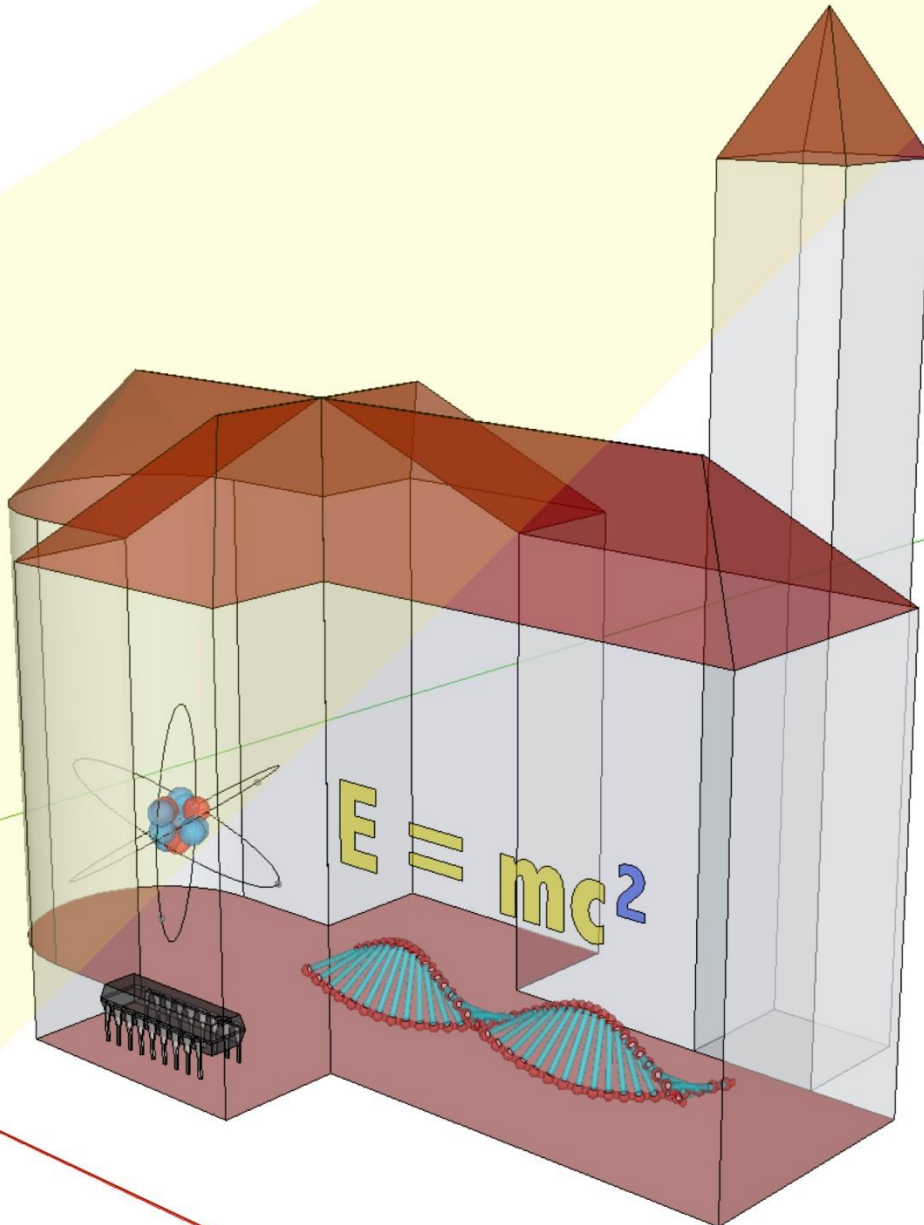


# SCIENCE FOR SUNDAYS



John  
Templeton  
Foundation

St. Peter's Episcopal  
Church, Edinburgh  
Scientists in  
Congregations  
Project



Scientists in  
Congregations  
Scotland

‘Science for Sundays’ cover design by Aidan Poon

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## Foreword

What you hold in your hands is a copy of the worship and teaching material that we have developed and used in our congregation as part of our Templeton-funded Scientists in Congregation project. It may be useful for us to explain here our motivation for developing and rolling out this material.

‘Science and religion’ is a burgeoning field of interdisciplinary enquiry. Hardly a week goes by without a new book or public lecture being announced. Nevertheless, much of this activity smacks of ‘special interest’, with the same individuals attending events repeatedly. Thus, the increasing volume of activity in ‘science and religion’ largely passes *congregations* by. In particular, ‘science and religion’ books typically ignore the worshipping scientist-in-congregation. Ted Peters suggests in his *Science, Theology and Ethics* that there is a ‘failure in pastoral care’ for scientists in congregations: ‘Whenever the deepest passions of a Christian individual’s life are ignored by the Christian community, there is something wrong.’ Science is the scientist’s passion; yet, in most churches, ‘the scientist as scientist cannot influence congregational life.’

Partly as a result of this, the scientific knowledge accumulated since Galileo has made little impact on the way congregations worship and educate. This results in a ‘failure in pastoral care’ in a wider sense. Congregations are denied opportunities for worshipful wonder at the extraordinary beauty of creation continually uncovered by scientists. Moreover, because congregations enter a ‘science free zone’ Sunday by Sunday, they are ill prepared to live as disciples in a scientific and technological world. This is not made good by the occasional talk on ‘science and religion’.

It has not always been the case that the church as a whole is so disengaged. Thus, for example, until Copernicus and somewhat beyond, many cathedrals functioned as solar observatories and sponsored astronomical work. Sadly, since the time of, and perhaps because of, the Galileo affair, the church has withdrawn from science in a way that simply is not true of the visual arts, music, and literature.

What we have aimed to do in our ‘Scientists in congregation’ project therefore is to work out ways to re-integrate science into the daily life and work of our congregation, so that ‘science and faith’ is not any more a ‘special interest’ for the few, but a vital, on-going element of faith and discipleship for the many. This is a substantial challenge because the ground to be recovered after four centuries of non-engagement *qua* church is enormous. We proposed to make a start by developing, testing and rolling out worship and teaching material that *integrates* appropriate science, technology, engineering and medicine (STEM) content into the *everyday fabric* of congregation life.

What follows is the material we have developed and used during our project. The liturgical material has been left almost exactly in the form it was used in worship. The talks for children and teenagers were delivered in the ‘Children’s talk’ slot in Sunday morning services. ‘Galileo’ was revised after a trial use, the other talks have been left largely unchanged. Two sermons have been included in the form they were preached. We hope that the totality of this material illustrates how one congregation has sought to make a start in re-integrating STEM into its regular life. Some of the material can be used by other congregation ‘as it is’, or adapted. Other material, such as the sermons, is strictly for illustrative purposes! If the material gathered here can serve as a resource and a source of inspiration for other groups of Christians seeking to re-integrate STEM into their life of collective worship and discipleship, our prayers will have been amply answered.

What, we may wonder, would be the sign that congregations have succeeded in such re-integration? A good parable of the answer is found in the famous exchange between Philip and Nathanael in the beginning of Saint John’s Gospel (1:43-51). After Philip had become a disciple of Jesus of Nazareth, he went and told Nathanael that he had found the Messiah. An incredulous Nathanael trotted out a well-known first-century Palestinian prejudice, ‘Can anything good come out of Nazareth?’ (Echoes of the taunt, ‘How can you believe in God if you’re a scientist?’ are evident.) Interestingly, Philip did not go into an intellectual ‘dialogue’ or a ‘debate’. Instead, he issued an invitation to the skeptical Nathanael, ‘Come and see!’ To our mind, if the re-integration of STEM into congregation life is successful, then we should see a significant shift in the way the church engages with the world about science. Right now, the dominant mode of this engagement is sometimes euphemized as a

‘dialogue’, but in fact it is often a ‘debate’ that is not self evidently leading to much changing of hearts and minds. If we worship in congregations up and down the land in which STEM is a natural, integrated part of our church life, then when we are challenged with the ‘science and God’ question, we should be confident *not* to move into debate mode, but rather issue the invitation, ‘Come and see!’

