

# Westminster Abbey



A Service of Thanksgiving  
to celebrate  
The Year of Engineering 2018

Thursday 22<sup>nd</sup> November 2018  
Noon

## HISTORICAL NOTE

‘Science can amuse and fascinate us all, but it is engineering that changes the world.’

*Isaac Asimov (1920–92)*

As Asimov’s quote attests, we may not always notice it, but engineering is an intrinsic part of all our lives. It helped shape our history, it plays a fundamental role in almost every aspect of our daily existence, and it will help to define the world for future generations.

Engineering is what holds the vaulted ceiling of this magnificent building together, it runs electricity through the public address systems that will enable you to hear the service today, it is in the printing of the order of service you hold in your hands.

Throughout history engineers have been there at pivotal moments, often unseen, uncelebrated, behind the scenes, but essential to those collective successes with which we mark our societal progress, from the first steam locomotives to the Moon landings, to the artificial intelligence revolution.

The contributions of great British engineers like Alexander Graham Bell, Sir Frank Whittle and, of course, Isambard Kingdom Brunel are well recognised, and we must not forget the exceptional female engineers such as Ada Lovelace and Hertha Ayrton who have also shaped today’s world. From being the cradle of the Industrial Revolution, the United Kingdom has become a world-leading economy, thanks in large part to engineering and our great engineers.

Appropriately, the Year of Engineering 2018 coincides with the bicentenary of the Institution of Civil Engineers. Anniversaries are by their nature an opportunity to look back on the past. However, it is equally important to recognise that engineering is very much alive, vibrant, thrilling: a constantly evolving force for good in our society and one that is central to meeting the demands of the future.

We all have a duty to inspire the next generation with the variety and excitement of an engineering career, just as the Year of Engineering and the Royal Academy of Engineering’s ‘This is Engineering’ campaign are doing. Right now, engineers all over the country, and all over the world, are working to make the buildings we live and work in that little bit more comfortable, our phones a little smarter, our doctors and nurses more able to do their jobs to the best of their ability, our entertainment more engrossing, our evening journeys home a little safer.

Engineering spans the breadth of society, from vast infrastructure projects and the defence of the realm to the studs on our home team's football boots.

There are British engineers who are working to make this country's first spaceport a reality, one that could see rockets launched to the stars from these shores, just as there are British engineers who are improving the technologies that keep newborn babies safe and warm.

The Government's ambitious Industrial Strategy has its first four appropriately-named Grand Challenges centred upon artificial intelligence, the needs of an ageing society, clean growth, and future mobility. Engineers will play an essential role in meeting all of these challenges, doing so with the same tenacity, talent, and tirelessness as their forebears.

Engineering is long overdue today's celebration. As it did in Isaac Asimov's day, as it always has, and as it surely always will, engineering really does change the world.

*The Right Honourable Chris Grayling MP  
Secretary of State for Transport*

*Professor Dame Ann Dowling  
OM DBE FREng FRS  
President, Royal Academy of Engineering*

*Andrew Wyllie CBE FREng FICE  
President, Institution of Civil Engineers*

## INSTITUTION OF CIVIL ENGINEERS

In 1818, a group of young engineers came together in Kendall's Coffee House to found what would become the world's oldest professional engineering body.

The Institution of Civil Engineers became home to some of those now-legendary pioneers who helped transform this nation into a global engineering powerhouse. Today it has grown into a forward-looking, inclusive organisation with over 92,000 members worldwide and an increasing number of young people who are tomorrow's pioneers.

The Royal Charter, under which the Institution operates, was granted by King George IV in 1828. It describes civil engineering as the 'art of directing the great sources of power in nature to improve society'.

Upholding the ambitions and goals of the profession, our members have designed, built, and maintained projects that have directly transformed people's lives for the better and will safeguard the future for their families. From the Menai Bridge to the Millau Viaduct, the Aswan Dam to the Kolkata sewers, civil engineers are at the forefront of protecting us and shaping our world.

This special service in Westminster Abbey gives the ICE an opportunity to celebrate not only its longevity but also to thank its members for the positive impact they have on all our lives.

But today means significantly more to us. We are delighted that 2018 is designated the Government's Year of Engineering and we are honoured to be surrounded by thousands of industry colleagues and friends as we recognise the passion, creativity, resourcefulness, and commitment which exists across all engineering disciplines.

Between us, we tirelessly strive to make the world a better place for today, for tomorrow, and for the future.



