

The Professional

ENGINEER

Issue 70, Summer 2010

Gold Hill, Shaftesbury, Dorset



The Society of
Professional Engineers
was founded in 1969.

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Welcome to this latest publication of the Bulletin which is back to standard size after our special edition covering the 40th Anniversary Luncheon at the House of Lords.

In this issue we feature articles on 'History of Calculation', 'Carbon challenge for Construction Industry', 'Conservation Areas', 'Churches provide new business opportunities for

construction sector' and 'A brief history of canals'.

I do hope you enjoy reading this issue, and may I say that any articles you may have for future issues are always most welcome.

Have a good read

Brian R. Dixon, BA, P.Eng
Editor

The Presidents' Notes

I am very pleased to be able to say that the work put in by our members of Council is beginning to come to fruition.

Two areas have been giving much cause for concern – the design and information of the website (www.professionalengineers-uk.org) is being updated and is expected to be 'live' before the end of June.

Certain weaknesses have been shown up, e.g. the difficulties to administration of some aspects of the Data Protection rules. Will all members please forward their email address and explain any conditions that should be applied before full use can be made.

A revised scheme of membership of the Society altering the grades and qualification requirements has been put to Council for approval, further information will be given if this is approved at the June meeting.

I would add that any information would be welcomed regarding the 'Exciting Engineering' project.

Is it necessary? One only has to look around to see Engineering around the world to wonder at the design and fabrication that is today involved to inspire students, etc.

David Hardcastle, P.Eng
President



Engineering Excellence in Education

A Pioneer of European engineering education, Dr George Metaxas received an Honorary Doctorate of Science from Kingston University in London.

Dr George Metaxas, who is head of the civil engineering department at the Technological Education Institute of Piraeus in Greece, organised the first partnership between a specialist technology higher

education institute in his homeland and a university overseas. The collaboration with Kingston's Faculty of Engineering brought Masters courses to technology students in Greece for the first time and set a precedent for technology institutes across the country. Addressing a throng of engineering graduates in a ceremony at Kingston's Rose Theatre, Dr Metaxas stressed how

important it would be for them to continue to be high achievers throughout the rest of their lives.

Dr Metaxas had had a distinguished career spanning 35 years in civil engineering. His specialist areas include management in construction, structural design, steel and timber construction and surveying and hydraulics.

A Chilling Coincidence

Interesting Year 1981

Prince Charles got married
Liverpool crowned Champions of Europe
Australia lost the Ashes
The Pope Died

Interesting Year 2005

Prince Charles got married
Liverpool crowned Champions of Europe
Australia lost the Ashes
The Pope Died

Lesson Learned?

The next time Charles gets married, someone warn the Pope.

London - Major Projects Under Way

Olympics 2012

The construction of all the main venues and infrastructure is well under way. The wall and roof cladding on the International Broadcast Centre has been completed and the Main Press Centre has reached its full height. Three of the 11 residential plots in the Olympic Village are finished and the Velodrome is on track to be the first venue to be completed in early 2011.

Crossrail

Work on the £15.9bn line running east to west under the capital began on 15 May 2009. Full tender documents for the main tunnel packages are expected to go to bidders in the next few weeks.

Bishopsgate Tower (The Pinnacle)

When completed in 2012, it will be the second tallest building in the UK.

Thames Gateway

This 40 mile area of east London and the Thames Estuary has been designated a national priority for urban regeneration.

Wembley City

Due to be completed by 2013, the area will include leisure facilities, residential accommodation and shops, plus a new civic centre.

"What we see depends mainly on what we look for." John Lubbock

Do you have non-member colleagues? Encourage them to join the Register

A membership information pack is available on request from

The Society of Professional Engineers, Lutyens House, Billing Brook Road, Weston Favell, Northampton NN3 8NW

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History of Calculation



A child of ten can easily perform calculations that 300 years ago were beyond all but the very ablest of mathematicians. This is due to an invention, which is the most important in the history of civilisation. The 'DECIMAL NOTATION', which is not decimal fractions or 'decimals'; it is based on the custom of counting TEN's. The method of counting is such a natural thing to do, since our hands have ten digits, that men have done it from the earliest times. But we have not always had an arithmetic that fitted in with the custom.

ROMAN NUMBERS for example were still in use throughout Europe until the time of the Stuarts (1603) and did not make use of the decimal idea, for instance number 71, LXXI multiplied by 27, XXVII working in Roman numerals could not be done on paper.

