ORGAN MUSIC SOCIETY OF SYDNEY INC

the YOUTH news

SUMMER 2012 EDITION 17

Young Organists' Day Recitals

'Stay Cool' Laurence Rogers writes about 'temperaments'

Anniversary Youtubes

The pedal piano with Roberto Prosseda

'The German revolution in English Organ Technology' Robert Quinney

Become an OMSS Club Member.

www.omss.org.au

Young organists all welcome!

The Organ Music Society of Sydney wishes you all the very best for Christmas and the New Year and if you are with us at the **Sydney Summer Organ Academy**,

what a great time we will be having meeting new friends and catching up with old friends, and making music together!

Editor: godelieve@omss.org.au

Recitals

Young Organists' Day

Friday 28th December at 12.30pm Sydney Town Hall

Nicolaas Tjoelker, Jodie Ah Chong, Tim Williams, Samuel Giddy, Edith Yam, Stephen Aveling-Rowe Joshua Walker, Joshua Ryan, Joshua Cho, Alex Hillberts and David Tagg

January Rising Stars Recitals

Thursdays at 1.10pm St Andrew's Cathedral, Sydney

10 Samuel Giddy - Winner of the Junior and Intermediate Sydney Organ Competition 2012

17 Kimbrian Canavan and Kevin Lee

24 Various young talented organists perform today.

31 Edith Yam - Winner of the Open Sydney Organ Competition 2012

www.omss.org.au
Download the latest complete concert schedule

February

3pm Sunday 3rd Jeremy Woodside
St Stephen's Willoughby

Other recitals

2pm Sunday 20th January Christian Tarabbia (Organ) Luca Magni (Flute) Italy
Christ Church St Laurence, Sydney

2pm Sunday 17th February Hans Hielscher (Wiesbadenm Germany)
Christ Church St Laurence

AUSTRALIA DAY Saturday 26th January

We suggest that you have pleasant day in the city with family and friends. Take part in Australia Day events (see the media for details), then relax with some organ music, and enjoy a party hosted by the Organ Music Society!

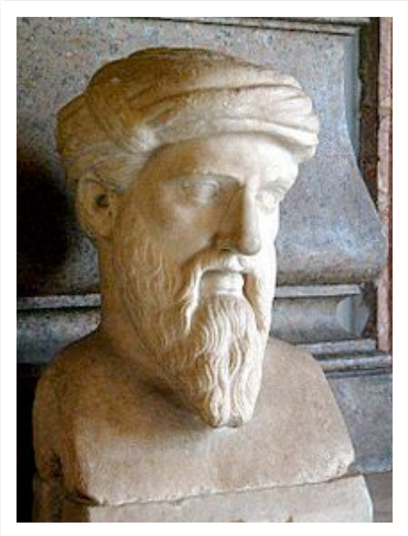
There will be two organ recitals at St Stephen's Macquarie Street: 12 noon Mark Quarmby (OMSS Past President and DOM) and 2pm David Tagg (Assistant Organist). (11am Flute/Piano recital; 1pm Saxophone Quartet.)
Devonshire teas are available in the church - downstairs!

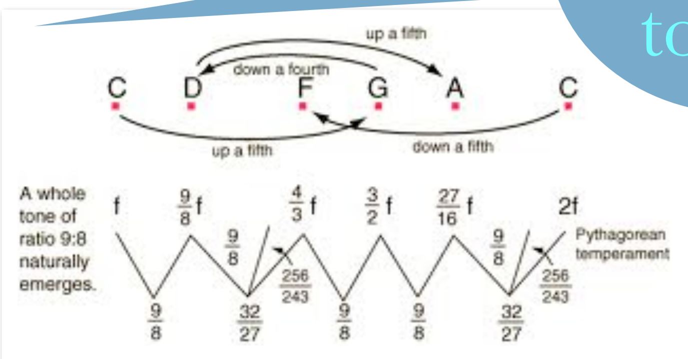
St Mary's Cathedral, nearby in College Street, will also have a musical programme, with an Organ Recital at 3pm.

After this recital, the OMSS will be providing wine and cheese (plus soft drinks and snacks) for members and their friends, near the entrance to the Cathedral Crypt. (Leave the Cathedral by the Eastern door, turn right and go down the steps to the right.)

We look forward to celebrating the day with many of you.

