

The Music Box

an international magazine of mechanical music

THE JOURNAL OF THE MUSICAL BOX SOCIETY OF GREAT BRITAIN

Volume 8 Number 5 Spring 1978



COLOUR PICTURES feature Turkish automaton clock and musical boxes plus the Brentford Piano Museum. Main Features: Player Piano overhaul, Robert Richard's automaton, History of the self-playing organ.



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The Music Box

an international magazine of
mechanical music



THE JOURNAL OF THE MUSICAL BOX SOCIETY OF GREAT BRITAIN

The Editor writes. . .

THE first issue of 1978 marks the halfway point in the eighth volume of *The Music Box* or, expressed in broader terms, the 15th year of publication.

Perhaps it is a good idea to take stock of our situation and re-state some hopes which I first put forward a few years ago. Then, it seems, they were passed over.

With a truly world-wide membership which now embraces with equal participation readers who are closely involved with all the many instruments of mechanical music, it might be an idea to consider forming separate project groups within the Society.

The initial nucleus of the MBSOGB was, it turned out, just such a project group devoting its efforts solely to the musical box. From this has come the corporate ability to renew faithfully every part of the musical box, the re-pin cylinders, to make new combs, to make new musical boxes, even.

The work of this section is far from complete and *The Music Box* has yet to publish an authoritative technical article on the manufacture of combs — a point aimed directly at those experts among us who, I am certain, are about to offer such a paper.

But with fair- and show-organ enthusiasts, player and reproducing piano experts and automata masters in our midst, it seems that the Society is well-placed to formulate some further projects as co-operatives among its members.

Here are just a couple of suggestions. A number of people have tried, with varying degrees of success, to make a piano-roll punching machine, either for copying existing rolls or for recording new music melographically from a

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Cover picture: Mortier 101-key dance organ built 1924 stands 26ft wide, 20ft high and 15ft deep. Among the finest of the class of vast architecturally-inspired instruments ever made — no two were exactly alike — this one is called the *Taj Mahal* and has 700 pipes plus percussion and other effects. Hand-carved figures on the front were made in Italy and are larger than life. Presently being rebuilt by Q David Bowers.

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played performance. Why do we not unite some of our undoubted brain-power into designing a simple, practical machine using modern technology?

At the same time, our fair-organ members might like to design a simple book-punching device, or even design a small mechanical organ.

The corporate benefit from such ventures — and any others which members may feel desirable — would be that *The Music Box* could publish the designs for other members to re-create.

The goals so far outlined, then, would be (a) a published design for a piano-roll-punching machine; (b) a published design for an organ book punching machine; and (c) a small, practical mechanical organ.

How could such projects be started? First is needed a co-ordinator — a member who is prepared to act as project secretary and take on the whole business of getting interested parties together.

What is the next stage? Any member who would like to run a project or be involved in the work should write to me and I will publish the name and address and particular interests in the journal. Other members can then get in touch with him direct and take it from there.

I think that involvement in this type of project not only serves to unite membership factions but also reinforces the aims, objects and achievements of our society across the world. This could well be the chance for the members to help one another in a big way.

The Music Box breaks fresh ground this issue with its first-ever colour section. This will now become an occasional bonus feature in subsequent issues.

ARTHUR W J G ORD-HUME

ROBERT RICHARD and the Orange Tree

ON PAGE 102 we published a description of the exotic automaton orange tree singing bird sold by Sotheby's for £90,000 at the infamous Mentmore auction last summer. Since that time, the opportunity has arisen for this very rare piece to be examined more thoroughly. But what is perhaps even more interesting is that its maker, one of the most renowned craftsmen of his time, remained not only unknown to Sotheby's and their advisors, but has been largely ignored by the acknowledged historians on automata. The editor has now had the opportunity to look into the surviving records of the man who preceded Vaucanson and Davrainville as a maker of extraordinary musical automata

WHEN the world's highest price for an automaton was paid in the sale marquee on the lawns of Mentmore Towers last May, the auction catalogue described this celebrated lot in the following terms :—

49 AN EXTREMELY RARE LOUIS XV SINGING BIRD AND ORANGE TREE MUSICAL AUTOMATON BY RICHARD OF PARIS. The movement signed *Richard Rue des prouaires à Paris* and dated 1757, and comprising a small pipe organ of thirteen lead pipes, with fusee and gut, wood bellows and pin barrel with provision for seven tunes, the metal tree enamelled in natural colours with green leaves and gold oranges and enlivened by white Vincennes porcelain orange blossom, the two birds, probably re-feathered later, perched amid the branches. The ground beneath the tree pierced for the music and with four enamel oranges controlling various functions of the mechanism, the movement contained in a square kingwood and tulipwood parquetry tub with shaped trellis work panels on each side, mounted in ormolu chased with flowering scrollwork, a drawer in the base containing the original turned steel crank key, the key hole protected by a swivelling ormolu flower, height overall 27½ in (70cm), tub 11 in square (28cm).

The movement, though in need of cleaning is basically original and in good going order. The first of the oranges on the ground beneath the tree is the stop start lever with facility for continuous playing; the second is for changing the tune or repeating; the third and fourth control the base and treble pipes of the organ so they can be played individually or in unison.

A Robert Richards is recorded as inventor of a mechanical concert shown in an engraving by d'Eisen dated 1769.

This would seem to be one of the earliest surviving singing bird mechanism contemporary with the Shepherd Clock by Pierre Jaquet Droz now in the Royal Palace at Madrid.



See Chapuis et Gelis, *Le Monde des Automates*, Paris 1928, Volume II, pages 85 and 289, and Chapuis & Edmund Droz, *Les Automates*, page 99.

The references to *Les Mondes des Automates* are interesting in that on page 288 of Volume 2 of this Chapuis and Gelis classic is reproduced a copy of an engraving by Charles Eisen showing a mechanical concert created by Robert Richard. What is particularly interesting is that the Chapuis reproduction is a copy of the engraving in a later state. The original, as published in 1769 from de Lengueil's hand, differs from that in Chapuis in two major

details. As first drawn, an *amorino* conducts the music and turns the pages. Upon its head is a torch and immediately above is a hanging candelabra. The later version deletes the torch on the *amorino* and also the candelabra which, it must be confessed, tends to be seen as a strong and irrelevant focal point.

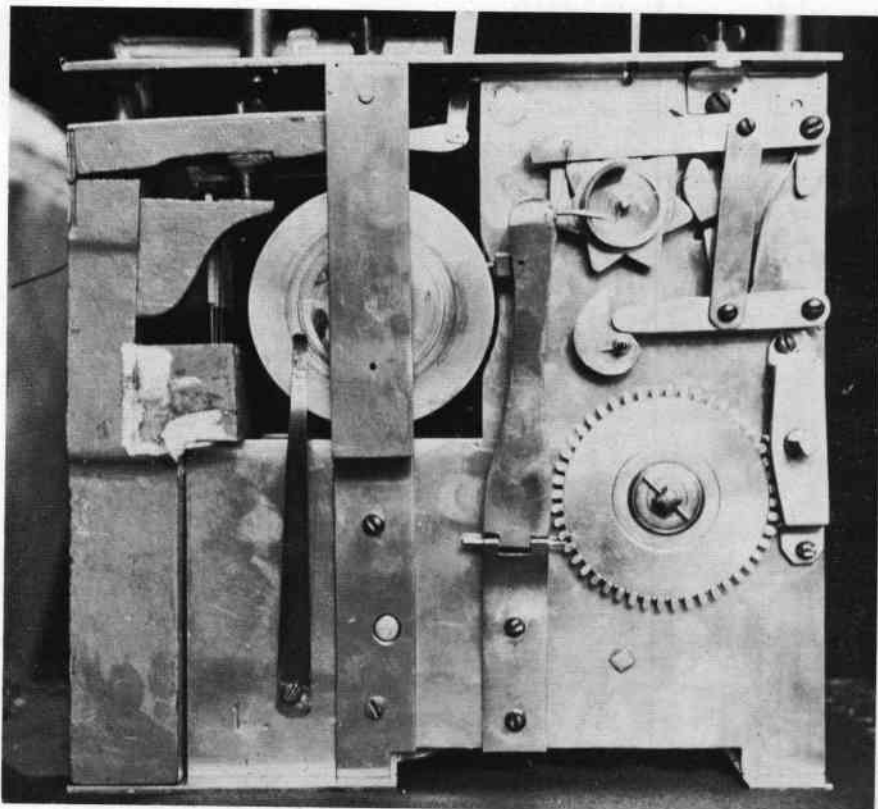
But before looking to the creator of the piece in too great a depth, what about the piece itself. Indeed, what is so strange and rare about this piece. After all, the tree is a bit sparse!

The answer is quite simple. It is one of the very few surviving singing bird mechanisms from that distant era before the wide use of the single bird-whistle with the sliding piston — the "swannee whistle" type. This piece produces its birdsong from a small barrel organ with a set of pipes, keys, stickers and pallets. Instead of the free and infinitely random pitch attainable with the later mechanisms (which allowed extreme compactness and controlled note pitch and duration by the simple expedient of a minimum of two cam wheels), this one whistles within the constraints of an established scale.

The dimensions of the piece, when removed from its outer decorative case, are 9ins by 9ins by 8ins high (229mm × 229mm × 203mm). The barrel has a diameter of 2.5ins (64mm). This is made of wood with a brass disc fixed to the powered end, and the surface of the barrel is covered with gold-painted paper. There are two keyframes of unequal length. These are made of wood and attached to the back of the mechanism with four relatively large back-flap hinges, two to each keyframe.

Taking the powered end of the mechanism (the end where the motor is) as a datum, the first, shorter keyframe controls five notes represented by metal pipes with soldered, closed ends. These are, of course, ear-tuned, and assuming the key of C, the notes are G, C, D, E, F. They produce a pleasant, flute-like sound.

The second keyframe controls eight notes represented again by



metal pipes, this time open and speaking an octave higher. Again assuming they are in the key of C, the notes are G, B, c, d, e, f, g, a. The sound of these pipes is not so agreeable.

The pipes are all open-foot voiced in true serinette-fashion, and all have the same physical length, the languid-to-top distance varying as a proportion of the total foot-to-top length. An odd characteristic is that the pipes appear to be all of the same or similar scale width. Properly-scaled pipes remain in proportion as regards the diameter of the pipe at the languid as a part of the speaking length.

The keyframes, besides carrying keys for the musical notes, each carry two extra keys at their adjacent extremities (i.e., the right end of the left one and the left end of the right one). These keys are operated by special projections on the barrel and serve to move the birds. More on these keys and the birds anon.

As for the tunes played, there are seven which are largely bird-like trills and neither recognisable nor, it must be said, very much like birdsong. This shortcoming may have developed over the 221 years since it left its maker's hands. The two sets of pipes are not on sliders, of course, but can be controlled to play individually, alternately or together by the key-frame control which simply raises or lowers one or the other, or both

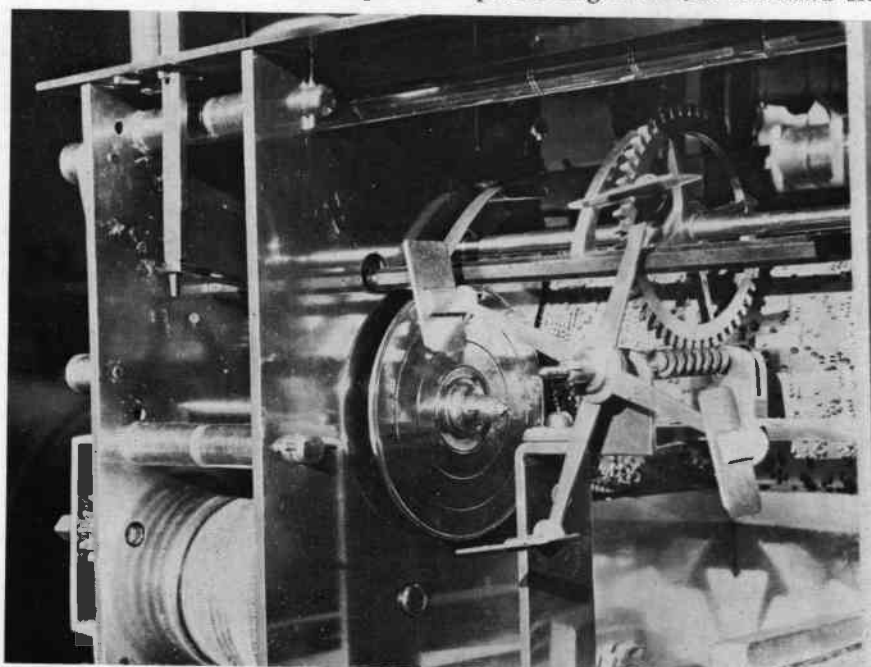
sets of keys. It will be apparent that keyframe disengagement must also disengage the particular bird controlled by that keyframe.

With both keyframes in the playing position, there appears little harmonisation of one set of pipes with the other.

The movement is created very simply and will be described in detail with reference to the illustrations. Winding is by means of a pinion-wound wooden fusee with a gut line, now replaced by a braided nylon line. Tune changing is by means of a seven-point

star wheel carrying a snail cam. Riding the surface of this cam is a cross pin projecting from a hinged strap which carries a second cross pin engaging on the inner rim of the barrel's brass end plate. As the cam snail is rotated, so this mechanism pushes the barrel to the left against a long, slender steel leaf spring. This spring, acting through the barrel, is indirectly responsible for maintaining the cross pin in contact with the snail.

Arranged so as to engage with the star wheel is a pivotted cross lever terminating in a simple spring-loaded pawl. This lever is linked by a link to a second pivotted lever mounted below it and suffered to be in communication with a planar snail cam which will raise the tune-change pawl during playing and prepare it for the instruction to repeat or change the tune. The link between the two pivotted levers also connects, at its lower end, with a curved, cranked link which is held in contact with an arm on the stop-start shaft. This shaft, of hexagonal cross-section, carries three further arms along its length. The first, situated in the portion between the motor plates, is connected to the stop/start control. The second is a follower which traces the circumference of a large brass disc on the outer face of the inner or right-hand motor plate. This disc is the same diameter as the barrel and makes one revolution with the barrel and, of course, has a suitably-sited drop. The third lever is the necessary detent which engages with a cross-pin protruding from the left-hand side



of the endless screw driving wheel.

The endless screw is arranged horizontally and at ninety degrees to the plane of the remainder of the wheelwork. It is driven inwards towards the barrel, so allowing the four-armed fan spider to overhang the outer bearing. The arms of the spider mount the usual type of swivellable air vane. The thrusts of the screw is taken by a steel plate on the double bracket which locates and supports the inner end of the screw.

Wind is provided by twin feeders to a weighted reservoir with a cross relief pallet on the top. The bellows department extends the full depth of the mechanism under the barrel.

Reverting to the two birds, the four keys on the keyframes which control them, and their functions, one anomaly is that each bird has but one control. Both beak and wings are contrived to move from

one wire. The birds, incidentally, appear original. This means that each keyframe carries what would appear to be one redundant key, an unlikely situation which may have come about as a result of a much earlier overhaul.

Four operational modes

The unusual arrangement of the controls means that the piece has a choice of four conditions of motion; (a) clockwork in operation, both keyframes lifted, no sound or bird movement; (b) one keyframe engaged and one bird in operation; (c) the other keyframe engaged and the other bird in operation; (d) both keyframes engaged and both birds in operation. Both keyframes have their own controlling "oranges" on the tree plinth.

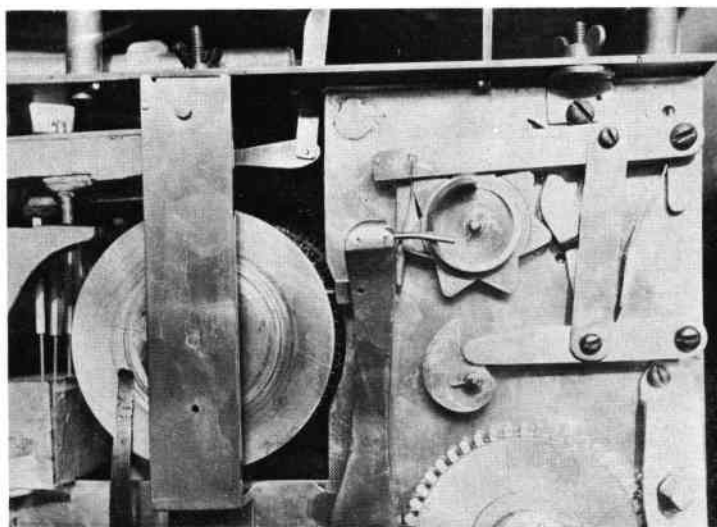
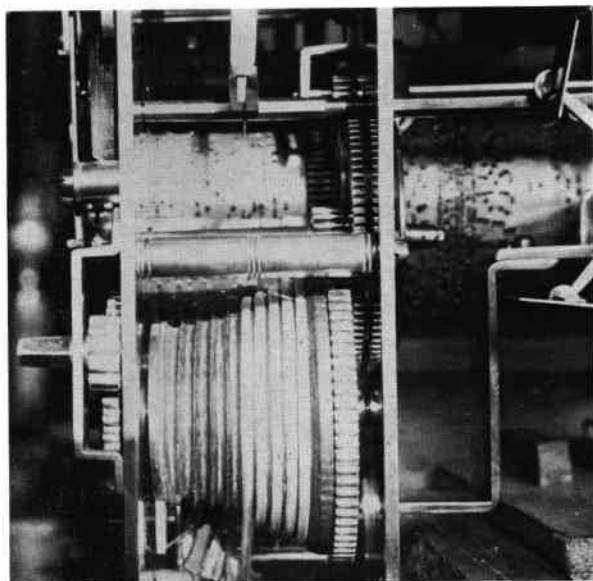
Certainly the piece operates a long while on one winding. If left to its own devices, it probably

remains in motion for up to 10 minutes.

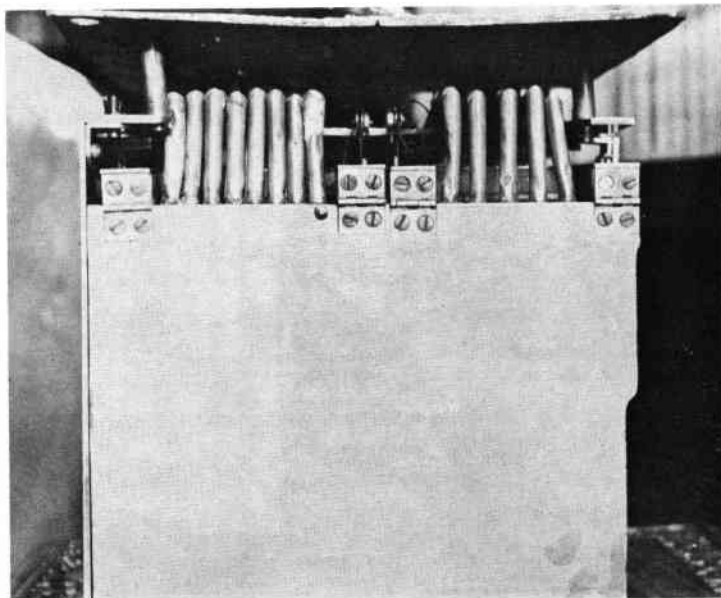
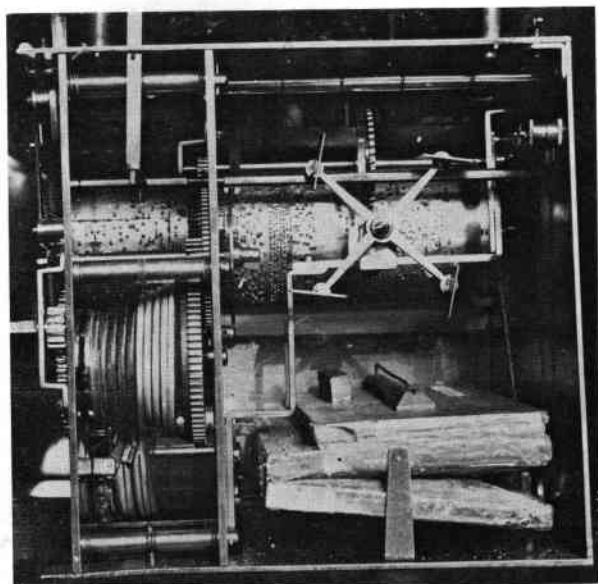
The bellows boards, the organ itself and the panel of wood at the back of the organ (to which the keyframe hinges are screwed) are painted a kind of orange/red colour.

So much for the instrument. What about its maker? In the Editor's library, a work entitled *Les Facteurs d'Instruments de Musique, les Luthiers et la Facture Instrumentale* compiled by Constant Pierre and published in Paris in 1893 provided most of the answers (vide pages 29, 81, 96, 97, 156 therein). Other information comes from *Tableau de Paris* (1759, p 212), *Traité Général des Elements du Chant* (1766), and *Almanach Dauphin* for the years 1772-77.

During the first half of the 18th century, the musical instrument makers of France pressed Louis XIV to allow them to establish what, in England would have been



Details of the mechanism. View on the back of the organ (below) shows the four hinges which secure the two keyframes.



termed a chartered Guild. After multifarious difficulties, the Guild was formed as La Communauté des Maîtres faiseurs d'Instruments de Musique on November 23, 1744. Its first Master (Juré-Comptable) was Jean Galland, a manufacturer of lutes who remained in business at rue St-Honoré until 1779. Galland was Robert Richard's father-in-law since just before 1744 one of his daughters married Richard.

Turning to Pierre, he writes:

Robert Richard appears to have concentrated more on small instruments than large organs. He followed a long career from 1744 until he was made *Juré-Comptable* (Master of the Guild—this was in 1758-59). More talented than his colleagues, he was able to call attention to his work and thanks to advertisements appearing in various newspapers we can trace some of his career.

In the *Tableaux de Paris* for 1759 appears:

Mr Richard the competent mechanic known by many hydraulic machines has obtained a studio at the King's Library where he has established his workmen for the construction of his pieces: he makes serinettes. It is he who following the ideas and orders of the Count of St-Florentin made that marvellous mechanical work which can be seen in a room of the minister's office. In this machine one can admire the figure of a child who plays several flute tunes with the greatest possible precision. This automaton is accompanied by two birds, also automaton, perched on branches, who sing their parts with a beak movement so perfect that one can distinguish both full tones and semi-tones. The trio is accompanied by a continuo organ.

Robert Richard devised a type of mechanism in conformity with a specification published by the Abbe Laccassagne in his *Traité Général des Elements du Chant* of 1766 which he suggested as a means "to learn music without the help of a teacher". According to Pierre, this instrument served to identify notes to be played while a second function was described as a metronome to determine "des différentes mesures tant à deux qu'à trois divisions".

"It was not without reason", says Pierre, "that the *Almanac* of 1769 wrote these words after the name of Richard: 'Celebrated for various pieces of mechanism and notably for all sorts of types of organs and serinettes', for the piece in question here excited the admiration (of many)".

In the *Dauphin Almanac* of 1772-77, it is written that:

Richard, of the old Louvre, is worthy of emulating the celebrated Vaucanson and is one of the most accomplished artists in Europe in making organs, serinettes and *vielles organisées*. He has just made in this capital with the greatest success in a room of the King's Library a mechanical concert of four automaton figures of which one plays a violin, another the flute, and a third who plays the clavicin while a cupid conducts and turns the music sheets. One does not know how to give enough praise to the artist who is as modest as he is learned and whose productions earn so much honour to the inventive genius of the nation.

The piece referred to above is

the mechanical concert which is the subject of Eisen's engraving of 1769. Significantly, there is a major discrepancy between the *Almanac's* description and Eisen's engraving. The description refers to a violinist, a flautist, a pianist and a conductor, yet the engraving reveals another instrumentalist—a player on the violincello or gamba. The fate of the whole tableau is unknown.

Richard, who made the orange tree in 1757—the year before he became *Juré-Comptable*—seems now to fade from the scene. Between the years 1783 and 1789 the almanacs make mention of a J Robert Richard who was probably his son. As for the Guild, subsequent Masters included such famous men as Benoit Fleury, Louis-Alexandre Cliquot (and, later, Henry Cliquot), Prudent Thierriot and Pascal-Joseph Taskin.

Regarding the acclaimed mastery of the barrel organ in France, this role was to be assumed by Jean-Henry Davrainville and, subsequently, by his sons.

Since this article was written, Helen Fitch has published a copy of the original Eisen engraving along with a translation of Chapuis and Gelis' relevant paragraphs. This appears on pp. 241-244 of *The Bulletin* of the MBSI, Vol XXIII Number 3. For their assistance with the present article, the author thanks Dr Robert Burnett and Peter D Ward.