Today we use Arabic numerals which has made arithmetic so simple. The main feature of Arabic is there is a different symbol for each of the numbers 1 to 9 and a symbol for zero 0, and NO OTHERS.

DECIMAL NOTATION is the combination of three things:

- The custom of counting in tens
- The Arabic numerals
- The value of the figure depends on its position

The value of the figure depending on its position is the idea underlying an ancient counting device called the ABACUS. For example, 87421. It is now a long standing custom that the 1 means one unit, the 2 is

two tens and so on.

In a similar way we can make 87421 into 7 units, 8 tens, by applying a DECIMAL DOT i.e. 87.421 where .4 is four tenths and 2 is two hundredths etc. in this way we can write any fraction. This then is the decimal notation the invention which made multiplications and division into child's play.

LOGARITHMS

The miraculous powers of computation are largely due to the invention of logarithms. We owe this to JOHN NAPIER (1560-1670), Baron of Merchiston in Scotland, who gave it to the world in 1614.

In 1620 was made a second invention which was a necessary prelude to the invention of the slide rule, the 'Line of Numbers'. EDMUND GUNTER (1581-1626), professor of astronomy in Gresham College, London designed the 'line of numbers' which is simply a straight line with digits 1, 2, 3,10 arranged on it from one end to the other, where the distances from 1 - 2 are proportional to the logarithms of the numbers. Gunter mounted this line of numbers on card and boxwood; it became known as 'Gunter's line'. Being a single scale, compasses had to be used for multiplication and division. This was the forerunner to the invention of the slide rule.

THE SLIDE RULE CALCULATOR

This exhibition of the 'Slide Rule' is to mark the importance of this instrument, invented in 1630 by EDMUND WINGATE and used in increasing numbers by scientists, engineers



Brian Gerrard

and mathematicians since that date.

The SLIDE RULE was the only simple machine for multiplying and dividing and its use made complicated calculations easy and quick.

The popularity of the 'slide rule' increased over the years as improvements of scales and manufacture were introduced, up to the 1970s, when the electronic calculator became available to all at a reasonable cost. So the end of the slide rule was imminent, by 1976 the last manufacturers ceased to make technical slide rules. Only the single function slide rules continued to be made.

The slide rule held an established place as a calculating instrument for some 300 years. From 1850 to 1970 was the most popular period, when manufacturing of slide rules produced accurate markings, reliability and low initial costs.

B.W. Gerrard, BSc., P.Eng., MIET

China by a Landslide



Many thanks to all those who have entered the 2010 'Predict the region' competition. No less than 86 per cent of clients participating in this year's competition believe China will be the top performing region in 2010, while another 7 per cent said it would be the second best performer. In second place was the US (favourite with 7.7 per cent of clients) followed by the UK (favourite with 3.9 per cent) and Europe (favourite with only 2.6 per cent). However, it was the UK which emerged as the clients' choice as the most likely to end up at the bottom of the pile with 42 per cent of clients believing it will be in 4th place come 31 December 2010 - compared to 35 per cent who thought it would be the US.

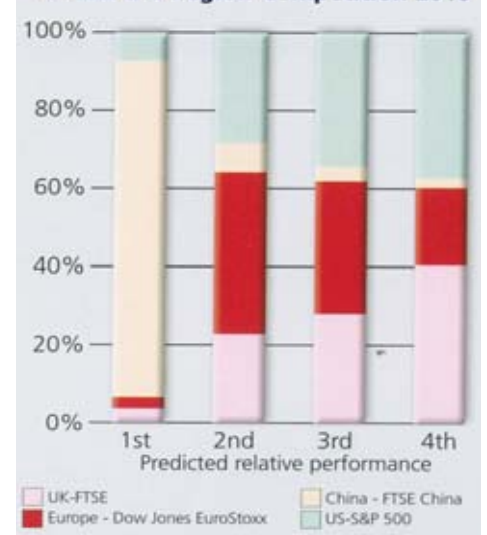
The choice of China as top performer perhaps comes as no surprise given that its pace of economic growth seems hardly to

have been affected by the global financial crisis.

Nor is the apparent pessimism regarding the UK a bolt out of the blue, with its deep indebtedness and the decline of its manufacturing and financial services sectors. Perhaps the only real surprise is the view that the equally heavily indebted US economy will prove resilient enough to outperform Europe, which is being driven by the return of export growth to economies of Germany and France in particular.