*The Menai Bridge*



*The Millau Viaduct*

## THE YEAR OF ENGINEERING 2018

The Year of Engineering 2018 is an Her Majesty's Government campaign to show young people the vast opportunities engineering offers to shape the world around them, and the variety of engineering careers available.

During the Year of Engineering, over 1400 organisations have come together with Her Majesty's Government to give hundreds of thousands of young people a taste of engineering across the UK.

Without the skills, enthusiasm, and collaborative spirit of all these partners—from individual schools to international conglomerates—we could not have reached out to children, their teachers, and families from all backgrounds, inspiring them with the wonder of engineering and the opportunities it offers.

In response to our collective efforts, and with the tireless support of Stephen Metcalfe MP, Her Majesty's Government Envoy for the Year of Engineering, more young people than ever before have said that they would consider engineering as a career. Together we are opening up new opportunities and unlocking the potential of a generation to shape the world around them and help tackle the world's biggest challenges.

Today we celebrate engineering and cement our continued commitment to bring these opportunities to all.



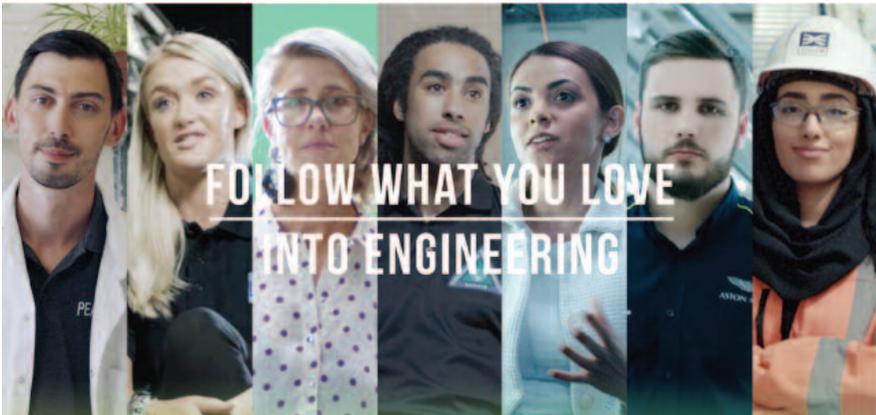
## ROYAL ACADEMY OF ENGINEERING

As the UK's national academy for engineering and technology, we bring together the most successful and talented engineers from academia and business—our Fellows—to advance and promote excellence in engineering for the benefit of society.

We harness their experience and expertise to provide independent advice to government, to deliver programmes that help exceptional engineering researchers and innovators realise their potential, to engage the public with engineering, and to provide leadership for the profession.

In the Year of Engineering, the profession has come together in an unprecedented drive to ensure that more young people experience and are inspired by engineering. Our own major contribution—This is Engineering, a digital campaign that has changed perceptions of engineering among teenagers—will live on beyond the end of the Year.

We look forward to working with our partners across the profession to increase the impact of our collective efforts to engage the next generation and encourage them to follow what they love into engineering.





# ORDER OF SERVICE

*All stand. The choir sings*

## THE INTROIT

**E**XSULTATE Deo, adjutori nostro,  
jubilate Deo Jacob.  
Sumite psalmum, et date tympanum,  
psalterium jucundum, cum cithara.  
Buccinate in neomenia tuba,  
insigni die solemnitatis vestrae.

*Sing merrily to God our strength,  
shout for joy to the God of Jacob.  
Take up the song and sound the timbrel,  
the tuneful lyre with the harp.  
Blow the trumpet in the new moon,  
upon your solemn feast day.*

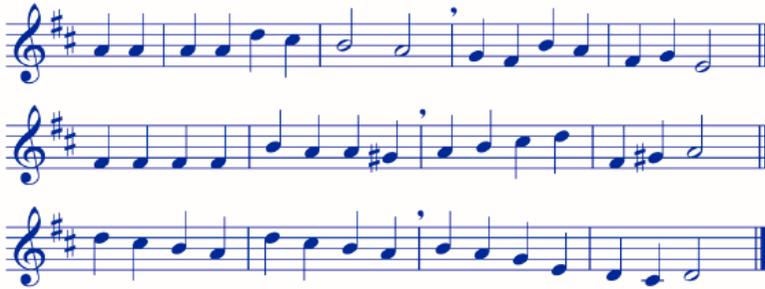
*Giovanni Pierluigi da Palestrina (c 1525–94)*

*Psalm 81: 1–3*

*All sing*

## THE HYMN

*during which the procession moves to places in Quire and the Sacrarium*



**P**RAISE, my soul, the King of heaven;  
to his feet thy tribute bring.  
Ransomed, healed, restored, forgiven,  
who like me his praise should sing?  
Praise him! Praise him!  
Praise the everlasting King.