Wilson Poon

On behalf of the SiC team at St. Peter’s,  
Lutton Place, Edinburgh  
Lent 2016

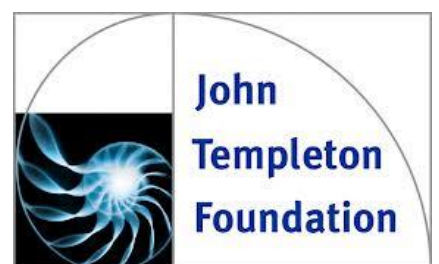
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# Light of the World

A series of short talks and prayers for  
the season of Advent

*St Peter's Episcopal Church, Edinburgh*  
*Scientists in Congregations Project*



## First Sunday of Advent

The traditional Advent Collect begins with these words:

*Almighty God,  
give us grace to cast away the works of darkness  
and put on the armour of light....*

This is the robotic lander that accompanied the Rosetta spacecraft. *Does anyone know what it's called?* Philae. It's been in the news a lot recently as it made a spectacular landing on a comet more than ten years after leaving the Earth's atmosphere. Maybe you saw the landing on television?



1

Philae relies on sunlight to power its batteries. On the outside of the lander are solar panels which capture sunlight. Sunlight is part of the electromagnetic radiation given off by the Sun. It gives energy to plants as to Philae's batteries. If the lander slips down a crater further into shadow, its batteries will run out of power.

Every week between now and Christmas Day we are lighting one candle on this stand to signify the coming of God's Light into the world in his Son Jesus. As Christians, *our* inner batteries are powered by Light from the Son. We too get energy and vitality from turning to face the Son. Let's pray that this week our faces may be turned to Him, that we may shine in the world with the light of His love.

### Collect

Almighty God, maker of heaven and earth  
we marvel at the Sun's power which fuels all life:  
beetles and batteries, spacecraft on comets;  
may we too receive vitality and energy from your Son, our Lord  
when He comes as Light for the world  
and so radiate that Light  
to those who sit in darkness and the shadow of death;  
who lives and reigns with the Father and the Holy Spirit,  
ever one God, world without end. **Amen**

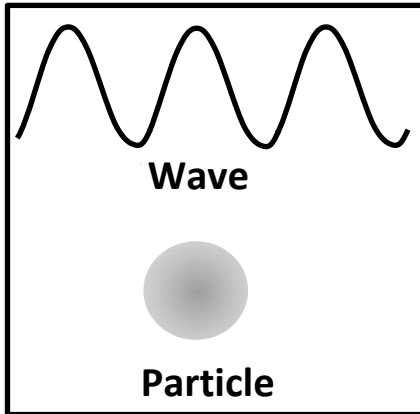
### Light Candle 1



## Second Sunday of Advent

We continue on this second Sunday of Advent to think about **light** as bidden in the traditional Advent Collect:

*Almighty God,  
give us grace to cast away the works of darkness  
and to put on the armour of light....*



Lighting our second candle takes us into the next stage of our Advent journey. In 1801 Thomas Young did an experiment to show that light was a wave. Albert Einstein later explained the photoelectric effect by introducing the idea of a 'light particle', the photon. These ideas are apparently contradictory: how can something be both wave and particle? In Advent we look forward to Christmas, when we celebrate Jesus being born as a human baby. However during His

lifetime some people began to realise that He was also God. This seems no less impossible than something being particle and wave at the same time. However, scientists had to learn to live with paradox when a new quantum mechanics showed that light was indeed both a wave and a particle. As Christians we live a life of faith in which not everything makes immediate sense. This can be very uncomfortable. Knowing that paradox is at the heart of light can help us spiritually when we contemplate the paradox of Jesus, the Light of the Word, who is both God and man.

### Collect

Almighty God, maker of heaven and earth,  
we wonder at the mystery  
that light is both wave and particle,  
and give thanks for the scientists  
who have unlocked its secrets.

In this season of Advent, help us to approach that other mystery  
with equal wonder and awe  
as we await the birth of your Son,  
Very God and Very Man;  
who lives and reigns with the Father and the Holy Spirit,  
ever one God, world without end. **Amen**

**Light second candle.**

## Third Sunday of Advent

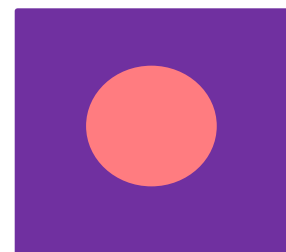
We continue thinking about **light** as we move into the third week of Advent with the words of the traditional Advent Collect ringing in our ears:

*Almighty God,*

*give us grace to cast away the works of darkness*

*and to put on the armour of light....*

In a few moments we will light our third candle, which today is pink. That's because when you shine a light behind a piece of purple cloth, it shows up as pink. The shift from the purple to pink is meant to reflect the coming joy.



Visible light is composed of a spectrum of wavelengths, each associated with a different colour. In a rainbow, light enters droplets of water and each droplet acts as a tiny prism. The light is dispersed (separated) and reflected out of the droplet, allowing our eyes to see the different colours.



2

Here we have two examples of how light can quite radically transform the look of an object that it passes through. When we decide to follow Jesus, the 'Light of the World', He enters our lives and there is a change that other people can see. Not a change in colour but a change in the way we live; the things we say, the things we don't say; the things we do, the things we don't do. When other people see these changes, they see Jesus, 'The Light of the World', shining through our lives.

### Collect

Almighty God, maker of heaven and earth,  
we gaze in awe at the majesty of the created order -  
rainbow, prism and borealis,  
purple illumined into pink;  
help us by such contemplation  
to apprehend you, the Everlasting Light,  
and catch glimpses of your glory in the gloom;  
we ask this in the name of Him  
who is the true Light that enlightens everyone,  
and whose Advent we await. **Amen**

**Light third candle.**

## Forth Sunday of Advent

Today we light our fourth, and final, Advent candle, which means that the coming of the one we wait for is imminent.

*Almighty God,  
give us grace to cast away the works of darkness  
and put on the armour of light....*

150 years ago this month, the Edinburgh physicist James Clerk Maxwell announced that light was an electromagnetic wave. He arrived at this insight by constructing a theory to unify two of the fundamental forces in our universe: the electric and magnetic forces. Maxwell's theory showed a way of working that is still used today. We now have a theory that unifies all but one of the fundamental forces. The 'Grand Unified Theory', or GUT, provides a single description of Maxwell's electromagnetic force, the weak nuclear force, and the strong nuclear force. Paradoxically, the weakest of the fundamental forces, gravity, has defied all attempts so far to bring it 'into the fold'.



3

All his life, Maxwell was a follower of the Light of the World. Just as he found out that diverse phenomena in electricity and magnetism displayed an underlying unity, he believed that truth as revealed in God's Word and in God's Works must be one. When he built what became the most famous physics laboratory in the world, the Cavendish Laboratory in Cambridge University, he had the (Latin) words of Psalm 111:2 inscribed over the heavy oak doors guarding its entrance: "Great are the works of the LORD; they are pondered by all who delight in them."

### Collect

Almighty God, maker of heaven and earth,  
you lit the whole creation with light in the beginning  
and revealed the nature of light to your servant James Clerk Maxwell.  
Make your face shine upon us and be gracious to us  
as our waiting draws to a close  
and we make ready  
to celebrate the enfleshment of Light in our midst. **Amen**

### Light Candle 4

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## **Intercessions for final Sunday of Advent**

To the bidding “Lord of light”; the response is: “be the light in our lives”.  
**Lord of light; be the light in our lives**

### **On the first week of Advent, we lit a candle and marvelled**

“at the sun’s power which fuels all life: beetles and batteries, spacecraft on comets”

**Almighty God**, we give thanks for your world, for the energy you provide and the privilege of being part of your creation. Forgive us when we take it for granted and fail to protect precious resources. Help us to cherish and nurture this planet Earth; both its physical dimension and the spiritual realm.