However, first quarter 2010 figures support this faith in the US economy. As of 1 April, the S&P 500 was 12.47 per cent up on the end of 2009, compared to 5.5 per cent for the FTSE 100, 4.65 per cent for the FTSE China and a 0.59 per cent fall for the EuroStoxx 50.

Predict the Region Competition 2010



Articles for the Bulletin - We are always looking for news of members and project articles for publication in the bulletin, do you have something of interest, lets hear from you. Please

Three UK construction firms have received a Queen's Award for International Trade after demonstrating outstanding growth in overseas markets. Formwork and falsework specialists RMD Kwikform, design and engineering consultancy Scott Wilson Group, and steel window manufacturer Crittall Windows feature in a list of 95 companies recognized for their growth in overseas earnings and commercial success, writes Stephen Cousins.

To receive an award, firms must demonstrate "outstanding" growth relative to the size of the business and the sector it operates in. Applications are based on the firms' performance over either three or six years.

RMD Kwikform increased its overseas business by 185% in six years. It has offices in 17 countries, including Chile and Morocco, and uses these bases to sell to another 13 markets, including Russia. "It's a global industry now, you can't think about UK construction alone", said managing director Steve Dance.

He believes the company's achievement is down to its ability to adapt to different languages and cultures. "Roughly 80% of our business is overseas, so customers in Saudi Arabia, South Africa and Spain all have different requirements and expectations," Dance said. "We're a very entrepreneurial company and try to adapt to new markets, so in Spain we have a Spanish MD, and Poles run the Polish business."

The company believes in speaking to customers in their own language. It has recently launched a Spanish-language

website, while Dance – who previously worked in Latin America – post Spanish-language videos on the company website. Scott Wilson group expanded its overseas business by 130% over six years, more than doubling its revenue. The growth followed a radical change in the company's structure. "We basically changed the way we operate," said chairman Geoff French. "We've had an international presence for over 85 years, but the market never grew at the same rate as the UK. Then four years ago we floated company stock on the London Stock Exchange with the ambition to achieve more of a balance between the UK and abroad.

"After that we sent several senior UK managers to other markets to support and supplement local expertise. It would have been difficult to grow at the rate we did without organizing ourselves like this".

Crittall Windows' award recognises its significant increase in export earnings from the notoriously protective US market, where it is now the second largest supplier of steel windows, even though it doesn't have a permanent office in the country.

RMD Kwikform has worked on several prestige projects in the Middle East, including Yas Island in Abu Dhabi.



In today's crowded cities, we often have to ask the roof (the fifth elevation) to do more than simply keep the rain out and help to insulate the building.

As our cities become more crowded, we cannot afford to treat the roof as dead space, making no further contribution. This will become more urgent as both our population and household formation continue to rise.

As we demand more from our roofs, it is essential that they are designed, specified and installed to perform efficiently now and throughout their design lives.

The specific issues raised by green roofs, and advances in the use of photovoltaic technology on the roof.

It will show how, in addition to keeping the rain out, a roof can make the best possible contribution to the environment.

Roof garden: natural roofs can promote the environment and lessen the impact of water runoff.



Keep In Touch with The Society

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Royal Engineers in Afghanistan Battle Construction in a Combat Zone



Having to down tools on site to pick up a rifle and take part in battle is not your average project manager's daily problem. But for the Royal Engineers working in Afghanistan it is one of many challenges they face while deployed.

WO2 David Gibson of the Royal Engineers working in Afghanistan recently told of some of the difficulties the Corps faces when operating in Afghanistan.

The range of work the Royal Engineers carry out includes initial building works of military camps to the construction of hospitals and schools for the Afghan people.

Typical problems they face are sourcing materials locally that meet British Standards; ensuring the Taliban is not in the area when they construct schools because the education of woman is not permitted; and having to abandon construction to fight



Royal Engineers in Afghanistan

battles with the Taliban.

Building projects frequently suffer severe set-backs. However, the engineers try to make progress against all odds: last year David Gibson was studying for his final year BSc exams and was carrying out his revision in a bunker whilst under mortar attack.

Over 80 people attended the Thames Valley Centre event in January, Graham Hough, Centre Chair, commented: "This event gave members a rare insight into construction works of a different kind than most are used to on a day to day basis."

As one attendee commented: "Clearly they are soldiers first and engineers second."

Dramatic New Vision for London's Kings Cross Picks Up Speed



Work on the redevelopment of King's Cross in London continues apace with the first phase due for completion by September 2011.