Father-like, he tends and spares us;  
well our feeble frame he knows;  
in his hands he gently bears us,  
rescues us from all our foes.  
Praise him! Praise him!  
widely as his mercy flows.

Praise him for his grace and favour  
to our fathers in distress;  
praise him still the same for ever,  
slow to chide, and swift to bless.  
Praise him! Praise him!  
glorious in his faithfulness.

Angels, help us to adore him;  
ye behold him face to face;  
sun and moon, bow down before him;  
dwellers all in time and space.  
Praise him! Praise him!  
Praise with us the God of grace.

*Praise, my soul 436 NEH  
John Goss (1800–80)*

*Henry Lyte (1793–1847)  
after Psalm 103*

*The Very Reverend Dr John Hall, Dean of Westminster, gives*

## THE BIDDING

**W**E come to this holy place, house of God and house of kings, where almighty God has been worshipped day by day for more than a thousand years, to celebrate and give thanks for the life and work of engineers and engineering.

We recognise the work of engineers from the beginning of civilisation and the transformative power of engineering in whatever realm, including mechanical and civil, electrical, chemical, and bio-medical.

We pray that the role of engineers of all kinds may become better understood and honoured within our national life and our national educational system, that all those training and working in engineering and those developing the scope of the work may find opportunities for rich blessings in their roles and that engineering may continue to serve to improve the quality and range of people's lives and communities.

*All sit for*

## THE TESTIMONIES

*by*

Roma Agrawal MBE FICE IStructE  
Associate Director, AECOM

*and*

Colonel Deborah Porter FIHM MEng  
Deputy Commander, Defence Medical Group

*Andrew Wyllie CBE FEng FICE, President, Institution of Civil Engineers, reads*

## THE FIRST READING

**G**OD said, 'Let us make humankind in our image, according to our likeness; and let them have dominion over the fish of the sea, and over the birds of the air, and over the cattle, and over all the wild animals of the earth, and over every creeping thing that creeps upon the earth.'  
So God created humankind in his image,  
in the image of God he created them;  
male and female he created them.

God blessed them, and God said to them, 'Be fruitful and multiply, and fill the earth and subdue it; and have dominion over the fish of the sea and over the birds of the air and over every living thing that moves upon the earth.' God said, 'See, I have given you every plant yielding seed that is upon the face of all the earth, and every tree with seed in its fruit; you shall have them for food. And to every beast of the earth, and to every bird of the air, and to everything that creeps on the earth, everything that has the breath of life, I have given every green plant for food.' And it was so. God saw everything that he had made, and indeed, it was very good. And there was evening and there was morning, the sixth day.

*Genesis 1: 26–end*

*The choir sings*

#### THE PSALM

**G**REAT is the Lord, and highly to be praised :  
in the city of our God, even upon his holy hill.  
The hill of Sion is a fair place, and the joy of the whole earth :  
upon the north-side lieth the city of the great King;  
God is well known in her palaces as a sure refuge.  
For lo, the kings of the earth :  
are gathered, and gone by together.  
They marvelled to see such things :  
they were astonished, and suddenly cast down.  
Fear came there upon them, and sorrow :  
as upon a woman in her travail.  
Thou shalt break the ships of the sea :  
through the east-wind.  
Like as we have heard, so have we seen in the city of the Lord of hosts,  
in the city of our God :  
God upholdeth the same for ever.  
We wait for thy loving-kindness, O God :  
in the midst of thy temple.  
O God, according to thy name, so is thy praise unto the world's end :  
thy right hand is full of righteousness.  
Let the mount Sion rejoice, and the daughters of Judah be glad :  
because of thy judgements.

Walk about Sion, and go round about her :  
and tell the towers thereof.  
Mark well her bulwarks, set up her houses :  
that ye may tell them that come after.  
For this God is our God for ever and ever :  
he shall be our guide unto death.

Glory be to the Father, and to the Son :  
and to the Holy Ghost;  
as it was in the beginning, is now, and ever shall be :  
world without end. Amen.