Tips from the Experts

WHEN repairing a cylinder musical box, and the mechanism and case are repaired and presentable, one is often left wondering what to do about a tattered and torn tune sheet. It can be "backed" by glueing on the back surface a piece of thin card. This should be bigger than the tune sheet. When the glue is set, trim the card on a wooden cutting board with a sharp knife and straight edge. If the edges of the tune sheet are a bit "dog-eared" and there is a wide border on, cut back the edges slightly, and the backing to suit. Do not chiggle with the knife, make one stroke, aiming to cut through the card and into the cutting board. Cut with the grain of the wood. If there is a corner of the tune sheet missing, make up the missing piece, with card of the same thickness, and glue on to the backing piece. When dry, trim and in the design, by using watercolour paints, applied with a small paint-

Trim and Tidy Those Torn and Tattered Tune-sheets

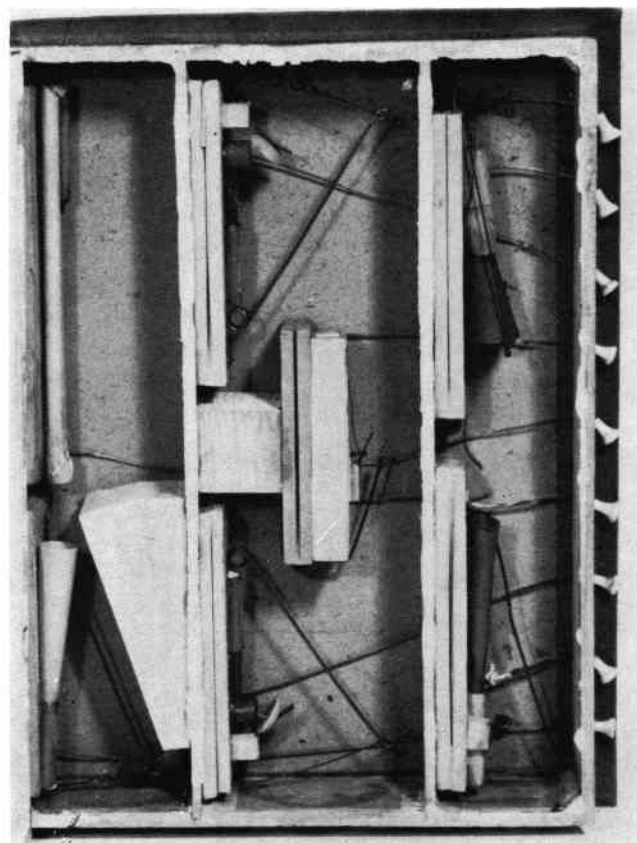
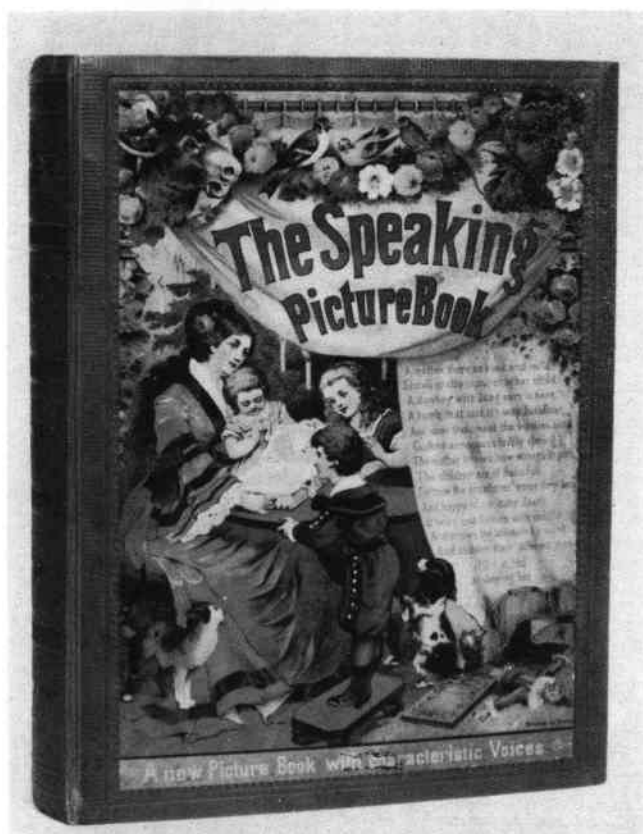
says Jim Hall

brush. Sometimes the tune sheet is missing altogether, and one likes to provide one, and if possible name the tunes. Mr Lubbock has done an admirable job in reproducing tune sheets, and adds to his list from time to time. Fairly often a box comes to light where there is no tune sheet, and the maker is a bit of a mystery, or one knows the make, but there is no reproduction tune sheet to suit. The size of the sheet can sometimes be ascertained by the holes which the pins of the original one made.

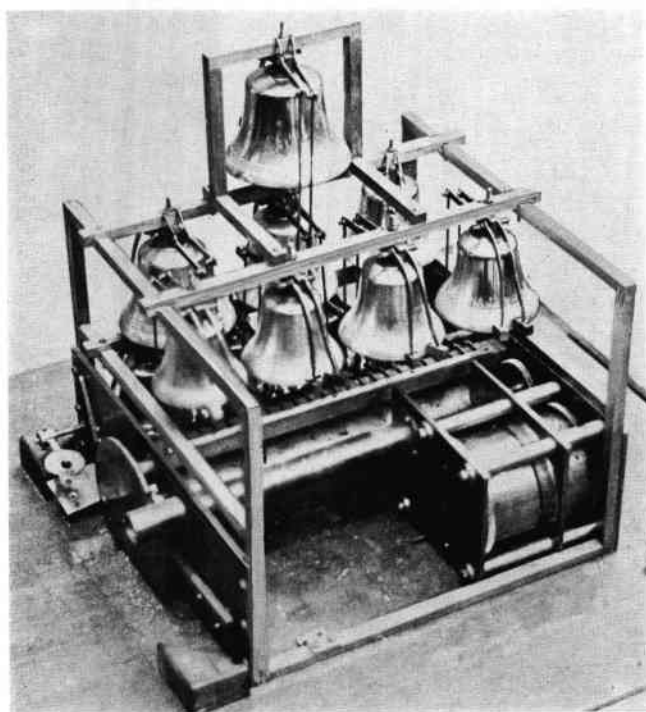
Coloured card can be cut to suit the size, and if this looks rather plain, can be improved upon by drawing in a straight line or two just in from the edges. I think this is preferable to fixing a spurious

tune sheet. I have seen a cheap three bell box with a new Nicole Freres tune sheet, and another with a reproduction Bremond sheet. I think there is room for a nondescript tune sheet (with frilly willies, etc) designed and produced in a range of sizes to cover most requirements. This sheet by its design would be instantly recognisable to our members as a replacement sheet. It would be better than a home-made sheet, to set the box off, and add the finishing touch, and certainly better than putting a reproduction sheet of a known maker, on a box where the maker is unknown. This sheet could be replaced if the musical box was identified later and a suitable tune sheet available.

Books to be listened to . . .



Many of the musical and automaton novelties which were made as children's amusements and toys have been destroyed. Of all the tens of thousands of manivelles made, for example, very few survive in good condition. Probably even rarer is the Speaking Picture Book. One was illustrated, with its title page, on pages 378 and 379 of Volume 2. This one, from Keith Harding, has survived in mint condition. Invented in Germany somewhere around 1885, the book has eight colour-printed card pages, each with a picture of an animal. By pulling the indicated cord on the front edge of the book, the voice of that animal is reproduced. Sounds are the cock, donkey, lamb, birds, cow, cuckoo, goat — and baby (ma-ma and da-da). All are produced by the clever use of bellows, springs and vibrators.



TITANIA'S BELLS

THE King Street, St James's rooms of London auctioneers Christie, Manson & Woods were the scene of a rather remarkable event early in January when a special auction was held. There was just one lot for sale, but a lot comprising so many individual items that the catalogue ran to 32 pages.

For this was the sale of the world's largest — and unquestionably most expensive — doll's house. Called Titania's Palace, it took 15 years to build between 1907 and 1922. The work of Major Sir Nevile Wilkinson, KCVO (1869-1940), it was conceived on a grand scale as a fund-raiser for children's charities. But the workmanship which went into its realisation elevated this far above the realms of any other doll's house in the world.

Built to a scale of one inch to one foot (1:12), it measures 116in (294cm) long; 90in (228cm) wide; and the main bulk is 30in (76cm) in height. It houses a fabulous collection of miniature works of art including all the ephemera of a real home such as packs of cards, newspapers — and mice! Wired for electricity throughout, table lamps are actually plugged into tiny wall power sockets.

The chapel contains a real pipe organ 13½in (34.3cm) high which can be played from the keys using a matchstick. And in the front hall there is a Swiss gold mechanical oval fountain just 2½in (64cm) high. This piece, dating from the 18th century, is just one of many items of genuine antique work to be found in this delightful creation — some go back to the 16th century.

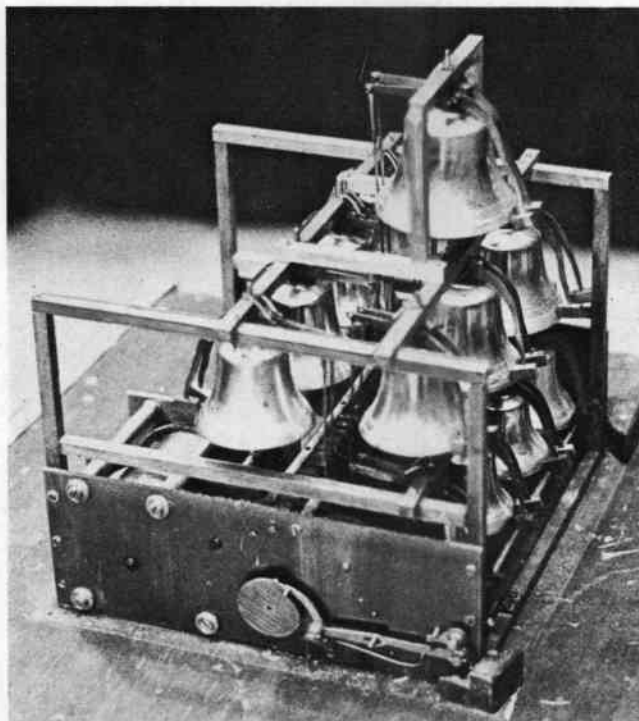
But the feature which concerns us here is the clock-work carillon. It is housed in a cupola intended to be topped by a belfry designed by the architect Sir Edward Lutyens after that of the church of St George's, Hanover Square. However, in truth the carillon was considered too heavy for the tower of the house and so its place on the roof is taken by the crowning belfry, while the cupola top and its special stand form a separate adjunct to the house. Coin-operated formerly by a sixpence in real money and now by a new penny in decimated currency, this piece plays six tunes. By courtesy of Christie's, *The Music Box* was permitted to examine this portion in some detail.

The most important feature of this mechanism is that instead of playing the familiar hemispherical bells, it plays a set of real bells of the type made by the Whitechapel Bell Foundry which are suspended and struck externally by a proper bell-hammer and linkage. There are 12 bells carefully graded and arranged in a neat and functional brass space frame. Each bell is struck by two hammers and each bell bears a name. The lowest is Titania and others include Oberon and Puck.

The carillon mechanism is a somewhat surprising mixture of fine crafting and less skilful work. Six tunes are played and they are sequenced one after the other: there is no facility for repeat or select. The tunes, in order of pinning, are *God Save the King*, *The Evening Hymn*, *Auld Lang Syne*, *Robin Adair*, *Annie Laurie* and *Rule Britannia*. The change snail is interesting in that it comprises a pack of six steel washers, each one cut away at the necessary part to create a change step. The musical arrangements are simple but effective — the *Evening Hymn* is particularly fine — but it appears that they were pricked with no knowledge of the correct method of arranging so that the tune should account for one revolution of the barrel — there is a lot of plain barrel to turn in silence at the end of some of the tunes. Barrel pins are brass and the barrel is hollow. Keyframe keys are steel.

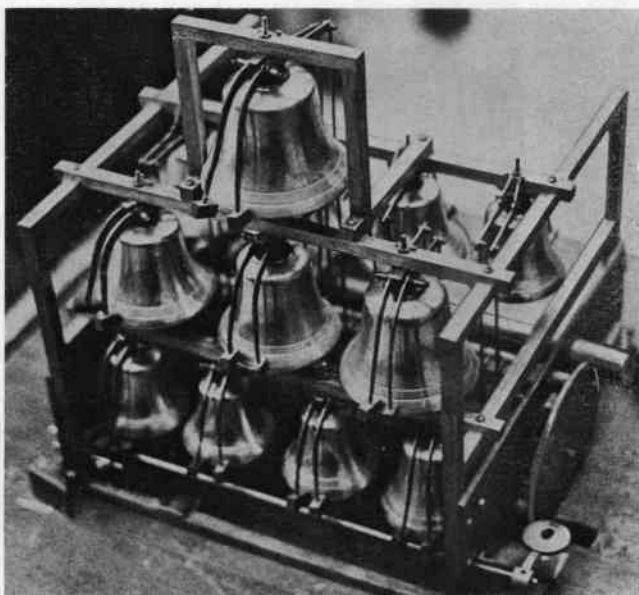
Power comes from a pair of co-axial spring-barrels pinion-wound through a long guide-tube to the outside of the tower — this original key is lost. The motors are arranged in a workmanlike way between heavy brass plates with turned pillars, power being transferred to a rather effete gramophone-type governor mounted under the smallest bell.

Some characteristics of the mechanism appear earlier than the whole. The keyframe, for example, is early 19th century in appearance and may have come from a musical clock. Indeed, there is the



probability that certain other components hailed from an earlier mechanism. As it is, the carillon is not historically of much interest, but it does afford an example of some enterprising thinking on the part of its maker.

Estimated to make between £50,000 and £60,000, Titania's Palace, which has toured the world since its opening by Queen Mary in July, 1922, was sold for a staggering £135,000. The auction lasted 90 seconds. Inclusive of Christie's buyers' premium on the hammer price plus Value Added Tax, the all-in price was £160,380. Buyer was London dealer Spink & Son for a client who turns out to be the makers of Lego building bricks — Denmark's Legoland which already owns one of the finest dolls and dolls house collections in the world. Titania's Palace will be the centre piece of this permanent Jutland exhibition.



HISTORY OF THE ORGAN

by Brian Oram

WHEN invited to contribute a series of articles on the organ of the ancients, particularly investigating their automata, it was obvious to me that one must start at the beginning.

To give background to the ancient world, my own travels have given me a greater insight into a vibrant society of city states and empires, the inhabitants of which are little different from ourselves, excepting that they believed in their gods. The conclusions I have drawn do not necessarily agree with the beliefs of modern students, nor with statements made by Greek and Roman authors. What started in my view as nothing more than a war machine and has today become a highly complex musical instrument is so sweeping a statement that it obviously needs more than just mere passing comment.

Those of us who painstakingly translated Caesar or Thucydides in our youth no doubt gained the impression that the ancients had no other occupation than making war. It would have surprised us, even though we had heard stories about the Rape of the Sabine Women and other frivolities so well portrayed in the BBC TV serial *I, Claudius*, to perceive that pictorial art and music were as commonplace as today.

Wars there were and they were just as destructive as those of today. The Victorians instilled a martial outlook into their children. Certainly following the "three Rs", the better educated boys were mainly required by society to follow a Service career or enter the Church, while their hobbies centered round hunting, poetry, dabbling with the paint brush, and probably a passable ability on a musical instrument. A few, either by design or accident, pursued the Arts freely.

We learned geometrical proofs and algebra, sometimes prefixed by the name of a Greek mathematician. Who had heard of Pheidias (born circa 500 BC) the Athenian sculptor of the Parthenon and the statue of Zeus at Olympia? His drinking cup only is complete. "I belong to Pheidias" is a clarion call to all clerks of works and foremen of today having trouble with their minions using their mugs. . .

WITHOUT doubt, the first self-playing musical instruments were wind-operated. These were based on the flute, forerunner of the organ. The historians of the organ have all traced back to the famous Muristus manuscript which appears to describe the use of "The Great Organ with the Loud Voice". But, asks Brian Oram, was this a musical instrument or an advanced weapon of war which was so devastating that its use was discontinued? Was this Horn of Alexander the equivalent of the atom bomb to the ancient Greeks? This is the first part of a treatise which relates today's automatic organ with that of two thousand years ago.

The cities of the Ancient World were no mean places. Athens was small compared with Ephesus, Miletus, Perge (Perga), Memphis or Persaepolis. Ephesus at the time of St Paul had a population of 750,000 freemen who each owned an average of six slaves. The city was the abode of over 5,000,000 people, and the extent of the ruins indicate an even higher population. Many slaves were well educated and respected people in their own right. Few public lavatories today can boast that they could seat 40 people "in consortium".

Science among the Gods

Trade was the preoccupation of the nations and, as today, the states controlled areas suitable to their economy. Wealth was accumulated, but destruction was only used to subdue an adversary.

Being sustained by slaves, which is not dissimilar today in mass-production factories, the nations thrived with their other preoccupation, the propitiation of their gods. Music played an essential part in the devotions as indeed it still does, and no doubt there were popular songs and secular dances, although none has survived except as fragments of paeans to the gods.

The ancients lacked little that we do not have today, although some scientific thought was not pursued. The principles of moving heavy objects were known and practiced particularly in Egypt where there was no slavery. The people, instead of paying taxes, spent the period of the Inundation in public building projects. In Persia was found, since the 1939-45 war, some rectangular jars which were internally glazed and containing metal plates. Exact replicas were made which, when filled with an electrolyte, produced 1.75 volts. A type of Wimshurst machine was found in Egypt (from recollection at Thebes). The *Book of Ezekiel* indicates a type of flying machine and actual flying model birds have been found in Egyptian tombs.

What about music, the most natural of all arts and sciences? The lyre, harp, flute (usually double) and drum are well documented in the *Bible* but those whose zeal makes translations of the Hebrew word *ugab* for the organ can not, at the moment, be accepted. In ancient texts the word variously termed *organum* indicates almost any musical instrument, and is always prefixed with an additional term denoting the type of *organum*. Thus we obtain a pedantic translation "the musical instrument the flute", but no such distinction was made to the player. Later the term was applied to the organ as a musical instrument because of its ability to produce so many different tonal qualities.

The origins of the organ are no longer lost in the depths of forgotten history. From Charles Burney's *Music, Men and Manners in France and Italy, 1770*, we know of a number of mainly Italian gentlemen who made great efforts to find out about the ancient musical instruments, and large numbers of *sistra** are noted.

All practical knowledge of the ancient organ was lost until a terracotta lamp in the shape of an organ was found in 1885 at Carthage, and now dated to mid-2nd century AD. Another lamp can be seen at the British Museum in the

*The *systrum* was a type of rattle used, according to Ovid, in the worship of Isis.

Roman section which has similar date and source. The comments by Vitruvius and Hero on organs were very largely discounted even by George Ashdown Audsley in his work *The Art of Organ Building*, first published in 1905.

The pre-history of the organ is almost certainly based on the *Syrinx* or Pan pipes, although an early mechanical flute has been noted. Both the syrx and bag-pipes were well known in Greece from very early days, and perhaps go back to Minoan Crete or earlier. They were the musical instruments of the ordinary folk. The syrx had stopped pipes of different lengths usually arranged in two banks of seven or nine pipes, being played upside-down and blown over the top. The modern equivalent would be the piccolo pipes of Ruth and Bruder mechanical organs.

Then in about October of the year 356 BC was born Alexander the Great of Macedon, a city state in Northern Greece.

Philip, his father, had bequeathed Alexander a highly disciplined army with which he secured his northern frontier (roughly Southern Rumania) and, having brought all the Greek states within his control, he started his Asian campaign. Flavius Arrianus (2nd century AD) wrote the *Anabasis* (Journey up Country), being the only extent erudite history of Alexander's conquests. It confines itself to tactical movements, strategy and politics without too much miscellaneous detail.

It seems that Alexander's original intention was to capture Cyrus and finally stop Persian incursion into Greece, but the campaign became out of hand for he finished on the Hyphasis, an eastern tributary of the River Indus, with his Greek troops more or less in mutiny.

A deadly weapon ?

Wars allow inventors and scientists *carte blanche* to produce even more destructive weapons. My hypothesis is that the invention of a war machine of such a destructive nature that it was abandoned, was based on the Muristus Manuscript (MS OR9649) associated with an experiment made by Jean Perrot.

The Muristus Manuscript is from Syrian sources of an unknown earlier translation which states in English:

Muristus says: The Greeks carried this instrument with them to War, for their Country was surrounded by enemies. . . . and they sounded this instrument which is the Great Organ nicknamed "The Great Organ

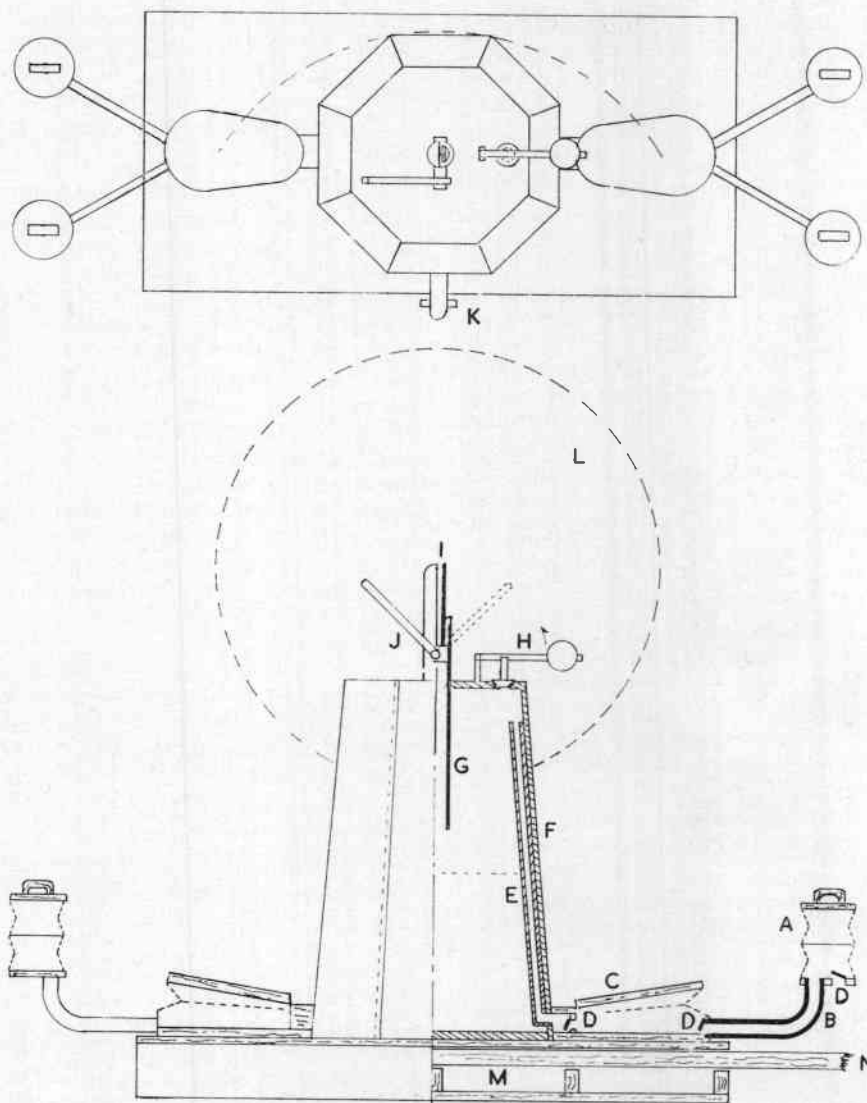


Figure 1. The Great Organ or Horn of Alexander. Key: (A) four hand bellows, wood and leather; (B) four flexible pipes, leather; (C) intermediate reservoir/bellows, wood and leather; (D) non-return valves, wood and leather; (E) pipe to top of cistern, copper; (F) cistern totally closed, bronze; (G) outlet tube, bronze; (H) safety valve, bronze; (I) reed; (J) manual control valve; (K) drain cock, bronze; (L) possible sound reflector (not specifically mentioned); (M) base mounting; (N) lifting bars.

with the Loud Voice" because its sound carries for sixty miles.

Elsewhere it was called the Horn of Alexander. The translation is awkward as if the writer did not know what he was describing, but within the manuscript is a drawing which is far more lucid. This is shown in Fig 1 according to my interpolation. The parts are as far as possible like the original manuscript with the necessary additions to make it work.