The recently refurbished Grade 2 listed German Gymnasium, the marketing suite for the King's Cross development, on Pancras Road, where you can learn about the project including plans for a new city square – Granery Square – with its pavilion buildings, dramatic fountains and ability to hold public events.

The master plan proposes 67 acres of land development with up to 8m sq ft of mixed use. Over 40 per cent of the development will be for the public realm and will promote pedestrian movement and establish new connections with the surrounding city.

Planning permission was granted in December 2006 and July 2008 for up to 25



large new office buildings totalling some 4.9m sq ft; 20 new streets; 10 new major public spaces; and the restoration and refurbishment of 20 historic buildings and some 2,000 homes and serviced apartments.

The development will offer new theatres, independent cinemas, exhibition spaces, community facilities and annual festivals to complement the growing cultural scene at King's Cross.

Churches Provide New Business Opportunities for Construction Sector



Churches look set to offer excellent refurbishment opportunities for the construction sector.

The Church of England currently spends around £120 million a year on maintaining its 16,000 churches throughout the country. However, churches and church halls have now been identified as having potential to be adapted for alternative uses alongside the function of worship. It is a policy change which provides welcome opportunities for the construction industry especially in repair, maintenance and refurbishment works.

Church buildings are being seen as having good economic and social benefits with government keen to see them used for social, community and educational activities. Experts also predict a number of suitably adapted churches will be used in many major regeneration schemes.

However, if existing capacity is to be suitable for other activities, many churches and

church halls will need to undergo major alterations or adaptation. To meet modern standards many church buildings will require complete refurbishment including the installation of up-to-date fire escape and emergency warning equipment; better disabled access; new lavatories; additional car parking; and modern kitchen and baby changing facilities. The advancement in electronics will also require PA and/or loop systems; improved lighting; IT connections and good audio and visual presentation facilities.

All works to churches, but not church halls, require a Faculty – a licence usually issued by the Archdeacon for the Diocese granting permission to proceed. Before reaching a decision, the Archdeacon is normally advised by the Diocesan Advisory Committee for the Care of Churches. The DAC is a technical committee of experts in buildings and the related professions.



Churches could offer refurbishment business

For more details on the procedures required to refurbish church buildings visit www.churchcare.co.uk. Another source of information is the Church Buildings Council Tel:020 7898 1866. Church House Publishing produces useful handbooks. www.chpublishing.co.uk.

Federation Towers Moscow, Russia

Baris Bicak, quality assurance, quality control and safety manager for construction manager Turner International.

The world is becoming more international and this is a truly international project with contractors from China, Russia, Italy, Turkey and France. Imagine discussing and co-ordinating quality and safety issues with all these people.

It's an experience sitting in a progress meeting with the China State Construction Engineering Corporation, which is building the East Tower, with translators to translate from English to Russian and then from Russian to Chinese. Just co-ordinating the different technical standards is a huge challenge in itself.

We are a small team, just five of us from Turner International engaged for the client, Mirax Group. To manage this type of project with five people is not that easy. It's a challenging job, but if you love what you are doing, this is a great place to be.

The biggest technical challenge has been installing the jumbo-sized beams and columns that form the steel outriggers for the technical floors that will house the M&E equipment. The steel structural members, which reinforce the concrete columns and beams will also allow the tower to flex at these floors.

Co-ordination was the issue here: the steel was manufactured in Luxembourg and transported to a plant near the Russian-

Ukrainian border for fabrication and was then brought to site to be erected by CSCEC. The correct members had to be on site at the right time so that the sequence of installation was not broken. I'm finding that this project provides an insight into human psychology: how to understand people, work out what they need, try to solve their problems and find solutions quickly and efficiently.

There are many different cultures on the project, many different views. For example, when we asked the Chinese contractors to provide medical kits at the production levels they explained that this would send the

wrong signal to their workers – the presence of medical kits would make them afraid to work there. You only get to understand things like this by living and working with them.

Description: \$1.3bn Federation Towers, Moscow, Totalling 400,000m² in twin towers of 63 and 93 floors, a six storey podium and a cylindrical mast for a panoramic elevator shaft linking to the towers by bridges.

Timeline: Construction started February 2005; completion date currently unknown.

Did you know? With the mast at 509m, this will be the tallest building in Europe.



Birmingham Shortlisted for UK City of Culture 2013

Birmingham has been shortlisted for the first UK City of Culture title in 2013.

Birmingham's bid is led by a multi million pound capital investment programme, designed to equip the city for the creative economy of the 21st century and will include a new Library of Birmingham in Centenary Square; a new Creative Campus for Birmingham City University and a new wing for the Birmingham Museum and Art Gallery.

