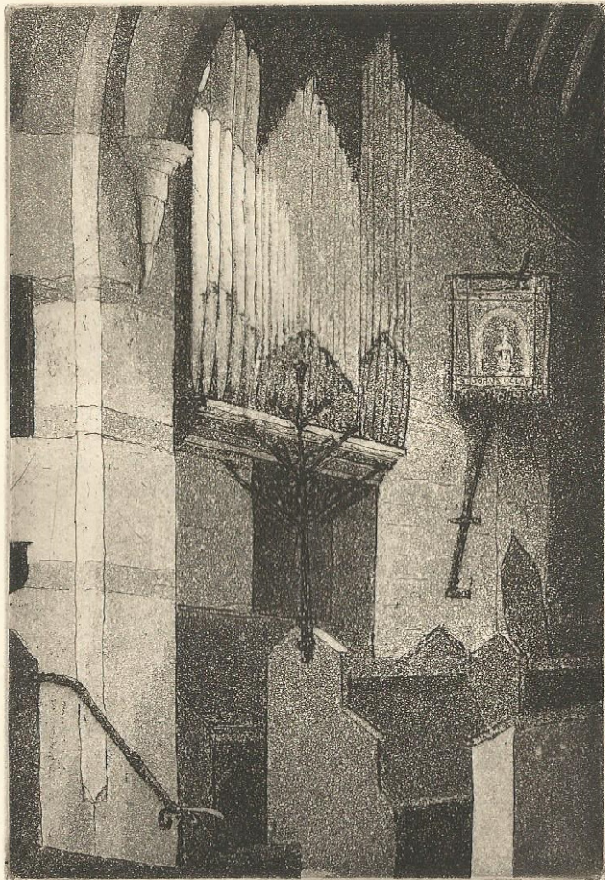




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*(1934-2021)*





# THE ORGAN LOFT

WRITTEN AND ILLUSTRATED  
WITH ETCHINGS

BY  
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HORNSEY  
COLLEGE OF ART PRESS

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1958

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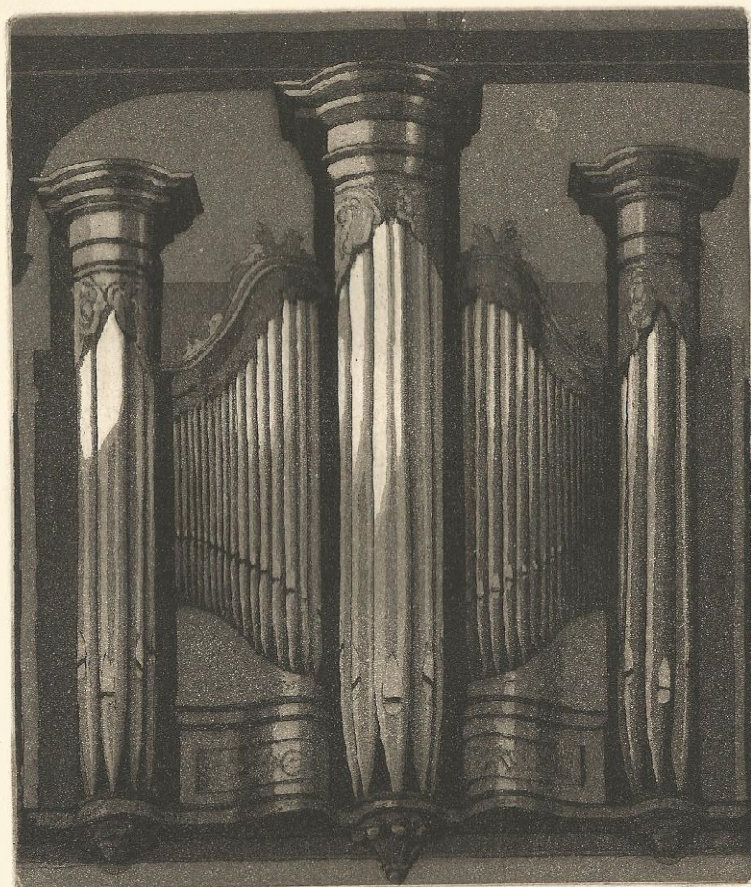
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*"Such sounds escape the daring artist's hand  
As meditation never could command;  
And though the slaves to rigid rule may start  
They penetrate and charm the feeling heart."*

*Burney on the organ voluntary 1805.*

BEFORE one can start to think intelligently about a church organ of today, its construction, the types of sound it produces and its place in the church service, one must first consider its development from earliest times.