Perrot commented when he built a *Hydraulikon* (water organ) with water pressure at 30 cms (about 11½ inches) "Un tuyau de trompette placé directement sur le tube de l'un des robinets retentit avec éclat assourdissant", which reasonably translated, "A trumpet pipe set direct onto a single opening of the sound board makes a deafen-

ing roar". In effect Perrot reproduces the manuscript result at a low pressure.

Blacksmith bellows had been known for at least 1,000 years before Alexander and had been used for smelting and forging iron in the Hittite Empire.

Fig 1 shows four small hand bellows, not unlike those used today for blowing up air mattresses, with a non-return valve of wood and leather and held in position by a bone spring. Two intermediate reservoir-cum-bellows also with a non-return valve which would be depressed by the weight of the two pairs of blowers and thus a system of hand and weight pumping into the main reservoir until a Salter type safety valve started to open. The safety valve might also have been used to fill

the main reservoir with water to give long or short blasts for there is a drain cock, or perhaps it was used to drain condensate. On top and centrally mounted is a tube the inlet of which is about mid-centre of the main receiver presumably to stop "hammering". Outside and on top of the reservoir would be a manual valve or stop cock with probably a large free-standing reed similar to the regal in the Mander collection. There is no reason why a pressure of two atmospheres (about 30 psi) could not be obtained. It would only require that the intermediate bellows be made small enough for the weight of two average men to depress. Thirty psi is equivalent to 720 inches of water!

Destruction by decibel

A comparison can be made with one of my mechanical organs which runs on $4\frac{1}{2}$ inches water and is probably only 60% efficient for various reasons. This organ produces sound at a volume of 86 decibels. Pain to the human ear is 130 decibels.

Maybe only two or three of these machines were built but the result was devastating and remembered. Perhaps in 200 years the devastation of the nuclear bombs on Japan will be similarly remembered.

The ancient Egyptians believed that Thoth (Hermes) gave music to mankind. In sculpture he is shown with the head of an ibex on a human body. The diatonic scale fulfilled the function of religious matters and was known long before Pythagoras (500 BC) made his investigations. This is a mathematical and natural scale.

By stretching a string and dividing it equally, the octave is produced. Divided into three parts and with $\frac{2}{3}$ plucked, it produces the fifth. Divide into four and allow $\frac{3}{4}$ to vibrate it gives the fourth. Divide into five parts and $\frac{4}{5}$ produces the major third, and $\frac{3}{5}$ the sixth.

This is as far as Pythagoras went perhaps because he had produced the magic number of seven notes.

However the chromatic scale was not unknown, but this has certain inherent snags in that, for example, A# is not Bb. The problem was not solved for us until the French government issued an edict which not only gave the frequency of A but also the intervals. Bach recognised the inhibitions of the diatonic scale and tuned his harpsichord to even temperament so that we have his 48 Preludes

and Fugues "for the Well-Tuned Clavier". Some later Roman graffiti and terra cotta models of organs indicate a larger number than twelve notes for a chromatic octave.

When a hypothesis is being evaluated, all matters have to be considered, and so it is with the early development of the organ and musical automata. Statements made by writers, in most cases, refer to earlier comments. It is true that there is the lunatic fringe starting with Geoffery of Monmouth who establish an idea upon which many theories depend. An additional hazard for any commentator is the ability to interpret and understand language. We are all the prisoners of our own language, and even if we know another well, we may not be able to translate exactly. Thus we have a situation where Arabic (Syriac) translations of Latin have Greek notes and words interpolated, which notes may themselves be inadequate translations from ancient Egyptian. Copyists also make mistakes, particularly in Arabic.

Much of our information on automata, the water organ and music is enclosed within *The Ten Books on Architecture* by Marcus Vitruvius Pollio who lived about the time of Augustus Caesar. His comments on incompetent contractors has an all-too familiar ring today, but muddled with ballistae, lifting tackle, siege engines and the like, there are descriptions of a Hydraulikon (water organ), a water clock with gadgets, and a cylinder pump. He digresses into music when dealing with catapults and the theatre. Palladio extended Vitruvius' work.

Talking statues

Alexandria had been founded some 50 years when a barber's son named Ktesibios was born. The city would be in its initial building with scaffolding all over the place, whilst the museum and library would hardly have been completed. He lived in a land full of the mumbo jumbo of the ancient religion of Amon which used automata to induce the fear of the supernatural into the populace. This old religion would soon be replaced by that of Isis. A statue at Thebes was said to speak every morning. This was a statue cut from a porous stone in which the cold night air rushed out when the stone was heated by the sun's rays causing unclassified whistles. There are references to supernatural lights in the temples (simple elec-

tricity perhaps?), statues which moved, and although some might be flights of fancy others were not. Nothing remains, for these were all destroyed by St Augustine, a latter day Bishop of Alexandria and who incidentally seems to have been the prime cause of North Africa and Palestine becoming Moslem through his puritanical zeal and meddling in politics. The Arabs appear to have been accepted as liberators.

Ktesibios lived during the reign of Ptolomy Philadelphus (285-246 BC). Philadelphus, besides having many brilliant mistresses who helped and advised him with his projects and establishing the Ptolomaic Rule in Egypt, increased the number of books in the library from 200,000 to 400,000 volumes, and used his interest to further science and learning. Ktesibios was right at the heart of ancient science and knowledge.

Unsurpassed engineer

Although his commentaries have been lost, as with some 90% of Greek and Roman books, Ktesibios is mentioned by name by Vitruvius and Athenaeus besides a number of lesser writers. He was by far the finest hydraulics and pneumatics engineer of his time and, indeed, his achievements remained unsurpassed until fairly modern times.

As a hydraulics engineer, much of his work would revolve around the provision of efficient water supplies, particularly in Egypt where life itself depended upon irrigation. Like many scientists, he seems to have been something of a dabbler when left to his own devices.

To the ancients, his most useful invention was an automatic water clock accurate for the whole year. To us it seems strange that the ancients divided the day into 12 hours daylight and 12 hours darkness; the 12 hour periods being between the rising and setting of the sun with the result that the division of the hour was the same on only two days in a year. Most automata worked on the flow of water through a known sized hole being cut either in gold or a gemstone apparently to stop calcifying. The clock used a rack and pinion to regulate water into a tube. From the prime mover other motions could be set going such as "moving figures, revolving cones, allowed pebbles or eggs to fall, and other incidental effects to take place". Perhaps our 12 hour watches and clocks are an ana-

chronism from days long past.

Vitruvius' Book X Chapter 7 describes a single-acting water pump which had two bronze cylinders being connected to a large central cistern with a cone-shaped top. The outlet of which was called the trumpet (the Horn of Alexander again). Water was pumped into the cistern and ejected from it by the compression of the air within it. It is understood that the same system was used for fire pumps in England at least until the 19th century. One of these pumps (incomplete) was found at Silchester, a Roman town about half way between London and Winchester. Equally it could have been part of an Hydraulikon for the same type of pump was used.

There is not a scrap of documentary or physical evidence of any type of mechanical or manual pipe organ before the Hellenistic period and hence my earlier comment that the Hebrew word *ugab* can only refer to musical instruments in general. Unlike the pump which is definitively ascribed to

Ktesibios, the Hydraulikon is only ascribed by inference, but in a monumental work called *Deipnosophistes* (The Learned Banquet) by Athenaeus of Naucratis (c. 200 AD), the first Greek Treaty Port on the Canopic branch of the Nile. Ktesibios is stated as having invented the Hydraulikon whilst living at Aspendos in Pamphilia. This was during the reign of Euergetes II and where it is possible to check Athenaeus he is correct but where he relies on memory, as in the case of the Hydraulikon, he uses such phrases as "it is said", etc. Thus Euergetes II (145-116 BC) should read Euergetes I (246-221 BC) and thereby the Hydraulikon could well have been invented towards the end of Ktesibios' life. "The Learned Banquet" also states that Ktesibios gave organ lessons to his wife, Thais.

No ancient writer states *why* the organ was invented, but perhaps whilst away from Egypt his thoughts turned to teaching students. If one accepts my theory

on the Horn of Alexander, then Ktesibios would know of the explosive power of air under compression, and it seems air receivers as such were not used until late in the Roman Empire, the weight of water being preferred for mechanical operations. Certainly by using his cylindrical pump and placing the cone into the bottom of the tank, and connecting the pumps to the top of the cone and pumping air instead of water he was able to show by experiment the properties of compressed air. He now had a method of raising wind and a stabiliser. His assimilated knowledge of the Horn of Alexander perhaps gave him the idea of somehow placing a number of pipes onto a soundboard and wind chest. Fig 2 shows a developed hydraulikon of about 50 BC.

Ktesibios could have known Phylon of Byzantium who lived during the next generation. Phylon developed automata, but Book VI on Automata has been lost although Book V on Pneumatics (which includes syphons) has sur-

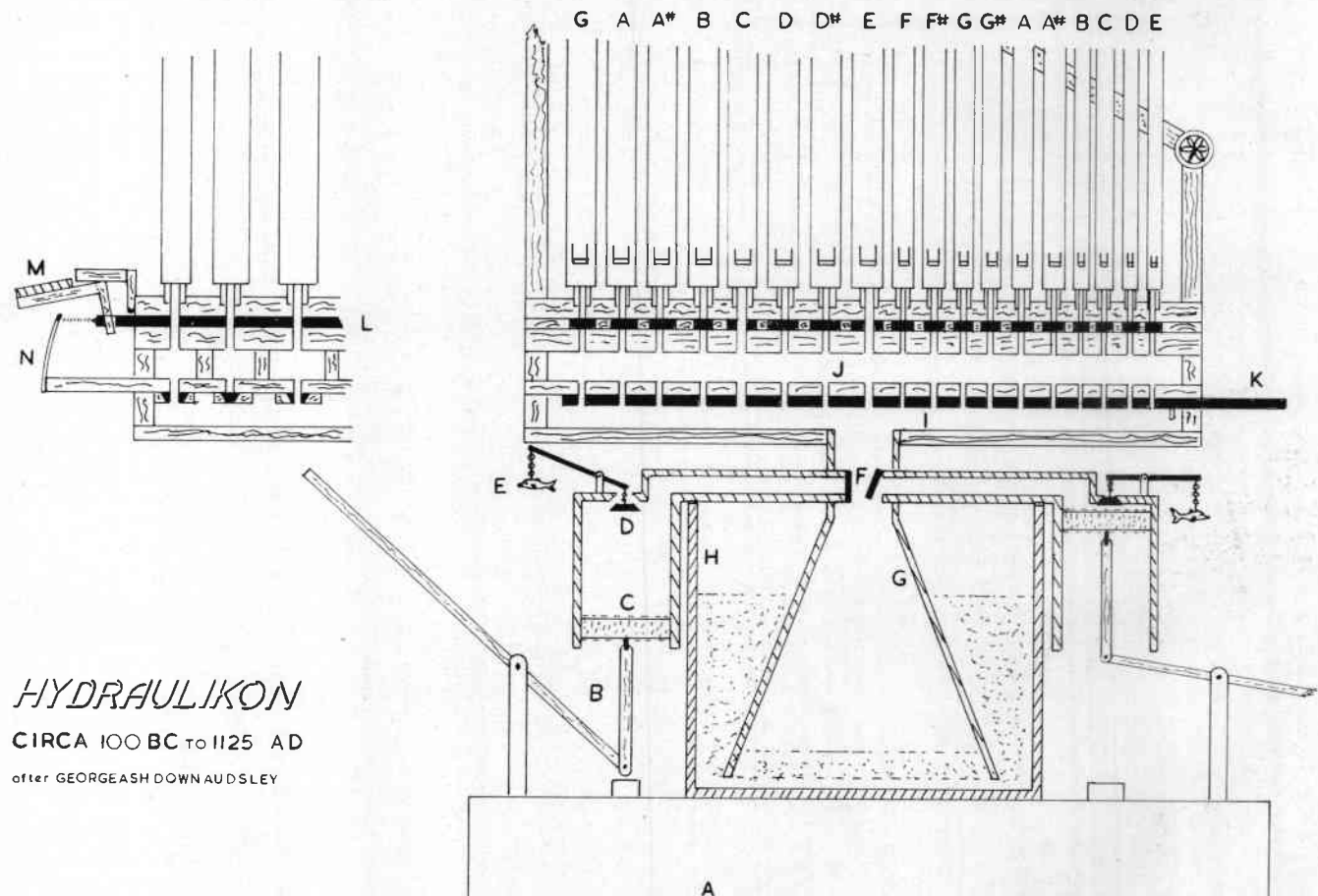


Figure 3. The Hydraulikon with wind raising and stabilising system. (A) plinth or podium about 18 inch high, wood; (B) pump handle and connecting rod operated alternately, wood; (C) leather-covered piston and cylinder of bronze held to H by three bronze bands; (D) dished inlet valve, bronze; (E) dolphin balance weight, bronze. (Most important to Vitruvius; not known whether hung by chain or fixed to fulcrum); (F) outlet valve; bronze or wood, leather covered; (G) inverted cone called *pnigeus*, hexagonal bronze; (H) open top cistern usually hexagonal bronze; (I) main chest, wood; (J) register chest, wood; (K) register slider, wood; (L) clavier slider, wood; (N) gut and horn spring; (M) clavier, wood copper covered. It should be noted that no wind raising mechanism has been found perhaps because of its contemporary salvage value.

Hydroautomatic Garden Flute

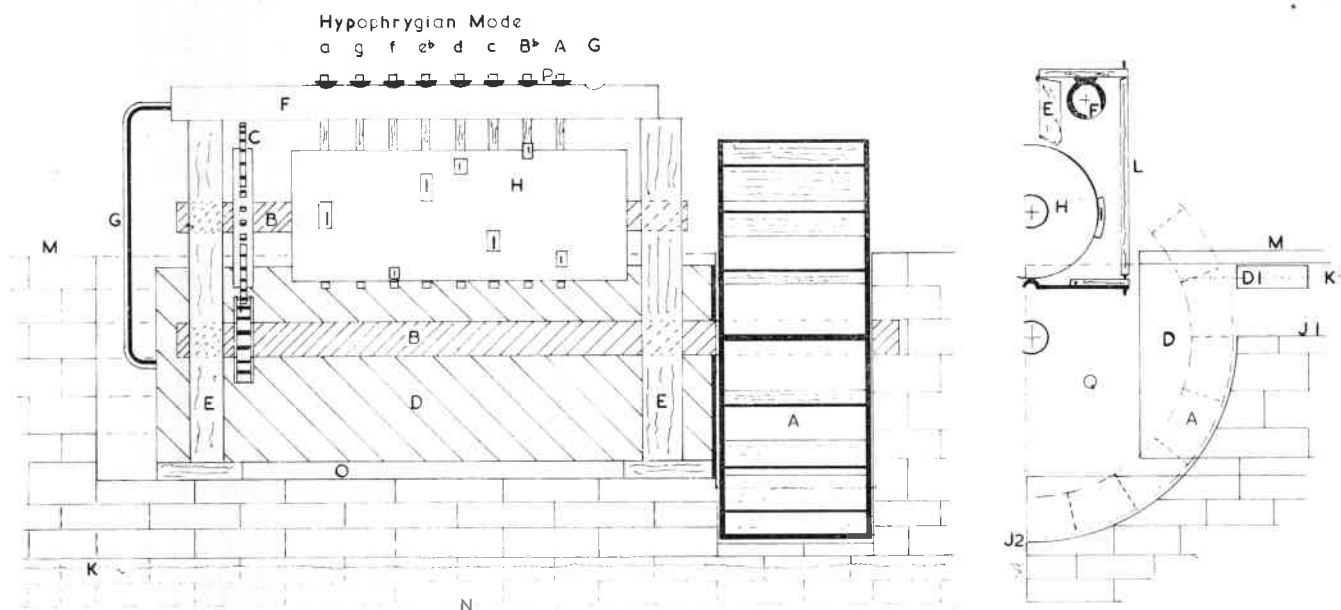


Figure 3. The Hydroautomatic Garden Flute, a reconstruction showing its component parts: (A) water wheel, wood; (B) spindles, bronze; (C) reduction gear, wood; (D) Archimedeian water compressor tank, bronze; (E) supports and bearings, hardwood; (F) flute, wood; (G) air pipes, copper; (H) barrel, wood; (I) barrel projections, wood; (J) 1 and 2 sills, stone; (K) water level; (L) tracker bars, wood and bronze; (M) ground level; (N) pond bottom; (O) tank raised to drain water and take in air; (P) pallets, leather; (Q) water wheel side plate, copper or stone.

vived in Syriac translation.

Although Vitruvius and Phylon stated that he invented automata, the singing tree and trumpeter seem to belie the simplicity of his known inventions.

Barrel-operated flute

About this time—but described only in Syriac texts—is a barrel-operated flute (Fig 3). The barrel is given as one shibr (27cms) in diameter upon which projections were placed corresponding with the holes in the flute. The flute was firmly fixed with corresponding pallets to cover each hole, with actuating levers between pallet and barrel projections. The barrel would probably be turned by water wheel whilst air pressure to the flute would be supplied from continually filling and emptying closed tanks operating simple levers and floats to open and close the valves. Such an automaton would have sounded delightful in the court of a Greek home with its running water and scent from aromatic plants.

Early pipe design would have followed existing custom. The Egyptians always placed a flute and uncut straw alongside the dead. The straw was cut to serve as a reed. Audsley mentions a flute pipe in the Salt collection of the British Museum which would play only when two opposing holes in the pipe were covered with a membrane such as fish gut. This pro-

duced a tremulant sound. Believed to have been made in the Middle Kingdom, it is unfortunate that this important relic now seems to have been lost.

Perrot states that two children are quite capable of raising 30cms wind on his reconstructed hydraulikon, adding substance to accounts of its commonplace use in the Greek theatre. Two instruments are recorded at the Odeon at Ephesus. The theatre at Epidauros and the Odeon at Ephesus are huge places and although there is now no longer water in the conduit, the softly yet properly enunciated word can be heard so easily.

Musical automata and the organ, whether stabilised by water or by alternate working of bellows,

existed side by side and in equal esteem, such situation being retained until at least the end of the 18th century for the quantity of music composed both by the great and lesser masters for mechanical organ seems to be opposed to the view now held by musicians generally. Beethoven's Opus 91 *Battle of Vittoria* was composed for a large barrel organ, but at least he also arranged it for full orchestra, calling it *Wellington's Victory*. The original score is no longer available. Mozart also composed music for barrel organ all of which has now been "arranged" for manual instruments*. Such is the arrogance of technicians of music.

To be continued

*A bibliography of music for barrel organ appears in Ernst Simon.

Bilotti riddle is solved

ON PAGE 123 appeared an aged and faded picture of the staff of one Romano Bilotti, barrel piano-maker of no known address. The question was asked quite simply — who was he, when and where?

Owner of the picture Danny Dekyndt from Aalst in Belgium has turned up the answer himself following the recent acquisition of a copy of the 1930 edition of *Musique Adresses Universel*—2835 pages of reference material.

This work lists Romano-Bilotti in business at 23, Pont-de-l'Avenue, Laeken, a suburb of

Brussels. He is listed, under the letter "R" in the alphabet, as "fabrique de pianos et pianos automatiques".

Which prompted an editorial search through the Brussels music trades listings of the early part of this century. Here was turned up the name Romano & Bouffaux and the address 21b/23, rue du Pont-de-l'Avenue in Laeken with the profession listed as "manufacturer of automatic pianos".

And so another mystery is solved . . .

WOOD BORING TERMITES

WOODWORM used to pose a major threat to valued furniture and musical instruments. Now, thankfully, these tiny termites can be killed off without destroying their host timber. One of the leading UK companies engaged in termite extermination is Rentokil whose headquarters are in East Grinstead, Sussex. Some words of wisdom come to *The Music Box* from this company which will be of interest to members

WOODWORM grubs which infested a fairground organ are at last having to face the music, their final encore being by courtesy of a furniture preservation service which fumigated the organ silencing these destructive intruders.

The common furniture beetle, *anobium punctatum*, unfortunately has no appreciation of music and will just as happily chew its way through a Wurlitzer as a wicker chair, but with far more disastrous consequences.

There are, however, a number of ways that these music-haters can be disposed of. A very effective method is a woodworm-killing fluid comprising a special insecticide in a very light and penetrating solvent which will deal permanently, in one thorough treatment,

with the woodworm grub as well as its egg, pupa and adult forms.

To achieve this, all surfaces should be coated with fluid, either by brush or spray, both inside and outside. It is not sufficient merely to treat areas where holes are seen, as grubs may be tunnelling anywhere in an infested item. To help achieve extra penetration, woodworm fluid should be squirted into the holes about every four inches. A small plastic injector bottle with a fine nozzle or an aerosol with special tubes attached is available for this job. In practice, it is best to inject the holes before coating the surface so that you can see which you have done and which not.

However, this method may not be suitable for all instruments as

it is not advisable to get the fluid on to fabrics and felts and some delicate mechanisms and valuable items in particular may cause the owner to feel apprehensive about spraying them. In this case they can be fumigated in specially constructed chambers with a gas that will kill all stages of woodworm, moths or any other live-stock. Furniture preservation consultants will advise on the fumigation of such items. This treatment usually provides a guarantee for five years against new infestation.

With careful treatment, neither of these extermination methods is likely to cause any deterioration in tonal quality and with particular reference to pianos, a few splashes of fluid on the strings will cause no harm.

The best brands of woodworm killer should not harm polished or varnished surfaces, but over the years an old instrument may have had so many surface layers of various materials applied that it is wise to test the fluid on a small inconspicuous area first.

Free advice on all problems concerning woodworm is available from consultants such as the Rentokil Advice Centre, 16 Dover Street, London W1X 4DJ, or from any of the company's local offices. So if you find extra holes in your organ pipes or musical boxes, waste no time in getting those voracious woodworm disorganised.

Orphenion - the five-year marvel



NO MORE than five brief years — that was the span of production of the Orphenion. Inventor Bruno Ruckert began production in 1893 at Sedanstrasse 5-7, Leipzig. His musical box incorporated a number of novel features, not the least of which was his use of scoop-shaped disc indentations to rotate the starwheels. He secured a British Patent for this — number 6941 of April 4, 1893.

In the summer of 1898, the Adler business was transferred into Ruckert's old factory and soon afterwards Ludwig Hupfeld advertised a large clearance sale of Orphenions. So passed swiftly into history this fine and splendid-toned instrument.

Of all the disc musical boxes made, the Orphenion has probably the finest sound, a combination of superbly-made combs and a resonant case. Sadly, the zinc discs and their delicate scoops were somewhat self-destructive, no doubt aiding the demise of a rare breed. Models were made to play five different diameters of disc — 13.2cm; 21cm; 27cm; 34cm; and 40.5cm.

Characteristics are the large T-shaped bedplate, exposed spring, endless fan with circular "wings" operating in a bedplate cut-out, and, in table models, the decorated inner woodwork.

Perigal Plays for the Pasha

by Keith Harding

FROM time to time the craftsman restorer is confronted with an item of exceptional interest, which at first may pose apparently insoluble problems to test his skill to the utmost, and give him the greatest possible satisfaction in their solution. Such a piece was the important musical clock which arrived in our workshops in July, having been exhibited in the Grosvenor House Antiques Fair by Aspreys of Bond Street. The musical part was a three stop, 15-key, 45-pipe barrel organ, which had clearly been incapable of operation for a very long time.

The white enamel dial was signed Perigal, Royal Exchange, but the Turkish numerals and writing on the subsidiary dials indicated that it had been intended for the Turkish market, as did the domed top to the case, which was of red tortoiseshell heavily embellished with ormolu mounts, finials and grilles. It is interesting that the caryatid figures one might have expected to see at the corners of the case were absent, their places having been allotted to

ormolu swags. Further investigation showed that there are no representations of living figures anywhere on the clock, these being forbidden by the Islamic religion.

The restoration of the enamel dials, as of the engraved silver spandrels inlaid with translucent blue and green enamel, was put out to the appropriate specialists.