Plans for the programme for 2013 include an eight-week Autumn Festival with a series

of international guest curators in collaboration with Birmingham's key artistic producers; a blockbuster exhibition of the Staffordshire Hoard, the largest hoard of Anglo-Saxon gold ever found and Culture on your doorstep, inviting one million local residents to celebrate culture in their own neighborhoods, the largest public engagement programme ever undertaken by a city.

The competition to find the nation's first UK City of Culture was launched in July last year by Culture Secretary Ben Bradshaw.

Fourteen cities made it onto the long list announced in December last year. The winning city, to be announced this summer, will become a focus for national attention in 2013 and could host high-profile national events including the Turner Prize, BBC Sports Personality of the Year, The Brits and the RIBA Stirling Prize as part of their year in the spotlight.



A Good CV is Vital to Interview Success

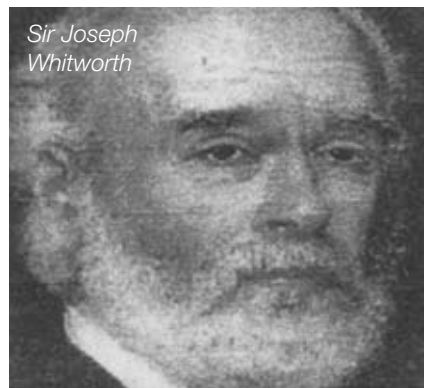


Sir Joseph Whitworth (1803 - 1887), Engineer and Inventor



Joseph Whitworth is best known for his system of screw thread, British Standard Whitworth (BSW). He proposed this thread system in 1841 as a standard for screw interchangeability and from this followed more ideas and inventions such as the machine tool Quick Return Motion.

Joseph was born in Stockport, England on the 21st December 1803 the son of Charles and Sarah Whitworth. His education was elementary, upon completion, he went to work with an uncle as an indentured apprentice in a Derbyshire cotton mill. After four years he moved to a Manchester factory as a mechanic. After a further four years he moved to Henry Maudslay's factory in London as a mechanic making machine tools, especially Maudslay's famous Screw Cutting lathe. His work colleagues here were James Nasmyth inventor of the steam hammer, Richard Roberts inventor of an advanced spinning mule. During his time with Henry Maudslay he designed a box casting scheme for machine tools that increased rigidly with light weight and various techniques for precision measurement. Joseph also worked for Holtzapffel, makers of centre lathes for ornamental turning and Joseph Clement in whose workshop Charles Babbage's



Sir Joseph Whitworth

calculating machine, the Difference Engine, was being manufactured. In 1833 he returned to Manchester to start his own business manufacturing lathes and other machine tools which became renowned for their high standard of workmanship. He progressed his method of producing accurate flat surfaces for machine beds and marking out tables using engineers blue and a special scraper.

His next invention was "end measurement" a technique that used a precision flat plane and measuring screw. The system could measure to one millionth of an inch and was demonstrated at the Great Exhibition of 1851.

The British Government commissioned his factory to design a replacement for the 0.577-inch (14.6mm) calibre Enfield rifle. The Whitworth rifle had a smaller bore of 0.451-inch (11.45mm) and a barrel rifled hexagonally, one turn in 20 inches (50.8cm). The range testing in 1859 proved it to be superior to the Enfield in every way. The Government decided it was more expensive to manufacture than the Enfield and rejected it. The French army adopted the design and it became standard issue. A number of Whitworth rifles found their way into the Confederate Army during the American Civil War, where they were called "Whitworth Sharpshooters". Queen Victoria opened the first meeting of the British Rifle Association at Wimbledon in 1860 by firing using a fixed rest Whitworth rifle. The rifle scored a bull's eye at a range of 400 yards (365m).

The Whitworth factory also produced a breech loading gun with 2.75inch (6.98cm) rifled bore that fired its projectile accuracy 5 miles (8km). This was not used by the British army but was by both sides in the American Civil War.

Awards and Memorials. Whitworth received many awards for the excellence of his



Brian Gerrard

designs and was financially successful and a member of numerous engineering Societies and Institutions. He donated four six ton blocks of Darley Dale Derbyshire stone for the lions of St. Georges Hall Liverpool. He endowed the Manchester Whitworth Institute, later a hospital founded in memory of his wife.