**Lord of light; be the light in our lives**

### **On the second week of Advent, we lit a candle and wondered**

“at the mystery that light is both wave and particle”

We were helped to understand what we believed was impossible; that, as light is both a wave and a particle, so Jesus is both man and God.

**Immanuel, God with us**, we give thanks for the freedom to explore mystery. Forgive us when we try to suppress curiosity and understanding. Guide us in speaking of our own understanding and help us not to fear listening to different perspectives. As we move forward in exploring the spectrum of our human make-up let us remember that we are each made in your image.

**Lord of light; be the light in our lives**

### **On the third week of Advent, we lit a candle and gazed in awe**

“at the majesty of the created order, rainbow, prism and borealis”

**God, you made the world and saw that it was good**. As we gaze in awe this Christmas, renew in us the element of delight in your world. As we prepare to feast, refresh our taste buds that we might savour the complex flavours of the season without jading our palate for simplicity.

We take a moment to remember

those who face hunger, cold or loneliness this Christmas

and those who are unwell and in need of comfort, especially [NAMES].

In our reflections may we be encouraged into action rather than discouraged by despair. You made the world and saw that it was good; may we share this vision and provision.

**Lord of light; be the light in our lives**

**Today we lit a candle** and, as you revealed the nature of light to James Clerk Maxwell, we anticipate the nature of light being revealed in our lives, through Jesus Christ, in whose name we offer these and all our prayers.

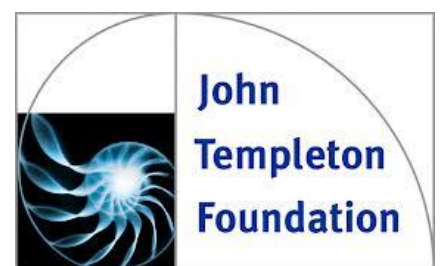
**Amen**

# **Annunciation is for life, not just for Christmas**

A sermon for the season of Advent  
by Wilson Poon

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*St Peter's Episcopal Church, Edinburgh  
Scientists in Congregations Project*



## **Text: Luke 1:26-38**

Have you ever seen an angel? I don't think I have, and I presume most of you haven't either. But Mary has. At least that is what the last 2000 years of European art tells us. There are literally tens of thousands of paintings of the annunciation in museums and churches all over Europe. These fall into one of three categories, which we can call 'before, during and after'. In some cases, Mary is turning from whatever she has been doing, and would shortly meet the angel's eyes; in other paintings, Mary meets the angel's gaze quite directly; in a third kind of paintings, Mary has already met the angel's gaze, and is now averting her eyes in deference. In all cases, Mary clearly has seen, is seeing, or will soon be seeing the angel. And the King James Bible agrees:

And the angel came in unto her, and said, Hail ... And when she saw him, she was troubled at his saying, and cast in her mind what manner of salutation this should be.

Now we play spot the difference. Here's the version of our Gospel reading that you heard earlier:

And [the angel] came to her and said, "Greetings ..." But she was much perplexed by his words and pondered what sort of greeting this might be.

Did you spot the difference? There's no mention of 'seeing' in this modern version, or indeed in any modern version. I have never noticed that until this week. When I did some homework, I found that the most reliable ancient manuscripts of Luke's Gospel indeed did not mention 'seeing'. Modern commentators unanimously agree that these manuscripts represent what Luke intended. Luke did *not* say that Mary saw Gabriel. We're at liberty to infer that she did; but we are equally at liberty to assume that that she did not.

Interestingly, a minority of annunciation artists have assumed that Mary in fact did *not* see Gabriel. In most of these minority cases, the artist only hints at Mary not seeing Gabriel. However, in one or two cases, the artist wants to be quite unambiguous, and paints a pillar to block Mary's view of Gabriel.

Why am I obsessed with whether Mary saw Gabriel or not? Isn't that a rather trivial aside? No, it isn't, because this business of 'seeing' affects how we hear



our Gospel reading today. If we think Mary saw Gabriel, then her experience puts her in the category of the spiritual elite, and we likely decide that her experience has little to do with our more mundane existence. On the other hand, if Mary did not actually see anything, then we may be encouraged to ponder her experience and consider whether it is something that we may all share.

So let's do that. Let's proceed from the assumption, allowed by the text, that Mary did not see Gabriel, and see where it leads us. Let's start by asking another question that the passage does not answer directly, but leaves room for us to ponder. How long do you think the annunciation lasted? If you, like me, had assumed that Mary saw Gabriel, then I suspect that you, like me, would have assumed that the whole thing was over quite quickly. Seeing an archangel would probably have been an overwhelming experience, leaving little room for anything but instant obedience: light, camera, action, enter angel, Mary says yes, cut; all over in less than 5 minutes.

But there is nothing overwhelming about the way the story is told. When Mary heard Gabriel's greeting, she was 'perplexed' rather than overwhelmed. There room to 'ponder'. After further revelation from Gabriel, there was room for questioning before Mary gave her consent with those famous words, 'Here am I, the servant of the Lord ...' Mary was not overwhelmed into submission by a snappy audio-visual razzmatazz. Instead, our text suggests that the Orcadian poet Edwin Muir has got it right:

The angel and the girl are met  
Earth was the only meeting place.

...

See, they have come together, see,  
While the destroying minutes flow,  
Each rejects the other's face  
Till heaven in hers and earth in his  
Shine steady there.

...

Outside the window footsteps fall  
Into the ordinary day  
And with the sun along the wall  
Pursue their unreturning way  
Sound's perpetual roundabout  
Rolls its numbered octaves out  
And hoarsely grinds its battered tune

But through the endless afternoon  
These neither speak nor movement make.  
But stare into their deepening trance  
As if their grace would never break.

Notice that Muir did not say they stared into each other's eyes. Instead, they stared into a common, 'deepening trance'. In Muir's annunciation, the *dramatis personae* did not even exchange audible words: 'these neither speak nor movement make', in contrast to hubbub outside the window: 'sound's perpetual roundabout'. As the shadow lengthens along the wall outside, there is a strange stillness inside, a 'grace [that] would never break'.

Our pondering has led us to a strange place. Perhaps Mary didn't see any angel. Perhaps there was no speech of the ordinary kind. Perhaps it was a long process rather than a snap action. The text does not say any of this directly, but it permits us to interpret it the way Edwin Muir has done. Indeed it encourages us to do so by saying that Mary *pondered* Gabriel's greeting. The Greek word used, *dialogizomai*, is where we get the English word 'dialogue' from, but in New Testament Greek, it always means an *inner* dialogue - reasoning, rejecting, arguing things out in one's own mind.

Let's ponder some more. What do you think Mary was doing when Gabriel came? Here the text is silent, but the whole European artistic tradition agrees: Mary was reading. Indeed, a *genre* of painting called 'the Virgin of the Annunciation' shows no angel, but only Mary, with a book, which is almost certainly the Bible. Mary was pondering God's word when Gabriel visited. I think these artists have got it right in essence - Mary was a habitual ponderer of God's word, but rather than reading it, she more likely heard it read out in the synagogue Sabbath by Sabbath.

For a habitual ponderer of God's word, annunciation was unlikely to be a one off. Edwin Muir suggests that annunciation became a perpetual state for Mary  
—

But through the endless afternoon  
These neither speak nor movement make.  
But stare into their deepening trance  
As if their *grace would never break*.