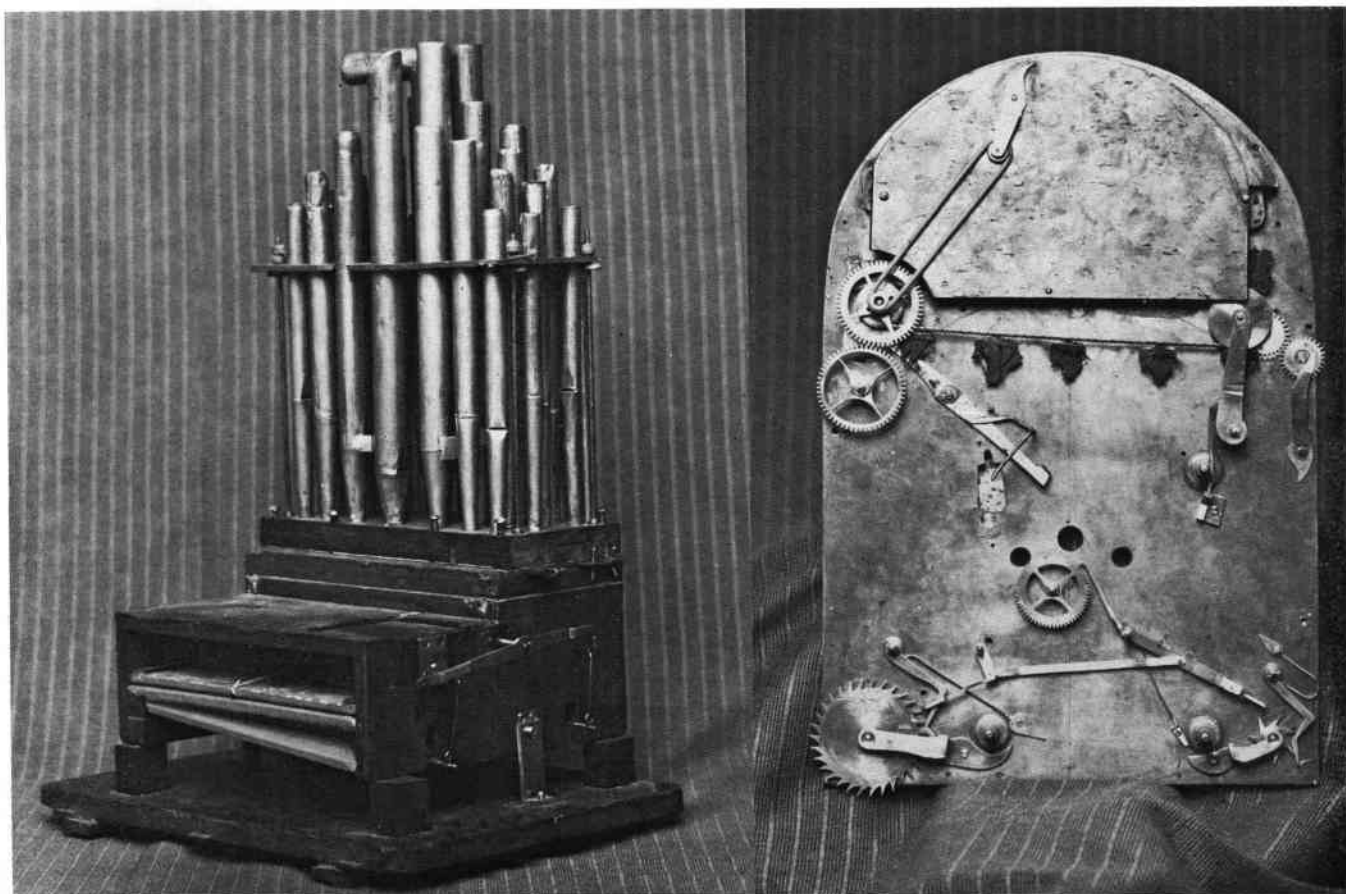
In the arch of the dial is an automaton scene of a harbour with a windmill which turns and a moving procession of ships, which operates while the music is playing. The scene depicted appears to represent the fall of Constantinople to the Turks in 1453. Constantinople, thought to be impregnable, controlled half the world's shipping. The harbour of the Golden Horn was protected by an iron boom which was impassable, but the Turkish ships were of light construction and 80 of the Sultan's ships were transported overland a distance of 10 miles from the Bosphorus to appear like a miracle behind the Christian navy. They thus won the day. For his achievement, the Turkish admiral,

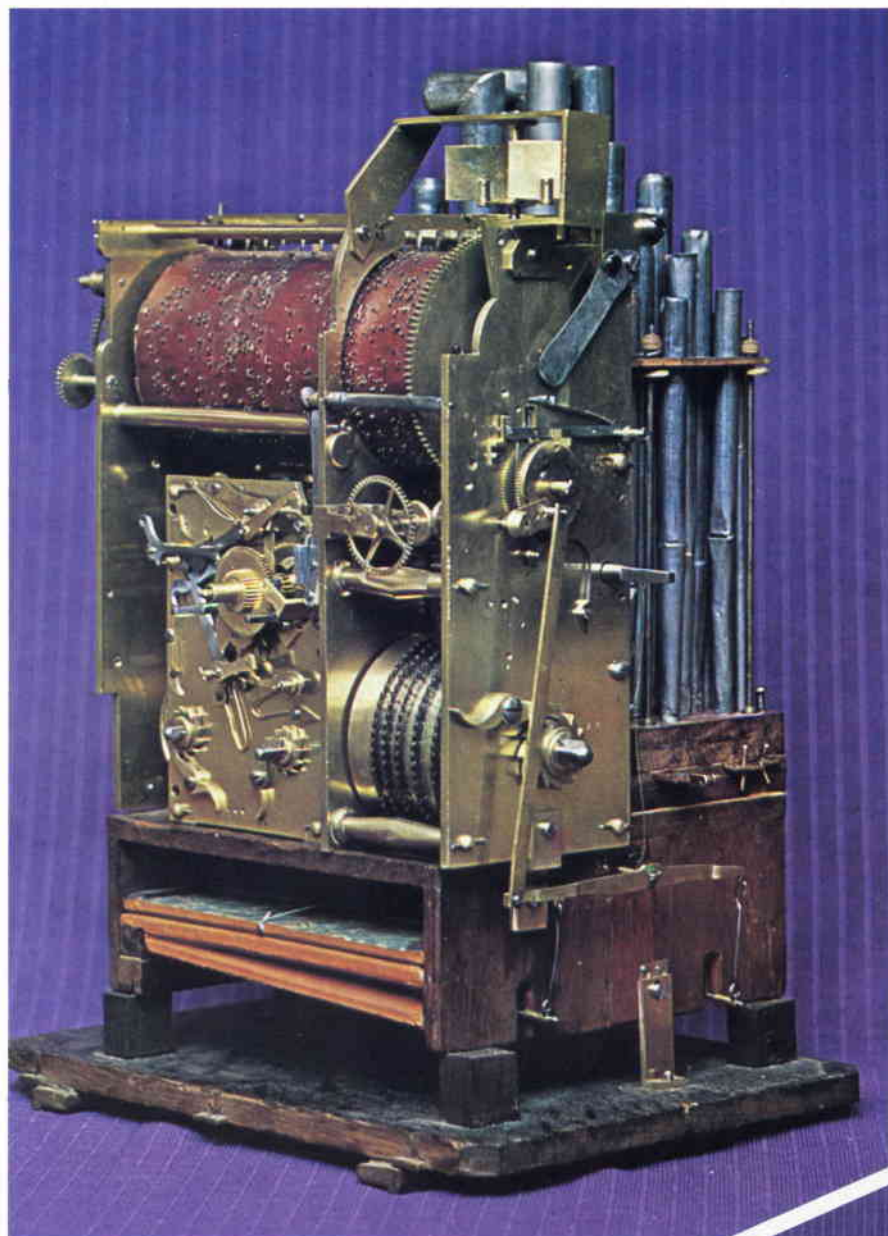
Hamoud Pasha, was promoted to be a Pashalik of three horsetails, the horsetail being a symbol of rank to the Turks, and the award of three horsetails being the highest possible honour. The three horsetails can be seen presented in ormolu above the dial opening of this clock, where they might at first glance be mistaken for Prince of Wales feathers.

The mechanical parts of the automaton scene were relatively straightforward, the ships being carried on an endless chain. However, the paintwork was badly chipped and damaged, and this was restored by a professional picture restorer.

The clock was capable of being broken down into several sub-assemblies, which could then be tackled separately.

The organ wind chest and wind department were completely dismantled, the damaged boards repaired, and the pallet valves replaced as necessary and releathered. The bellows were recovered and the paper linings replaced. The old paper linings were kept, and





were found to be pieces from an old copy book bearing in several places the signature of Mary Ann Beloudy and the date July 1791. An old paper patch, printed in German Gothic letters, was evidence of a later repairer. New pallet springs were fitted, and holes in the woodwork plugged with wooden bushes to take the original eighteenth century hand-cut wood screws. The original pipework was inspected and repaired, resoldering bodies and repairing feet as necessary, and re-voicing. One pipe had to be shortened and re-mouthed. Tuning (by cone as in the original) was carried out later. We chose not to use tuning slides.

The two-train clock movement was restored in the normal way, but it involved repairs to the calendar work and a new fusee stop-iron block was made. We also

In the view above can be seen how the clock and organ barrel mechanism fits onto the organ (compare with the view on the facing page). Right: the complete clock in its colourful magnificence.

manufactured a new crank key of suitable antique pattern with a wooden winding knob of contemporary date for winding the clock. The most interesting thing we found was a name stamped inside the cover of the going barrel, "THWAITES A & I 799" indicating that the clock at least was the work of Ainsworth and John Thwaites. We have had other musical clocks, sometimes with similar silver and enamel spandrels, including one signed William Story, which were also apparently the work of Thwaites. It just shows how ridiculous it is for collectors to attach too much importance to the name on the dial, instead of judging a clock on its own merits.

The mechanical movement of the organ was in poor condition. It was not well made or designed in the first place, and the original maker seems to have altered the design several times and to have moved parts. As so often happens, chunks of the clock pillars had been cut away to make way for moving parts, showing that the craftsman made the musical work as he went along and did not design it properly before he began. So much for the theory that all



eighteenth century craftsmen belonged to a superior breed now died out. Clearly the design was not satisfactory and soon gave trouble, if it ever worked properly at all. Throughout the history of the clock many hands have bent, botched and lost parts of the musical work, which simply could not possibly have worked at all after the last overhaul. The linkage to the clock had also been roughly broken off. If only "repairers" would leave severely alone that which they are not capable of repairing!

The organ mechanism had to be completely rebuilt as closely as possible to the intentions of the original maker, but in such a way that it now works possibly better than it has ever worked before. Many new parts had to be designed and made to replace those that must have been there at one time.

Last task — cleaning

With all clockwork restoration, the very last operation to be performed is that of cleaning which removes the tell-tale marks which indicate the positions and shapes of missing parts, as well as the original positions of parts still there. These marks were invaluable, as were the empty or plugged holes in the plates when it came to designing the many missing parts, including many of the brackets for holding the clock together. A complete record was kept of all work carried out.

Some of the botching found was almost unbelievable. For example, the crank operating the paired feeder bellows for the organ had been patched together in such a way that the arms were of uneven length, and one feeder was almost ripped apart in operation while the other feeder did not work at all.

When rebuilding musical work, all repair work is carried out first, and all traces of wear eliminated. All keys were checked as being of even length and correctly adjusted. The tune change cam had to be reshaped very accurately, using measurement and calculation, so that the tunes could be played perfectly in register.

When the organ was finally got playing, it was no great surprise that the result was not very musical, but since all other possible causes had been eliminated, the fault had to lie with the performer, and not with the instrument. We had to examine the computer programme and not the computer, in other words, the pinned wooden barrel.

Restoring the musical programme represented one of the most difficult and challenging parts of the entire work. Many of the barrel bridges were missing and these had to be replaced. New bridges were made from brass wire of suitable diameter, flattened by passing it through a rolling mill, cut and bent to size by hand. After the musical movement had been restored and got going, and all wear removed from keys and all parts adjusted carefully so that the barrel was playing in perfect register and timing, it was necessary to listen to each of the eight tunes over and over again. It was apparent that there were many bridges present which should not be there, and represented mistakes, either by the original builder or by subsequent botchers. These were removed where they clearly did not belong in the music, and gradually a pattern emerged which made musical sense. This was particularly difficult as it was Turkish music, and we even spent some time making a study of Turkish music on record to familiarise ourselves with the musical idiom.

Even fitting the movements into the case presented a problem. It had clearly been the intention of the maker that the works were to be mounted onto the bottom board of the clock and raised up into the case as one, but this was impossible as the complete unit did not fit the

hole in the bottom of the case. It was necessary to strip down the whole clock to its sub units and reassemble them in the case, which meant that the musical movement had to be re-adjusted once more.

More than 200 hours of skilled work was lavished on the restoration of this truly splendid musical clock, which was photographed, filmed and recorded for our own archives and for the benefit of other restorers. I hope you have been able to share, even if but vicariously, in the enormous pleasure that this work has given us.

Three months after we received it, the clock was collected by Aspreys. Then occurred one of those beautiful and unexpected events in a restorer's life which make everything seem so worthwhile. We received the following telegram: "Congratulations and many thanks for a fantastic job from all here at Aspreys to all concerned at K H Asprey, London". It appears that not only were the directors of Aspreys pleased with our work, but so were the Arab customers in their Bond Street showrooms, who recognised the tunes and were so impressed by the performance of the clock that they were singing and dancing to the music. No doubt this clock will soon be journeying once more into the East to sing yet again the praises of British craftsmanship.

Roehl Australis . . .

Harvey Roehl went to Australia, found 'De Klok' and some time to write

IN October of 1977 Marion and I decided the best way to get away from business pressures and the ever-ringing telephone would be simply to drop everything and go half-way around the world! Australia had long-since been a place we wanted to visit, so we hopped on New Zealand Airlines with a ticket that gave us a hotel in every city, a pass on Ansett Airlines within Australia, and a rental car with unlimited mileage in every city we chose to visit.

This is not a travel magazine, so it's not the place to render details of all the great Australian countryside we saw, although it's probably quite in order to mention that we were entertained royally by Barclay Wright, owner of the Mastertouch Piano Roll Company in Sydney,

and the members of his staff on the occasion of our visit to their Petersham factory.

And we have to make reference to the great hospitality shown us by other "locals" who share our interest in automatic musical instruments. One can hardly mention them all, but Clive Drummond and Harold Burtoft in the Sydney area hosted us on two evenings and brought in many other friends; Harold Ball in Melbourne and his wife did the same, and we particularly appreciated being entertained by John Haight and his wife in Hobart, Tasmania (Duo-Art owners and transplanted Americans) and John Bale and his wife from the same place—player piano maniacs all. And, of course, John Semmons who, with Harold Ball,

went out of his way to make sure we could see the Percy Grainger Museum at the University of Melbourne, and to meet the director of it, Mrs Dreyfus.

In Adelaide we were entertained by Harold and Gwen Horsfall, MBSOGB members, whose gracious hospitality made the visit to South Australia ever so much more delightful than it otherwise would have been.

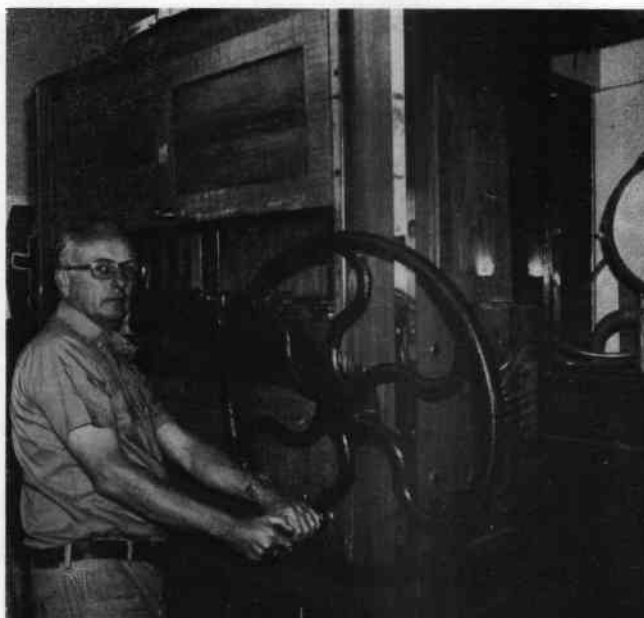
While there, I recalled that *De Klok*—the famous Dutch Street Organ — was described in *The Music Box* as having been transplanted to that area, so I put Harold to work on learning where it might be. He in turn consulted his barber, who is active in the Dutch community, and he in turn directed us to Mrs Hetty Verolme of the Netherlands Society.

Upon arriving at its headquarters, we were surprised to learn that there is a very active group of transplanted Hollanders within the population of Adelaide, which is around the 800,000 mark. They are interested in preserving their Dutch customs and folklore, and they have recently acquired a fine building which serves as their social hall—and in which they can enjoy their favourite Dutch beer! It's large enough to handle a lot of activities, and they are quite obviously well-organised to carry them out in a splendid manner.

When Mrs Verolme was asked to go to Holland last year to purchase a street organ, she had no idea of the difficulties she would encounter. Understandably, street-organ buffs in that country did not want to see one more of their precious instruments leave, and a number of road-blocks were developed to discourage her efforts. But she's a plucky woman, not easily deterred from a mission, and she finally not only purchased *De Klok* from the Mohlmanns but had it put in good working order to boot. It was not an inexpensive purchase, and she had to make some quick decisions right on the scene as to the extent that she could commit funds of the society for, after all, it was not being purchased for her personal interests!

It's entirely understandable that the partisans in the homeland would be upset to see it leave, but now having seen it for myself, my personal view is that it really has found a wonderful place to be. It was not bought with the idea of a speculator making money on it; it was bought to take a real piece of Dutch culture to a far-away land where a fine group of people known

Right: Harvey's two-hand grip as he practices on De Klok. Below : Mrs Hetty Verolme, president of the Netherlands Society of South Australia poses with her illustrious charge. Bottom right : flashback to Amsterdam with the organ in traditional surroundings. The Editor frequently provided the driving muscle...



as the Netherlands Society can not only enjoy it for themselves, but can display for the benefit of all Australians one of the wondrous music machines of their home country.

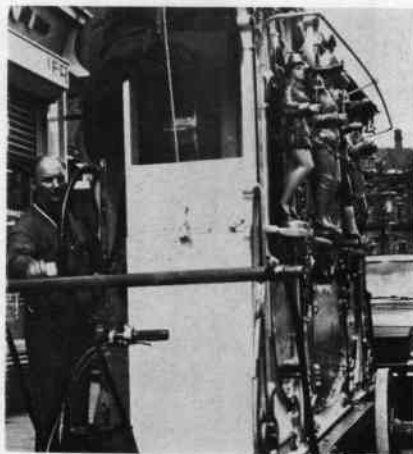
It is used for parades and festive occasions, and when not in use, is practically impossible to find; Mrs Verolme, as are the others, is well aware of the value of the machine and they go to extreme lengths to protect it—there must have been at least five padlocks that had to be unlocked and a corresponding number of doors and wire gates to be opened before we could gain access to the room where it's kept. And once within, one side has big windows, so that it's under constant surveillance from the inside of the building as a further protection.

We were told of the man who is entrusted to maintain the machine;

he's permitted to make no alterations whatever, and his job is to keep it in perfect shape. The title to the organ has been placed in a Trust, such that it will always belong to the Netherlands Society and can never be sold for profit, private or otherwise.

It's been suggested that the organ might fall apart from effects of the dry Australian climate, but we saw no such evidence. We were permitted to play it, and it sounded every bit as good as it did in 1971 when we took a photograph of it on the streets of Amsterdam.

It's my hope that this report, brief as it is, will allay the fears of those who hated so much to see it leave the Mother Country, and will serve to assure them that it really has become an Ambassador of Good Will between the two nations — just as has the famous organ which some years back was donated by (I believe) the Dutch Government to the city of Holland, Michigan, here in the U.S.A. It's in good hands, and every evidence is that it's going to stay that way!





Above left : Table Polyphon with 12 bells played from 14½in (36cm) discs. This particularly fine example has the uncommon oval coloured lithographic inside lid picture. Above right : More usual style of Polyphon is the 15½in (39·8cm) disc size, the most common type and made in a large number of different case designs and comb formats. Left : The portable street barrel piano was manufactured in Germany, Italy and in England. This example was made by Hicks and dated 1846. Above the barrel and supported on a stage through which wires pass to the barrel beneath are eight dancing dolls. This type, whose survival is not common, can be seen in use in the illustration on page 421 of Volume 4. Below : Nicole Freres *Grand Format* six-overture box number 37073, gamme no. 1844, cylinder 52·8cm long. Pictures, save that on left, by Keith Harding.



DID DARWIN DO IT?

by Hendrik Strengers

SOME time ago, our editor launched a theory concerning the origin of the comb species, hitherto ascribed to Antoine Favre in Switzerland in 1796. It is, however, always recommendable to make use of offshoots of other sciences when you are writing on historical or evolutionary matters.

So I will try to fill up some gaps in the article of Mr Ord-Hume (see Volume 7, number 2: *Who invented the musical box?*). The question is: which one of the two species is older: (1) the pocket-size tuned metal hair-comb, made in one single piece, or (2) the Swiss musical comb (without bells and hammers), but made in sections of single tuned teeth. It is quite clear that the manufacturing of the latter, combined with the making of a number of individual screws seems to be much more difficult than the producing of the former species. But before drawing conclusions, we must call in help from the great philosopher and evolutionist Charles Robert Darwin. Please do not mix up with Dawkins: he was only a simple English dealer. Let us consider some facts of his life and some thoughts from his theories.

Darwin was born at Shrewsbury on February 12 1809 and he died at Down on March 3 1882. My *Oxford Dictionary* explains both place-names. A shrew is a terrible, scolding woman. So the name of the place means the spot where a shrew was buried. You can understand that Darwin fled away from this spot, travelled a lot and reached at last the Galapagos Archipelago. There he was confronted once again with magic phenomena, launched his evolutionary theories afterwards and fled away finally to settle down at Down, where he went down to be buried in the soil of Down! His life was thus reflected between two fatal place-names. Perhaps through that he was inspired to such remarkable thoughts.

Now we have to consider the four starting-points on which his famous book was based: "On the origin of species by means of natural selection, or the preservation of favoured races in the struggle for life". Because of the fact that this book was issued on November 24, 1859, we must adjust his old-fashioned terminology to

WITH that disturbing and uncompromising facility for speaking and writing perfect English which is possessed by all Dutchmen (due, it is said, to the inescapable fact that their own language is quite incomprehensible and is only used within earshot of foreigners to aid confusion), Hendrik Strengers of Delft finds the true story of the birth of the musical box comb not in Favre's Switzerland, but in the writings of Charles Darwin. A case, one might adduce, of sleuth being Strenger than fiction. . . .

our modern stock of words. The title can be modernised to: "On the origin of species by means of natural selection (*read*: supply and demand), or the preservation of favoured races (*read*: types, models or patterns) in the struggle for life (*read*: in making profits, or if you like, to keep a collection)". In this way we have a good start to understand the following starting-points:

1. All individuals within one species show accidental variations in characteristics and qualities.

Every collector will agree with this basic principle. Even factory-made specimens of the comb species differ in pitch and sonority. There can be no doubt, that Darwin is right.

2. All organisms produce a great many reproductive cells (*read*: sounds) more than ever can arise as full-grown descendants.

This is also true. Only in science-fiction does inconvenient noise and rumble of combs and cases grow into perfect music boxes. So far Darwin confirms our experience.

3. The number of individuals within one species is more or less constant.

Well, this part of the theory gives some troubles. I suppose that Darwin means that the average numbers of a species are constant after a certain course. We all know, that after Darwin's death there was a tremendous outburst

in the comb species, which stopped about one generation later. After that period, the species became constant. Some combs got lost, some were born with help. For the time being, the third principle seems to be correct too.

4. Finally there must be a struggle for existence, and a high death-rate, Darwin says.

Perhaps — so far as he is concerned — his theory was influenced here by his dejected nature. A struggle for existence in preserving the species, yes, but a high death-rate? No! He could not foresee that eighty years after his decease the preservation of the comb species would be influenced by a supernatural process of selection, set going by a club of his own native species! (*in casu*: The Musical Box Society of Great Britain).

Conclusion :

It is possible that the pocket-size tuned metal hair-comb, which exists from times immemorial, at the end of the eighteenth century by some genetic mutation fell into pieces to become a musical comb, arranged in sets of one, two or more teeth. Such an event can only take place on a very isolated spot (i.e. the Galapagos Archipelago) like a valley in the Alpine region of Switzerland. Of course, such a striking mutation was historically interesting and had to be recorded in a near-by city, in this case Geneva.

Because of the finder, it was called "species Antonii Favrel". It is remarkable, that the specimens of this species, although nearly extinct, in general have a much longer life than the normal tuned hair-comb species. So we can explain that the oldest specimens of the last-named species nowadays are not older than about hundred and fifty years. Since this species was common from prehistoric times, there was no motive to record on paper the slow alteration in tuning of the musical hair-comb on behalf of an other purpose like a purely musical one.