Temperaments





It's Just Greek to me!

Did you say mean!

,

I'm a non-edible comma!

I'm well tempered - all things being equal

http://www.youtube.com/watch?v=VRlp-OH0OEA

Listen to Just and Equal Temperament - a demo

LAURENCE ROGERS EXPLAINS

When I read his article on temperaments I thought about how simply and well the temperaments were explained. Laurence kindly gave permission to include this article in our Youth News.

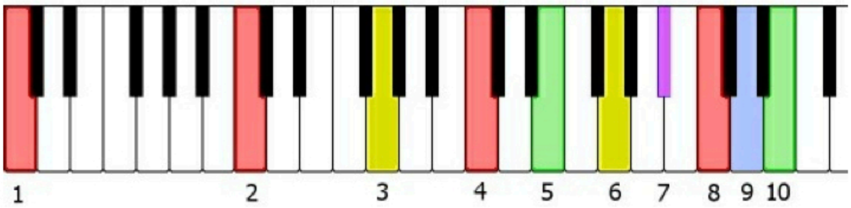
Pythagorean Tones and Temperament - Laurence Rogers

A brief history of temperament

Until the 16th century musicians in Western Europe defined the diatonic scale using a method devised by Pythagoras which went back 2000 years. This was adequate for the mainly monophonic style of music of the times, but as polyphony and harmony developed, the demand for a chromatic scale evolved. The Pythagorean method proved inadequate for this and several methods of defining *meantone* temperament were devised to solve the problem, the crux of which was that melody and harmony in the key of C was fine, but all other keys sounded out of tune. From meantone evolved methods for *well* temperament, and, for organists, the most successful of these was devised by Werckmeister, which was favoured by J.S.Bach. Although *well* temperaments facilitated the use of more keys than C major, there were still limitations to modulations which were acceptable to the ear. In the 19th century, the evolution of 'romantic' music demanded the use of more and more keys. *Equal* temperament was devised to make available all 12 major and minor keys without preference to any one of them. However, the result was a compromise in which the character of individual keys was destroyed, and musicians have argued about the advantages and disadvantages ever since.

The Pythagorean Scale

To understand how this is defined one must first understand the role of harmonics. These are natural frequencies present in any musical tone. For an organ pipe such as Open Diapason, the air column in the pipe resonates at a series of frequencies related to the length of the pipe. The length of the pipe determines the 'fundamental' frequency which gives the sound its characteristic pitch. The longer the pipe, the lower the pitch, and so on. A pipe of half the length sounds an octave higher and physics shows that its frequency is exactly twice that of the first pipe. However for a pipe of any length, the fundamental frequency f is accompanied by a whole family of harmonics simultaneously present,



The first ten naturally occurring harmonics of bottom C.

where each harmonic is a whole number (integer) multiple of the fundamental frequency; $2f$, $3f$, $4f$, $5f$, $6f$, etc. Typically, some harmonics are stronger than others and the particular 'cocktail' of harmonics determines the distinctive tone of the sound. Thus diapason tone consists of a different spectrum of harmonics compared with that for a flute or a reed tone.

Starting with C as the fundamental frequency, a musician will recognise the harmonic frequencies as occurring at the pitches shown in the keyboard diagram above.

We can see from this why the octave is such an important and natural interval for making harmony; the first two harmonics define the 'octave'. The next most important interval is the 'fifth', defined by the interval between the 2nd and 3rd harmonics. Then the 'fourth' is defined by the interval between the 3rd and 4th harmonics. It must be stressed that these are all members of a naturally occurring family, so one can describe the intervals as 'pure'. In physics, frequencies which are simple integer multiples of a fundamental frequency, to a musician constitute 'perfect' harmony. The interval between $2f$ and $3f$ is a 'perfect fifth'; the interval between $3f$ and $4f$ is a 'perfect fourth'; the interval between $4f$ and $5f$ is a ' pure major third'.

A complete diatonic scale of C major may be defined by the Pythagorean method as shown in the box below.

I won't bore you with all the arithmetic, but if you examine the ratios between various intervals you soon discover that there are two different versions of the semitone, major second, minor third and major third. Fourths and fifths are all perfect, but the other intervals are not unique. This gave rise to the different character of the ancient modes, which, using only white notes, had different intervals between the notes according to which one you started from.