*James Turlle (1802–82) Organist of Westminster Abbey 1831–82*

*Psalm 48*

*The Right Honourable Chris Grayling MP, Secretary of State for Transport, reads*

#### THE SECOND READING

**T**HERE are varieties of gifts, but the same Spirit; and there are varieties of services, but the same Lord; and there are varieties of activities, but it is the same God who activates all of them in everyone. To each is given the manifestation of the Spirit for the common good. To one is given through the Spirit the utterance of wisdom, and to another the utterance of knowledge according to the same Spirit, to another faith by the same Spirit, to another gifts of healing by the one Spirit, to another the working of miracles, to another prophecy, to another the discernment of spirits, to another various kinds of tongues, to another the interpretation of tongues. All these are activated by one and the same Spirit, who allots to each one individually just as the Spirit chooses.

*1 Corinthians 12: 4–11*

All stand to sing

THE HYMN



**B**E thou my vision, O Lord of my heart,  
be all else but naught to me, save that thou art,  
be thou my best thought in the day and the night,  
both waking and sleeping, thy presence my light.

Be thou my wisdom, be thou my true word,  
be thou ever with me, and I with thee, Lord;  
be thou my great Father, and I thy true son,  
be thou in me dwelling, and I with thee one.

Be thou my breastplate, my sword for the fight,  
be thou my whole armour, be thou my true might,  
be thou my soul's shelter, be thou my strong tower,  
O raise thou me heavenward, great Power of my power.

Riches I heed not, nor man's empty praise,  
be thou my inheritance now and always,  
be thou and thou only the first in my heart,  
O Sovereign of heaven, my treasure thou art.

High King of heaven, thou heaven's bright Sun,  
O grant me its joys after vict'ry is won,  
great Heart of my own heart, whatever befall,  
still be thou my vision, O Ruler of all.

Slane 339 NEH  
traditional Irish melody

Irish, c 8<sup>th</sup> century, translated by Mary Byrne (1880–1931)

## THE ADDRESS

*by*

Professor Dame Ann Dowling OM DBE FREng FRS  
President, Royal Academy of Engineering

*The choir sings*

## THE ANTHEM

**O** BE joyful in the Lord, all ye lands :  
serve the Lord with gladness,  
and come before his presence with a song.  
Be ye sure that the Lord he is God :  
it is he that hath made us, and not we ourselves;  
we are his people, and the sheep of his pasture.  
O go your way into his gates with thanksgiving,  
and into his courts with praise :  
be thankful unto him, and speak good of his name.  
For the Lord is gracious, his mercy is everlasting :  
and his truth endureth from generation to generation.

Glory be to the Father, and to the Son :  
and to the Holy Ghost;  
as it was in the beginning, is now, and ever shall be :  
world without end. Amen.

*William Walton (1902–83)*

*Psalm 100*

*The Reverend Christopher Stoltz, Minor Canon and Precentor, introduces*

## THE PRAYERS

Let us pray to almighty God, creator of heaven and earth.

*All kneel or remain seated.*

*Emer Murnaghan OBE CEng CEnv MICE, Head of Responsible Sustainable Business, Graham Construction NI, says*

**L**ET us pray for all whose vocation is engineering in its diversity of applications, whose skill and dedication lead to human flourishing; and for renewal and inspiration in their undertakings and fulfilment in their achievements.

Let us bless the Lord.  
**Thanks be to God.**

*Dr Geoffrey Freedman CEng CEnv, Past President, Institution of Agricultural Engineers, says*

**L**ET us pray for those who work to meet the needs of the hungry and thirsty and for all involved in promoting sustainable agriculture and the health of the environment; and that we may all be committed to meeting the basic needs of people everywhere.

Let us bless the Lord.

**Thanks be to God.**

*Katie Cresswell-Maynard, Chief Executive, Engineers Without Borders UK, says*

**L**ET us pray for those who make advancements in medical technologies and for all that is being done to improve the health and well-being of people and communities across the globe; and for those within the private, public, and third sectors who support them.

Let us bless the Lord.

**Thanks be to God.**

*Tony Roche CEng FREng FIMechE, President, Institution of Mechanical Engineers, says*

**L**ET us pray for those who, through industry and innovation, transform for good our society; for all who design and build our infrastructure; and for the promotion of innovation and education to inspire and empower new generations of engineers.

Let us bless the Lord.

**Thanks be to God.**

*Nusrat Ghani MP, Parliamentary Under Secretary of State for Transport and Year of Engineering Minister, says*

**L**ET us pray for the life of our nation: for Her Majesty The Queen, her Government, Parliament, the civil service, and all who have been entrusted with serving the greater good; and for the needful gifts of wisdom, compassion, and integrity.