But I draw only your attention to the fact that the preserving of specially selected specimens seems to have a rather favourable effect on the length of life. Most tuned

continued on page 230

The Pneumatic Player

by Harry Drake

On page 323 of Volume 7, The Music Box began reprinting this classic repair manual originally published in 1921. Here Harry Drake looks at action types

IN the following chapters on player-piano actions, their regulation and repair, I do not intend to use the language of science, and this for two reasons. The first is that perhaps a few of my readers might not understand that lingo; and the second reason is that I do not myself. Fascinating as it might be to explain that every pneumatic, when at rest, contains billions of atmospheric molecules, and that each pneumatic is surrounded by an equal number of billions, which latter turn with the utmost fury and slam to the pneumatic when their fellows in the interior are reduced in number by suction. Yet to a majority of tuners a knowledge of such facts is quite unnecessary. It is enough for one to observe the work, and to know just how to regulate and maintain the movements of each part. It is very possible that I may tread some old familiar paths; but I am sure I need not apologise for this, as to many the ground must be new—or perhaps with a few of the more experienced I may have the good fortune to share my enthusiasm for some of the more intricate devices and the decided improvements of the player-piano in general —

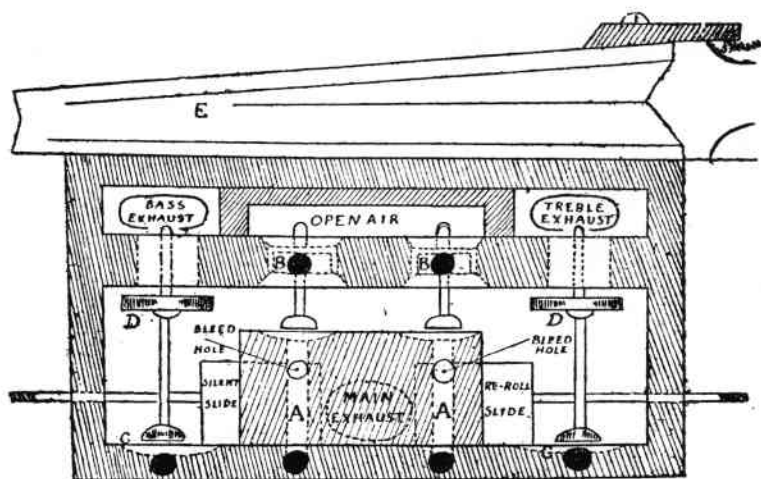
THE TRIUMPH-AUTO

THE Triumph-Auto is one of the most popular and well-known instruments. In the full compass instrument, we find that the control consists of the loud pedal lever, soft bass button, soft treble button, triumphodist switch, silent lever, ritard and accelerando lever, tempo lever, and re-roll lever. In the spool box, on the left hand side, is a metal lever, opening or closing the automatic damper lift. At each end of the tracker bar are the two overlapping holes or ducts which operate the pneumatic tracker shifter. As I propose later to deal specially with tracker shifting devices, here and now I content myself with the remark that when tracing these holes we find that the four tubes lead us to a double pneumatic and chest on the left of the spool box, and that it is necessary to unscrew the cap held by three or four screws where these tubes enter the chest. Clear the dust from the sieves beneath, at the same time blowing the dust from the tracker bar out of the tubes each time the instrument is tuned. (I may mention, in passing, that dust should always be blown from the tracker bar when air channels are enclosed, the reason being obvious—i.e., to clear from a smaller entrance to a larger exit. Blowing *towards* the tracker bar is liable to pack the dust or fibrous matter in the small ducts.)

The two narrow ducts are for accenting bass and treble. The large square duct at bass end is the automatic damper. The primary valves are easily accessible after removing the 'step', held in place by about thirty-eight screws. The secondary valves are immediately beneath and their pouch board is about five inches wide held by about twenty-eight screws. The loud lever is purely mechanical and lifts the damper rod by wires and levers. The soft bass and treble buttons admit air, when pressed, to pouches in two small chests at bass and treble sides of the piano. These operate valves

and collapse two pneumatics, which lift the hammers to the half blow. The whole mechanism is convenient and easily adjusted. The only movement which perhaps calls for a little extra thought is the triumphodist. It is operated in the following manner and is the subject of my sketch.

When the triumphodist switch is pushed to the "on" position, the tubes A are closed and the primary valves (B) are at rest, admitting air to the secondary pouches (C). This raises both accenting valves (D), and the whole power of the pedalling passes through the governing pneumatic (E). This governor is held open by a spring, which of course is far less powerful than the reservoir springs. As the marginal holes on the roll, when solo is indicated, admit a pulse of air down the tracker tubes (F), the primary valves are instantly lifted, bringing the secondary pouches under vacuum. The valves (D) are drawn down and open the full power of wind from either the bass or treble section of the valve chest. This emphasizes any note or notes that are passing over the tracker bar at the time. It is practically instantaneous in action. The switch at the "off" position admits air through the tubes (A) and the primary valves are raised, opening thereby the normal exhaust from bass and treble. The silent lever operates the slide shown in my



The Triumphodist.

sketch, shutting off all wind from the main exhaust.

The ritard-accelerando lever shuts off wind from the motor in one direction and opens an auxiliary port, increasing speed, in the other. The slide is found on the upper part of the motor governor, on the right of the bellows set. Beneath the governor is the tempo slide or re-roll. The re-roll opens rapid wind from the motor and at the same time shuts off the main exhaust (shown in the sketch).

In strengthening or weakening the motor spring, always remember the old standard: 7ft. of roll per minute with the tempo indicator at 10.

The automatic sustaining lever lifts the damper rod by means of a powerful pneumatic, operated by special perforations at the bass margin of the roll. A simple primary and secondary valve control the large pneumatic, which usually contains a "scissor" valve or similar contrivance to prevent thumping.

In overhauling and repairing this instrument, it is necessary to bear in mind the fact that the pneumatics, though powerful enough for their work, are small; therefore, the secondary valves require very little movement, — much less than the heavier pneumatics of ten or fifteen years ago. When one has regulated the valve to a movement of $\frac{1}{32}$ of an inch, the clothed wooden button should just clear a ruler placed across the edges of the valve chest. To gain complete access to the primary pouches, it is necessary to take out the action and unscrew the channel board at the back into which the leaden tubes pass. Unscrew the front step and take out the vertical screws at each end of the spool board and lift the

upper action clear of the primary chest. Now unscrew the blocks on the upper portion of the chest and take out six or eight screws holding the valve board to the pouch board. It will now come apart and all the primary valves and pouches are exposed.

If the player has been in a damp place, the valves being so swollen that they have little movement, sift French chalk beneath the lower valve cap, twisting and pressing the valve against its upper seat until sufficient movement is obtained, — say $\frac{1}{20}$ th of an inch.

In tuning this instrument, if a crank be used, it will be unnecessary to take out the action: indeed, it is not advisable to be constantly withdrawing the screws which connect it with the wind trunks. However, if the tuner has no crank handy, he will have to slip off the four small tubes at the bass end of the action and the motor tube at the treble end. Disconnect the two buttons on the tempo and re-roll wires. Unscrew the spool box rod to wrest plank and withdraw the large round-headed screws, two at each end of the pouch board. Lift forward and out.

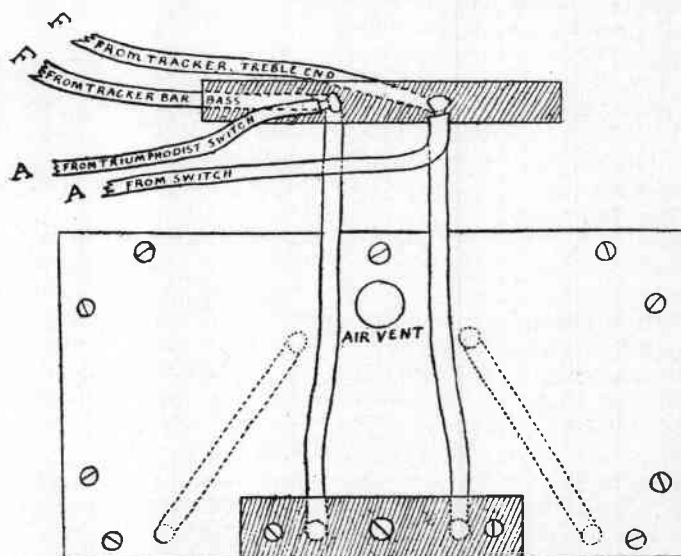
THE HIGEL ACTION

MANY well known makes of pianos are to be found in which the Higel player action is installed. It may be recognised at first glance by its ebony and silver appearance. The player work is invariably black, polished, with the plated metal standing out in pleasant relief. The Higel player also presents other features which stamp its identity at once: the row of vertical metal tubes, for instance,

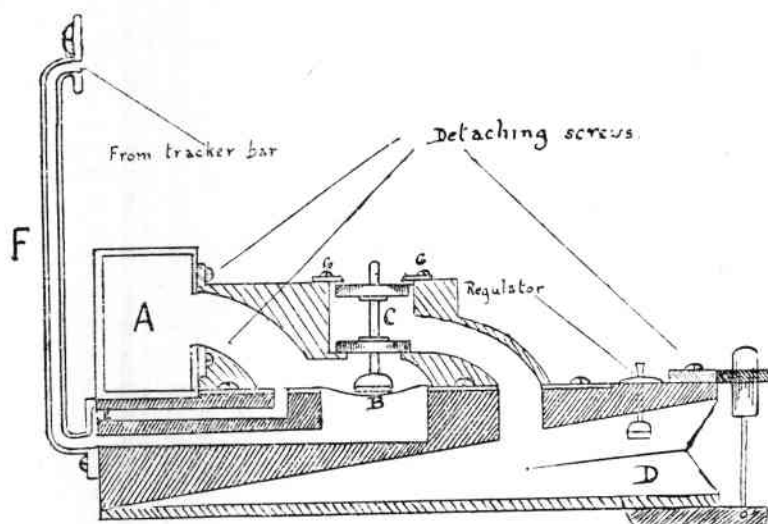
situated immediately beneath the spool box and marked (F) in the accompanying sketch. These tubes are held in place by three screws, the upper gripping a slot, and the two smaller screws holding the lower end to the manual pneumatic. By loosening the upper and withdrawing the lower screws, we can slide the tube down and out. Beneath the lower flange are two air channels: the lower is the channel from tracker bar to pouch, and the higher is the bleed hole. This is where trouble most frequently occurs. Dust and paper fibre accumulate in time, affecting the rapid deflation of the pouch. But here we have a detachable tube which, when removed, gives us immediate access to the bleed hole, and thereby does away with the necessity of unscrewing pouch boards covering the whole valve action. This is a great advantage, for in the majority of cases it is the bleed hole, and nothing but the bleed hole that is responsible for the crimes of a player action.

The pneumatics of the Higel player are detachable, and are each held in position by four screws to a metal air chest (A, see sketch). This pneumatic block is composed of light metal, and when detached can be taken to pieces by withdrawing the few screws attaching the metal plate to the wooden pneumatic. One of the advantages of the detachable pneumatic is that, should a central note defy all the tuner's or mechanic's efforts to correct its behaviour, it can be replaced by one from the extreme treble or bass *pro tempore*, and taken to the factory for repair. I do not advocate this course, however, for I am decidedly of opinion that all small repairs should be done on the spot, and the necessary materials — glue, pouch leather, rubber tubing, etc. — be carried in case of emergency.

We will now turn to the pneumatics, and also to tune, if we fail with the crank. Slip off the small tubes at the bass and treble ends of the action, marking them in some way for easy identification in case of doubt when replacing. Disconnect the spool box rod and the two round headed screws (one found at each end) that connect the metal standards to the air trunks at the key bed. Disconnect the re-roll and tempo rods, and pull the action forward first, and then out. It will then be seen how necessary it is to pull forward before attempting to lift. Two arms of metal, sometimes accom-



Cap of Triumphodist Expression Box.
(Dotted lines indicate concealed air channels.)



Higel Valve and Pneumatic.

(A) Metal exhaust chamber. (B) Pouch. (C) Valve.
(D) Pneumatic. (E) Bleed hole. (F) Detachable
metal tube. (G) Upper valve seat.

panied by a tightening screw, hold down the metal standards at the back.

The pneumatics are now accessible and can be detached where desired, with a spindle screw-driver.

Little trouble need ever be experienced with these players, though one case may be worth mentioning as typical of a complaint to which all players are liable. The instrument in question had been for some months in a very damp place, and the valves (which, similar to those in the sketch, were of the single type) had in consequence swollen so much that their movement was insufficient to exhaust rapidly the pneumatics. These valve discs are not threaded on a stem, but are held in place by a metal collar which is a fixture. Between this collar and the valve discs are thin fibre washers, and by reducing their number I was able to increase the movement and finish the job satisfactorily. Very little movement is required, as the pneumatic is a small one.

The valve can be taken out of its chamber after unscrewing the metal seat (G). If, for purposes of cleaning and renovation, it is desired to take down the player entirely, one must be sure to loosen, or perhaps withdraw, all the metal tubes (F). This, of course, does not refer to the tracker tubes. After unscrewing the spool box board and lifting clear, it is a simple matter to disconnect the metal air chests, when the two rows of pneumatics are at your

service.

The control of the Higel player consists of a loud-pedal lever, soft-bass button, soft-treble button, and the play and re-roll, the last mentioned being situated in the spool box. There are also the auto-sustaining switch and the solodant.

The loud lever operates mechanically on the damper lift, but is also controlled pneumatically by the roll, an auto-sustaining switch in the spool box being responsible.

The two soft buttons admit air to primary and secondary valves, thereby reducing the wind power to a low tension.

The soft or piano lever lifts the hammers to the half-blow.

The usual tempo slide.

Pneumatic silencing button.

The Higel expression box differs from that previously mentioned in that it is necessary to depress the soft buttons during the passage in which "solo" is indicated, for the reason that the air power is normal even when the solodant switch is at the "on" position. When the soft buttons are pressed, however, the power has to pass through low tension governors, and the marginal perforations on the roll immediately open large valves to the normal wind.

All these valves and governors are found beneath the key bed and are accessible after removing the cap, or caps, of the expression box. In some models there are two boxes, while in others only one; but they can be recognised easily by the tubes leading to them. Seldom do they need any attention: the cleaning of the bleed

holes being the operation most frequently required.

An obstructed bleed hole means slow response: so it is advisable occasionally to clear them with a piece of fine wire. As these expression boxes vary somewhat in construction, if not in purpose, I recommend the learner to unscrew the cap and trace the six tubes to their destination. The primary valves inflate or deflate the large secondaries by tubes or concealed air channels.

Should a player be inclined to speak when re-rolling and the re-roll is pneumatically operated, it will be necessary to ensure that all the tubes are perfectly airtight, that the pouches are in a sound condition, that the valves have sufficient movement and that no particles of grit or foreign matter have lodged between the large valve and its port. If the re-roll is mechanical, however, and cuts off wind by a slide, see that the slide is not warped, and that it quite covers its port, when the lever is pushed well over. Occasionally these slides need papering down on a flat surface, such as a sheet of thick glass or metal; and, if they are then blacklead and burnished, their movement is considerably improved.

The bellows set is easily withdrawn should it be necessary to repair. I should point out how vital it is that the bellows should be as tight as a drum. They are the heart and lungs of the player, and the slightest leak impairs the striking power of the pneumatics considerably. Many of us know that the honeyed phrases and seductive tones of the sergeant-major's voice are due to the excellence of his lungs. Let us bear this in mind, then, when dealing with an instrument that is also surely worthy of a "crown".

THE PIANOLA

EVEN now, when piano players have established their footing in these happy isles for years, it is not uncommon to hear the remark: "Oh, a friend of mine has just purchased a pianola",—when all the time the instrument bought was of another make than that indicated. To the lay mind, all players are pianolas, which is, perhaps, a doubtful compliment to an instrument of such high and worthy reputation.

Of course, I hold no brief for any make of player, my sole endeavour being to throw a little light on places that may appear dark to the minds of some of my

fellow tuners. But the Pianola can always be recognised by the excellence and finish of its workmanship,—be it in the lever work, the motor, the valves or their uplifting pouches.

The model most frequently met with has the valves situated beneath the key bed, and metal tubes passing through the keys connect the rubber tracker tubes to the primary pouches. These rubber tubes enable the spool box and upper action to be drawn forward after one has released the large screws at each end of the piano, disconnected the metal stays attaching motor and spool box to the wrest plank and slipped off the motor tube. The piano action can now, if desired, be taken out. When tuning, if a crank be used, it is unnecessary to move the player action.

The motor has three double unit pneumatics, with three slides controlling the six powers. The face and slides overhang slightly to obviate any dust settling beneath the slides. The themodist puppet boxes (if two are employed, for they are occasionally combined) are placed at each end of the spool board. In my sketch (Fig. 1). I have had, of course, to condense the scale considerably, so I must ask my readers to attach no importance to the measure-

ments.

Beneath the key bed is the valve chest, at the top of which is a wooden strip held by many screws. By removing this, we disclose the bleed holes, and it is here that attention is needed when the repetition of the pneumatics is faulty. They should be cleared now and again with a fine wire and the dust blown from the tubes and tracker bar. Should it be necessary to attend to the valves and pouches, they are all accessible when the tube blocks beneath the bleed hole board are unscrewed. These blocks are usually in three sections; and it is not always advisable to detach the tubes, as disconnections made too often loosen them to a dangerous degree. Simply unscrew the tube blocks and pull them forward. The pouches and valves are arranged in three tiers of single rank, and are therefore quite accessible. The primaries are found just beneath the bleed holes.

Beneath the valve chest is the bellows set; and if we wish to get the bellows out for repairing purposes or to replace a string, we must turn the piano on its side and unscrew the floor. The bellows must then be unscrewed from the back frame, the control and motor tube together with the themodist tubes slipped off and the bellows

drawn downwards. These are generally two reservoirs (one of greater tension than the other) for crescendo effects. On the left of the set are two governors, one for the motor and the other for soft or low tension. For the novice to identify each, he should set a roll in motion and while pedalling press either of these governors firmly; the motor will stop instantly when its governor is pressed. To test the low tension, push both soft levers to the "on" position and with the other hand press the governor, when the piano should be silent, though the roll be still passing over the tracker. Inside this governor is a scissor valve connected at one end to the pneumatic and at the other end to an armed rod, which is operated by both soft levers. This rod pushes in the scissor valve at its lower end, cutting off heavy wind. The pneumatic now controls the power, cutting down the exhaust to the strength of its spiral spring, which can be strengthened or otherwise by turning its milled nut to the right or left. The speed of the motor can be adjusted by treating its governor spring in the same manner.

Screwed to the bottom of the valve chest is a small board, to which run two rubber tubes and a large exhaust tube. This board contains the themodist accenting valves, marked (C) in Fig. 1. Unscrew it and you will see these valves and their pouches. They cover two ports, which when open call the full force of the powerful reservoirs into play.

The action of the themodist is as follows. When we have moved the themodist switch to the "on" position, the cut-off pouch (A) is drawn by the exhaust clear of the air channels (B), which are now ready for action. We push the two soft levers to the "on" position, which closes two small pallets beneath the keys (C). These pallets shutting off open air, the pouch (D) is deflated by the bleed hole (E) and the valve (F) comes to rest. Open air rushing down over the top of (F) inflates the large pouch (G) and closes the port (H). All this takes a fraction of a second.

Now the roll comes in. A marginal perforation (K) admits air down the tube through B and lifts D. The valve (F) is raised and G is instantly deflated, opening H to heavy wind (as in my sketch). The marginal holes being cut an atom before the note they accent, the melody is picked out very

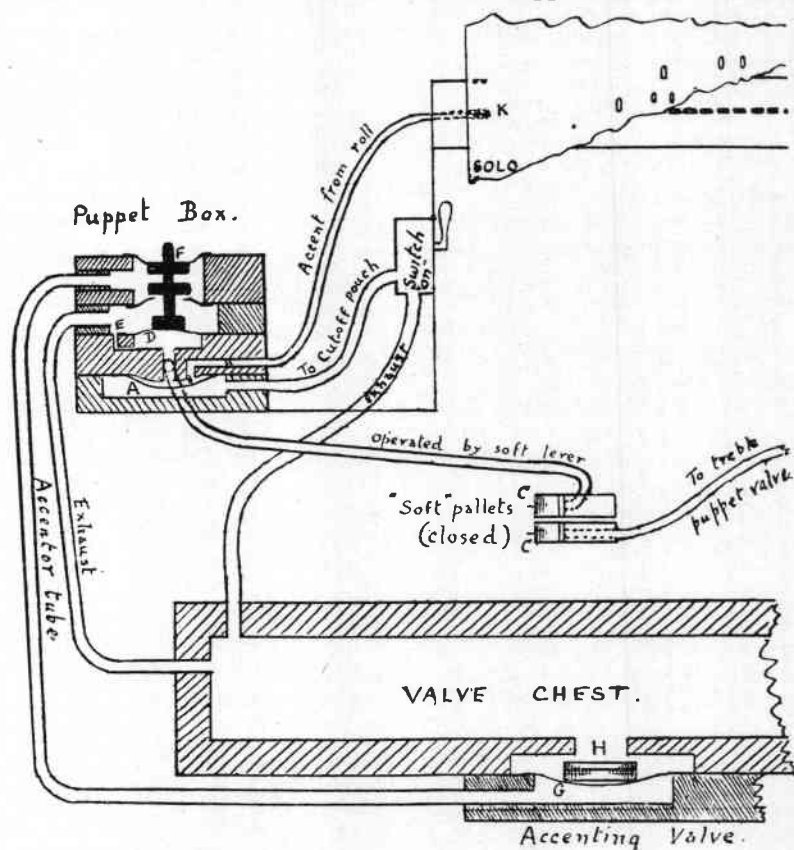


Fig. 1. The Themodist in action, one note accenting.

effectively.

When the themodist is switched off, open air is admitted through the switch block to the pouch (A), which is drawn against the channels (B) by the bleed hole (E), and the valves (F and G) are only operated by the two soft levers. When these levers are not in use, they hold the pallets (C) open, so that under normal wind power the valve (F) is raised and G is lowered.

In the full compass Pianola there is the automatic sustainer which is operated in a similar manner to that mentioned in the description of the Triumph Auto action.

The tracker shifting device is often found to operate by means of the roll's edges, which open a delicately sprung lever or minute pallet. Should the spindle spring push the roll too far to the right, the pallet on that side is opened, air rushing into one of two pneumatics, destroying its vacuum. Having matters its own way, the other pneumatic closes and pushes the roll to the left. Should the roll be pushed too far, the left hand pallet comes into play and pushes it back again; so these interesting little fellows take every care to keep the roll strictly to the path of harmonious virtue!

THE GRAND

The Pianola Grand can be tuned without removing any of the player action; but should the piano action give trouble it is imperative that one should have some knowledge of the player mechanism.

The action is divided into two sections,—the upper (comprising the motor, spool box, primary valves and tubes) being above the key bed, and the lower (consisting of secondaries, pneumatics, governors and bellows set) being found beneath the piano. Fig. 2 is a rough sketch of the latter section, and may be useful for identifying the governors and controls. Let us assume that we have a broken hammer shank to replace. To withdraw the keyboard we must loosen and depress all the control levers. Unscrew the secondary tube blocks (6 and 7, Fig. 2) and the soft pedal block beneath the key bed; disconnect the motor and primary chest tubes (not the tracker tubes), one at each end of the upper action; disconnect the tempo and re-roll rods and unscrew the panel at the back of the spool box from the iron frame. The keyboard, primary chest and motor will now draw forward together. See that

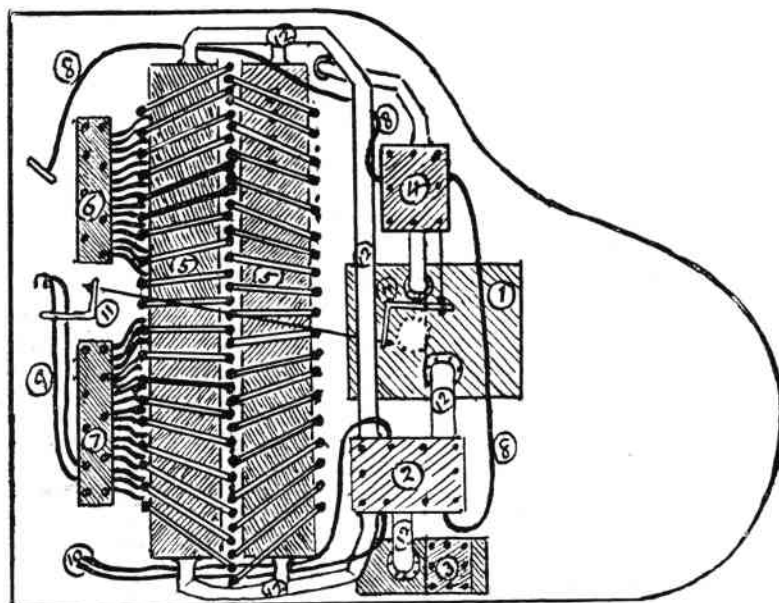


Fig. II. Lower Action of Pianola Grand.