The mathematics of calculating the frequencies of the additional notes is uncomfortable because they are related in ratios rather than by simple addition arithmetic. However, the rules for the calculations are quite straight forward:

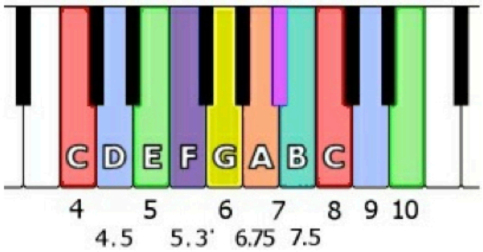
- To go up a perfect fifth, the higher frequency is 3/2 times as much.
- To go up a perfect fourth, the higher frequency is 4/3 times as much.
- To go up a major third, the higher frequency is 5/4 times as much.
- To go up an octave, the higher frequency is 2 times as much.

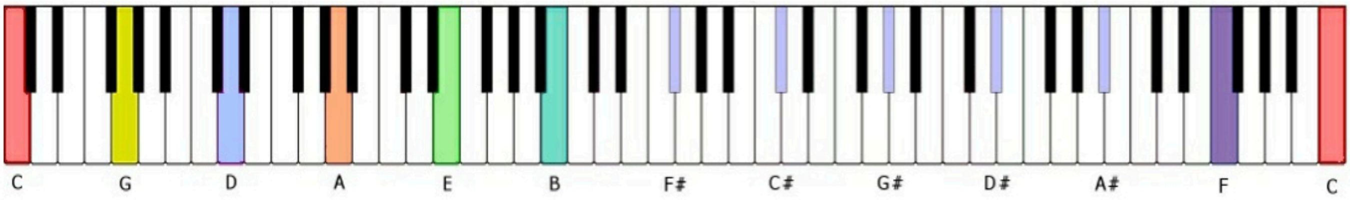
- To go down a perfect fifth, the lower frequency is 2/3 times as much.
- To go down a perfect fourth, the lower frequency is 3/4 times as much.
- To go down a major third, the lower frequency is 4/5 times as much.
- To go down an octave, the lower frequency is half as much.

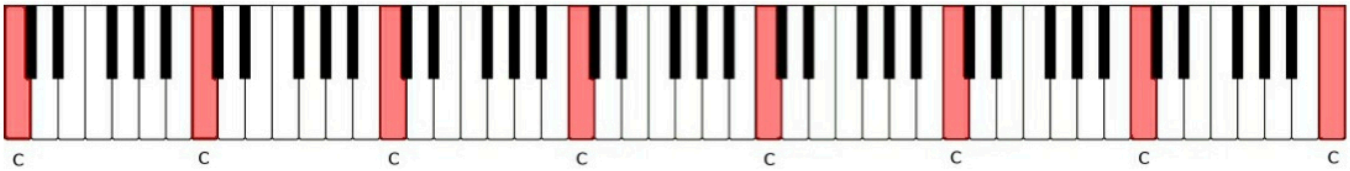
Since the notes D, F, A and B do not coincide with the natural harmonic series, I have calculated their frequency ratios using fifths and fourths as follows:

D: fourth below G
F: fourth above C
A: fifth above D
B: fifth above E

These ratios define the Pythagorean scale.





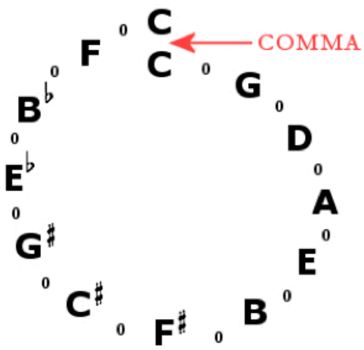


If you always play your music on white notes only, in C major, the Pythagorean scale works perfectly well, but if you use the same method of ratios to define the black notes, you get into trouble. Trying this, all 12 notes, white and black, could be defined using fifths starting from bottom C. The frequency of each rising fifth is 3/2 (i.e. 1.5) times the frequency of the lower notes. Doing this 12 times, the frequency of top C would be $(1.5)^{12}$ times the frequency of bottom C. Multiplying 1.5 by itself 12 times yields 129.746, not a nice number! This is even more nasty when you compare it with the alternative calculation for Top C on the basis that it is 7 octaves above Bottom C: The frequency of each rising octave doubles. Doing this 7 times (2^7) yields 128 exactly. Thus the Pythagorean method of ratios, although fine for defining C major, is unsatisfactory for for defining black notes. The difference in pitch corresponding to these two calculations (about a quarter of a semitone) is called the *Pythagorean Comma.*