For Mary, the annunciation was for life, not just for Christmas. If that is the case, then perhaps the annunciation was not just for Mary either. Perhaps we can all expect annunciations if we learn to ponder God's word. And by 'God's word', I don't just mean the Bible. It certainly includes that - I wonder how much we ponder the readings we hear Sunday by Sunday. But God's word goes beyond the Bible. Genesis and Saint John picture all of creation as coming from God's word. The cosmos is one gigantic letter from the Creator. Pondering anything, any happenstance, in the creation can lead to annunciations. That is the implication of saying that creation came into being by the word of God.

So, I for one have no doubt that as scientists ponder the creation, they are visited by angels with annunciations. Why else would it be that scientists habitually report their discovery with the words, 'It occurred to me that ...' Why else would Einstein say, 'The most incomprehensible thing about the universe is that it is comprehensible.' I think these scientists, Einstein, James Clerk Maxwell, the lot, even me, have been habitually visited by angels without knowing it. But we heard the angels all right. That, of course, is the way God's messengers work - delivering the message, without drawing attention to the messenger. That is why Saint Paul can say, 'Ever since the creation of the world God's eternal power and divine nature, invisible though they are, have been understood and seen through the things God has made.' (Romans 1:20)

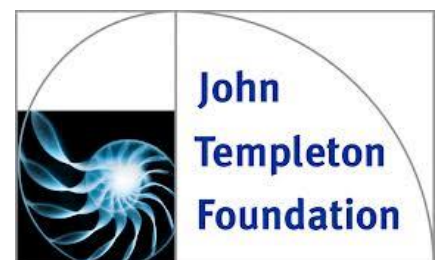
Have you, have I, been visited by angels? If we have pondered deeply about anything, the chances are that we have. Mary's story encourages us to be on the look out. For us, and not just for Mary, annunciation can be not just for Christmas, but for life!

# How do you look at stars and end up with a baby in a manger?

A sermon for the season of Epiphany  
by Wilson Poon

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*St Peter's Episcopal Church, Edinburgh*  
*Scientists in Congregations Project*



## Text: Matthew 2:1-12

Today we are celebrating Epiphany. The word comes from the Greek verb *epiphainein*, meaning 'to reveal'. The fully name in the Old Prayer book for the feast of Epiphany is 'The Epiphany, or the Manifestation of Christ to the Gentiles.' 'Manifestation', or 'revelation', or 'epiphany'.

The birth of the Messiah has already been revealed to God's own people the Jews. The angels said to the shepherds: 'Unto you is born this day in the city of David a Saviour, which is Christ the Lord.' Today, we celebrate God's revelation of the Saviour of the World to gentiles, wise men 'from the East'. These folks did *not* have the Jewish scriptures - they knew nothing of King David, or God's promise to bring forth a Messiah out of his descendants. So God had to do something else. Interestingly, God used the stars.

Scholars have long debated the story of the magi. Some say it's an edifying fable. Others suggest that there was a factual basis, and have spilt a lot of ink trying to establish the identity of the star. Either way, this story is part of our Bible, and we are invited to reflect on its meaning each year at Epiphany. So let's do that.

The word 'magi' was used to refer to many classes of people in the ancient world, from those whom we would call scientists today, all the way to conmen who peddle recycled horoscopes to gullible customers. I think of these magi as ancient scientists who study the stars. In that case, their story invites us to reflect on what it is that we can learn about God by pondering the physical universe scientifically.

Men and women have, of course, gazed at stars from time immemorial. But stargazing started to become science when people noticed that starry motions were *regular*, so regular that they were *predictable*. Astronomy was unquestionably the first science to develop. The ancient Chinese and Babylonians knew how to predict eclipses, and made accurate astronomical calendars. Much later, in the 16th century, astronomy gave birth to the modern scientific revolution. Galileo and Newton discovered laws from which they could deduce the regularities in stellar movement using mathematics as a tool.

All of that is, of course, commonplace. Everyone, scientist or not, knows that the world is regular, and predictable by scientific laws. If the world is not regular and predictable, science would not be possible, and neither would the whole gamut of gadgets and technologies we have come to depend on. The regularity and predictability of the world is so commonplace that we seldom stop and ask what it means. Why? Why is the world regular and predictable? Does it have to be like that? Could it have been otherwise?

Imagine, for example, that the universe were created by the Greek god Zeus. Would we expect such a world to be regular and predictable? The answer is 'No!' The Greek pantheon was capricious. Zeus lops a thunderclap here and throws a lightning strike there more or less according to his whim - for the odd bit of fun, or to revenge the latest feud. No, Zeus would not make a predictable world: he wouldn't want to limit his personal freedom by letting the world be predictable!

More seriously, a significant number of Jews, Christians and Muslims have always believed that since God is absolutely powerful, there could not be any real regularity or scientific laws, because that would limit God's freedom to act. The tongue twisting word for this belief is 'occasionalism' - I'll explain it in just a moment.

We do, of course, perceive *apparent* regularity. For instance, every time I drop something, such as this ball from the pulpit - someone please catch it! - it will fall about 5 meters in one second, 20 meters in 2 seconds, 45 meters in 3 seconds, and so forth; every time anyone drops a ball, the distance it falls increases as the square of the time. Instead of offering a scientific explanation based on Newton's laws, the occasionalist would say that the apparently regular, law-like motion from one moment to another - or 'occasion by occasion', hence 'occasionalism' - is actively willed by God. Every moment is a fresh miracle, directly from the hand of God. There is no reason to expect regularity and predictability. Indeed, any attempt to predict is impious, because it would be tantamount to second-guessing God's mind. God could, when the ball is half way down from the pulpit, cause it to reappear right above the cross at the high altar if God so chooses.

If all this sounds medieval, let me tell you a true story about a teacher in an inner-London primary school. When this teacher announced that the topic next week would be weather prediction, a certain group of religious parents

withdrew their children for the week. Why? Because predicting anything would be blasphemy. Occasionalism is very much alive and well in the 21st century. The parents concerned happened to have been Muslims. But occasionalism is thriving amongst Christians, too. Creationists are occasionalists by another name: they insist that God made the world in 6 lots of 24 hours, and refused to have any truck with the law-like regularity of evolution by natural selection. (How evolution is 'law like' and 'regular' is, however, for another sermon!)

But that is not mainstream Christian belief. Mainstream Christian, and indeed Jewish, theology teaches us that God created a world and gave it a law-like regularity, and therefore autonomy. Listen to what God said to himself after the Flood; I quote from Genesis:

The LORD ... said ... , 'As long as the earth endures, seedtime and harvest, cold and heat, summer and winter, day and night, shall not cease.'  
(8:21-22)

In other words, regularity, and therefore predictability, and therefore the possibility of science, was, and remains, part of the divine intention. Furthermore, the occasionalist is right. For God to make such a promise *does* limit God's freedom. But the key thing is that this is a *self-imposed limit*. God, in creating a world that has law-like regularities, indeed has to impose a limit to God's own power; to withdraw godself sufficiently from the world of created beings to give these beings a degree of law-like autonomy - for stars to run according to Newton's laws of motion, and the biological world to evolve according to Darwin's law of natural selection.

How do we know that that is true? The Christian answer is given by Saint Paul in his letter to the Philippians, where he says of Jesus

who, though he was in the form of God,

... ,

[he] emptied himself,

... ,

And being found in human form, he humbled himself and became obedient to the point of death — even death on a cross. (2:6-8)

God *emptied godself* to become a baby, to grow up to die on a cross. But this self emptying, this self limitation, was already apparent when God made that promise to humanity that this should be a world of regularity and predictability. So indeed, we should be able to look at the regularity of stellar motions and arrive at the baby in Bethlehem. The love that made it possible to study the stars scientifically is the same love that we see at Christmas, at Epiphany, and on Good Friday.