1. Reservoir. 2. Low tension governor. 3. Automatic pedal sustainer. 4. Motor governor. 5. Secondary valve chest and levers. 6. Treble tube block. 7. Bass tube block. 8. Re-roll tube. 9. Low tension tubes. 10. Themodist tubes. 11. Tempo lever. 12. Main exhaust tubes.

the themodist box is clear though, and take that all the screws in the tube blocks are withdrawn. The primary chest can, if required, now be stripped and the bleed holes and tubes cleaned. For the benefit of the uninitiated, I should explain that primary valves admit air to their work and secondary valves shut off the same.

To remove a key, unscrew two nuts from the tracker box metal work. Disconnect from the hammer rail; the same with tubes, motor and themodist puppet box, lifting off the primary chest bodily. To remove the secondary valve chests, it is advisable to have the grand placed on its edge. Remove legs, unscrew tube blocks (if upper action is not already withdrawn); take out screws from treble and bass ends of valve chests (eight screws); disconnect large exhaust tubes at treble and bass; unscrew iron bar (to which pedal box has been attached, the pedals, of course having already been removed); take off tempo rod and lift chests forward, exercising great care not to rest them on the metal exhaust tubes at their ends. When these metal tubes are unscrewed, it is an easy matter to strip the valve chests and gain access to the pouches and valves. The action of the themodist and governors is practically the same as in the upright piano and needs no further description here; but the re-roll is pneumatically con-

trolled, the lever admitting air through a tube which opens a valve to full speed in the motor governor, and at the same time operating a pouch and valve in the low tension governor, shutting off the valve chests. One bleed hole in the motor governor deflates both pouches.

The manual pneumatics operate the piano action by means of levers and pitman rods.

When I overhaul these grands, I withdraw all the player action from the piano and assemble the whole mechanism on trestles. Then it is possible to test the different movements and controls before replacing in those confined spaces where "the hand of man has never set his foot!"

THE ANGELUS

NO one with any knowledge of players can have failed to notice the effects of time and usage on the bellows shaped pneumatics, and how frequently in the oft-used instrument a leakage develops at the corners and in the creases where the strain is most pronounced. The makers of the Angelus, to overcome this angular trouble, have employed a diaphragm, or large pouch, to take the place of the bellows pneumatic; and these diaphragms are found both in the interior player and in the cabinet attachment, but with the difference that in the former the pouch is exhausted to

operate the action of the piano, while in the latter it is inflated.

The full compass Angelus player piano is constructed to accommodate standard accentuated rolls; but in many models it has an additional perforation in the treble end of the tracker bar, which, by means of a large pneumatic, lifts all the hammers to the half blow. The construction of the whole player is so very similar to that described in the Triumph-Auto that it only remains for me to point out the method by which one gains access to the pouches and valves, to describe the outstanding features of the diaphragm pneumatic, the melodant, and the control.

In the majority of cases, the main objective of the tuner, or mechanic, is undoubtedly the pouches and valves; and to get at these we must remove the spool box, leaving the tracker bar standing on its two brass supports. Take out the top back-board of the box, withdrawing the screws from block at each side and releasing the clips just above. The tracker bar can now be released by detaching the two brass stays and unscrewing the tube rail at the back (about thirty screws).

You will find that the spool board is usually divided into three sections, which is a convenient arrangement for gaining access to the primary caps. Just in front and beneath these sections is the primary channel board, or step, similar to that of the Triumph-Auto, and also like that player it has the secondary pouch board immediately beneath the step, secured by about twenty-six screws. The removal of this pouch board exposes the secondary pouches and valves, and when it is free the primary pouch and valve blocks come away together.

After withdrawing a number of screws from the secondary valve chest, the diaphragm pneumatics can be drawn out and overhauled if necessary.

The bleed holes are of ivoryite, and are situated at both margins of the primary pouch board.

The bellows set, resting on two dowels, is released by taking out two screws in its upper portion, disconnecting the main exhaust tubes, the motor tube, the silencing tube, and the pedal releasing attachment.

On the left and right of the main bellows are the low tension governors and the divided melodant. Just above the treble governor is the motor governor, from

the side of which project six screws. Turning these screws in reduces the amount of air passing through the governor; unscrewing them a few turns has a contrary effect. The spiral spring is easily strengthened or weakened to the correct tension — that of obtaining seven feet of roll at 70 tempo.

This is the action of the melodant: we push the lever to the "on" position, and two small slides in the low tension governors are then pushed over two heavy wind slots; we depress the bass and treble subduing buttons and so admit air to two large pouches in the low tension box. These pouches lift valves to cover the main exhaust ports and all power is passing through, and is controlled by the low tension bellows governors, which are held open by a spring adjusted by a regulating cam.

Now, in the interior of the two large pouches just mentioned are small valves, and when a pulse of air is admitted from the accent perforations of the roll, these small valves instantly rise and instantly deflate the large pouch. Down drops its valve; the main exhaust is opened, and the note or notes to be accented are emphasized by the normal heavy wind. To overcome the feeble pressure of air in the large pouch (which in the case of the ordinary valve thrusts it back instantly to its seat, being exposed at one end to the atmosphere), a light spiral spring is em-

ployed to assist in the rapidity of the movement of the valve. This rapidity of movement has mystified some people, but a very simple experiment will no doubt remove any uncertainty that may linger in the mind of the incredulous. Connect, then, a piece of tubing six or eight yards in length to any valve nipple, covering the free end with the finger. Note how instantly the valve is operated by lifting the finger, and then realise that in all probability there is no player tube in existence with greater length than six or seven feet; possibly in the grands a few inches more.

And now let us consider the control. From bass to treble, — it is soft bass button, soft treble button, melodant lever, re-roll lever, tempo lever, sustaining pedal lever, and the phrasing lever.

The soft bass and treble buttons we have already examined in their connection with the melodant. The melodant lever does quite a lot of work. Pushed to its extreme left, it opens the small slides in the low tension box and produces the crescendo effect by admitting heavy wind. At the centre position, the melodant is "on"; pushed to the right it is "off"; and pressed down it admits air to a pouch lifting a valve and collapsing a large pneumatic which, lifting the hammers to the half blow, obtains the *piano* effect. So much for the melodant lever.

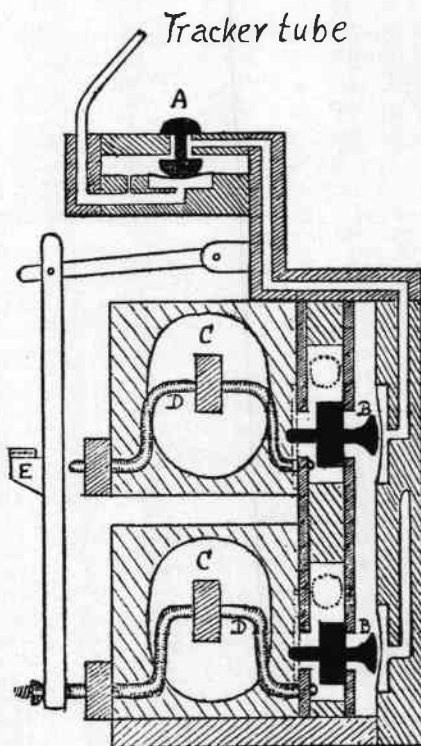
The re-roll disengages the mesh from cogs in the winding mechanism, and at the same time opens air to a pouch and its valve, giving full speed to the motor by ignoring the governor. It also cuts off the valve chest by pneumatic pouch and valve; and, not satisfied with all this, it silences the valve chest when pressed down during the playing period for the purpose of skipping unpopular, or over-popular passages in any roll.

The tempo lever works in the ordinary way, admitting more or less air through the governor, speeding or retarding the motor.

The sustaining lever collapses a large pneumatic and lifts away the dampers, but is also connected in some models by mechanical rods and levers.

Lastly, we have the phrasing lever, which is a rocking tablet that, being connected direct to the motor governor, controls the speed by pressing either end. The right end increases the speed, and the left reduces it, to the halt if necessary.

Correct tracking is obtained by



raising or lowering a lever sliding on an inclined metal thrust block on the right hand of the spool box.

Should any reader have occasion to overhaul a cabinet Angelis, he will find that, though the diaphragm pneumatic is employed, it operates in an exactly contrary manner to the model we have been discussing. In the cabinet, the pneumatics are *inflated* and push out the metal cranks to their work, and this means that both primary and secondary valves admit air; whilst in the more modern interior player the secondaries behave in the conventional manner and exhaust the motive power.

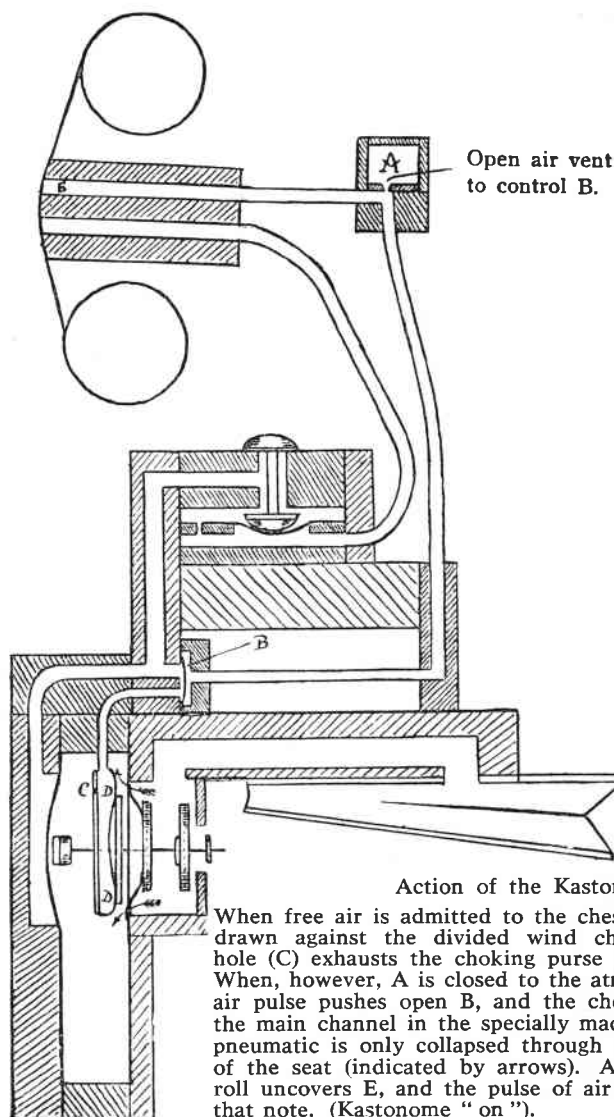
The accompanying sketch is taken from the up-to-date model. A is the primary valve, which when lifted by the perforations in the roll admits air to the secondary pouch, pushing out the valve (B) and collapsing the diaphragm pneumatic (C) by way of the air channel indicated by the dotted circle. The diaphragm being attached to the metal crank (D), draws in the crank and lifts the pitman (E) operating the piano action. The silence of the diaphragm, its remarkable response and durability, together with the efficiency of the melodant, have placed the Angelis in the front rank of the world's best known players.

THE AUTOPIANO THE "KASTONOME" ACCENTING DEVICE

I WAS once asked whether there was an accenting device in existence which emphasized any note in a chord struck simultaneously; "for," said my interlocutor, "if the valve chest be divided, and the chord is composed of notes occurring in one of the divisions, the whole chords must be accented unless the perforations are cut slightly out of alignment."

In a case like this, the accented note is cut out of line, but so slightly that the ear cannot detect any irregularity. There is, however, a device found in the pre-war Autopiano — known as the Kastonome—which employs an individual accenting pouch for every note, and this is the subject of the present chapter. Special rolls were cut for this accentor, but apparently they have been pushed off the market by the advent of the standard roll. However, as there are a number of players existing containing the device, it may not be out of place to describe its outstanding features.

The Autopiano is the father of the Triumph-Auto and differs but



Action of the Kastonome.

When free air is admitted to the chest (A), the purse (B) is drawn against the divided wind channel, and the bleed hole (C) exhausts the choking purse (D); normal condition. When, however, A is closed to the atmosphere, the ordinary air pulse pushes open B, and the choking purse (D) closes the main channel in the specially made seat, and the power pneumatic is only collapsed through small holes in the rim of the seat (indicated by arrows). A marginal hole in the roll uncovers E, and the pulse of air shuts off B, accenting that note. (Kastonome "on").

little in construction from that instrument. But, whereas the Triumph-Auto employs an accenting device (the Triumphodist) which accommodates standard rolls, the Kastonome is found only in the former. One cannot fail to recognise it by the additional number of perforations at each end of the tracker bar. Each of these perforations admits air to a cut-off pouch, which causes a ring shaped pouch, situated immediately in front of the secondary valve, to collapse.

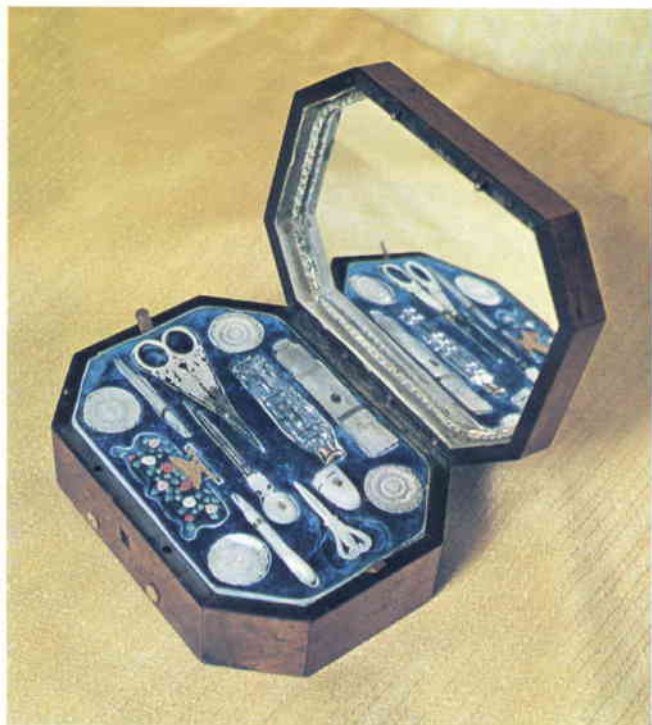
These valves have special seats, in the rim of which are two small air channels. Between the seat and the ring pouch is a soft leather washer, which when pressed against the seat permits the striking pneumatic to be collapsed only through these holes, producing thereby a considerably modified blow. When air is admitted by the marginal perforations in the tracker bar the cut off pouch is closed and the bleed hole in the ring collapses the pouch, which results in

the normal blow.

The Kastonome is thrown on or off by a switch, the "on" position shutting off open air from a small chest at the back of the spool box. The "off" position admits air to all the cut-off pouches; and, the ring pouches being then deflated, the pneumatics are operated by normal wind.

When it is necessary to adjust, clean or repair the secondary valves, one must slip off the rubber tubes controlling the ring pouches, when the latter can be unscrewed from their stems; and, after pulling off the choking washers, the valve and its seat are exposed. Two minute springs also regulate the size of the air channels of the rim of the seat.

Player pianos were in the transition stage when this instrument was at the zenith of its popularity, and in many models the tracker bar is of the combined type,—65 and 88 notes. The change from one to the other is obtained by a lever
continued on page 220



Above : From the John Mansfield collection comes this fine and unusual early musical necessaire with a miniature musical movement, probably by Alibert, with a sectional comb in groups of five. It plays two so far unidentified tunes. Top right : Restored by Keith Harding, this musical bracket clock was made by John Ellicott of London towards the end of the 18th century. It plays 14 tunes on 13 bells which are each struck by two hammers—26 in all. Compare with the pictures on pages 138 and 139 of Volume 7.



Musical playing doll in the Mansfield collection was a 1/- ticket raffle prize in 1904. Similar to Mosoriak (Plate 20), the piece is 15in high and has a 4-air movement with $4\frac{1}{2}$ in cylinder. Tunes are *Marche de Volunteer*, *La Mascotte* (Audran, 1880), *Paris Nouveau Waltz*, *Le Grande Mogul* (Audran, 1876). Doll's head turns and hands move over keys. Left: Two fobs containing tiny barillette movements with stacked teeth.

THE NEW MUSIC

H A V Bulleid

*in which the progress of the musical box is
observed through the advertisement columns of "The Times"*

AFTER the newspaper stamp duty was removed in 1855, the *Daily Telegraph*, a newcomer, dropped its price to 1d and its circulation soon overtook that of *The Times*. The same thing happened when the *Morning Post* reduced to 1d in 1881. These papers also carried "for Sale" advertisements, as did the *Daily News*, the *Pall Mall Gazette* (founded 1865) and the *St James's Gazette* (founded 1880 and now called the *Evening Standard*). So, advertisements in the influential, prestigious *The Times* continued to be significant but represented a decreasing proportion of total newspaper advertisements after the 1860s.

The three consistent advertisers of the 1860s were still active in November 1875—a month which then, as now, signalled the run-up to the Christmas sales drive for luxury goods. Keith, Prowse had expanded their selection of musical boxes to "more than 500 boxes, with all the recent improvements, from £4 to £200", and they urged readers to visit "the new saloons especially devoted to the sale of these enchanting instruments" at 48 Cheapside. The Musical Box Depot at 11 and 12 Cornhill continued to offer "a choice assortment of boxes playing the most popular airs". But Wales and McCulloch came up with the most telling new advertisement, emphasizing their close link with the makers, "INSTRUMENTS by NICOLE are the perfection of musical mechanism; a delightful resource in the quietude of home or for the entertainment of friends. Superb stock, largest and best in London, with all new and brilliant accompaniments. Prices from £4 to £120, snuffboxes 15s to £3."

"The finest collection . . ."

The trio were sometimes joined by two newcomers. One was the Royal Exchange Musical Warehouse of 4 Royal Exchange Buildings, E.C., who offered Pianofortes from £15, Harmoniums from £4, American organs from £12, violins from 10s 6d, and "the finest collection of Musical Boxes". The other was Ellis Brothers, Office of Sale and Barter, 21 Cockspur-

street, Pall-mall, S.W., who sometimes offered second-hand boxes and sometimes "A few superb INSTRUMENTS for SALE, including a rare mandolina and bell chimer, performing 36 selections; also an Instrument of importance, playing an hour, and several others, embracing overtures, sacred melodies, operatic selections, ballads, Irish and Scottish tunes. All especially fine matchless instruments, the pick of the leading makers."

By 1878 both these newcomers and the Cornhill Musical Box Depot had disappeared from the columns of *The Times*. Still going strong, however, were Keith, Prowse with their price range extended to "£3 to £300", and Wales and McCulloch offering "musical boxes and cabinets".

Ladies companions . . .

By November 1880 Keith, Prowse musical box advertisements had disappeared; the Wales and McCulloch price range was extended to £260; and G Foucher of 23 Piccadilly, was offering musical boxes, ladies' companions, cigar stands, singing birds, etc. There was also the occasional second-hand offer:

TWO LARGE best MUSICAL BOXES, fine and good; one has visible bells; both for £10, packing case included. Address Occasia, Herring's Library, Teddington, Middlesex.

Other second-hand offers over the next year or two included some by Wales and McCulloch; and in 1884 a newcomer made an interesting but fleeting appearance:

MUSICAL BOXES. Price £3 to £100. Forwarded immediately on receipt of remittances. A large assortment may be seen at LOSADA'S Manufactory of high-class Watches and Chronometers (established in 1835), 105 Regent-street, London.

A tempting box was offered on December 20th 1884:

MUSICAL BOX, very fine orchestral box. Operatic selections, two combs, organ, drum, bells, and castinet. Double winder, finest make, and quite new. Cost

£40; will accept £25. Letter to EHH, 40 King's-road, Peckham, S.E.

Readers will remember from Arthur Ord-Hume's article in *The Music Box* Volume 4, page 321, that Charles Brun acquired ownership of Nicole Freres in late 1882 and removed the entire business to London's Ely Place (see also Cyril de Vere Green's article on page 234 of the same volume, and that of Keith Harding on page 294 of Volume 7). The latest-known Nicole Freres box before the takeover bears the serial number 47463. But just when was it manufactured? Well, it is known that number 45888 was bought in London as a present for H A Ivatt's wedding on September 20, 1876. Nicole's rate of manufacture averaged about 700 a year, and the stock held in London alone may well have been over 500, if advertisement claims are to be believed. Therefore the "last" box, number 47463, was probably made before 1879, and certainly before 1880, unless there was a hiatus in manufacture, or the serial numbers ran out of order.

This could explain why Keith, Prowse advertising stopped in 1879; and it certainly explains the wording, though not the delay, of the following advertisement which first appeared in October 1885:

SPECIAL OFFER — Musical Boxes — Messrs WALES and McCulloch, 22 and 20 Ludgate Hill, have arranged to SELL, at a large reduction, the whole of their valuable collection of MUSICAL BOXES, by the celebrated Nicole Frères, of Geneva. Catalogues, special issue, gratis and post free. . . .

The same advertisement appeared again several times in October 1886; but on December 11 the first Nicole advertisement appeared, and was repeated on alternate days till the year end:

MUSICAL BOXES. — Christmas Gifts. — Messrs NICOLE FRÈRES (established 1815), 21 Ely-place, London, and Geneva. Musical boxes, unapproachable in tone, quality, and finish, from £1 1s. Christmas catalogue of

newest airs, free.

By November 1887 Wales and McCulloch had widened their last advertisement to "SELLING, at greatly reduced prices, a STOCK of very choice MUSICAL BOXES, by the most eminent makers, many new and popular selections of music most brilliantly rendered". At the same time, Nicole were gaining strength:

MUSICAL BOXES — Messrs NICOLE FRERES, Geneva (Estab. 1815) Sole London Depot, 21 Ely-place, E.C. Highest Exhibition Awards for quality of tone and finish. Write for No. 76 catalogue gratis and post free. Every description of musical box repaired at moderate charges. Boxes, old, in stock at half price.

That advertisement appeared on most days from mid-November till the year end. It was alone throughout December except on the 18 when Losada made another fleet appearance:

MUSICAL BOXES, price £3 to £100. Boxes to play 2½ hours once wound up, full band boxes, &c — LOSADA, No. 105 Regent-street, W. Established 55 years.

Perfect interchangeable

A notable new Nicole advertisement appeared about twice a week, starting in November 1888:

MUSICAL BOXES, with interchangeable cylinders, by which an endless variety of the most delightful airs can be produced at pleasure. — Messrs NICOLE FRERES invite inspection of the PERFECT INTERCHANGEABLE MUSICAL BOX, of which they are the sole Manufacturers. — 21 Ely-place, London, E.C. Geneva, Est 1815. Repairs of every description. Write for Price List No. 5, post free.

That advertisement, with a few minor changes, also appeared throughout November and December 1889, 1890, and 1891, alternating with a shorter notice which at first offered catalogue number 15 and later, in 1891, price list number 7. But 1891 marked its last appearance, and this is not surprising when one considers that by then numerous patents for disc musical boxes had been published, and Charles Brun must have realized that the commercial viability of interchangeable cylinders was gone for ever.

Meanwhile, what of Wales and

McCulloch? Did their dramatic notices of 1885 and 1887 mean they were pulling out of music boxes or were just pushed out of Nicole Freres? The answer came in December 1888:

MUSICAL BOXES, high-class, by the most eminent makers. Unrivalled stock with all latest improvements, playing every description of music, secular and sacred. New catalogue. Catalogues of tunes and (reduced) prices sent gratis and post free. — WALES and McCULLOCH, 22 and 20 Ludgate-hill, London.

This was repeated in 1889 with emphasis on their "choice stock", and in 1890 with emphasis on their being "old established". In 1891 they offered to send boxes "carriage paid to any part of United Kingdom, to effect a clearance", and in 1892 they failed to appear. In 1893 they offered a stock at about half price and in 1894 they had "a stock of high-quality Instruments, which are now obtainable at prices much below anything of the kind ever offered before". In 1895 they disappeared again, only to reappear powerfully in 1896 with "MUSICAL BOXES by renowned makers, who obtained the highest awards at the recent Great Exhibition of Geneva.—New illustrated list of tunes and prices. . . ."

Wales and McCulloch must have enjoyed considerable and lasting prestige as Nicole agents, and some Nicole boxes displayed their name incorporated in the tune sheet design (as also happened with Keith, Prowse).