A strong believer in the value of technical education he backed the new Mechanics Institute in Manchester (later UMIST) and helped found the Manchester School of Design. In 1868 he founded the Whitworth Scholarship for mechanical engineering. In recognition of his achievements and contributions to education in Manchester the Whitworth Building on the University of Manchester's main campus is named in this honour and graduation ceremonies are held in its Whitworth Hall. Numerous other buildings and streets are named in his favour.

In January 1878 at the age of 83, Sir Joseph died in Monte Carlo, France, where he had travelled hoping to improve his failing health. He is buried in the churchyard of St. Helen's Church, Darley Dale, Derbyshire, England. Part of his bequest was used to establish the Whitworth Art Gallery, Manchester.

B.W. Gerrard, BSc., P.Eng., MIET

Five Ways to Keep Your Business Productive During the World Cup



01 Clarify your annual leave policy There is no statutory entitlement for time off to watch football! Employers should remind employees about their annual leave policy, procedures for taking time off and the amount of notice required. It's important to decide how to deal with requests – first come, first serve or based on work needs? If an employer's leave policy is silent or non-existent, the Working Time Regulations 1998 apply – an employee must give notice equivalent to twice the number of days they wish to take off.

02 Consider restructuring the day Temporary flexible working can help maintain productivity while keeping employees happy. This would allow an employee to work different hours on other days. Another option is to move rest breaks. The Working Time

Regulations stipulate rest breaks when daily working time exceeds six hours. If employees agree to take their breaks at the end of the day, this would allow them to leave early.

03 Beware of sickness. Should you pay employees who don't come in? If their contract includes the right to sick pay, an employee may face claims if they refuse to pay up. If there is no contractual scheme, an employee can fall back on Statutory Sick Pay, which leaves the first three days of sickness unpaid. If the employer suspects the sickness isn't genuine, they face the tricky task of trying to assess the truth, perhaps by arranging a return to work interview with the employee.

04 Consider installing a TV Allowing employees to watch matches in the site office, during a lunch break for example, can

foster good industrial relations. You could also plan it as an after work team-building exercise. Alcohol should be banned if employees are returning to work afterwards. Even if they aren't, employers can be held vicariously liable for an employee's conduct if personal injury results.

05 Consider your internet policy Staff may want to use office computers to watch games or track the score, which can affect productivity. Make sure you have a clear policy that spells out what is/isn't acceptable.



Articles for the Bulletin - We are always looking for news of members and project articles for publication in the bulletin, do you have something of interest, lets hear from you. Please supply articles up to 1000 words.

"Their name liveth for evermore" – but in Southampton, on one of the nation's most architecturally important war memorials, the names of 1,997 First World War dead are to be allowed to fade away: to save money. Southampton City Council commissioned an estimate from conservation firm Taylor Pearce for re-engraving the names of the City's war dead, many of which are badly eroding, inscribed on the Cenotaph in a city centre park. At around £7 a letter for recutting, and with cleaning and consolidation costs, the council has now decided to allow names on the Grade II listed Portland stone memorial to decay – but has announced that it will spend



£100,000 on a new "wall of remembrance" nearby, on which the names of all the city's war dead, from the Great War to present

conflicts, would be engraved. The new wall, of sandblasted granite, was expected to be in place by November 2009. The council is adamant that it will continue to maintain the Lutyens memorial, work which it says costs around £5,000 a year.

The Southampton Cenotaph was one of the first major memorials to be designed following the end of the 1914-18 conflict. It is the work of Sir Edwin Lutyens, and was unveiled and dedicated on 6 November 1920. The Southampton Cenotaph is believed to have been used by Lutyens as a "prototype" for his more famous monument at Whitehall, London. Two Plinths were added to commemorate those killed in the 1939-45 war.

The philosophical debate surrounding letter re-cutting on historic buildings and memorials is intense, with some arguing that remembrance and plain legibility demand re-cutting, while others maintain that eroding names, dedications and dates are best cut anew at adjacent sites, leaving the older structures to age without intervention.



...Staging a High Speed Police Car Chase to Recover Stolen Plants?

It didn't quite involve Starsky and Hutch style stunt driving, but a recent operation by Essex Police went to fairly dramatic lengths to recover a JCB digger stolen from a construction site near Great Casterton, Leicestershire.

Fortunately, the hire company that owned the digger had fitted it with a Tracker recovery device, which uses satellite tracking technology.

Seven days after the theft, the police picked

up the digger's signal and, supported by a helicopter unit, traced it to a lorry crossing the QE2 Bridge over the Thames at Dartford. After closing the bridge during rush hour they intercepted the lorry, arrested the driver, and found the JCB, a stolen tractor and other items valued at £350,000 inside.