In the middle of her life, the 14th century English mystic Julian of Norwich fell very ill. She thought she was going to die. Her curate gave her a crucifix to meditate on in what she thought was her last hour. She then saw a series of visions. During her first vision God 'showed [her]', and I quote

... a hazelnut in the palm of my hand, and it was as round as a ball. I looked upon it ... and thought, "What may this be?" And it was ... answered thus, "It is all that is made." I marvelled how it might last, for I thought it might suddenly have fallen to nought for littleness. And I was answered in my understanding, "It lasts and ever shall, for God loves it." And so all things have their being by the love of God.

From the bleeding head of Christ on a crucifix, God takes Julian to a small nut, a symbol of 'all that is made', and shows her that 'all things have their being by the love of God'. The self emptying that led to the autonomous, law-like existence of a nut is the very same love that is manifest by Jesus on the cross.

That, to me, is the modern message of Epiphany, of looking at the stars and arriving at a revelation of the birth of the Messiah. God is both power and love; but the power is circumscribed by the love. In the words of a Graham Kendrick song, 'hands that flung stars into space, to cruel nails surrendered'.

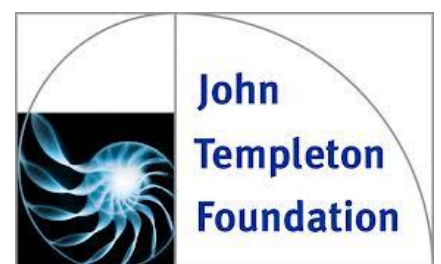
Amen.



# Matter Matters

A series of short talks and prayers for the season of Easter

*St Peter's Episcopal Church, Edinburgh  
Scientists in Congregations Project*



## Easter 2

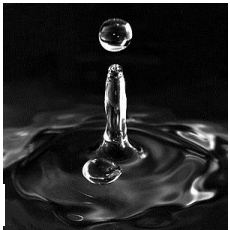
*Each Sunday we will investigate an aspect of matter, and place a symbol of that understanding onto the empty Cross; 'He is not here for He has been raised'. Today we consider the physicality of matter.*

1



Matter is anything that has mass (the amount of stuff in an object) and volume (in other words, it takes up space). For example, a car is matter as it occupies space and has mass.

2



Matter is made up of atoms. All the objects from everyday life that we can bump into, touch or squeeze are composed of atoms. Matter is usually classified into three states: solid, liquid and gas.

3



Today we hear a Gospel story (**John 20, 19-31**) about how Jesus appeared to His disciples after His resurrection and invited one of them, Thomas, to touch Him – to help the disciples understand that He was not a ghost but a man with a body, a body that still showed the scars of the nails with which He had been crucified.

The resurrection is God's promise to us that matter matters - 'stuff' has a future in God's future!

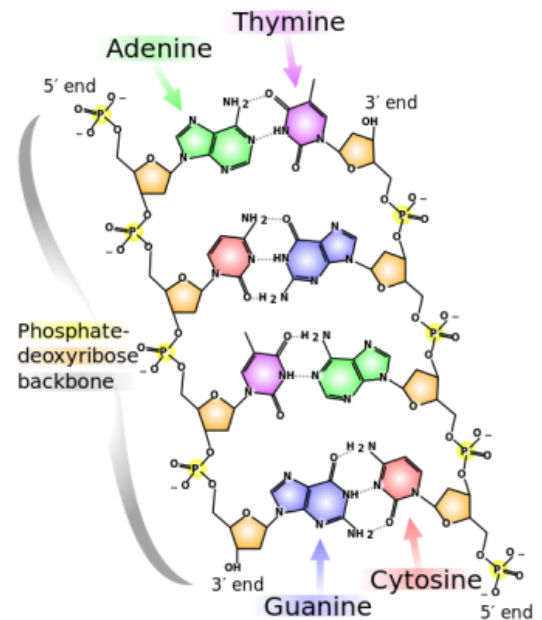
Almighty God,  
who by raising your Son from the dead  
confirms in us the hope that matter matters;  
give us grace to spend this week  
touching the things of the earth with reverence  
that we may share Thomas' awe  
and find faith;  
through Jesus Christ our Risen Saviour

**Amen**

### Easter 3

*On this third Sunday of the Easter season, we continue thinking about the matter that surrounds us, in particular its capacity to be a sacrament of the divine.*

Matter, we learned last week, is made up of atoms. One of the greatest scientific discoveries of the last century was the elucidation of the structure of DNA, the molecule of life. The scientists who discovered it were astonished by the pattern the atoms made. The double helix, they said, was 'so beautiful it had to be true'. In the matter of DNA, they saw beauty and truth, which bear witness to the God of beauty and truth.



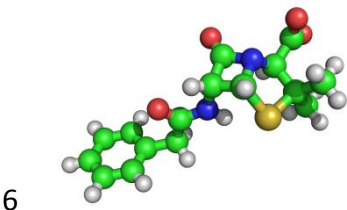
4

In our Gospel story this week (**Luke 24 36b-48**) the disciples see Jesus doing something very ordinary - but also completely extraordinary. He breaks bread, and in that ordinary everyday 'stuff' they meet, touch and taste God – as we will at Communion.

Almighty God,  
whose Son Jesus Christ taught us in the breaking of bread  
that matter could be the bearer of the divine;  
give us the grace of astonishment  
that we may spend this week  
appreciating the matter around us  
and so come to see you in all things  
through Jesus Christ our Risen Saviour  
**Amen**

## Easter 4

*On this fourth Sunday of Easter, we recall that after that first Easter, the disciples started healing the sick in the name of the Risen Christ. Today, Christians continue to heal the sick all over the world in Jesus's name, using science and technology that would seem nothing but miraculous two thousand years ago. We can do this because as God's image, men and women have delegated authority over the created world of matter.*



Just 100 years ago, a sore throat could have killed you, and did kill many, especially children and older folk. In 1928, the Scottish biologist Alexander Fleming made an unexpected observation in his lab, that a substance produced by a fungus that had contaminated one of his dishes of infectious bacteria was actually lethal to those bacteria. He had discovered the world's first antibiotic. Fleming's discovery, a little molecule with just 41 atoms, proved not only a God-send for many sufferers of sore throats; it also saved the lives of countless soldiers in the Second World War who were suffering from infected wounds.

Since then, many more antibiotics have been discovered, natural and synthetic, but we have also misused this material blessing, through overuse in humans and in animals, so that they are losing their effectiveness against dangerous bugs. We need to repent before it is too late!

Almighty God,  
who gave us the mandate to study and make use of matter as your regents,  
teach us how to handle the gifts of science and technology wisely,  
so that at the Last Day, when we are called to give account,  
we may know that we have used your gifts to heal and not to harm,  
through Jesus Christ our Risen Saviour

**Amen**

## Easter 5

*Today, the fifth Sunday of Easter, our reading from Acts reminds us that from the beginning of the preaching of the Gospel, men and women were called to share in Jesus's risen life through the sacrament of baptism: immersion into and rising again from water symbolises dying and rising with Christ.*

7



Water is simply the most amazing stuff imaginable. It is, for example, the only stuff around that floats when it freezes, so that the ice forms a blanket above a frozen pond, allowing living things underneath still to thrive. Water can dissolve an astonishing variety of substances, allowing them to undergo a multitude of chemical reactions, including all those needed for life. Most scientist now believe that without water, life would not be possible.

8



The earth is at just the right distance from the Sun to have water, and have it in liquid form – that's why we're the blue planet. When probes are sent into space to look for life elsewhere in the universe, the first thing they look for is any sign of liquid water.

Water is what has made possible all life as we know it, and God has chosen this amazing form of matter to symbolise new life in Christ.