The first appearance of a musical instrument that bears any resemblance to our organ was in approximately 250 B.C. It was known as a *Hydraulis* and as may be guessed by its name was blown by water power. Emperor Nero is reputed to have played an instrument with ten ranks, or complete sets of pipes, which was so powerful that it could be heard sixty miles away and to prevent damage to his ear-drums he wore ear-plugs. Such an instrument would have been freely used in victory celebrations.

Little is known from then until the tenth century when a two manual organ appeared at Winchester. This organ had twenty notes to each manual, ten pipes for each note making a total of four hundred pipes. It required two performers and seventy blowers so organ practice must have been rather expensive. The keys were so broad that they were fist-operated and the range of notes being limited to a purely modal scale the instrument must have merely thundered out the plainsong theme note by note.



Of these early organs there were two main types. The 'portative' organ which was small enough to carry, with one hand playing while the other worked the bellows. The 'positive' organ, being larger, remained in a fixed position with one person blowing the bellows while another played, using both hands.

There is, in a small church at Hoddesdon, Hertfordshire, an interesting example of the 'positive' organ. The entire organ is little larger than a double wardrobe having only one manual and no pedal board. The wind is supplied by foot or hand operated bellows to the pipes housed above the action. There are five stops with two of them operating only the bass or treble section of the keyboard. The box containing the pipes has two swing doors which open like a cupboard revealing the pipes of which not one is longer than four feet. When the organ was built it was placed in such a position that the congregation would see these doors. During a service they were opened exposing two religious pictures, painted on boards affixed to the inside of the doors. These also acted as soundboards reflecting the sounds with increased volume. Time has ravaged these doors and only frayed blue-grey silk remains in place of the paintings.

By 1448 the pedal board had appeared in England and composers started writing a separate part to be played with the feet. It is interesting that these early pedal boards were so short that only the points of the feet could be used; they were also flat and parallel so Bach must have become very dexterous with his feet, sliding them rapidly from note to note.





All these early organs had a mechanical action in the sense that on depressing a key one pushed yards of timber which operated a pallet under the appropriate pipe allowing air to pass and sound the pipe. This is known as a 'tracker' action and the draw-knobs or stops are also operated by rods and levers. It can be seen from this simplified explanation that the more stops drawn, the more timber there is to be pushed with the depression of each note. Hence loud, fast passages become both physically and mentally tiring. The pipes also have to be as near as possible to the manuals to minimize the length of the rods comprising the action. This type of organ was usually built with the manuals, or console, directly under the pipes, or organ loft. The blowing mechanism would then be placed either at the side or back of the loft.

With the introduction of electricity into the action many improvements evolved. Two main types of action developed; the purely electric action and the electro-pneumatic.

The electric action uses magnets for opening and shutting pipe pallets. On depressing a key an electric circuit is completed and the current flows through the electric magnet which pulls open the pallet and allows air to pass to the pipe. A similar operation takes place when a stop is drawn. A slider with holes drilled, which correspond to the position of the pipe holes, is drawn into position in line with these holes. Normally, with the stop 'in', these holes are out of line so arresting any passage of air.

The electro-pneumatic action is a mixture of the tracker and electro-magnet scheme with the addition of ingenious air



motors. These are small, square bellows which when a key is depressed expand by air pressure from the main bellows. By their expansion they push rods to operate the pipes. Sometimes electro-magnets are used in the draw-knob mechanism.