Temperaments to the rescue

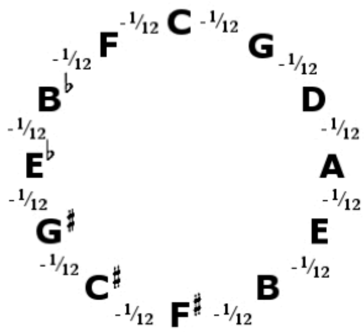
It is essential that any practical system for tuning a keyboard instrument must find a way of eliminating the *Comma*. Modern *Equal temperament* is achieved by squeezing all the fifths by an equal amount so that the twelve fifths spanning the seven octaves work out correctly to 128 times the fundamental frequency. Clearly, such 'tempered' fifths are slightly smaller than 'perfect' fifths. But by the same token, all fourths have been slightly enlarged so that the sum of a tempered fifth and a tempered fourth still makes an octave.

Another way of representing the problem posed by the *Comma* is to show the intervals in a clock diagram in which '0' signifies a perfect fifth, thus:



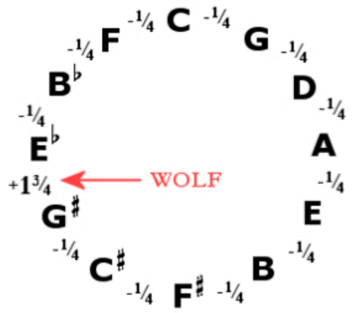
The Pythagorean dilemma

Clearly, to achieve acceptable tuning of all twelve notes, white and black, a compromise must be made. As we have noted, *equal temperament* solves the problem by reducing all the fifths by the same amount so that no perfect fifths are used. The clock diagram for this indicates that each fifth is reduced by an amount equivalent to $^1/_{12}$ of the comma interval.



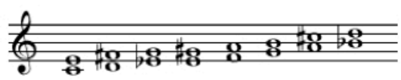
Equal Temperament

Historically, only white notes were used until late Medieval times so the Pythagorean scale with perfect fifths sufficed. However, as musicians moved on from plainsong and the like, the demand for harmony increased. In particular, the major third interval became more important. To satisfy this, *meantone* temperament was devised, providing eight pure major thirds, but at the sacrifice of the purity of fifths. Since the third is a smaller interval, the ear is less tolerant with its lack of purity (frequency ratio 5/4) than with the larger interval of the fifth (frequency ratio 3/2). The success of meantone in creating pure major thirds was at the expense of squeezing the fifths by ¼ comma, except for one – the *wolf*! The clock diagram helps to see how this comes about:



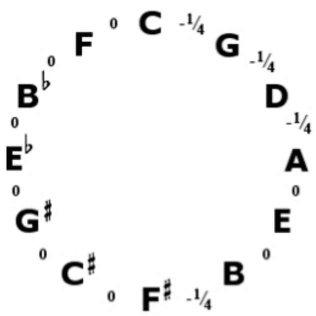
Meantone (Pietro Aaron 1523)

The interval between G♯ and E♭ was grossly in excess of a perfect fifth, making a horrible sound. The prized pure thirds were as follows:



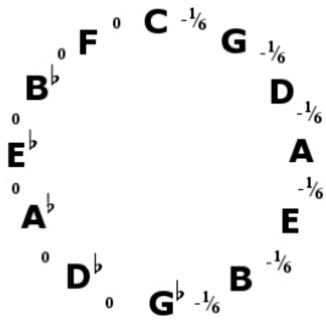
However, major thirds based on B, F♯, C♯ and G♯ were awful, and if you examine music composed in Bach's time, these intervals were rarely used unless the composer wanted to shock his audience or express severe pain. On the positive side, each of the acceptable keys had a different musical personality, so a composer was able to express a particular mood by his choice of key. Bach famously composed his 48 preludes and fugues to exploit the distinctive personality of each of the 24 major and minor keys. Unhappy with the efforts of other people, he insisted on tuning harpsichords himself and devised his own 'well' temperament to achieve the 48. Despite much collaboration with the organ builder Silbermann, Bach was not entirely happy with the variant of meantone temperament that Silbermann used.