Almighty God,  
who long ago used water to bring life into your universe,  
and who has brought us into new life through the water of baptism,  
keep us firm in the hope of the new heavens and the new earth,  
where the water of life flows for the healing of the nations,  
through Jesus Christ our Risen Saviour

**Amen**

## Easter 6

*On this Sixth Sunday after Easter, our Gospel reading reminds us that as Easter people, we are to bear fruit in Jesus's name. Elsewhere in Saint John's Gospel, Jesus speaks of us as the fruit that he bears; he was the grain of wheat that fell into the ground, died, and then through his resurrection, bore the fruit of the Church.*

9



A seed is the most extraordinary piece of matter. It looks and feels completely inert, and yet when planted into soil and given water and warmth, it springs into life. It then keeps on changing and changing until it becomes a plant that we can hardly recognise from the seed that we started from. Totally different, and yet, if we look deeper, peering into the DNA of its cells, we find that, in a very real sense, the magnificent full grown plant is 'the same' as the humble seed.

10



11



Saint Paul in his First Letter to the Corinthians told us that resurrection would be a bit like that. When God raises us on the last day, our risen bodies would be unimaginably different from what we have now, and yet, mysteriously, somehow 'the same' – the same atomic matter, but unimaginably transformed. Resurrection, Paul says, is God transforming matter 'from glory into glory', so that it becomes fit for heaven.

Almighty God,

who by bringing again from the dead our Lord Jesus Christ

shows us your intention to transform matter from glory to glory;

open our physical eyes this coming week

to see matter being transformed in amazing ways around us,

and so fix our spiritual eyes on the hope of our own future transformation

through Jesus Christ our Risen Saviour

**Amen**

## Easter 7

*Last Thursday was Ascension Day, when the Church remembered how the resurrected Jesus took his body of transformed matter into the very being of God. Matter really matters! Saint John, in his Revelations, depicts this future of matter at the heart of God as a new City, where ‘people will bring into it the glory and honour of the nations’, including all the best things that scientists have done, but further transformed by God ‘from glory to glory’.*

We invite you to supply your own picture symbolising the top bit of science or technology you look forward to seeing in the heavenly Jerusalem ...



12

... and we would like you to tell us what gets your vote on the flipchart at the back of the church.

Almighty God,  
whose Son Jesus brought his gloried body into the bosom of divinity,  
open our eyes to see your glory in this material world  
and give us wisdom to use it wisely,  
so that at the last day,  
what we have done in this life may be gathered into your new City  
through Jesus Christ our Risen Saviour

**Amen**

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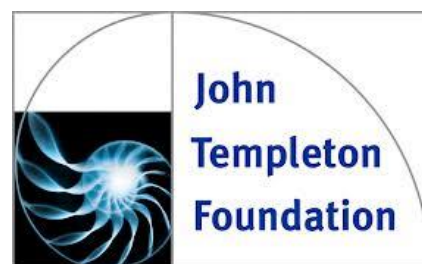
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# Lord, thank you for blessing the work of our hands

A liturgy and intercessions for  
Harvest Thanksgiving

*St Peter's Episcopal Church, Edinburgh*  
*Scientists in Congregations Project*



## **Context and Motivation**

In a traditional harvest service, we give thanks to God for blessing the work of farmers and other food producers in our community. Motivated by Deuteronomy 26:1-11, we have written a Harvest Liturgy to celebrate the work the hands of every member of the congregation. We ask everyone to bring to the service a token of how God has blessed the work of his or her hands in the previous year – if they are connected with food production, then they may indeed bring items of food; on the other hand, if they work as (say) musicians, they may bring a guitar or a score. At the beginning of the service, everyone is invited to bring their tokens and place them around the altar. This wonderful gathering symbolising the work of the hands of the whole congregation then forms the visual focus for a service that makes reference to the work of our hands throughout.

In the following specific instance of this ‘work of our hands’ harvest liturgy, we focus on celebrating the labour of those in our congregation who work in science, technology, engineering and medicine (STEM). At the point when the offering of bread and wine is brought up, we also ask two members of the congregation to bring up their tokens of how God has blessed the work of their hands, and appropriate prayers are said over these, before the usual prayers of thanksgiving are said over the bread and wine, which, at least in some traditions, are habitually presented as ‘the work of our hands’ that God takes to make into special Eucharistic blessings. The same liturgical framework can be used to celebrate congregational work in other sectors: the only change necessary would be the relevant prayers at the presentation of tokens.

# Harvest Thanksgiving

## Welcome and Notices

**Hymn NEH 259** Come, ye thankful people, come

God gave us hands.

Hands to create

**Lord, thank you for blessing the work of our hands**

Hands to love

**Lord, thank you for blessing the work of our hands**

Hands to give

**Lord, thank you for blessing the work of our hands**

Hands to protect

**Lord, thank you for blessing the work of our hands**



But we have misused our hands:

Hands made to create now destroy

**Lord, forgive us**

Hands made to love now hate

**Lord, forgive us**

Hands made to give now take

**Lord, forgive us**

Hands made to protect now attack.

**Lord, forgive us**



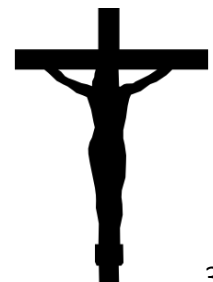
Jesus came and held out his hands to a dying world.

**Lord, have mercy**

We took those hands and nailed them to a cross.

**Lord, have mercy**

But God's love was stronger than death



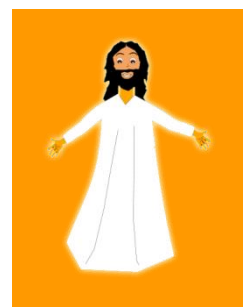
Three days later Jesus rose again

Today he holds out his hands to us.

**Lord, take our hands into your hands**

**And make them your instruments of life**

**Amen.**



## Kyrie

Lord, have mercy.

**Lord, have mercy.**

Christ, have mercy.

**Christ, have mercy.**

Lord, have mercy.

**Lord, have mercy.**

**Gloria** (please use your hands to clap at the points shown below)

Glory to God, Glory to God, Glory to the Father (x2)

To him be glory for ever.



To him be glory for ever.



Alleluya Amen, Alleluya Amen, Alleluya. Amen.

Glory to God, Glory to God, Son of the Father ....

Glory to God, Glory to God, Glory to the Spirit .....

David Jenkins

## Collect

God of atom and ikon, of solstice and sacrament,  
whose plan it is to gather all things into unity in Christ,  
and whose care embraces furthest planet and smallest microbe alike;  
give us grace to turn aside and attend to all you have made  
that, so humbled, we may be caught up into this wondrous act of creativity,  
and offer you the daily work of our hands  
for the furtherance of your loving purpose,  
through Jesus Christ our Lord. **Amen**

## Deuteronomy 26.1-11

At the end of the reading: This is the Word of the Lord

Response: **Thanks be to God**

**Hymn CAH 915** Who put the colours in the rainbow?

## **John 17.1-5**

Reader: For the word of God in scripture  
For the word of God among us  
For the word of God within us

**All: Thanks be to God**

Reader: Give thanks to the Lord for his glorious Gospel

**All: Take, O take me as I am**

John L. Bell

**NEH 235** Forth in thy Name, O Lord, I go

## **Affirmation of faith**

**You, O God, are supreme and holy.  
You create our world and give us life.  
Your purpose overarches everything we do.  
You have always been with us.  
You are God.**

**You, O God, are infinitely generous,  
good beyond all measure.  
You came to us before we came to you.  
You have revealed and proved  
your love for us in Jesus Christ,  
who lived and died and rose again.  
You are with us now.  
You are God.**

**You, O God, are Holy Spirit.  
You empower us to be your gospel in the world.  
You reconcile and heal; you overcome death.**

**You are our God. We worship you.**

‘A New Zealand Prayer Book – He Karakia Mihinare o Aotearoa’ <http://anglicanprayerbook.nz/476e.html>  
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## **Intercessions**

(A set of prayers and responses are printed at the end.)