In organs which have been rebuilt by various organ builders at different times, different types of action are often employed in various parts of the same organ. So we might find an organ electrically blown but of tracker action, or with one manual electro-pneumatic and another tracker.

With the electric actions the main advantage is that no matter how many stops are drawn the 'touch' at the keyboard remains the same. Another asset is that the console may now be detached from the pipes and be placed in a different part of the same building.

Organs today have reached a monstrous scale, the largest in England being in Liverpool Anglican Cathedral. This has four manuals and one hundred and sixty-eight stops. The largest in the world, at the Convention Hall, Atlantic City, N. J., has seven manuals and one thousand two hundred stops.

Now that we have seen how the organ has developed let us, in imagination walk into a church and sit at the console of a two manual, tracker action organ. It is situated at one side of the choir so that we sit with our back to the aisle. We can now look around us at the various knobs, gadgets and pedals, and, if it is electrically blown, turn on the air by a switch which is of the double push-button ON, OFF type, found at the right hand end of the keyboard.

The two keyboards are called the Swell and Great manuals:

the Swell is the upper and softer one and the Great, with heavier, louder and characteristic church-organ pipes the lower. We also notice that they are shorter than a normal piano keyboard, having about half an octave missing from either end.

Most English organs of this type will have a panel of draw-knobs on either side of the manuals with the stops arranged in groups for Swell, Great and Pedals. On looking at the stops we find a variety of names such as Diapason, Oboe, Bourdon, Salicional followed by a number, 16, 8, 4. The names refer to the type of pipe and the sound it produces. The figure refers to the length in feet of the longest pipe in that rank. A Trumpet 8 would, therefore, be a rank of reed pipes that sound like a trumpet, whose longest pipe is eight feet. This rank being an '8' would actually sound at pianoforte pitch.

By halving the length the note goes up an octave and by doubling the length sounds the octave below. For instance if on the same manual, we draw a Double Trumpet 16, a Trumpet 8 and a Clarion 4, by depressing just one note, say Middle C we will sound C, an octave below, Middle C and C, an octave above. It will soon be realised from experiment that the shorter pipes, 4's and 2's, add brilliance to the tone, and the longer 16's and 32's, dignity. This greater range of sound adequately compensates for the shorter length of the actual keyboard.

There are also three stops marked, Swell to Great, Swell to Ped., Great to Ped., respectively. These 'couplers' enable one to play Swell ranks of pipes on the Great manual, Swell



pipes on the pedals and Great pipes on the pedals. This is all achieved by the mechanical action in the organ loft. These three stops with another, the Tremulant, are all mechanical stops and have no pipes attached to them at all. This last, the Tremulant, is a device which, by making the wind pressure fluctuate underneath the pipes, causes the sound to wobble, so creating the type of sound so familiar to listeners to the cinema organ. Another stop named Vox Humana is very often used in conjunction with the Tremulant to produce a sound supposedly like a human voice. Unfortunately the effect is rather of humanity in advanced age or a frustrated nanny goat. A similarly named stop is the Vox Celeste which is an 8 foot rank tuned slightly 'out' so that when it is played with another stop, maybe a soft Flute, the note 'beats'. This is reputed to be like the singing of a heavenly choir, but a few moments of musical entertainment from these angels would be sufficient as the effect soon palls.

The Nazard is an example of the type of stop which helps to create a brilliant impression. When this  $2\frac{2}{3}$  foot rank is added to an 8 foot, one will hear an additional note of different pitch. This is a way of reinforcing the harmonic or upper partial of the main note and adds colour to a stop which might otherwise be without timbre. Mixture stops perform a similar function by adding not one but several harmonics. The drawing of such stops with those of normal pitch creates much of the colour characteristic of a large organ.

In front of our toes, above the pedal board, there are arranged two sets of foot pistons. These levers project towards





us and by depressing them in turn, stops of increasing volume are automatically drawn according to the order of actuation. The left hand set of three operates the Swell stops and the right, the Great. These are very useful when playing music of great manual complexity, for by a touch of a foot, you are able to build up the volume to a climax which would have been impossible if the stops had to be drawn by hand. It is an amazing sight, almost amusing, to watch stops going in and out automatically while a competent organist is performing.