We've been re-enacting the chase with the digger, police car and helicopter stress toys sent to us by Tracker (pictured).

"Beep beep! Vrrrrmmmm..."



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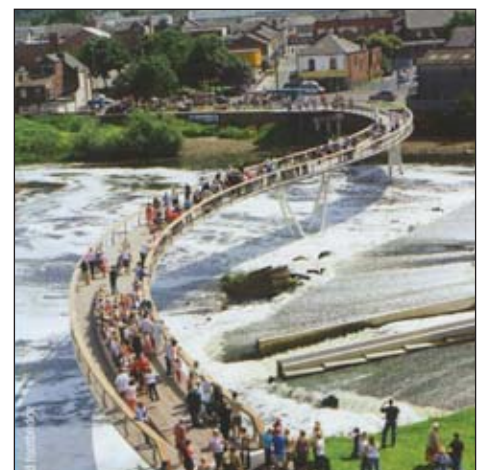
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The triple bottom line

There are three elements to sustainability:

environmental, social and economic - known as the 'triple bottom line'. The environment element understandably receives the most attention, but to be truly sustainable a structure must also deliver economic and social benefits.



Civil Engineers Reveal Top London Projects of 2010



The London 2012 Olympic Park Enabling Projects in Stratford have been awarded the top honour at the ICE London Civil Engineering awards 2010. Thirteen infrastructure and building projects were shortlisted for the Institution of Civil Engineers' (ICE) annual Awards, which recognise engineering excellence in the capital. Four other projects received awards including King's Cross St Pancras Underground Station Redevelopment – phase 2, The Shard Construction Methodology, Thames Water's Ring Main

Extension and Woolwich Town Centre. The winning schemes were announced at the London Transport Museum by BBC London newsreader Alice Bhandhukravi and ICE President Paul Jowitt.

Judgements on engineering excellence were based on criteria such as creativity and innovation, sustainability and environmental sensitivity, and benefits to the client and wider public.

The ICE London Civil Engineering Awards 2010 winners are;

- London 2012 Olympic Park Enabling

Projects received the Greatest Contribution to London Award.

- Kings Cross St Pancras Underground Station Redevelopment – Phase 2 received the Infrastructure Award
- The Shard Construction Methodology received the Buildings Award
- Thames Water's Ring Main Extension received a Special Award in recognition of the scale of its contribution to London
- Woolwich Town Centre received a Special Award for its contribution to the local community.

New Report Sets Out Carbon Challenge For Construction Industry



Prior to the General Election the government published a report on how the construction industry can meet the low carbon challenge, issuing a "business plan for the construction industry for the next 20 years".

The report is the initial findings of the Innovation and Growth Team (IGT) – a group led by Paul Morrell, the Government's chief construction advisor, and tasked with considering and recommending to government how the UK construction industry can rise to the challenge of the low carbon agenda.

The Emerging Finding Report, published in March undertakes a strategic review of the construction industry's readiness to deliver on the low carbon agenda, and develop a route

map for the transition to a world that would follow a 29 per cent cut in CO2 emissions by 2022, and an 80 per cent cut by 2050.

What the report says:

- The Low Carbon Transition Plan sets out how the UK will achieve the targets from the Climate Change Act to cut CO2 emissions. Almost every proposition in it represents a market for construction if the barriers can be overcome, so it is virtually a business plan for the construction industry over the next 20 years.

- New buildings need to enable their owners and occupiers to lead more energy efficient lives without loss of comfort. The same thinking must be extended to the 28m

existing buildings in the UK; and infrastructure must support the production of 'clean' energy and sustainable transport systems.

- This is a huge opportunity; a programme measured in hundreds of billions of pounds which can help reshape the industry to become a more integrated, collaborative and progressive industry that attracts the brightest people.
- Transitions to low carbon and high performance should be seen as part and parcel of the same challenge. The construction industry needs to develop a shared sense of purpose and a clear vision of the future so it can play a leadership role in the move to low carbon.

A Brief History of Canals



Before the advent of road and rail, canals were Britain's principal transport system, and they provided a vital means of getting construction materials to building sites. The earliest examples of using canals to move building materials date back to medieval times, when stone required to build cathedrals was transported by barge.

One of the UK's most impressive abbeys, Rievaulx Abbey in north east Yorkshire, was built this way, serviced by a series of canals created sometime during the 12th and 13th centuries.