Pianos and everything else

Throughout this period, *The Times* carried between a quarter and a half column of piano advertisements practically every day, including frequent mentions of organs, harps, violins, etc., and, of course, player-pianos. The regular advertisers were joined by strangers from time to time; typically, in 1893-94, lengthy notices appeared from Thibouville-Lamy introducing themselves as manufacturers of practically everything musical, from orchestrions and automatic pianos down to musical novelties, but making no mention of musical boxes. And it certainly is a remarkable thing that, right up to 1896, Nicole was the only named musical box maker to appear in *The Times*.

Strangely, Nicole did not advertise in *The Times* for the Christmas run-up in the years 1892 to 1894; but they returned in 1855 on

December 19 with "Highest Exhibition awards for quality of tone and finish—write for No. 78 catalogue" to which was added on December 26 "every description of musical box repaired at moderate charges, or exchanged".

The same advertisement appeared in 1896; but with it there also appeared the advertisement which signalled the eclipse of the cylinder musical box era:

POLYPHON — Music work of the latest construction, is acknowledged by all as the best. It plays by itself many thousand pieces by changing the round metal plates. Purity of sound and durability warranted. Speciality: alarm-watches, £2 15s. German manufacture. Price list free and post paid. Warehouse, ANDREAS HUBER, Jr, Karlsplatz 4, München, Bavaria.

Writing on the wall

The eclipse was also signalled by musical box adverts disappearing from *The Times* after 1898, though there remained the constant flow of piano adverts. Nicole returned for the last time in 1897, with significant emphasis on the variety of tunes:

NICOLE FRERES' MUSICAL BOXES make Ideal Christmas Gifts. Play to perfection over 1000 tunes, including all the latest airs. Appreciated by everybody. Send for New Illustrated Catalogue no. 77 post free. Estd 1815. . . .

Wales and McCulloch soldiered on as before in 1897 but bowed out, and strangely, in 1898 after appearing for 45 years:

MUSICAL BOXES UPON HIRE. Messrs WALES and McCULLOCH are prepared to LEND on HIRE their carefully selected stock of MUSICAL BOXES. These instruments are specially adapted for Christmas parties and entertainments, and afford genuine pleasure to young and old. Catalogue and all information on application to No. 20, Ludgate-hill.

Cynics with repair problems may ruminate on what happened to some hired boxes at some Christmas parties; but I think no one will dispute that they afforded genuine pleasure. They're still doing it.

P.S. Yes, Nicole Freres *did* advertise Catalogue number 78 the year before number 77!

The Music Box reports on THE PIANO



Above can be seen just part of the collection with the rare roll-playing Wurlitzer theatre organ on the right. Picture left shows the Debain Antiphonel twin-action piano which plays using planchettes, bottom left, which are cranked over a keyframe. Below, the museum's Mills Violano-Virtuoso.



MUSEUM - sixty tons of valuable worry . . .

MANY members are already aware of the problems which face the British Piano Museum at Brentford in Middlesex. The fine collection formed by our honorary member Frank Holland and now operated as a registered charitable trust, is housed in a condemned church whose ultimate demolition is close at hand. The fabric of the building is buffeted by high winds, vibrated by low-flying aircraft en route to close-by Heathrow, and rattled by heavy traffic on a highway a mere four feet beyond the church door.

When the Editor visited the museum one cold, damp winter's day, he found not just the usual outward signs of damp and decay — the church is built of Kentish ragstone which dissolves in polluted atmosphere and rain — but detected some very real signs of impending structural collapse. Tall windows whose surrounding stonework has literally disintegrated are one problem: a sagging floor which threatens to cast its burden into the flooded crypt is another.

Frank Holland has been endeavouring to obtain the famous Science Theatre built by Sir David Salomons. In spite of strong support in both public and government circles, and as reported in an earlier issue of *The Music Box*, efforts have been stone-walled.

In keeping with several other leading musical journals in the UK not to mention national newspapers, *The Music Box* received the following letter:

Dear Sirs,

The valuable collection of instruments comprising the British Piano Museum is desperately in need of a suitable building. The collection is valued at something like a quarter of a million pounds and is at present housed in a disused church. The church is in a bad state of disrepair. Recently a window blew in and the storm damaged some of the instruments. The architect reported that similar damage could occur at any time, and although the Museum has been housed in the church for twelve years, it is now urgent that suitable accommodation be found.

A building that would be ideal for the needs of the Museum has been found at Tunbridge Wells in Kent. It is the Science Theatre of the late Sir David Salomons' House, "Broomhill". But although repeated overtures have been made to the authorities it seems that the release of the building is tied up in bureaucratic redtape. On two occasions the matter has been raised in the House of Lords but so far to no avail.

So the Museum is faced with the only alternative—to find a buyer for the collection of instruments at home or abroad.

Countries overseas are fully aware of the value of such instruments. Only last month the Musical Museum of Utrecht in Holland bought a musical box in London for £15,000—the highest price ever reached. A little before that the same Museum bought the finest private collection of musical boxes for £80,000. Again it was Britain's loss.

For how long can we allow such things to go on? The two hundred and fifty thousand pounds' worth of instruments in the British Piano Museum at Brentford may soon follow the same path, for if an offer came from overseas — from Holland or Tokyo or California or wherever — it would be difficult to resist.

As the years go by these instruments will become priceless. If Britain needs them we must act now!!

(signed)

Frank Holland
Founder & Director
The British Piano Museum.

The reaction of one trade journal — *Music Trades International* — has been impressive and we believe it worthwhile, with due acknowledgement to that magazine and its editor, Leslie Hayton, to reproduce its response published last October.

This begins with an editorial under the banner "What should we do???"

WHAT support should we give to an individual who for thirteen years has battled with Authority to find suitable housing for this most unusual (and valuable) collection of rare and fascinating instruments? Should one ask how valuable, in hard commercial terms, is a collection of mechanical instruments to the Trade? Does a museum of old pianos, organs, musical boxes and the like stimulate an interest in, and subsequent sale of instruments, records, sheet music . . . ? Is it a record in itself that here is a man who is not actually asking for money but is merely asking for somewhere to display the collection to its best advantage for the delight of an international public, as a research tool for students, and most important, in order to retain its present state of preservation, a state which could very easily slip away unless the collection is quickly housed under better conditions that is now the case; time is not on our side!

So what should WE do? What CAN we do? Anything? Everything? Should we allow a plastic beaurocracy to shunt him around like an old railway truck in the hope that he will give up a hopeless fight if they ignore or side-track him long enough?

It may be true that Mr. Holland's battle with authority for a cause in which he passionately believes and

which has taken up the entire latter end of his life, his total energy and all his finances, has been fought in such a way that has not made him popular with those lesser mortals not blessed and cursed with his visions; and never has he courted popularity.

But the truth remains. This collection must be protected and preserved just as must the treasures of Egypt, or the sinking squares of Venice, or the lesser spotted woodpecker.

It's reporter with the pseudonym *Fiddler* then goes to town with the following statement of the situation and its interpretation.

AT first sight it would appear that here we have some little bloke with a bee in his bonnet about some collection of mechanical musical instruments housed in some crumbling church in Brentford who is conning his beady eye around for something better. . .

Never slow at scratching the surface of a story to see what really lies underneath, *Fiddler* has been scratching this particular surface with a spade . . . and the story bears repeating.

The signatory of the letter is Frank Holland, who got bitten by the bug for mechanical pianos and organs at an early age, but who went forth into the world to make his fortune as an engineer, a skill he now puts to great use in his collection. He is now considered an expert in his field.

Thirteen years ago he set up his growing collection in a disused church in Brentford, turned it into a charity and called it the "Musical Museum". It is now a unique collection of mechanical instruments — player pianos, orchestrions, music boxes, barrel organs, violin-playing instruments, and a Wurlitzer organ, the only one in Europe that can be played by a paper music roll. The collection is quite unique. Any other nation, recognising its uniqueness, would have built a special building to house it, charge a quid to get in and would have made a fortune and a lot of kudos out of doing so. But we British wouldn't recognise a good thing even if we found it in our corn flakes.

The Museum is housed in this derelict church; the roof leaks, the winds blow windows in, the cellar is flooded, it a dump, and it houses a unique collection conservatively valued at about £250,000.

Last year the takings from visitors entrance fees, the sales of odds-and-bobs in the Museum shop, the hire of various pieces to film studios etc, brought in about £7,000. Frank Holland, and this is giving no secrets away, is not a young man, but he lives in the church with his collection (no company will insure the collection unless someone lives on the premises) and keeps his own body and soul together on hard work and one hundred pence a day! So that's the background. A disused church housing, in appalling conditions, a unique collection tended by an original English eccentric.

The scene now changes, and we find ourselves near Tonbridge in an elegant mansion once the home of Sir David Salomons, businessman and inventor. One part of the mansion is a Science Theatre upon which Sir David lavished both his inventive genius and his money.

The theatre was fitted with all manner of theatrical, electrical, scientific equipment (in themselves very worth saving) which made it a minor wonder of its day, and he also invested a minor fortune on installing the largest Welte Reproducing Pipe organ ever seen in England. In 1914 Edwin Welte himself supervised the installation. The Welte Freiburg factory was obliterated during the war and this specimen is now the best remaining example of its type in the world.

So there we have part two of the story. A superb, purpose-built theatre with a unique example of an organ which enthusiasts read about, and the rest of us are in ignorance of, set in superb grounds and within easy reach of London.

The plot thickens. In 1937 Sir David's daughter made over the estate into the custody of the Kent County Council to be held in trust 'for the people of Kent' to be used as either a technical institute, a college, a library, a museum, a memorial hall, an institute for scientific research, a public park, a convalescent home or hospital . . . and for no other reason.

The Kent County Council used the home as a convalescent home and as it was being used as such in 1946, it was requisitioned by the Ministry of Health under the National Health Act which allowed the Government to act with complete disregard for any trust

deeds relating to hospitals then in force

In 1971 the need for a convalescent home ceased, but unfortunately the Ministry of Health never thought to give the estate or even part of it back to 'the people of Kent' but have since turned it into a Conference Centre. What exactly the theatre is being used for is open to debate — one side says its used to teach 70 cooks, the others say that it's not . . .

Since Frank Holland got it into his head that the theatre would make a splendid setting for the Music Museum — and there is no doubt that it would — he has undertaken a tireless campaign against all those who would get in his way . . . but with little concrete success. At the end of the day, there's this huge powerful guy called the Ministry of Health who sympathetically, even gently, but very firmly looks down at this minute little guy and says 'NO', "We've got it and were's going to keep it!"

And so what's to be done? Should we allow a unique collection of mechanical musical instruments to fall apart through our disinterest? Should we ask our own representatives in Parliament and Trade a few searching questions? Could we not at least show some concern?

There is no doubt that Frank Holland has no more right than anyone else to set up his collection on this site, in fact by the law of the land the

Ministry of Health seem to have right on their side. But the Ministry of Health could quite easily rearrange their affairs to enable the Music Museum to take over the theatre for its fabulous collection and the various anti-rooms could be used to house the equally valuable collection of 20,000 paper music rolls etc. What a splendid tourist attraction, within easy reach of London, that would make!!

And finally, has anyone, including the Ministry of Health the moral right to ignore the wishes of the original owners, the Salomons family, who desired that the estate be given to and used by 'the people of Kent'?

We ask again the question "Does Might make it Right"?

Meanwhile 67-year-old Frank Holland battles to save the collection he devoted his life to forming not so much from being sold abroad as being buried under tons of crumbling church. With money apparently readily available to save other treasures (such as the recent case of the Stubbs paintings) one can be excused for succumbing to a growing feeling of unease at the sense of priorities which decide artifacts are worth preserving for the benefit of future generations.

continued from page 214

in the spool box, raising or lowering twenty-two small brass slides, which being grooved on the under surface connect the 65 or 88 tracker perforations to the requisite tubes. These slides are each pressed to a metal bar by a spiral spring and prevented from sagging out of position by two dowels. Occasionally excessive damp is apt to tighten these dowel holes, when the slide is held off the metal face and a cyphering occurs, — invariably in four adjacent notes.

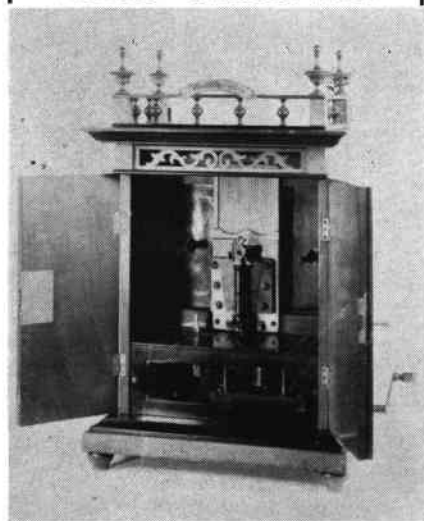
The remedy is to enlarge slightly the dowel holes with a fine rat-tail file or similar tool, but great care must be taken in gaining access to the slides. Should the inexperienced enthusiast unscrew the bar when the action is in a vertical position, all the slides are liable to spring out of place and give considerable trouble in their replacement, to say nothing of the consternation they will cause by their sudden appearance on the carpet. The best method is to withdraw the player action (as in the Triumph-Auto) and, laying it *face downwards*, prop it up quite horizontally with anything handy, —books, for instance. Then unscrew one end only of the four metal stays (which hold down the moving bar) and turn them up so that you may swing up the bar on its two wire hinges. If care is taken, the slides will not get misplaced,

The Pneumatic Player

and any dowel holes that are doubtfully free can be eased and the bar pressed back into position again.

In a very dusty instrument it is, of course, necessary to clean out the grooves of all these slides; but this is hardly an operation that one

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The "smoker's cabinet" style of music box dates back to the times of the old pipe-rack and baccy box. A form used in the Britannia/Alexandra uprights, this one plays 9in discs. Rated as highly collectable. Christie's picture.

would undertake in the drawing-room. I have had little difficulty in adjusting these slides to their dowel holes with the aid of a piece of thin wire.

In the grand Autopiano, the striking pneumatics operate the action of the piano by extended levers, and are therefore situated above the key bed. To disconnect and withdraw the player action, it is only necessary to pull forward the metal levers, one at each end of the action. Disconnect the tempo and re-roll rods, slip off the motor and tracker shifter tubes and lift the player action gently forward and out.

If repairs are needed to the piano action, unscrew the levers and buttons in the lockboard before pulling the key bed forward.

The bellows work, motor governor, low tension governor and soloist pneumatics are found beneath the grand, and are quite accessible and easily repaired when necessary.

The player action of the Autopiano is found installed in many of the best known pianos, and is of such excellent workmanship that it is a consolation surely to know that in the Triumph-Auto we have a player worthy to carry on its traditions and to perpetuate its memory.

To be continued

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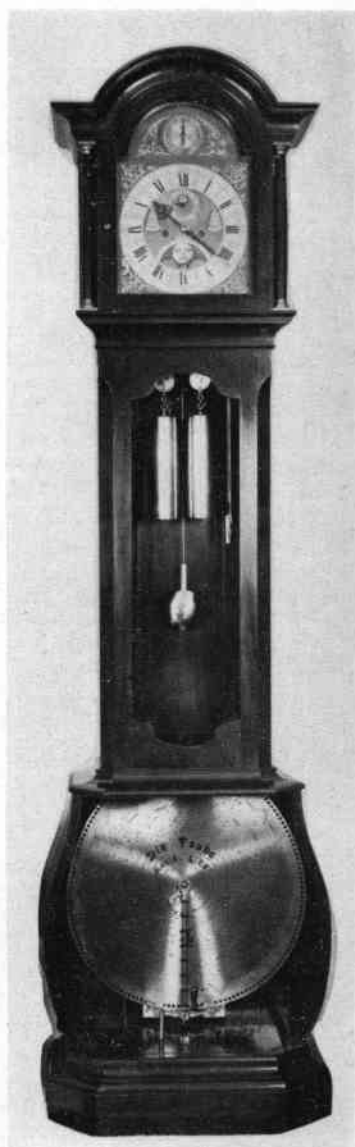
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The Stratford Meeting

THE Winter regional meeting of the Musical Box Society of Great Britain was held on Friday, December 2nd, Saturday 3rd, and Sunday, December 4th, at the Falcon Hotel, Stratford-upon-Avon, Warwickshire.

Local organiser and meeting secretary was David Heeley of Alveston who, with his lady wife, Sheila Heeley, succeeded in arranging what proved to be a first-rate and thoroughly enjoyable occasion. Some 85 members and their guests registered.

Members and guests foregathered on the Friday evening in a modern and, in consequence, grossly overheated conference room attached to the 16th century half-timbered Elizabethan building. Those who can remember back to the heady days 16 years ago when £20 would buy a good musical box, probably knew what they were in for by the title of the evening programme — musibox collecty chattel. This was the name our editor used to describe the sounds heard at a society meeting. This time, though, it proved to be an informal slide show presented by Arthur Ord-Hume who discussed points of the items screened.

On Saturday morning, business began with an official welcome from the President who introduced the first speaker, Mrs. Heeley, who delivered a brief but pertinent talk entitled "If you can't beat 'em — join 'em!" This related some of her baptism of mechanical music and why she herself decided she, too, must collect — or be left out.

This was followed by our second speaker, The Rev Jonathan White of Marsh Gibbon Rectory at Bicester. His talk, "Collectors' Miscellanea", was illustrated with slides and showed some of the many fine items in both his collection and those of other members whom he has visited. It will be recalled that The Rev. White, when he was in the Manchester area, hosted a regional meeting there some years ago.

Our third speaker for the morning was G T Mayson, maker of the new cylinder musical box shown on page 154 *et seq.* His talk, "Making a Cylinder and Comb for a Cylinder Musical Box Movement", was illustrated with the tools he used and, of course, the box itself. Particular interest was taken in his mechanism for marking out or pricking the cylinder with the music. For this, as pictured on the previous pages mentioned, he used a heavy, robust jig which mounts a lockable, sliding punch, the whole being controlled by a specially-made dividing head. We were then treated to the sound of the new movement, having first been warned that there were still a few adjustments to be made. Even so, the piece sounded well and is concrete evidence of the skills which our members now have. The musical arrangement for this mechanism was the work of another member, Robin Timms (see letter on page 228).

After the luncheon interval, a motor-coach was provided to take us to Compton Wynates, the famous Tudor house dating back to the 14th century. It was a cold, bleak afternoon and the house, normally closed at that time of the year, was especially opened for our tour. We had been advised to wear warm clothing and this proved essential since the house, with its strong connections with Henry VIII and Elizabeth I proved to be very cold indeed. No roasting ox for us!

The house, very much an ad libitum architectural style from its random layout to its twisted, barley-sugar chimneys (which one member identified correctly, as being multi-start endless screws!), houses a number of treasures, those which appealed most to us including the Father Smith chamber organ in the chapel which famous instrument, frequently broadcast on the radio, is made to be played while standing up.

Leaving the cold house, we walked the few hundred yards through the grounds, overlooked by the hill with the now-restored four-sail windmill, to the church, restored in 1655 after its destruction in the Civil Wars. This church houses a very fine barrel organ, the keyframe of which is engraved with the name of the maker, H Bryceson. Illustrated as Plate 31 in the 2nd edition of Langwill and Boston, and also on this page, the instrument has four stops (open diapason, principal, flute and fifteenth), 24 keys, two barrels each of 11 tunes, and originally stood in Long Compton Church, Gloucestershire. Said to be in working condition (the handle has been removed on the express instructions of the Marquis of Northampton who will allow nobody to play the instrument), it is complete and restorable.

As the short winter daylight hours waned and the frosty evening set in, we boarded the coach for the journey to a close-by village where, in the church hall, we were entertained to tea to the accompaniment of David Heeley on organ—an electronic instrument. Then back to the Falcon Hotel for cocktails and dinner.

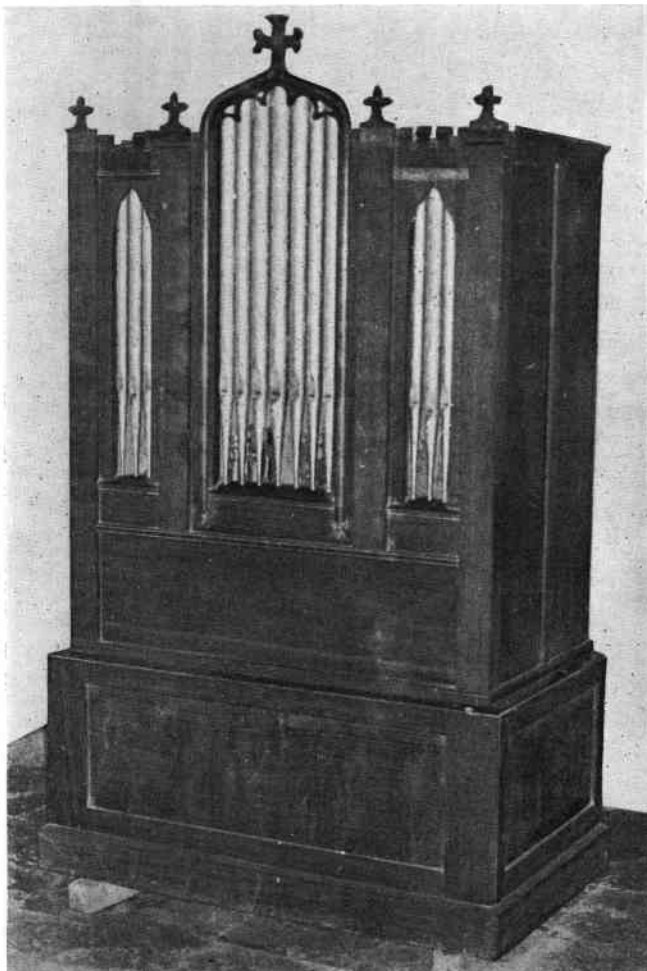
The dinner, attended by 36 members and guests, was enlivened by two of Keith Harding's instruments — the Jubilee Polyphon (playing better than ever before thanks to smoe minor adjustments), and a large cylinder box with dancing dolls fully restored to clockwork operation from its former electrification as a railway station attraction used in a past era on a Swiss railway station.

Addressing the meeting after dinner, the President demonstrated the latest in modern musical boxes — an electronic device for playing any one of 24 selectable tunes and intended as a replacement for the doorbell.

We then adjourned into the meeting room where Keith Harding gave an illustrated talk on his restoration of the Perigal clock (see page 202). This talk was ostensibly marred by malfunctions of the slide projector and its operator. In truth it turned out to be, unintentionally, one of the funniest presentations we have ever had and even our frustrated speaker (whose every word was deliberately misunderstood by the audience) had to agree it was high-class hilarity.

Sunday morning was spent as guests of meeting organisers David and Sheila Heeley at their home, Alveston Leys, where we were able to view their collection plus several other items which had been loaned for the occasion by other members. Finally it was time to depart and, after coffee and biscuits in the lounge to the accompaniment of a brand new British-built book organ, by coach to Birmingham station. In the words of the President in offering our thanks to the Heeleys, this meeting proved to be most interesting and very worth while thanks to their efforts.

UNITED Kingdom members have been circularised regarding the Regional Meeting to be held in Utrecht in September. This meeting is now fully subscribed—there has to be a fixed limit for the number in the party—and we regret we cannot accept any more reservations.



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Book Reviews

THE WORLD'S GREAT CLOCKS AND WATCHES by Cedric Jagger, Hamlyn, London and New York. 256pp, 220mm (8½ins) by 300mm (11¾ins), illustrated (many in colour). £4.95.

A large and profusely illustrated book, bordering on the coffee-table variety, this is a marvellous pictorial study of clocks and watches from the earliest through to the 19th century. Pictured here are very many rare pieces from the finest collections and museums in the world.

Obviously it is not just from the standpoint of the ordinary clock and watch that we must consider this work, but from what it has to say about musical and automaton pieces and here one discovers immediately one of this fine book's most serious shortcomings—the grossly inadequate index and its scant references to musicwork.

In truth, though, the book is admirably peppered with pictures of musical watches, carillon clocks, automaton pieces, organ clocks and combwork. But here is another shortcoming: the captions are inadequate and the related text far from ideal.

The author's grasp of this aspect of the subject is also questionable. He illustrates the carillon mechanism of the Harbrecht clock in the British Museum and fails to comment on the vertically mounted barrel. However, when it comes to the Vallin clock, superbly depicted in two full-page colour shots, he paradoxically refers to

the music barrel as a "vertically mounted pin barrel" when this is the very thing which it is not. One of the essences of the Vallin clock is that it is strictly parallel and linear in format as distinct from Isaac Harbrecht's timepiece. Tower carillons he dismisses in two paragraphs and ignores the history and development aspects.