Over to the right on the same level as the foot pistons is a similar lever known as the Swell pedal. I must here explain that the pipes comprising the Swell organ are placed in a large box with shutters, like a venetian blind, on the front. These shutters are connected to the pedal at the console so that by lowering the pedal the shutters open, letting the sound escape in a crescendo. There is also a prop which swings into place to hold the pedal down when it is fully lowered, relieving the right foot for playing. In some tracker organs by having vertical instead of horizontal Swell Box shutters, the Swell pedal will remain in any partially open position without the aid of the prop.

The pedal board is of the old type being perfectly flat and with the keys parallel. This makes playing difficult because as one reaches for the further extremes of the board, the distance of the notes from one's foot increases. Whereas modern pedal boards are both concave and radiating so that as the performer's legs close and open and his toes point straight in front or sideways respectively, the pedals will always be in line.



It is interesting that England was nearly three centuries behind continental organ builders in introducing the pedal board. They appeared in London about 1790, but as there was no master-pattern there were, in England, scarcely two organs with pedal boards alike, either in respect of number or position of keys.

When we play a tune on the pedals we discover that the notes all sound an octave below the manuals and that the stops are in the main 16's with only one 8. This depth of pitch creates the richness of tone as opposed to the brilliance of the shorter length pipes.

Now let us take a look at the organ loft. Most of the organ casement is made of teak which is impervious to water and resists fire. We can walk around the left side of the organ and there switch on a light which illumines the inside of the loft. By climbing some narrow wooden steps we come to the small door which leads to the first 'catwalk' of the loft.

One's first impression is that of an infinite variety of browns and greys. There is a dry, dusty smell peculiar to organ lofts and the light throws grotesque shadows from the pipes across our path and up the wall.

On our right is the warm-grey panelling of the back of the Swell Box which must be at least twelve feet high. Below us we see the multitude of rods reaching across to actuate the tall wooden pipes on our left. This is the sixteen foot Pedal Flute, the pipes are of square section and the widest is nearly one foot six inches. The whitish-yellow sound board on which they stand is made of cedar wood which, with its straight grain





withstands atmospheric change and will not become distorted.

At the far end of the loft, where our plank turns to the right we can see a rank of Trumpet pipes. The shorter of these inverted-conical pipes are made of lead-tin alloy while the long ones are of hard-rolled zinc.

Unlike an orchestra where each instrument produces many notes, the 'instruments' in an organ make only one. This note must not only be the most beautiful possible but also matched in quality, power and tone to form a rank. There are several ways of producing a rare quality of sound from a pipe, one being to 'stop' the pipe. This means a cover at the top as opposed to the open pipe with no cover. The effect of the cover is not merely felt in the softening of the tone quality but also in the pitch which becomes an octave lower than in a corresponding pipe left open: thus an Open Diapason 8 is actually eight feet long in its longest pipe, whilst a Stopped Diapason 8 is really four feet in length though as it sounds at eight foot pitch we still call it an eight foot stop. Another method is having pipes double their nominal length but with a small hole pierced half way up to make them sound at their proper pitch they are made to produce a peculiarly delightful hollow-silvery quality.

Continuing our walk around the right hand side of the Swell Box we are confronted with a large wind chest with numerous ranks of pipes, some of the types just mentioned. The smallest of these pipes is no larger than a match stick and produces a note which is little more than a squeak. The organ builder has been extremely skilful in utilising every inch of the loft



and yet leaving everything in an orderly fashion. Over and beyond these pipes can be seen the Montre Diapason with its elevated sound board to form an impressive front to the organ.

