Str 19, West Germany
898 Yves Rouchaleau, 2930 SW 23rd Ter Apt 23 - 11, Gainesville, Florida 32608, USA
899 J M Beach, Berwin Park, Chobham, Nr Woking, Surrey
900 R H Cooper, "Featherdell", Red Lane, Claygate, Surrey
901 A T Perry, 3511 Bendigo Drive, Palos Verdes Peninsula, California 90274, USA
902 James M Apple, 2551 River Oak Drive, Decatur, Georgia 30033, USA
903 R D Pawlyn, 11 Broughton Avenue, Aylesbury, Buckinghamshire, HP2 1NN
904 Brian Dalkin, 12 Gretna Road, Newcastle-upon-Tyne, NE15 7PE
905 Mrs Freda Gittos, The Double House, Cleeve Hill, Cheltenham, Gloucestershire, GL52 3PR
906 L W Tew-Cragg, 7 Goldsdown Road, Brimsdown, Enfield, Middlesex
907 A D Van Hall, Torenlaan 23, Laren NH, Holland
908 R W Allison, 8 Aldenham Avenue, Radlett, Hertfordshire
909 Alan Bies, 1450 Sue Barnett, Houston, Texas 77018, USA
910 Potty Publications, 33 Ivor Place, London, NW1 6DA
911 George J Cooper, 40 Blair Drive, Milton of Campsie, Glasgow, G65 8DS, Scotland
912 John H Shaylor, 64 Pebworth Road, Harrow, Middlesex, HA1 3UE
913 John Bowes Clarkson, 3 Carrington Avenue, Bellevue Hill, Sydney, Australia 2023
914 John White, 22 Richmond Avenue, Monkstown, Co Dublin, Ireland
915 Mrs Doris R Dalton, Greenbull Cottage, Smeatharpe, Upottery, Devon
916 H Pearce, Holly Cottage, Bourton, Gillingham, Dorset
917 Mr & Mrs A Foster Cooper, 3553 Luke Circle, NW Albuquerque, New Mexico, 87107, USA
918 L Dupon, 616 W Surf Street, Chicago, Illinois, 60657, USA
919 A L Scobie, 9 Loch Lomond Avenue, Unanderra 2526, Australia
920 Roger J Rumble, The Treasure Chest Ltd, 21 Staplegrove Road, Taunton, Somerset
921 Walter S Heebner, Recorded Treasures Inc, PO Box 1278, North Hollywood, California 91604, USA
922 R F Richings, 51 The Grove, London, W5 5DX
923 Leon Black, 21 Broomhill Road, Woodford Green, Essex
924 R J Sparkes, 41 Lime Avenue, Leigh-on-Sea, Essex, SS9 3PA
925 John V H Allen, 23 Hereford Square, London, SW7 4TS
926 Brian Clegg, Garetbry Manor, Shipdham, Thetford, Norfolk
927 Frederick E Scharpenberg, Rt 7, Box 459, Bakersfield, California, USA
928 Arnold Levin, 2835 W North Shore Avenue, Chicago, Illinois 60645, USA
929 Mr & Mrs J Hanulec, 37A Valentine Road, Shoreham, New York 11786, USA
930 John R Bullock, Azabu PO Box 73, Tokyo, Japan

CHANGE OF ADDRESS

25 Alan Ridsdill, c/o J Dawson, Nun-Appleton, Yorkshire
44 Dr Jackson W Fritz, 21 Silverwood Circle, Apt 11, Annapolis, Maryland 21403, USA
245 R W Gibson, 245 E Glenarm, Pasadena, California 91106, USA
269 R W Cornelius, 3 Hardwick Street, Sumner, Christchurch 8, New Zealand
286 J Tempest, 46 Grangethorpe Drive, Burnage, Manchester, M19 2LQ
338 Mr & Mrs W Doke, 505 East 5th Street, Santa Ana, California 92701, USA
470 Lt Col R F Hanson, 1113 South 94 Street, Omaha, Nebraska 68124, USA
516 David Walch, 11 Harford Close, Coombe Dingle, Bristol, BS9 2QD
571 R Burville, 1 Baytree Cottages, The Street, Preston, Nr Wingham, Canterbury, Kent
594 Mr & Mrs D S Wilkes, 71 Princes Street, Cambridge, New Zealand
620 Mrs V White, 4056 Tenango Road, Claremont, California 91711, USA
677 Terry Hathaway, 1717A Stanford Street, Santa Monica, California 90404, USA
719 A Allison, 172 Boreland Drive, Glasgow, G13 3TR, Scotland
795 Mrs M M Hesketh, "Westfield", Pinfold Hill, Curbar, Derbyshire, S30 17L
850 Danny Dekyndt, St Annalaau 94, 9300 Aalst, Belgium