In the 14th century York Minster was erected with stone shipped via Bishop's Dyke, which ran between Huddleston quarry and the River Ouse at Cawood near York. The transshipment of stone during this period is well documented, but it's also likely that timber would have been moved via canal.

It wasn't until the mid-1700's that canal building really took off in the UK and new waterways were vital to underpinning the success of the industrial revolution, allowing

the faster movement of goods and commodities. The first waterway of this "canal age" was Sankey Brook, dug in 1757, followed in 1761 by the Bridgewater Canal, built by the Duke of Bridgewater to carry coal from his mines at Worsley to the markets of Manchester.

Canal boats would now carry anything from bricks and lime, needed to make mortar, to timber and cast iron. Bath was a popular destination, with its famous stone taken from quarries in the surrounding hills and moved via tramways running down the hills to the canal wharf, for shipment to destinations such as Bristol and London.

Most of the materials were carried in 2.1m-wide narrow boats, designed to fit through the thin canal locks and low tunnels common in the Midlands (it was cheaper to build narrower canals there), and each one could carry up to 25 tonnes inside a 40ft hold.

Throughout the 19th century cement was transported by canal, as well as iron manufactured at the hundreds of ironworks

built alongside canals. During this period the Houses of Parliament, completed in 1840, was built using limestone dug from quarries in Derbyshire and transported via the Chesterfield Canal to Hull, then on to London.

However, the 19th century also marked the arrival of the first railways, and many believe it was this new mode of transport that killed off freight on the canals.

It is true that the railways acquired many canal companies for reasons of self-interest, but freight carrying continued on canals until after the Second World War and it was actually competition from the new motorways, compounded by the terrible winter of 1962/63, that did for most freight on the waterways. Indeed, canals may have helped contribute towards their own demise as they ferried much of the aggregate required to build the motorways.

- With thanks to engineering historian Malcolm Tucker and London's Canal Museum.



The builders of Rievaulx Abbey were serviced by a series of canals



A policeman advises children at Bridgewater Canal, Lancashire, 1955



A packet boat, designed for mail and freight transport, in Shropshire



Freight on the River Thames passes Westminster

Collaborative and Membership Agreements with other Professional Bodies

Collaborative and Membership agreements are in force with the bodies mentioned below. In every case Members wishing to apply should first contact the Society for an Application Form and/or a letter of recommendation.



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Self Inking Personal Stamps

As Members will be aware the Society has for many years had on offer a Stamp for use on notepaper and drawings containing the name of the Society and the name and Registration Number of the Member. The Firm that supplies the Stamps can now offer a self-inking Stamp which produces an even more finished appearance and is enclosed in an impressive case that will sit well on the office desk. These are now available from the Society at the modest price of £30.00 each which includes VAT, postage and packing.



Lapel Badges

Lapel Badges are now available from the Society at a cost of £3.00 each inclusive of postage. All paid up members are encouraged to purchase a lapel badge to indicate their membership of the Society, and to be proud to wear it among their professional colleagues.



Society Ties

We are pleased to advise members that we now have good quality ties in stock of polyester satin in Silver Grey, Navy and Maroon with the Society Logo picked out in gold. They are very striking and will certainly provoke discussion when worn in the office and at business meetings and training. Support the Society by ordering one now at the modest price of £11.50 (including postage and packing).



The Professional Engineer is Published by The Society of Professional Engineers

Editor: Brian R. Dixon, PEng. Deputy Editor: Arthur Watt, PEng.

All correspondence should be sent to: Lutyens House, Billing Brook Road, Weston Favell, Northampton NN3 8NW

Designed and printed by: Spingold Graphics www.spingold.co.uk

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Conservation Areas



For 40 years conservation areas have helped to preserve the special character of places - not only at the heart of our historic cities and market towns but in their suburbs and surrounding villages.



Ormskirk in West Lancashire is a conservation area that successfully sustains its own special sense of place.



The Foxton flight of locks in rural Leicestershire. This important structure is designated as a conservation area and a management agreement has recently been developed for the site.



Hampstead Garden Suburb: one of the best-known - and well-maintained - conservation areas in the country.



Abbotshall Avenue, Enfield - example of a locally listed modern building that adds significant value to its neighbourhood.



Caroline Street, Birmingham. The manufacture of jewellery and small metal-ware in Birmingham not only shaped the historic development of the area but also contributes an integral part of its character today. Planning policies are now in place to help protect the jewellery industry from further decline.