## **Peace**

The harvest of the Spirit is love, joy, peace, patience, kindness, goodness, faithfulness, gentleness and self-control.

We meet in Christ's name: **Let us share his peace.**

**HYMN CAH 819** He's got the whole world in his hand

## **Talk – Earthing Scripture**

### **Blessing of those in St. Peter's who work in science, technology, engineering and medicine**

(STEM workers are invited to come to the front to receive this blessing)

God of all creation, we thank you for all those in our church family who work in science, technology, engineering and medicine.

They use the creativity you have given them to cure illness and improve living conditions, reveal mysteries about the universe and communicate to others the excitement of new understanding.

Bless the work of their hands, because in obeying your calling, they do your will on earth.

In the name of Jesus our Lord, Amen.

### **Offering of Gifts**

(Two STEM workers bring tokens of how God has blessed their work at the same time as the bread and wine are brought to the front by servers.)

(In this instance, one token was from someone working in medicine ...)

Blessed are you: Lord God of all invention: Through your goodness

We have this Cure to offer.

Fruit of the lab and work of evolution.

It will improve for us the Quality of Life.

**Blessed be God for ever.**

(... and the other token was from someone working in physics.)

Blessed are you: Lord God of all intuition: Through your goodness

We have this Proof to offer.

Fruit of the brain and work of abstraction.

It is the Self-understanding of your Universe.

**Blessed be God for ever.**

(Then the usual blessing of the bread and wine follows.)

Blessed are you: Lord God of all creation: Through your goodness

We have this Bread to offer.

Which earth has given and human hands have made. It will become for us the bread of life.

**Blessed be God for ever.**

Blessed are you: Lord God of all creation: Through your goodness

We have this Wine to offer.

Fruit of the vine and work of human hands. It will become the cup of our salvation.

**Blessed be God for ever.**

*Preface:* And now we give you thanks because you make us stewards of your creation, to praise you day by day for the marvels of your wisdom and power.

Worship and praise belong to you, Father, in every place and at all times.

You made us, all the people of the world, and everything that is.

You give us the daylight. Your Word lights up our minds.

Jesus was born among us, to be light in our darkness.

Your Spirit lives in us so that we can look at the world with your eyes.

One day we will be with you in heaven, but already we laugh with the saints and angels, and sing their joyful song:

**Holy, holy, holy Lord, God of power and might.**

**Heaven and earth are full of your glory. Hosanna in the highest.**

**Blessed is he who comes in the name of the Lord. Hosanna in the highest.**



Father, you never forget us or turn away from us, even when we fail you. You sent your Son Jesus who gave his life for us. He healed those who were sick, cared for those who were poor, and cried with those who were sad. He forgave sinners and taught us to forgive.

For all your love we give you thanks in the way that Jesus showed us.

On the night before he died, while he was having supper with his friends, he took bread and offered you thanks. He broke the bread, and gave it to them, saying:

“Take, eat. This is my Body: it is broken for you.”

After supper, he took the cup, he offered you thanks, and gave it to them saying:

“Drink this, all of you. This is my Blood of the new covenant; it is poured out for you, and for all, that sins may be forgiven. Do this in remembrance of me.”

**So, as we do what he told us, we open our hearts to him; we remember how he died and rose again to live now in us. Together with him we offer you these gifts: in them we give you ourselves.**

Send your Holy Spirit on us and on this bread and this wine, that they may be the Body and Blood of Christ, and that, sharing your life, we may travel in your company to our journey's end.

With all your people we give you thanks and praise through the Son and in the Spirit, now and for ever. Amen.

### *Breaking of the Bread*

The living bread is broken for the life of the world. **Lord, unite us in this sign.**

### *The Lord's Prayer*

As our Saviour has taught us, so we pray:

**Our Father in heaven, hallowed be your name, your kingdom come, your will be done, on earth as in heaven. Give us today our daily bread. Forgive us our sins as we forgive those who sin against us. Do not bring us to the time of trial but deliver us from evil. For the kingdom, the power and the glory are yours, now and for ever. Amen.**

*Communion Song*

**Lamb of God, you take away the sins of the world: have mercy on us.**

**Lamb of God, you take away the sins of the world: have mercy on us.**

**Lamb of God, you take away the sins of the world: grant us peace.**

**Hymn NEH 288** God everlasting, wonderful and holy

**Lord of the harvest**

**we have offered symbols of the work of our hands which you have blessed;**

**we have shared in the bread and wine of the Kingdom;**

**make us thankful for what we have received**

**and generous in sharing our gifts and talents**

**in our workplaces, homes and communities,**

**that the world may give you glory,**

**through Jesus Christ our Lord   *Amen***

May God our creator, who clothes the lilies and feeds the birds of the air,  
bestow on you his care and increase the harvest of your righteousness; and  
the blessing of God almighty, the Father, the Son and the Holy Spirit, be  
among you and remain with you always, **Amen**

**Hymn NEH 264** All things bright and beautiful

Freely you have received, freely give. Go in peace to love and serve the Lord.

**All: in the name of Christ. Amen.**

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## Harvest Intercession

Voice 1: Creating God, the universe tells of your glory and sings your praise and we join in giving you thanks.

To the bidding 'Lord hear us', the response is '**Lord graciously hear us**'  
Lord hear us; **Lord graciously hear us**

Voice 2: We give thanks for the wonders of modern technology: computers and smart phones, I-pads and tablets; for all the benefits that their use can bring about. May his technology be managed responsibly and for the common good.

- Pause -

Lord hear us; **Lord graciously hear us**

Voice 3: We give thanks for those who work on the land, in farms and industries, and for the fruits of their labours: crops, meat, fruit, veg. Help us to share these gifts equally that all may enjoy the harvest of the land.

- Pause -

Lord hear us; **Lord graciously hear us**

Voice 4: We give thanks for all who work on the sea, in fishing, the oil industry and alternative energy production. May those who regulate these industries do so wisely, that these rich resources may be sustained for generations to come.

- Pause -

Lord hear us; **Lord graciously hear us**

Voice 5: We give thanks for artists, scientists and visionaries, that through their work we may see creation afresh. We pray especially for all those in this congregation involved in science, technology, engineering and medicine. We give thanks for the harvest of their daily work in labs and classrooms, hospitals and factories

- Pause -

Lord hear us; **Lord graciously hear us**

Voice 6: We thank you for all who enrich our experience and who by their service seek to bring life to others. We give thanks especially for \_\_\_\_\_, for all who work in Sunday School and for those who help with \_\_\_\_\_. May what they sow bring forth good fruit in our lives.

- Pause -

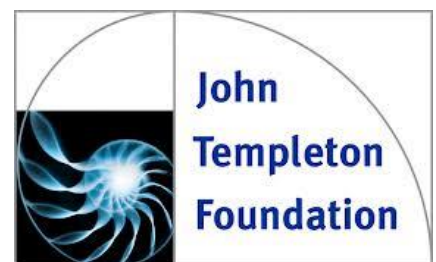
Lord hear us; **Lord graciously hear us**

Voice 1: Blessed are you, God of growth and discovery; yours is the inspiration that has altered and changed our lives; yours is the power that has brought us to new life and opportunities. Set us, your new creation, to walk through this world watching and learning, loving and trusting, until your kingdom comes. **Amen.**

# Who am I?

A series of talks for children and teenagers on famous scientists

*St Peter's Episcopal Church, Edinburgh  
Scientists in Congregations Project*



## Who am I?

I lived in Italy and my initials are G.G.