During Bach's time many musicians, theorists and organ builders experimented with 'well' temperaments, modifications of meantone to facilitate modulations between keys. The German organist Werckmeister came up with the easiest way of tuning to create the temperament Bach needed and his scheme of 1791 is widely used in Germany today. He achieved this with eight pure fifths and four tempered fifths (¼ comma each). The major thirds are slightly larger than pure thirds by between 1 and 5%.



Werckmeister III

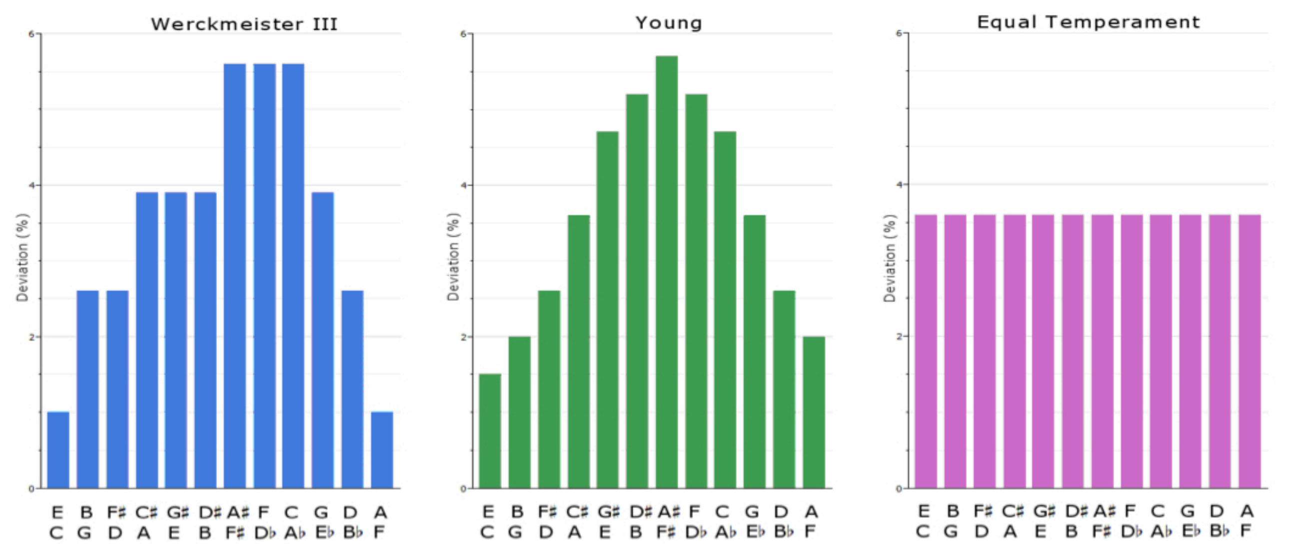
In England, a number of historic organs and modern recreations are tuned to Thomas Young's well temperament of 1799. This seems to be an elegant solution; it distributes the comma between half of the fifths and achieves a symmetrical distribution of minimally tempered thirds.



Young

The diagram below shows charts which compare the deviations from pure thirds achieved by Werckmeister III and Young. For reference, the third chart shows the magnitude of the deviation for equal temperament. We can see that Young achieves seven thirds which are purer or at least as pure as thirds in equal temperament, compared with five thirds with Werckmeister.

Since the flowering of harmony, decisions on how to tune thirds has always been a challenge to organ builders. Simple inspection of the keyboard shows that an octave can be divided into three consecutive major thirds, however, it is impossible to achieve this with pure thirds. Three pure thirds fall short of an octave by an amount equal to approximately twice the comma (about half a semitone), so clearly a substantial compromise must be made to achieve full chromatic tuning. In equal temperament the octave is divided such that each tempered third is 'stretched' by 3.6% compared with pure thirds. The resulting aural effect of playing a major third chord is to produce a beating effect. For middle C to E this is about 15 vibrations per second. In the world of equal temperament we are so used to hearing this that it is perceived as normal and perfectly acceptable. However, it is a revelation to compare this with the sound of a pure third which can be produced by drawing a Fifteenth and Tierce rank together and playing a single note.



Comparison of the major thirds defined in three temperament schemes; each bar represents the deviation from a pure major third expressed as a percentage.