Mr Jagger's understanding of the birth of the musical watch is also a little suspect. However, he does considerably better with the great breed of architectural automaton clocks such as Bridges' Microcosm, Jacob Lovelace's 2 × 12-hour-dialled "Exeter" clock, and the masterpiece by Charles Clay which was detailed, along with its music, in Volume 6 of *The Music Box*. Richard Green's Lichfield clock is shown in both its original engraving and as it stands today, while Henry Jenkins' beautiful astronomical clock contained in bureau with barrel organ warrants a fine full-page colour picture.

George Lindsay's linear carillon clock is also shown although the note that the thirteenth hammer used to strike the 12 bells "permits a fast staccato effect on one of the bells" may be over-stating the case. Henry Borell's automaton clock is also shown without reference to the complex automaton-manufacturing involvement of Markwich, Markham, Perigal and Borell which did so much to enhance the reputation of British clockmaking in Turkey and China around the end of the 18th and the start of the 19th century.

The author is a founder member of the Antiquarian Horological Society and is assistant curator to the Worshipful Company of Clockmakers. His book, reviewed here only from the musicwork standpoint, is nevertheless a good general insight into the mysteries of mechanical time-keeping for the not-too specialised reader. Nevertheless, at a mere £4.95 (very cheap by today's standards), it is an absolute bargain and the musical clock enthusiast will be well-satisfied by its acquisition—even if he must make his own index and picture interpretations. A O-H

BLACK FOREST CLOCKS by E John Tyler. NAG Press, London. 102pp, 155mm (6¼ins) by 217mm (8½ins), illustrated (many in colour). £6.50.

After Gerd Bender's comprehensive German work (reviewed on page 180), this new book is very small by comparison. It is, though, in English and deals sympatheti-

cally with the development of the Black Forest clock from its earliest beginnings through to modern times.

One may question the decision to show as first and second pictures in the book a brand new and largely plastic kit of parts for the do-it-yourself assembly of a rather crude modern copy of an early type of *Schwarzwalduhr*.

The text is aimed at the general-interest reader with very little of the practical and technical content which makes Bender's work so invaluable. However, this is an enthusiast's book and the author's love of these largely all-wood timepieces as artifacts comes over very clearly. He includes many little insights into the working conditions of the craftsmen who made clocks, such as the high incidence of lead poisoning among dial-painters, the frugal eye used in selecting wood more for economy than durability, and how the wooden wheels were sometimes painted with metallic paint to give the clock a "metal" appearance.

The book makes good reading and some of the pictures are very good. Caption descriptions are frequently a little too brief, while the list of makers is hardly adequate. A useful chapter for the novice suggests simple overhaul and repair techniques, concentrating more on restoration than conservation. A brief index concludes the work.

This is the first book in English to be published on the Black Forest clock. As such it is certainly deserving of a place on the bookshelf. But for more details of musical clocks from that area of Southern Germany one must turn at least to Holzhey, certainly to Juttemann and most decidedly to Bender. A O-H

MEMBER Q David Bowers, director of the American International Galleries and partner in the Mekanisk Musik Museum in Copenhagen as well as a director of Bowers & Ruddy Galleries, the coin dealers, has just published a second edition of his 1974 title *High Profits from Rare Coin Investment*. As many members know, coin collecting is David Bowers' second interest in life and this large-sized 208-page paperback (with sewn-back binding, incidentally) is an excellent insight into the extra value which may be in your pocket. There is even a section on scarce British coins. For the coin buff it looks like a "must".

Colour in 'The Music Box'

STARTING with this issue, *The Music Box* features its first ever illustrations in full colour. From now on, colour pictures will be used when the subject warrants the use of this expensive process.

If you have an outstanding or otherwise interesting or perhaps rare musical item or automaton, then the Editor would be pleased to consider a colour reproduction in these pages.

Please note carefully, though, we cannot reproduce colour prints, nor from colour negatives. You should submit colour transparencies (i.e., film positives) of 2½in (6cm) square minimum size.

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A PENNY-IN-THE-SLOT EDELWEISS

with five saucer bells.

The mechanism is fitted into a rather magnificent mahogany case and plays 23" projectionless discs by means of an unusual arrangement of sprung rocking levers. Apparently made by **B. A. Bremond**, Geneva. A similar machine with the bells replaced by a reed organ is also in stock.

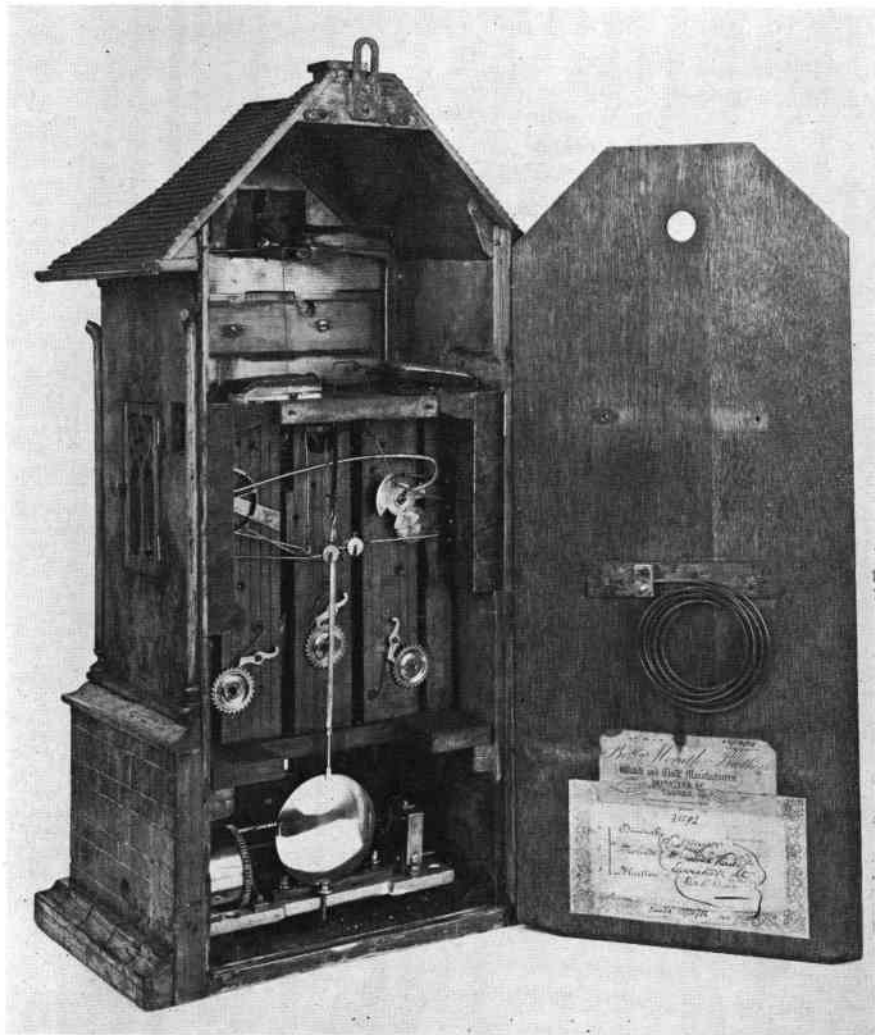
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CUCKOO-PLUS



ILLUSTRATED on this page is a superb example of the Black Forest *Bahnhausleuhr* which is the property of Mr Brian Castleton of Cameo Antiques in Chester who has provided these pictures specially for *The Music Box*.

With a carved and decorated walnut case standing 23½ in (60 cm) high, the piece houses a wood-framed, three-train fusee clock movement. There are two gongs, a quail and a cuckoo, and a three-air musical movement with brass bedplate.

The quail chirps three times at the first quarter simultaneously with the gong chime, six times at the half hour, again with chime, nine times at the ¾-hr. with chime, and no fewer than 12 times on the hour followed by the deeper voice of the cuckoo which calls the hours along with the striking of the second, lower-toned gong. When that has ended, the musical movement plays one of its three tunes. This movement has a 6 in (15 cm) cylinder.

Inside the clock is the tune-sheet

and the label of the importers, Morath Brothers of Liverpool. Both labels bear the date 27/10/76 which is without doubt the date the clock was imported or was sold.

As to the original maker, Johann



Baptiste Beha of Eisenbach made fussee-wound quality clocks, but the true inventor of the *Bahnhausleuhr* was Freiderich Eisenlohr of Karlsruhe. Born in 1805, he died in 1854. He was keenly interested in clocks with architectural connections, hence the modelling of his pieces on the buildings found on the Baden State Railway.

The first tune on the tune-list is the shadow dance from Meyerbeer's opera *Dinorah* first performed in 1859.

Quality cuckoo clocks are mostly pre-1890 and few of these exist outside museum collections. This fine specimen of a cuckoo/quail clock with musicwork must now be a scarce survivor of what once was quite a common style.



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Letters to the Editor

Whirl-itzer . . .

Shane Seagrave writes from Weymouth in Dorset:

ONE article which, in the Christmas 1976 edition, interested me, was your review of the Pye Piano Museum LP "Mechanical Memories". I have written several reviews for the FOPS magazine on street and fair organ records, but this particular record was the first one I have purchased that featured non-book operated organs. It has proved to be a refreshing addition to my collection, and incidentally I listen to it as I write!

However from my conversations with Frank Holland I understand you were incorrect in stating that the Wurlitzer was played by Joseph Seal; in fact it being Jesse Crawford's rendering of *Trees* via that marvellous paper-roll attachment.

Editor's comment: Many thanks for the correction. But all this really does is to highlight the appallingly inadequate sleeve notes which so many record companies provide. The fact that the performance was roll-operated — surely a major selling point — is nowhere stated in the notes. And Frank Holland, who spent a recent day lying under a piano in my workroom, didn't mention it either. . . .

New music for old

Robin Timms writes from Heathfield, East Sussex:

RECENT successful attempts at creating new instruments have drawn attention to the fact that the art of the musical box is not only a treasured relic from a bygone age, but a living instrument which may yet have many new delights in store for us. Those of us who have been collecting for more than a few years cannot escape the impression that the supply of old boxes of quality still to be discovered and preserved has diminished from a stream to a trickle, and that a real "find" is an increasingly rare experience.

It seems not inappropriate therefore that, provided that quality is the watchword, more attention should be turned in the direction of creating new boxes.

If then we are to regard the musical box as a living instrument with a future as well as a past, it must have a continuing musical repertoire: there are plenty of good tunes written before and after the heyday of the musical box which have never been arranged, and there is no reason why they should not be. I have myself arranged 12 tunes of very varied character for the llin Polyphon/Regina (from the sublimity of Tchaikovsky's *None but the Weary Heart* to the vulgarity of *The Stripper*), as well as a number of pieces for various other types of box. I am passing a number of musical manuscripts and graphs relating to these arrangements into the Society's archives in case a study of them may help anyone else who either now or in the future takes up the challenge of arranging music for discs or cylinders.

In articles in earlier issues of *The Music Box* (volume 6, numbers 3 and 4; volume 7, number 1) I have outlined some general principles relating to musical arrangement, and I can add

little to what I have already written without becoming impossibly abtuse. Anyone who has managed to understand my articles and wants to know more, however, is welcome to study my manuscripts through the archives.

Editor's comment. I have received several suggestions from members that it should now be possible to make new cylinders for interchangeable cylinder musical boxes.

Although I have somewhat mixed feelings about an 1860-vintage Nicole playing a cylinder of Sound of Music, Charlie Girl and The Spy who Loved Me, I think the suggestion is one which is deserving of more than passing thought. Such a creation should in no way damage an existing mechanism and it might well prove an added novelty to have new music which can be played on an old box. The scheme is nowhere near so distasteful as the centuries-old habit of stripping organ barrels and re-pinning them with fresh tunes. Some years ago in the Portobello Road I was shown a nice English chamber barrel organ with Gothic front. It played, in an appalling arrangement, some pop music the title of which, happily, has passed from memory.

Society meetings

Bob Burnett writes from Beeston, Nottingham:

I WAS very interested to read the note by our President in the last issue of the Magazine. This sought to allay the concern of those who are inclined to feel that the recent provincial meetings have been rather expensive. I am quite sure that the costs of recent provincial meetings have represented a very good bargain for meetings lasting more than one day and including accommodation and meals. But I think there may still be a place for one-day meetings with, say, a modest lunch and tea included, but no overnight accommodation and with the meetings held in premises which are less luxurious than the hotels we have used recently. Meetings of this type can be much cheaper than those held in a hotel and are not necessarily less enjoyable: I remember some very enjoyable one-day meetings in past years, notably one in a church near Manchester run by the Reverent Jonathan White and one held in Jacobs Biscuit Factory Canteen near Liverpool.

I do not think we can expect our Committee to know about suitable venues for such meetings and so their organisation must depend on members

knowing about suitable premises and letting the Committee know about them. Can I, then, make a plea to members who may know of suitable premises for a one-day meeting to get in touch with the Committee and preferably, also volunteer to run the meeting? And perhaps I might be permitted to add that, not wishing to seem one of those people who is ready enough with suggestions on which he expects others to act, I shall be doing my very best to organise a modest one-day meeting near Nottingham in 1978.

I should like to raise one other point for consideration by our Committee. Originally our Society held two meetings a year and both were in London, one in early Summer and one in late Autumn. The dates of the London meetings have been retained with some drift and are now in June and October. This means that the provincial meetings have to be in early Spring or in Winter, since the time between June and October is mainly holiday season. It seems to me that London is a place to visit in Winter and that the country, or provinces, are better visited at other times of year. London is, of all places, the one most easily reached by train and it is in Winter that people are more likely to wish to travel by train rather than by car. My suggestion, then, is that the main London meeting should still be held in June for the sake of overseas members, but that the second London meeting should be held in Winter, leaving the October date free for a provincial meeting.

Cushing's Museum

Roger Booty writes from Essex:

LATE last summer I had the opportunity to visit George Cushing's organ museum at Thursford, Norfolk. Since my last call I found a few changes. Now styled, Cushing's Steam Engine and Organ Museum, it has been formed into a charitable company which will ensure the well being and improvement of the collection. A small entry fee is now made but to compensate you can visit any afternoon from 1 May-31 October or any Sunday afternoon during the winter. The organs play at 4 o'clock and they are: 121-key Decap, 98-key Marengi, 112-key Mortier, 112-keyless Wellershaus, 101-key Hooghuys and the newest acquisition, a 54-key Dutch street organ, "De Leeuwin". Also fitted now is the fourth largest in Europe Wurlitzer theatre organ. This is not normally played on Sundays. A narrow-gauge railway is to be built and a full-size fairground ride has just

CALENDAR 1978

May 5th, 6th, 7th
Hannover Orgelfest, Hannover, West Germany.

May 20th
MBSI East Coast Chapter meeting.
The Musical Museum, Deansboro, NY.

June 2nd, 3rd, 4th
Musical Box Society of Great Britain Annual General Meeting, London, England.

June (date to be confirmed)
Museum of Mechanical Music Marino Marini, Italy.

September 8th, 9th, 10th
Musical Box Society of Great Britain Overseas meeting at the Nationaal

Museum van Speeldoos tot Pierement, Utrecht, Netherlands.

September 21st, 22nd 23rd
Musical Box Society Int Annual Convention, Sarasota Hyatt House Hotel, Watergate Centre, Sarasota, Florida, USA.

October 14th
Musical Box Society of Great Britain Winter Meeting, London, England.

October 28th
MBSI East Coast Chapter meeting Randolph, Vermont.

Convention and Event Organisers are invited to send in dates for regular publication to aid members throughout the world in planning their participation.

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arrived. It is Percy Cole and Sons' Venetian Gondolas and both it and its 98-key Gavioli organ are to be fully restored to working order. It is even more worth the effort now, to travel out into the wilds of Norfolk to see this marvellous collection.

Aeolian not sold

Q David Bowers writes from Irvine, California:

I JUST received in the mail the Autumn 1977 issue of *The Music Box*. As always, magnificent!

There is a small error which may deserve correction: on page 134 is a Weber Grandezza piano. This instrument contains pianos, mandolin, and xylophone (mounted horizontally and visible through a plain rectangular glass window at the upper top) as made by the Weber factory in Waldkirch. The instrument does not nor did it ever have violin pipes. A somewhat similar Weber instrument with violin pipes is known as the Unika.

The added percussion—the bass drum, snare drum, cymbal, and accordion—while doubtless quite musical and interesting, is not original and probably dates from the 1930s or 1940s when such devices were added to earlier electric pianos in order to broaden their appeal and lengthen their useful life, particularly in Belgium where this type of instrument remained popular until recent decades.

And re the item on page 153, the deal between the Aeolian Piano Company and Superscope did not go through. Although negotiations were held, as of last word, negotiations have

Another Musik-Baukasten located

The following letter has been received from L Douglas Henderson and Danilo Konvalinka who operate the Music Museum at Wiscasset in Maine:

WE READ with great interest on page 146 of *The Music Box* the article on the Graf "Musik-Baukasten."

Our museum — now beginning its 16th year of operation — features such an instrument, which — of all places — was discovered here in the village of Wiscasset, Maine. It once belonged to a family which built the narrow-gauge railway that was dismantled in the early 1930's and which also had an interest in the "Encore" self-playing banjo enterprise. Perhaps they bought this as a "new" item to replace the automatic banjo business, which was going into receivership about the time Mr Graf introduced the "Musik-Baukasten."

Lacking the arranging templates and having only one master metal disc, we

been completely discontinued. So Aeolian is still owned by the original owners.

Ecce signum . . .

The following letter was recently received from Dorset. The writer, now a member, makes a few interesting points:

AT the Great Working of Steam Engines at Blandford in September, I managed to obtain an old copy of *The Music Box* of Christmas 1976 with the reprint of the Charles Marengi catalogue. I was most impressed by the

have been making our own arrangements for some time. One of these — and detailed photographs of the instrument — appears on our Album #1103, *Ragtime and Cakewalks* played by Antique Musical Boxes.

The design of the model belonging to Mr Etches is more elaborate than our specimen which even has a wooden Japanese lacquer effect on the disc which secures the pins into place. There was no evidence of metal ornament around the crank either — nor is the lid designed for arranging purposes. One wonders if each was an original!

The "Arno" pneumatic musical box built in Boston with a Paillard comb in our collection differs from the three others we've seen, both in ornament and minor woodworking designs; the "Arno" is on Album #802 *Christmas Favorites*.

Keep up the good work. We enjoy *The Music Box* periodicals!

layout and quality of the publication and compared to the Fair Organ Preservation Society journal, *Keyframe*, is a great contrast. In fact it has prompted me to write to the secretary of the FOPS to complain about the lack of interesting print in our magazine.

I had been led to believe that your Society was really only a music box club, but after reading through back issues at the Piano Museum, I know this to be quite wrong.

I would be very grateful if you would be kind enough to send me membership details of your Society.

continued from page 207

hair-combs live — without special favourable conditions—only a few years. When they are used for purely musical purposes, they live much longer!

One David Lecoultre has tamed this hair-comb species, and he has domesticated (or brought under human control) some specimens by placing them in cases, specially built for this purpose. Accidentally this rather cruel operation was recorded without date and year, and later we found that the species was protected and preserved better by cultivation in cases with special conditions of warmth and dryness. And so it all changed for the good.

In his article, the editor has gazed to the historical facts, but they are not very important in this case, as I have showed in this article. But, thanks to Darwin we all know the truth now.

Postscriptum I

The prophetic gifts of Darwin are clearly illustrated by the titles of his books in later years. In 1880, two years before his death, he wrote a book with the title "The power of movements (*read*: springs) in plants (*read*: factories)". How is this possible? The first great factories, where the comb

species was protected and preserved in special cases under rotating discs, should be built after 1886! And really exciting is a title from 1881. "The formation of vegetable mould through the action of worms." We all have these protecting cases for the comb species, and Darwin has foreseen, that worms living in these cases eat every day a few pennies away from the increase in value of these cases (called inflation) by the formation of vegetable mould. Is

this not remarkable?

Postscriptum II

I suggest that the Musical Box Society of Great Britain:

(a) adjudges a posthumous award of honour to Charles Robert Darwin because of his very valuable theories concerning the comb species, and

(b) calls into existence a special Darwin-award on behalf of members, who describe a review with interesting news. (Please pay attention to the italicised letters!)

Symphonion tune-list reprint

IT IS more than three years since it was advertised that a reprint of the original catalogue of Symphonion disc titles would be published. As those who tried to subscribe to this at the time know, there were problems which first delayed its production and finally postponed it indefinitely. These problems centred fairly and squarely on the economics of the venture—the demand proved insufficient to warrant printing an economic quantity.

However, the fact remains that no catalogue of Symphonion discs is available to the present-day collector and because of this it has been decided to publish this as an integral part of *The Music Box*.

Accordingly, plans are now in hand to include this large listing in an early edition of the journal. While there are several reprints of Polyphon catalogues available and, indeed, Graham Webb

reproduced the results of Arthur Coombs' disc listings in his book, *The Disc Musical Box Handbook*, nobody has done such an exercise with the Symphonion. The simple fact is that tune lists exist for Fortuna/Adler, Kalliope, Monopol, Stella and so on, but that for Lochmann's Symphonion seems to be more than usually rare.

It is with this recognition of rarity in mind, then, that *The Music Box* has decided to make the catalogue available to all members as a "free" inclusion.

While on this subject, some tune-lists still remain rare and if any member has in his possession a catalogue of instruments or tunes which *The Music Box* might reproduce, please write to the Editor.

Has anyone, for example, a tune-list for the Lochmann Original? Or a list of the later Aeolian Orchestrelle Solo models?

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ARE ANY MEMBERS interested in exchanging discs? I have for exchange 14", 15", and 17½" Stella. 17½" Imperial. 17½" Britannia. 26½" Monopol. 27" Regina. Also various Organette discs etc., etc. I REQUIRE for my own machines 24½", 15½", and 11" Polyphon discs. Michael Miles, "Rock Cottage," Mountfield, Sussex. Tel. Robertsbridge 880614.

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TANZBAR in good condition. Alex Duman, Scotland (telephone 041-552 5354).

EDDIE BELTON DIES

PLAYER piano enthusiasts will be saddened to learn of the death on December 19, 1977, of Eddie Belton of the Original Pianola Shop, Brighton.

As related on page 228 of Volume 7, Mary and Eddie Belton closed down their business to retire to Peacehaven. However, after many months of problems over the sale of the lease of the former North Road public house which had been their home and workrooms as well as shop, Mary decided to return to the player piano work which she loved.

Eddie, born 74 years ago in Kingston-on-Thames, had been increasingly ill with cancer for the past few years and he passed away in their flat above the player pianos which had been their greatest love for most of their lives together. A good friend has left our circle.

Mary remains in business at 102 North Road, Brighton.

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Record Reviews

THERE are several reasons why museums and collections which are open to the public should make and sell gramophone records of the items which they show. First is the plain commercial one that people who have enjoyed a visit are in a susceptible mood to buy mementos. Then there is the altruistic reason that the sound of these instruments should be preserved. And finally is the discographer's reason that the sounds of instruments should be heard by the many people who are unable to visit the particular collection.

Museum records do, though, tend to vary in quality from the "let's produce anything so long as it's cheap" to the "nothing but the best" type. These last are few and far between.

It is thus with a sense of special pleasure that I am pleased to introduce **Anno Dazumal on Abacca Collection Vol. 1 002**. The title translates as "Once Upon a Time"

and the sub-title — Musik von Spieldosen und Orchestrions — says it all without needing a translation. This fine stereo disc is of instruments in the collection of member Werner Baus at his Mechanisches Musik-Museum at Fuldatal in West Germany.

Here one is presented with the sounds of some choice instruments including such scarce types such as Weber Violano, the Losche orchestrion, the square-disc Herophon, the Hupfeld Konzert Universal and the Triola. And the sole surviving example of the violin-playing Popper's Violinova (see *The Music Box* volume 6, page 250 *et seq*) is to be heard.

The design of the record sleeve — one of the new-style opening covers with record pocket — is superb. On the outside is a fine colour representation of the highly decorative Herophon while on the inside spread is a picture of every instrument with a clear, concise caption and description. You can identify and see the instrument you are listening to. Top marks, then,

for the sleeve, the sleeve notes, the design and the presentation. What about the record? Well, it, too, is excellent with the instruments all sounding in tip-top condition and well tuned. Of course, the burning question forced by Phonoliszt and Virtuoso owners is *what does the Violinova sound like?* Well, it's a surprise. Unlike the other two violin-players, this instrument has full percussion effects. These tend to overpower the rather thin string tones although I expect it sounds louder (the violin, that is) when you are standing agog before it.

The Violinova has only two strings which are played (the Hupfeld, of course, has but one on each of three fiddles) and bowing is Mills style with rotating wheels.

This disc, then, is one of the best samplers I have so far come across. So little of the music is familiar and so well-chosen the selection of instruments that I cannot imagine anybody could find it monotonous. Very highly recommended. Write to Werner Baus for details.

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