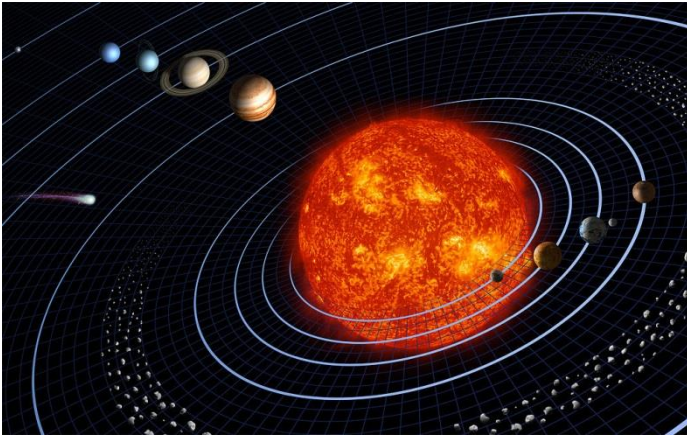
I liked physics, maths and astronomy

I made very good telescopes

I am famous for arguing that the sun is at the centre of the universe

NASA named a mission to Jupiter after me

## I am Galileo Galilei



- 1 Our solar system with its sun, 8 planets and Pluto in the distance.

Galileo lived over 400 years ago and at that time most people believed that the earth was the centre of the universe. Galileo read a book written by a scientist called Nicolaus Copernicus. Copernicus thought the sun was the centre of our solar system and Galileo was convinced.

Galileo had good reasons to believe that the sun was in the centre of the

solar system; he couldn't prove it to all sceptics, but he believed so strongly that he tried very hard to convince other people. Galileo eventually got into a lot of trouble and spent the last ten years of his life under house arrest.

Many years before Galileo a man called Paul became convinced that Jesus was the Son of God. Paul had good reason to believe this; he couldn't prove it to all sceptics, but he believed so strongly that he tried very hard to convince other people. Paul also got into a lot of trouble and was eventually placed under house arrest.

Galileo and Paul teach us that standing up for what we believe can be difficult. In Britain we are not likely to be put into prison for telling people that we are Christians, but people can make fun of us and say nasty things to us and about us.

Jesus Christ is the Son of God, the Light of the World, and came to earth to save us from our sin. This is what we believe even though we can't prove it to all sceptics. Do we believe strongly enough to tell other people?

## Who am I?

I'm such a famous scientist that I only need to tell you one thing and you'll know who I am! I saw an apple fall from a tree.

## I am Isaac Newton

Isaac Newton was born the same year that Galileo died and by the time he began his scientific career most scientists accepted that the sun was the centre of the universe. Newton discovered the law of gravity and used his new law to work out the path each planet travelled round the sun.

He started to think about the effects that planets have on each other, and thought that over a long time our solar system would become unstable (by unstable we mean two planets colliding, a planet flying out of the solar system or even a planet being burned up by the sun<sup>1</sup>). Newton decided that God must stop this happening by intervening every now and then to give our solar system a 'tune up'.



2 Artist's conception of a planetary object the size of our moon colliding with Mercury.

Ever since Newton scientists have been trying to figure out whether our solar system will become unstable. They are now 99% certain that it will remain stable<sup>1,2</sup>, which is very good news!

Resorting to 'God must do it' as an explanation for happenings in the natural world can cause problems. One problem is that as science develops and finds explanations it can create arguments between science and people who believe in God.

As Christians who are interested in science, we believe that God has created a universe that is so amazing and so good that it works just as He intended and doesn't need to be 'tuned up' occasionally.

<sup>1</sup>Is the Solar System Stable?, Scott Tremaine, 2011

<https://www.ias.edu/about/publications/ias-letter/articles/2011-summer/solar-system-tremaine>

<sup>2</sup> Is the Solar System stable, Jacques Lasker , 2012. Pg 25 <http://arxiv.org/abs/1209.5996v>



# Who am I?

(written by an adult trying to think like a teenager)

I'm not alive any more; if I was I'd be like, 136 years old. I grew up in Germany and went to school there. I wonder what my physics teacher would say now; I'm a world-famous theoretical physicist, won the Nobel Prize for physics and get called one of the greatest scientists of the 20<sup>th</sup> century! You've probably heard of my ideas about relativity: they explain lots of stuff about the universe.

I moved to the USA when I was 54 cos Hitler was in charge in Germany and I didn't really want to live there. Not many people know this but I could have become President of Israel. In the end I said no, too much attention and not enough time to do science. I love science, I'm a science geek and proud of it! I was 76 when I died in 1955. You should totally do the math and work out the year I was born.

## I am Albert Einstein

Einstein became very famous and was often asked what he thought about God. He said a lot of interesting things such as:

*"the most incomprehensible thing about the world is that it is comprehensible"<sup>3</sup>*

Einstein thought it was amazing that human beings could understand something as big and as complicated as the universe.

Our ability to understand really is amazing, but also leaves us with a difficult question:

"How is it that human beings can understand the laws of the universe but we can't make sure that everyone has food to eat and clean water to drink?"



3 The 'Sombrero' galaxy. This galaxy is 28 million light years or 168 quintillion miles away.

<sup>3</sup> Einstein: A Biography (1954), Antonina Vallentin, p. 24

## Who am I?

I am a woman

I grew up in Poland but lived most of my life in France.

I won the Nobel Prize twice, once in physics, once in chemistry.

My work helped doctors find a way to treat cancer.

There is a charity named after me \_\_\_\_\_ Cancer Care.

## I am Marie Curie



4 First medical X-ray by Wilhelm Röntgen of his wife's hand.

Marie Curie lived in France during World War 1 and was wondering how she could help.

She remembered that a scientist called Wilhelm Röntgen had discovered X-rays and realised that X-rays could help doctors operating on soldiers who had been hurt.

Marie Curie raised money, persuaded people to give her big cars and borrowed X-ray equipment.

She used the money, cars and X-ray equipment to build 'X-ray ambulances' that were driven from place to place.

Because of Marie Curie, parts of modern science and technology were used to help others, in her case soldiers who had been hurt.

Today we live in a country that is at peace, but that doesn't mean that people are not being hurt.

In her hit single, 'If I Could Turn Back Time', the singer Cher has a line: 'words are like weapons they wound sometimes'. The apostle James calls the tongue (the part of the body we use to make words), 'evil and uncontrollable, full of deadly poison'<sup>1</sup>.

So today we can ask ourselves the question:

"How can we use modern science and technology, such as computers, tablets and smartphones, to help people who are hurt not by bullets, but by words, texts, emails and tweets?"

<sup>1</sup> James 3 V8 Good News Bible

## Who am I?

I sailed round the world on a ship called the Beagle.

My wife and I had 10 children.

I loved nature and wrote a lot of books about plants and animals.

My most famous book was called 'On the origin of species'.

My idea is now called The Theory of Evolution

## I am Charles Darwin

Charles Darwin loved investigating nature. He collected beetles, spent 8 years writing a big book about barnacles, and even wrote a book about earthworms. While he was thinking about plants and animals Charles began to have an idea.



5 Barnacles attached to a hump back whale

He thought that plants and animals had slowly developed (evolved) over a very long time. During this time some plants and animals were more successful than others.

The successful plants and animals lived longer and produced more seeds / babies than less successful plants and animals. This meant that there would be more and more of the successful plants and animals and fewer and fewer of the unsuccessful.

Darwin first told people about his ideas over 150 years ago. His ideas have caused a very big argument, and some are still arguing about them today (even though a large number of scientists are solidly behind Darwin). In particular, many Christians argue with each other and can't agree whether Darwin was right or not.

Christians may not all agree on how life developed on earth, but we can all agree on one thing:

God made the universe and everything in it and, without God,  
nothing would exist.

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### **4. First medical X-ray by Wilhelm Röntgen of his wife's hand.**

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Author: Wilhelm Röntgen

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### **5. “Barnacles attached to the ventral pleats of a humpback whale calf”**

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