CORRECTION TO ADDRESS

6 Bruce Angrave, 23 Steeles Road, London, NW3
18 D E Lubbock, Coniston, Guildford Road, Leatherhead, Surrey, KT22 9DY
43 Miss C Thompson, 193 Lindsey Street, Epping, Essex, CM16 6RF
145 James H Farr, Clermiston Mains, Fox Covert Grove, Edinburgh, EH12 6XH, Scotland
173 Bernard W Nichols, 50 Richmond Road, New Costessey, Norwich, NR5 0PW
203 Miss Betty-Rose Orman, 9 Mayfields, Wembley Park, Middlesex, HA9 9PW
287 Franklin H Foley, 282 George Street, Belleville, Ontario, Canada, K8N 3H9
377 L C Thompson, 35 Boultham Avenue, Lincoln, LN3 7XZ
415 J G Fox, Coton, Exton, Exeter, Devon, EX3 0PN
495 Claes O Friberg, Mekanisk Musik Museum a/s Vesterbrogade 150, DK-1620, Copenhagen V, Denmark
529 G E Bowman, April Cottage, 24 The Slade, Clophill, Bedford
557 Dr T Radomski, Suite # 200, 2151 McCallum Road, Abbotsford, BC V2S 3N8, Canada
594 Mr & Mrs D S Wilkes, 71 Princes Street, Cambridge, New Zealand
599 John W Thompson, Common Farm, Cranswick, Driffield, North Humberside, YO25 9RD
623 M D Hughes, 93 Hillary Road, Rugby, Warwickshire, CV22 6ET
638 R Ainscoe, 8 Lansdowne Drive, Worsley, Manchester, M28 4EP
719 A Allison, 172 Boreland Drive, Glasgow, G13 3TR, Scotland
787 G Pugh, 1 Brancote Gardens, Bromborough, Wirral, Merseyside

Continued from page 78

One recalls with fondness the many books of lyrical dance music and melodious tunes which were provided for these instruments in the past. Here we are treated to a melange of music such as *Hello Dolly, Tico Tico, The Washington Post, Orpheus in the Underworld* and *I Got Rhythm,* which does scant justice to the capabilities of this fine organ of 1930s vintage.

Not quite my cup of tea, this disc. But if you like a fair organ that sounds like a layman's interpretation of a fair organ, then this record may please you. A O-H

Next Issue

AS well as usual features, THE MUSIC BOX interviews the descendants of the founders of the New Polyphon Supply Company and inspects 75-year-old Polyphon Supply Company and also publishes a history of America's Imperial Symphonion.

Next Meetings

Winter meeting, October 18, 1975, London
Regional meeting, December 6, 1975, Manchester
Regional meeting, March 13-14, 1976, West Cornwall Museum of Mechanical Music, nr. Penzance.

Printed for The Musical Box Society of Great Britain by Thanet Printing Works, Ramsgate, Kent.

A Hearty Scottish Welcome...

TO ALL VISITORS FROM HOME OR ABROAD

To the "KRAZY HOUSE"

MEN'S & BOY'S RETAIL CLOTHING STORE
GLASGOW CROSS, GLASGOW, SCOTLAND.
Tel:- 041 • 552 • 5354

OPEN SEVEN DAYS A WEEK
SUNDAYS FROM 10 a.m. TILL 6 p.m.

THE MOST ECCENTRIC STORE IN SCOTLAND - ONE OF THE "SIGHTS"
MUSIC · DISCO · "GO-GO" GIRLS ON STAGE
MUSICAL INSTRUMENTS · THE LARGEST COLLECTION OF MECHANICAL MUSIC IN SCOTLAND...
STEAM TRAINS · MODEL ENGINEERING · MODEL SOLDIERS · DIORAMAS · COLLECTION OF DOLLS · 'KRAZY' MIRRORS ETC. ETC.
YOU NAME IT - WE HAVE IT - AT THE 'KRAZY HOUSE'
LOOK US UP SOMETIME!

Member Alex Duman

Keith Harding

KEITH HARDING and CLIFF BURNETT

CLOCKS

AND

MUSICAL

BOXES

The Best Boxes

The Best Condition

The Best Prices

The Best

93 Hornsey Road, London N7 6DJ

Telephone : (01-) 607 6181
607 2672