Conclusion

You may ask, 'why do meantone and well temperaments still deserve attention today?' For some of us the short answer is simply their historical interest. However, a longer answer asks us to consider the lost character of different keys which is the price of versatility in modern equal temperament. Previous to equal temperament, the key for a composition provided part of the character of a piece; modulations to different keys would also make distinctive transitions. Therefore modern performance of much pre-19th century music does not convey the intended character of the music unless it is on an instrument tuned to the original temperament. Also, historically, the influence of temperament on composition has been a two-way process; composers had to work within the limitations of the technology and temperament of their time, but as their imagination developed, there was a demand for change in temperament. One could argue that the Pythagorean temperament held up the development of harmony for more than a thousand years; Meantone made harmony possible, but with limitations; Well temperaments opened up the possibility of more variety in harmony, but only with Equal temperament did endless modulation become possible.

Laurence Rogers

Derby & District Organists' Association, 2012.

Anniversary YouTubes

Paul Hindemith	1895 - 1963
Johann Ludwig Krebs	1713 - 1780
Horatio Parker	1863 - 1919
Gabriel Pierné	1863 - 1937
Richard Purvis	1913 -1994
Jean Titelouze	1563 - 1633

http://www.youtube.com/watch?v=jK2ngR2Hs4o
Paul Hindemith Organ Sonata No 1 played by Kevin Bowyer
Massig schnell - Lebhaft - Sehr langsam - Phantasie, frei - Ruhig bewegt

http://www.youtube.com/watch?v=9y4r7jrwqZ8
Krebs Fantasia in f minor for Oboe and Organ
Casandra Álvarez - Oboe Alberto Sáez - Órgano
Parroquia de San Pelayo, Baños de Río Tobía (La Rioja).

http://www.youtube.com/watch?v=4br2_0PO0K0
Horatio Parker Scherzino from Sonata in Eb Opus 65 Christopher Marks

http://www.youtube.com/watch?v=ypmii8guq-w
Gabriel Pierné- Prélude, Op. 29 N.1 Olivier Latry

Olivier Latry, Organist of Notré Dame, Paris
is coming to Sydney to play the von Beckerath at Sydney University
Sunday 7th April 2013 at 6pm.
Tickets will go on sale through the Seymour Centre early next year.

http://www.youtube.com/watch?v=VLRfnlofvCg
Richard Purvis Fanfare: Franke performs at the T.C.Lewis Organ

http://www.youtube.com/watch?v=KjPSWOAjPxk
Robert Bates plays a hymn verse by Titelouze at the 1630 organ in Bolbec France. Titelouze was France's first organ composer and was the organist at Rouen Cathedral from 1585 until his death. It is very likely that he played this organ at some time during his life.

AMAZING PEDAL PIANO YOUTUBES

Charles Gounod: Marche Funèbre pour une Marionnette. Transcription for pedalpiano by Ciuseppe Lupis (2011). Roberto Prosseda plays Pinchi Pedalpiano System with two Fazioli Grand Pianos. Live at Teatro Olimpico, Vicenza, June 4, 2012. Settimane Musicali al Teatro Olimpico.

http://www.youtube.com/watch?v=AsQtVqjC6SU&feature=em-share_video_user

Alkan: Etude no. 1 "pour les pieds seulement"