If we squeeze round a very tall metal pipe we come to the last length of catwalk. This runs in front of the Swell Box and we can see the shutters and operating rod. We have walked three sides of the Box and where we now stand is dark. Only feeble light comes from the lamp on the other side of the loft and even fainter daylight filters past the front Diapasons. By removing a side panel of the Box we can see, with the aid of a torch, the interior. Very neatly arranged ranks of pipes are mounted on two soundboxes. The lower chest being for the taller pipes, the tops of some having been mitred to fit into the Box but at the same time retain their correct length.

To hear the organ played now is an awe inspiring experience. Music of any great volume is almost deafening: one can appreciate Nero's wearing earplugs. The loft vibrates, the very particles of floating dust echo back the music. In the dim light, surrounded by a complexity of sounds one is transported to an ethereal realm of resonant harmony. The sounds in even the softest passage seem so pure that one is compelled to remain still and listen. Even the action, for all its apparent mechanical clumsiness, is silent in performance.

If we were to visit almost any type of organ loft, our experiences would be similar. At Enfield Baptist Church, where I am organist, there is a Walker electro-pneumatic organ with a detached console. The pipes in a loft over the vestibule at the entrance to the building, are made accessible by ladder and

trap door. The loft is in two sections and having ascended the ladder, we stand in the first part, with the magnet boxes on our right. If we removed the front panels we would see rows of electro-magnets, each marked to show its rank and manual. Facing us is the narrow door leading into the Swell Box and on the left, the electric starter motor and blower. Above these are soundboards for the Great Diapason and Pedal Bourdon pipes. The inside of the Swell Box, the second part, is very similar to the one previously described.

The differences are obvious when we look at the console, set to the side, at the pulpit end of the church. Its case is of light oak to match the organ loft and after lifting the lid to expose the manuals the first striking difference is in the provision of stop 'tabs' in place of draw-knobs. These are arrayed in a single row above the Swell manual and, having a vertical movement of about half an inch, 'sound' when in the down position. Although there were only four ranks of pipes in the loft, there is at the console a surprising number of stops. This is facilitated by the 'extension' system. By extending an already complete rank an octave at either end and electrically connecting stops an octave above or below, one is able to use an eight foot rank to produce a sixteen or four foot note also.

Directly beneath the manuals we see a small panel of ivory pistons. These operate in a similar manner to the foot pistons seen on the tracker organ and affect the manuals under which they are placed. Being electrically operated they need little effort on the performers part.