Let us bless the Lord.

**Thanks be to God.**

*The Venerable David Stanton, Canon in Residence, says*

**L**ET us pray for the Church throughout the world, that she may in her words and works uphold and defend all that is just and true, bringing to bear in the lives of all people the self-giving love of Jesus Christ.

Let us bless the Lord.

**Thanks be to God.**

*The Precentor concludes*

As we await the coming of the heavenly city with eternal foundations, let us pray in the words that Christ has given us

**O**UR Father, who art in heaven, hallowed be thy name; thy kingdom come; thy will be done; on earth as it is in heaven. Give us this day our daily bread. And forgive us our trespasses, as we forgive those who trespass against us. And lead us not into temptation; but deliver us from evil. For thine is the kingdom, the power, and the glory, for ever and ever. Amen.

*Yewande Akinola, Engineer and Innovator, Laing O'Rourke, IET Young Woman Engineer of the Year 2012, reads*

#### WHAT IS AN ENGINEER?

**W**HAT is an engineer? Well, look around: our monuments are everywhere—we make and speculate, design, create, and build, then bridge the continents or search the stars, bring information into every hand, shape air and fire, sea and land—each one an element with which we innovate, imagining how lives might be improved.

To generate the new, the future now,  
ingenious, from backgrounds of all kinds,  
inventing at all ages, for all time,  
with individual spirit and joined minds,  
to tackle any challenge, far or near—  
is what it means to be an engineer.

*Varun Narayanan*

All stand to sing

THE HYMN



**G**UIDE me, O thou great Redeemer,  
pilgrim through this barren land;  
I am weak, but thou art mighty;  
hold me with thy powerful hand:  
Bread of heaven,  
feed me till I want no more.

Open now the crystal fountain  
whence the healing stream doth flow;  
let the fiery cloudy pillar  
lead me all my journey through:  
strong Deliverer,  
be thou still my strength and shield.

When I tread the verge of Jordan,  
bid my anxious fears subside;  
Death of death, and hell's Destruction,  
land me safe on Canaan's side:  
songs of praises  
I will ever give to thee.

*Cwm Rhondda 368 NEH  
John Hughes (1873–1932)*

*William Williams (1717–91)  
translated by Peter Williams (1727–96) and others*

*The Dean pronounces*

THE BLESSING

**G**O forth into the world in peace; be of good courage; hold fast that which is good; render to no one evil for evil; strengthen the fainthearted; support the weak; help the afflicted; honour all people; love and serve the Lord, rejoicing in the power of the Holy Spirit; and the blessing of God almighty, the Father, the Son, and the Holy Spirit, be among you and remain with you always. **Amen.**

*All remain standing as the procession moves to the west end of the Abbey Church.*

*Music after the service*

Finale from Symphonie VI

Charles-Marie Widor (1844–1937)

*The bells of the Abbey Church are rung.*

**Members of the congregation are kindly requested to remain in their seats until directed to move by the Honorary Stewards.**

*There will be a retiring collection in aid of*

#### ENGINEERS WITHOUT BORDERS UK

At Engineers Without Borders UK, we know that engineers are responsible for some of the world's greatest innovations. However, we also recognise that these innovations can sometimes have unintended, detrimental consequences on our global environment and communities. We lead a movement to ensure engineers apply a globally responsible mindset to all that they do and invest their skills and talent in engineering that benefits our global community.

We work to change how engineering is perceived so that a diverse cohort of engineering talent, passionate about addressing global issues, is attracted into the industry. We embed the principles of global responsibility into engineering education so that future engineers can deliver engineering for good. We support and incubate innovation in engineering around the world to deliver products, infrastructure, services, and practice on issues that matter for the good of everyone. For example, we have supported the development of low cost, high quality water filters in Mexico; helped to develop an aspirational cook stove in India to reduce smoke inhalation; inspired entrepreneurs to establish off-grid renewable electricity provision in East Africa; and nurtured bright young minds innovating environmental sustainability in UK construction.

With your support we can continue to drive forward this movement for change, leading engineers to deliver a better future for everyone. Please use the envelope in the Order of Service to place your donation which will be collected at the exits. Alternatively, text 70070 quoting 'EWBW18 £10' to donate £10 or 'EWBW18 £5' to donate £5. Thank you.

2018. THE YEAR OF



ROYAL  
ACADEMY OF  
**ENGINEERING**