http://www.youtube.com/watch?v=bH6J-kD-GnI&feature=relmfu

Schumann: Kanonische Etude for Pedalflügel op 56 No. 2

http://www.youtube.com/watch?v=6DxpMad9zDE&feature=relmfu

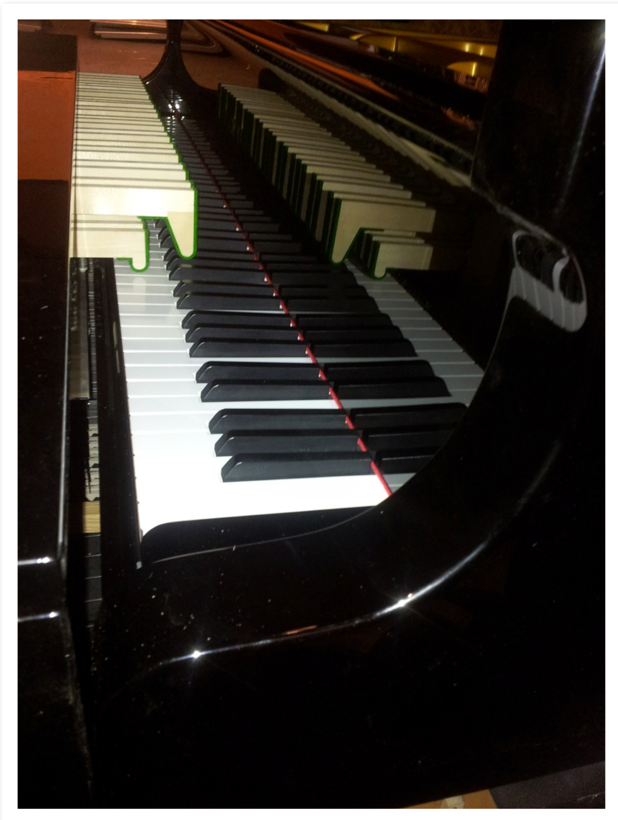
ROBERTO PROSSEDA RESURRECTS THE PEDAL-PIANO!

The Italian pianist Roberto Prosseda has made history by performing on an instrument which hasn't been heard for a hundred years - the pedal-piano.Prosseda made his stunning performance debut on the long-lost instrument in September in the Cathedral of Forlì. Not only was this Prosseda's debut on the pedal-piano, but the concert also saw the first modern performance of a concerto for pedal-piano and orchestra by French composer Charles Gounod who wrote the piece in 1889. The programme also included the première of contemporary Italian composer Cristian Carrara's Magnificat (2011) for pedal-piano and orchestra.

The pedal-piano, also called the piano-pédalier, Pedalflügel or pianoforte con pedaliera, is a particular model of piano with a pedal-board like that of the organ. The likes of Bach, Mozart and Robert Schumann have all composed music for the instrument in some form and it was Schumann who persuaded Felix Mendelssohn to set up a specific class for the instrument at the Conservatory in Leipzig. It has also often been used by organists as a "study" instrument.

Classic FM, October 2011

The new Pinchi Pedalpiano System can be combined with any grand piano, to obtain a piano-pédalier in any theatre where there are two grand pianos available: one of the two pianos would have the three legs replaced with shorter legs provided by the Pinchi system, and would be placed under the other piano as in the pictures attached, taken in concerts in Pordenone Theatre (with two Fazioli pianos) and in Berlin Philharmonie (with two Bechstein pianos). The pedalboard would be externally connected to the keyboard of the lower piano and would control the sustain pedals of both pianos. This would work always externally, so the two pianos would not be touched internally by the system. Less than one hour is required to assembly the whole system on stage. This system is highly innovative and extremely refined. It comes from a complex project, using particular materials (carbon fibre and other materials used in the industrial motor engineering area) and is built with high-precisions machines. The pedalboard comes with a precise base piece which assures a perfect and very stable connection with both pianos.



School Holiday Workshops with Susan Deas

Carlingford Music, 16-18 April 2013
Music on the Move, Hurstville, 24-26 September 2013

These workshops are designed to help teenagers with the general knowledge section of their music exams. History is explored through musical examples, artworks, and social background. Games and quizzes reinforce learning, and comprehensive handouts are provided. Class size is limited to 10 students. A great supplement to music lessons.

Baroque and Classical Styles
Romantic and Modern Styles
Form and Structure
Key, Tonality, Modes and Modulations
Understanding the Orchestra

Truly understand the music you play (and nail your exam general knowledge while you're at it)

More information and enrolments

"Plenty of musical examples, strong take-home messages, comprehensive handouts"

Susan's website is at www.susandeas.com.au

Pedalling ahead with Mendelssohn:
The German revolution in English organ technology'
Robert Quinney, Sub-Organist, Westminster Abbey
with Robert Smith, Organist, St Mary-at-Hill.

St Mary-at-Hill boasts what has been described as one of the ten most important organs in the history of British organ building, built by William Hill in 1848 and restored by Mander Organs.

The transcript and downloadable versions of the lecture are available from the Gresham College website: http://www.gresham.ac.uk/lectures-and-events/the-german-revolution-in-english...

Gresham College has been giving free public lectures since 1597. This tradition continues today with all of our five or so public lectures a week being made available for free download from our website. http://www.gresham.ac.uk

http://www.youtube.com/watch?v=otA1wEpZS8A&feature=related