After playing organs in various buildings one soon realises

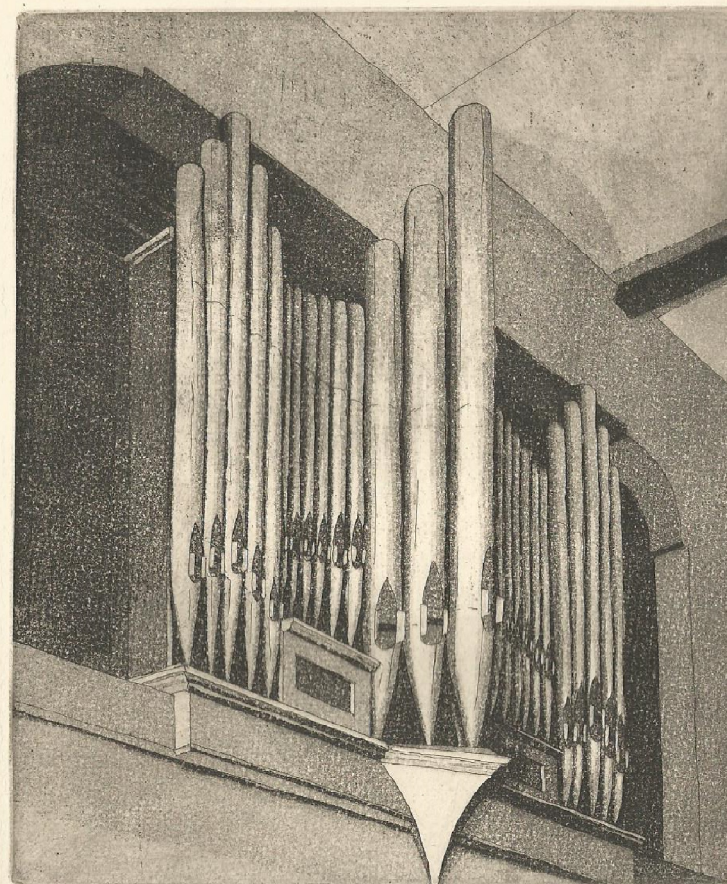


that churches and halls have their own peculiarities in acoustic quality. Unfortunately most of them are not acoustically well constructed and the organists' lot becomes further complicated. Being an enclosed space the church acts as a resonator. This can prove most distressing. One note of particular pitch may 'boom'. A certain part of the building, having a sympathetic vibration rate, amplifies this note. The organ builder has to discover such an idiosyncrasy and tone down the pipe.

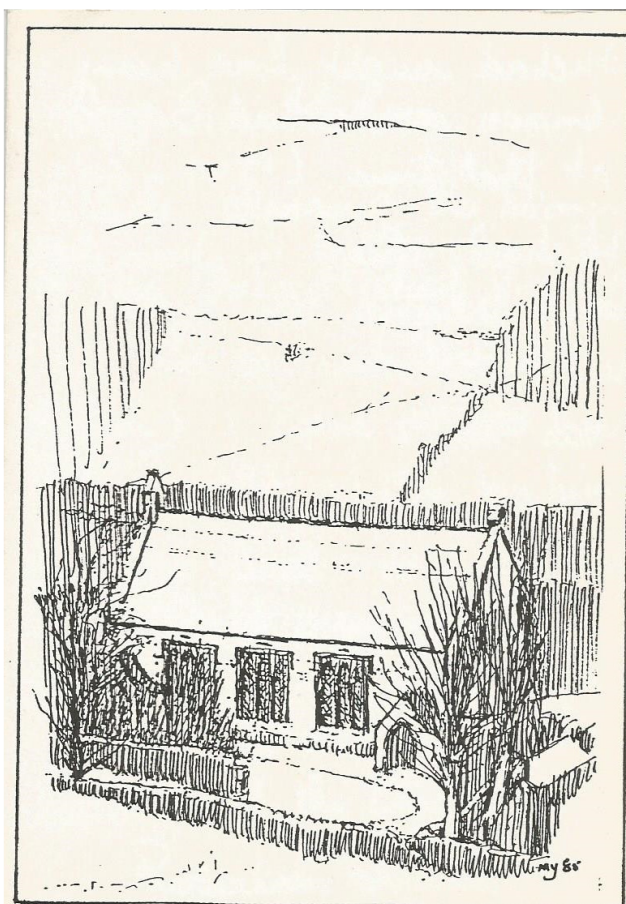
Playing an organ with pipes round the console the sound is heard immediately and at full volume while at the opposite end of the building it may be barely audible. In churches with the organ near the choir, accompaniment is comparatively easy but where it is at the other end the section of congregation near the pipes complains of the organ's drowning the choir, while at the far end they enjoy unaccompanied singing.

With a detached console matters may be even worse. Often the pipes are to the rear of the building with the console at the front with the choir. Often the organist plays too loud, hearing the sounds only after they have travelled full length of the church. Another difficulty is delay in the sounds reaching him. One way of overcoming this is to have a microphone in the loft and run a loud-speaker off an amplifying unit at the console. Generally church authorities consider this an unnecessary expense. An organist's reputation may become very fragile.

Next time you attend a service, observe the kind of organ and its position in the building. Try to imagine the difficulties the organist faces and as he deafens you with his closing voluntary just think how soft it may sound to him!







PS: Michael might have been known as Michael Sagers at that time. (1949 - 60's)?

Michael died in June 2021 and played the organ with pleasure right up to his death.

Dear Sir, Madam,  
While clearing the belongings of the late Michael Yeomans (A former organist at your church) I came across this little booklet written by him for his final exam to become a qualified organist. I thought you might like to have this as part of the history of the Church.

Rosaleen Linden.

P.T.O.